Job 23537

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION

REQUEST FOR PROPOSAL

URBAN FEDERAL AID PROJECT NO. TMA-SU-FXP-8-992(045) (PCN-23537)

1.786 Miles

GRADING, SALVAGED BASE, PCC PAVEMENT, STORM DRAIN, LIGHTING, SIGNALS, MARKING, SIGNING, SHARED USE PATH, WATERMAIN

9TH ST NE, MAIN AVE N TO 12TH AVE N; 7TH AVE NE, 9TH ST NE E TO NEAR 45TH ST NW - WEST FARGO

CASS COUNTY

DBE Race Conscious Goal - 3.50%

BID OPENING: The bidder's proposal will be accepted via the Bid Express on-line bidding exchange at www.bidx.com until **09:30AM Central Time on October 10, 2025.**

Prior to submitting a Proposal, the Bidder shall complete all applicable sections and properly execute the Proposal Form in accordance with the specifications.

Proposal Form of:

_____
(Firm Name)

_____
(Address, City, State, Zipcode)

(For official use only)

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Project: TMA-SU-FXP-8-992(045) (PCN-23537)

The company, firm, corporation, or individual hereby acknowledges that it has designated a responsible person or persons as having the authority to obligate the company, firm, or individual, through electronic or paper submittal, to the terms and conditions described herein and in the contract documents. The designated responsible person submitting this proposal shall be hereafter known as the bidder. By submitting this proposal, the bidder fully accepts and agrees to all the provisions of the proposal. The bidder also certifies that the information given in this proposal is true and the certifications made in this proposal are correct.

The bidder acknowledges that they have thoroughly examined the plans, proposal form, specifications, supplemental specifications, special provisions and agrees that they constitute essential parts of this proposal.

The bidder acknowledges that all line items which contain a quantity shall have a unit price bid. Any line item which is bid lump sum shall contain a lump sum bid price.

The bidder acknowledges that they understand that the quantities of work required by the plans and specifications are approximate only and are subject to increases and decreases; the bidder understands that all quantities of work actually required must be performed and that payment therefore shall be at the prices stipulated herein; that the bidder proposes to timely furnish the specified materials in the quantities required and to furnish the machinery, equipment, labor and expertise necessary to competently complete the proposed work in the time specified.

NON-COLLUSION AND DEBARMENT CERTIFICATION

The bidder certifies that neither he/she, nor any official, agent or employee of the bidder has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with this bid.

By submitting this proposal, the bidder certifies to the best of his/her knowledge and belief that he/she and his/her principles:

a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal Department or agency;
b. Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or perform a public (Federal, State or Local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records; making false statements; or receiving stolen property

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c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or Local) with commission of any of the offenses enumerated in paragraph b. of the certification; and
d. Have not within a three-year period preceding this proposal had one or more public transactions (Federal, State or Local) terminated for cause or default

Where the prospective bidder is unable to certify to any of the statements in this certification, the bidder shall submit an explanation in the blanks provided herein. The explanation will not necessarily result in denial of participation in a contract:

Explanation:_____
_____
_____
_____

If the prequalified bidder's status changes, he/she shall immediately submit a new fully executed non-collusion affidavit and debarment certification with an explanation of the change to the Contract Office prior to submitting the bid.

Failure to furnish a certification or an explanation will be grounds for rejection of a bid.

BID LIMITATION (Optional)

The bidder who desires to bid on more than one project on which bids are to be opened on the same date, and who also desires to avoid receiving an award of more projects than the bidder is equipped to handle, may bid on multiple projects and limit the total amount of work awarded to the bidder on selected projects by completing the "Bid Limitation".

The Bid Limitation must be filled in on each proposal form for which the Bidder desires protection. Each such proposal must be covered by a proposal guaranty.

The bid limitation can be made by declaring the total dollar value of work OR total number of projects a bidder is willing to perform.

The Bidder desires to disqualify all of his/her bids on this bid opening that exceed a total dollar value of

$_____

OR

that exceed a total number of _____ projects.

The Bidder hereby authorizes the Department to determine which bids shall be disqualified.

Project: TMA-SU-FXP-8-992(045) (PCN-23537)

PERMISSIBLE DISCOUNT (optional)

Only when invited to do so in the Request for Proposal by Special Provision, Bidders are permitted to offer a discount on a specific project (discount project) if they are awarded the contract on one or more additional projects bid at the same bid opening time and date. The bidder must present the proposal so that it can be considered with or without the discount. The bid or discount offered on the "discount project" will not affect the determination of the low bid of any other project.

When discounts are offered, they must be presented as a reduction in the unit price for one or more items of work in the specified proposal (discount project).

Space for Offering Discounts:

_____
_____
_____

Item No:_____

Description:_____

Unit:_____

Proposal Quantity:_____ Unit Price Reduction: $_____ Discount: $_____

Item No:_____

Description:_____

Unit:_____

Proposal Quantity:_____ Unit Price Reduction: $_____ Discount: $_____

Item No:_____

Description:_____

Unit:_____

Proposal Quantity:_____ Unit Price Reduction: $_____ Discount: $_____

Item No:_____

Description:_____

Unit:_____

Proposal Quantity:_____ Unit Price Reduction: $_____ Discount: $_____

TOTAL DISCOUNT_____

It is understood that the discount will only apply if awarded under the conditions as listed above and signed by the bidder.

Project: TMA-SU-FXP-8-992(045) (PCN-23537)

PROPOSAL GUARANTY

A proposal guaranty is required. The proposal guaranty must comply with Section 102.09, "Proposal Guarantee" of the Standard Specifications.

TYPE OF PROPOSAL GUARANTY APPLIED TO THIS PROJECT (Check one):

_____ Annual Bid Bond*

_____ Single Project Bid Bond

_____ Certified or Cashier's Check

*Annual Bid Bond is required when submitting proposals electronically

BID ITEMS

Project: TMA-SU-FXP-8-992(045) (PCN-23537)

Bidder must type or neatly print unit prices in numerals, make extensions for each item, and total. Do not carry unit prices further than three (3) decimal places.

Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						$$$$$	000	$$$$$	00
001	103	0100	CONTRACT BOND	L SUM	1.				
002	202	0130	REMOVAL OF CURB & GUTTER	LF	5,750.				
003	202	0136	REMOVAL OF PAVEMENT	TON	26,734.				
004	202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES	LF	3,179.				
005	202	0210	REMOVAL OF MANHOLES	EA	3.				
006	202	0235	REMOVAL OF CATCH BASIN	EA	2.				
007	202	0288	EXCAVATION & DISPOSAL OF CONTAMINATED SOIL	CY	900.				
008	202	0312	REMOVE EXISTING FENCE	LF	305.				
009	203	0101	COMMON EXCAVATION-TYPE A	CY	19,621.				
010	203	0109	TOPSOIL	CY	7,216.				
011	203	0140	BORROW-EXCAVATION	CY	2,558.				
012	216	0100	WATER	M GAL	987.				
013	230	0300	SUBGRADE PREPARATION-TYPE A	STA	5.				
014	251	0300	SEEDING CLASS III	ACRE	13.350				
015	251	2000	TEMPORARY COVER CROP	ACRE	13.350				
016	253	0201	HYDRAULIC MULCH	ACRE	13.350				

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Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						$$$$$	000	$$$$$	00
017	253	0301	BONDED FIBER MATRIX	ACRE	13.350				
018	260	0100	SILT FENCE UNSUPPORTED	LF	547.				
019	260	0101	REMOVE SILT FENCE UNSUPPORTED	LF	547.				
020	261	0112	FIBER ROLLS 12IN	LF	9,569.				
021	261	0113	REMOVE FIBER ROLLS 12IN	LF	4,511.				
022	302	0101	SALVAGED BASE COURSE	CY	19,147.				
023	302	0356	AGGREGATE SURFACE COURSE CL 13	TON	107.				
024	550	0310	10IN NON REINF CONCRETE PVMT CL AE-DOWELED	SY	41,988.				
025	550	0335	NON-REINF CONCRETE PVMT CL AE-DOWELED-COLORED-T	SY	515.				
026	702	0100	MOBILIZATION	L SUM	1.				
027	704	0100	FLAGGING	MHR	400.				
028	704	1000	TRAFFIC CONTROL SIGNS	UNIT	3,726.				
029	704	1052	TYPE III BARRICADE	EA	16.				
030	704	1054	SIDEWALK BARRICADE	EA	6.				
031	704	1058	PEDESTRIAN WALKWAY	LF	1,827.				
032	704	1060	DELINEATOR DRUMS	EA	46.				

BID ITEMS

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Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						$$$$$	000	$$$$$	00
033	704	1067	TUBULAR MARKERS	EA	19.				
034	704	1087	SEQUENCING ARROW PANEL-TYPE C	EA	1.				
035	704	2108	TEMPORARY CURB RAMP	EA	2.				
036	704	4011	PORTABLE CHANGEABLE MESSAGE SIGN	EA	2.				
037	706	0400	FIELD OFFICE	EA	1.				
038	706	0500	AGGREGATE LABORATORY	EA	1.				
039	706	0600	CONTRACTOR'S LABORATORY	EA	1.				
040	708	1540	INLET PROTECTION-SPECIAL	EA	124.				
041	708	1541	REMOVE INLET PROTECTION-SPECIAL	EA	62.				
042	709	0151	GEOSYNTHETIC MATERIAL TYPE R1	SY	52,443.				
043	714	0137	PIPE CONC REINF 12IN CL V-STORM DRAIN	LF	40.				
044	714	0215	PIPE CONC REINF 15IN CL V-STORM DRAIN	LF	2,120.				
045	714	0337	PIPE CONC REINF 18IN CL V-STORM DRAIN	LF	1,013.				
046	714	0405	PIPE CONC REINF 21IN CL III-STORM DRAIN	LF	764.				
047	714	0620	PIPE CONC REINF 24IN CL III-STORM DRAIN	LF	313.				
048	714	0825	PIPE CONC REINF 30IN CL III-STORM DRAIN	LF	701.				

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Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						$$$$$	000	$$$$$	00
049	714	0910	PIPE CONC REINF 36IN CL III-STORM DRAIN	LF	350.				
050	714	1010	PIPE CONC REINF 42IN CL III-STORM DRAIN	LF	931.				
051	714	1110	PIPE CONC REINF 48IN CL III-STORM DRAIN	LF	1,870.				
052	714	1212	PIPE CONC REINF 54IN CL III-STORM DRAIN	LF	1,219.				
053	714	1312	PIPE CONC REINF 60IN CL III-STORM DRAIN	LF	283.				
054	714	1412	PIPE CONC REINF 66IN CL III STORM DRAIN	LF	50.				
055	714	2018	PIPE CONC REINF ARCH 51IN X 31IN CL II	LF	80.				
056	714	3000	END SECT-CONC REINF 12IN	EA	1.				
057	714	3005	END SECT-CONC REINF 15IN	EA	2.				
058	714	3010	END SECT-CONC REINF 18IN	EA	5.				
059	714	9680	PLUG PIPE-ALL TYPES & SIZES	EA	4.				
060	714	9696	EDGEDRAIN NON PERMEABLE BASE	LF	15,473.				
061	722	0100	MANHOLE 48IN	EA	18.				
062	722	0110	MANHOLE 60IN	EA	6.				
063	722	0120	MANHOLE 72IN	EA	19.				
064	722	0130	MANHOLE 84IN	EA	7.				

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Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						$$$$$	000	$$$$$	00
065	722	0140	MANHOLE 96IN	EA	2.				
066	722	0200	MANHOLE 108IN	EA	2.				
067	722	1100	MANHOLE RISER 48IN	LF	146.070				
068	722	1110	MANHOLE RISER 60IN	LF	44.930				
069	722	1120	MANHOLE RISER 72IN	LF	179.560				
070	722	1130	MANHOLE RISER 84IN	LF	79.670				
071	722	1140	MANHOLE RISER 96IN	LF	24.760				
072	722	1200	MANHOLE RISER 108IN	LF	18.200				
073	722	3297	ABANDON STORM SEWER	LF	161.				
074	722	3495	MODIFY INLET	EA	2.				
075	722	3510	INLET-TYPE 2	EA	45.				
076	722	3520	INLET-TYPE 2 DOUBLE	EA	4.				
077	722	3701	INLET SPECIAL-TYPE 2 48IN	EA	8.				
078	722	3768	INLET SPECIAL-TYPE 2 84IN	EA	2.				
079	722	3825	INLET SPECIAL-TYPE 2 DOUBLE 84IN	EA	1.				
080	722	4005	INLET CATCH BASIN	EA	30.				

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Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						$$$$$	000	$$$$$	00
081	722	4108	INLET SPECIAL CATCH BASIN 48IN	EA	1.				
082	722	4114	INLET SPECIAL CATCH BASIN 84IN	EA	1.				
083	722	4116	INLET SPECIAL CATCH BASIN 96IN	EA	1.				
084	722	6140	ADJUST GATE VALVE BOX	EA	29.				
085	724	0210	FITTINGS-DUCTILE IRON	LBS	3,546.				
086	724	0300	GATE VALVE & BOX 6IN	EA	9.				
087	724	0310	GATE VALVE & BOX 8IN	EA	7.				
088	724	0314	GATE VALVE & BOX 12IN	EA	2.				
089	724	0410	HYDRANT-INSTALL 5IN	EA	9.				
090	724	0420	HYDRANT-RELOCATE	EA	2.				
091	724	0427	ADJUST HYDRANT	EA	8.				
092	724	0530	TAPPING SLEEVE & VALVE 12IN X 6IN	EA	2.				
093	724	0540	TAPPING SLEEVE & VALVE 12IN X 8IN	EA	5.				
094	724	0552	TAPPING SLEEVE & VALVE 16IN X 8IN	EA	1.				
095	724	0560	TAPPING SLEEVE & VALVE 16IN X 12IN	EA	2.				
096	724	0611	WATER SERVICE LINE 1IN	LF	44.				

BID ITEMS

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Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						$$$$$	000	$$$$$	00
097	724	0616	WATER SERVICE LINE 1 1/2IN	LF	95.				
098	724	0810	WATERMAIN 6IN PVC	LF	174.				
099	724	0830	WATERMAIN 8IN PVC	LF	1,814.				
100	724	0850	WATERMAIN 12IN PVC	LF	2,561.				
101	724	0905	CURB STOP & BOX 1IN	EA	2.				
102	724	0907	CURB STOP & BOX 1 1/2IN	EA	4.				
103	724	1110	8IN SANITARY SEWER PIPE	LF	85.				
104	724	1115	10IN SANITARY SEWER PIPE	LF	1,676.				
105	724	1120	6IN SEWER SERVICE PIPE	LF	351.				
106	724	1135	10IN X 6IN SEWER WYE BRANCH	EA	6.				
107	724	9002	SANITARY SEWER CLEANOUT	EA	1.				
108	748	0120	CURB & GUTTER MOUNTABLE-TYPE I	LF	1,027.				
109	748	0140	CURB & GUTTER-TYPE I	LF	20,958.				
110	748	1030	VALLEY GUTTER 72IN	SY	70.				
111	750	0030	PIGMENTED IMPRINTED CONCRETE	SY	2,470.				
112	750	0125	SIDEWALK CONCRETE 5IN	SY	9,287.				

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Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						$$$$$	000	$$$$$	00
113	750	0210	CONCRETE MEDIAN NOSE PAVING	SY	68.				
114	750	1000	DRIVEWAY CONCRETE	SY	1,540.				
115	750	2115	DETECTABLE WARNING PANELS	SF	1,111.				
116	752	0922	FENCE REMOVE & RESET	LF	72.				
117	752	4170	SCREENING CHAIN LINK	LF	285.				
118	754	0110	FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING	SF	633.				
119	754	0112	FLAT SHEET FOR SIGNS-TYPE IV REFL SHEETING	SF	59.				
120	754	0193	FLEXIBLE DELINEATORS-TYPE D	EA	46.				
121	754	0206	STEEL GALV POSTS-TELESCOPING PERFORATED TUBE	LF	1,281.				
122	754	0592	RESET SIGN PANEL	EA	2.				
123	754	0801	OBJECT MARKERS - TYPE I	EA	8.				
124	762	0122	PREFORMED PATTERNED PVMT MK-MESSAGE(GROOVED)	SF	1,230.				
125	762	1305	PREFORMED PATTERNED PVMT MK 4IN LINE-GROOVED	LF	15,280.				
126	762	1307	PREFORMED PATTERNED PVMT MK 6IN LINE-GROOVED	LF	1,469.				
127	762	1309	PREFORMED PATTERNED PVMT MK 8IN LINE-GROOVED	LF	3,134.				
128	762	1325	PREFORMED PATTERNED PVMT MK 24IN LINE-GROOVED	LF	622.				

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Item No.	Spec No.	Code No.	Description	Unit	Approx. Quantity	Unit Price		Amount	
						$$$$$	000	$$$$$	00
129	764	0151	REMOVE W-BEAM GUARDRAIL & POSTS	LF	179.				
130	770	0003	LIGHTING SYSTEM A	EA	1.				
131	770	0004	LIGHTING SYSTEM B	EA	1.				
132	770	0005	LIGHTING SYSTEM C	EA	1.				
133	770	4525	REVISE LIGHTING SYSTEM	EA	1.				
134	772	2904	REVISE TRAFFIC SIGNAL SYSTEM	EA	1.				
135	772	9200	IT SYSTEM	EA	1.				
136	910	0570	MODIFY MANHOLE	EA	2.				
137	990	0230	TEMPORARY ACCESS	L SUM	1.				
			TOTAL SUM BID						

Project: TMA-SU-FXP-8-992(045) (PCN-23537)

Type of Work: GRADING, SALVAGED BASE, PCC PAVEMENT, STORM DRAIN, LIGHTING, SIGNALS, MARKING, SIGNING, SHARED USE PATH, WATERMAIN

County: CASS

Length: 1.7860 Miles

TIME FOR COMPLETION:

The undersigned Bidder agrees, if awarded the contract, to prosecute the work with sufficient forces and equipment to complete the contract work within the allowable time specified as follows:

WORKING DAY CONTRACT: **NA** working days are provided. The Department will begin charging working days beginning **NA** or the date work begins on the project site, whichever is earlier.

CALENDAR DAY CONTRACT: **NA** calendar days are provided. The completion date will be determined by adding **NA** calendar days to **NA** or the date work begins on the project site, whichever is earlier.

COMPLETION DATE CONTRACT The project completion date is **11/14/2026 *** . The Department provides a minimum of **NA** working days. The Department will begin charging working days beginning **NA** or the date work begins on the project site, whichever is earlier.

***REFER TO PLAN NOTE 100-P02 FOR ADDITIONAL TIME AND LIQUIDATED DAMAGE REQUIREMENTS.**

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Type of Work: GRADING, SALVAGED BASE, PCC PAVEMENT, STORM DRAIN, LIGHTING, SIGNALS, MARKING, SIGNING, SHARED USE PATH, WATERMAIN

County: CASS

Length: 1.7860 Miles

UTILIZATION OF DISADVANTAGED BUSINESS ENTERPRISE (DBE):
The undersigned Bidder certifies that the information given on behalf of the Bidder in Special Provision, "Utilization of Disadvantaged Business Enterprise" (DBE), is true and correct and that the bidder has met the assigned goals or has met the good faith effort requirements of the Special Provision.

CONTRACT EXECUTION:

The undersigned Bidder agrees, if awarded the contract, to execute the contract form and furnish a contract bond within fifteen calendar days, as determined by NDCC Section 1-02-15, after date of notice of award, in accordance with the provisions of Sections 103.05 and 103.06 of the Standard Specifications.

AFFIDAVIT:

STATE OF _____)
) ss.
COUNTY OF _____)

The undersigned bidder, being duly sworn, does depose and say that they are an authorized representative of _____
CONTRACTOR NAME
of _____ , a
MAILING ADDRESS

☐ Individual ☐ Partnership ☐ Joint Venture ☐ Corporation

and that they have read, understand, acknowledge, and accept the entire proposal form; and that all statements made by said bidder are true and correct.

_____ , TITLE _____
BIDDER MUST SIGN ON THIS LINE

_____
TYPE OR PRINT SIGNATURE ON THIS LINE

Subscribed and sworn to before me this day.

_____
COUNTY

(Seal) _____ _____
STATE DATE

_____
NOTARY PUBLIC

My commission expires _____

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

Job 23537, TMA-SU-FXP-8-992(045)

Grading, Salvaged Base Course, PCC Pavement, Storm Drain, Lighting, Signals, Pavement Marking, Signing, Shared Use Path, Water Main

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Hot Line Notice

Price Schedule for Miscellaneous Items dated January 3, 2025 (PS-1)

SP DBE Program - Race Conscious dated October 1, 2024

E.E.O. Affirmative Action Requirements dated March 15, 2014

Required Contract Provisions Federal Aid Construction Contracts
(Form FHWA 1273 Rev. October 23, 2023)

SP Certified Payrolls, dated 3-7-24

SP Project Payment Reporting

NOTICE - Electrician

Labor Rates from U.S. Department of Labor dated May 30, 2025 (Mod. No. 1)

On-The-Job Training Program 2025

SSP 1 Temporary Erosion and Sediment Best Management Practices

SSP 3 Local Agency Contracts

SSP 5 Limitations of Operations

SSP 8 Federal Prohibition on Certain Technological Hardware

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SP 631(24) Utility Coordination

SP 657(24) Temporary Pedestrian Facilities

PSP 89(24) Permits and Environmental Considerations

SP Fuel Cost Adjustment Clause dated September 8, 2006

Contract

Payment Bond

Performance Bond

NOTICE

TO: All prospective bidders on all North Dakota Department of Transportation Highway Construction Projects.

Contractors moving construction equipment to NDDOT highway construction projects are subject to the Road Restriction Policy with the following modifications:

A. The contractor may purchase up to 10 single trip permits for each NDDOT highway construction project at a cost ranging from $20 to $70 each. These permits must be purchased from the Motor Carrier Division of the Highway Patrol at the central office of the NDDOT in Bismarck, North Dakota.

B. The $1 per mile fee will not be charged for Gross Vehicle Weights (GVW) exceeding 105,500 pounds, 105,500 pounds, and 105,000 pounds for highways Restricted by Legal Weights, 8 Ton, and 7 Ton highways respectively.

C. The $5 per ton per mile fee will be charged only for loads exceeding a GVW of 130,000 pounds, 120,000 pounds, 110,000 pounds and 80,000 pounds for highways Restricted by Legal Weights, 8 Ton, 7 Ton, and 6 Ton highways respectively.

D. The maximum weights per axle for each of the class restrictions still apply. If it is shown that more axles cannot be added, movement may be authorized; however, a $1 per ton per mile fee will be charged for all weight in excess of the restricted axle limits.

E. These construction equipment single trip permits apply to State and US Highways only.

F. The District Engineers and Highway Patrol will select the route of travel.

G. Contractors moving equipment to other than NDDOT highway construction projects are subject to all fees as shown in the Road Restriction Permit Policy.

H. Contractors must call the Highway Patrol prior to movement of all overweight loads on all State and US Highways.

NDDOT ROAD AND VEHICLE RESTRICTIONS Date Revised 05-22-10

ROAD RESTRICTION PERMITS

Permits shall be issued for the movement of non-divisible vehicles and loads on state highways which exceed the weight limits during spring road restrictions. The issuance of permits may be stopped or posted weights changed at any time based on the varying conditions of the roadways. Permits can be obtained from the Highway Patrol.

RESTRUCTION CLASSIFICATIONS WITH ALLOWABLE AXLE WEIGHTS AND GROSS VEHICLE WEIGHTS	PERMIT AND TON/MILE FEES
Highways Restricted by Legal Weight Single Axle -- 20,000 lbs. Tandem Axle -- 34,000 lbs. Triple Axle -- 48,000 lbs. 4 Axles or more -- 15,000 lbs. per axle Gross Vehicle Weight -- 105,500 lbs. Note: The above weights apply to state highways restricted by legal weights, other than interstate highways, in areas where road restrictions are in force. When the gross weight of an axle grouping exceeds 48,000 pounds, the $1 per ton per mile shall apply to all weight in excess of 15,000 pounds per axle.	Permit Fee: $20-$70 per trip Ton Mile Fee: 105,501 lbs. to 130,000 lbs. GVW -- $1 per mile Over 130,000 lbs. GVW – $1 per mile **plus** $5 per ton per mile for that weight exceeding 130,000 lbs. GVW Exceeding axle limits -- $1 per ton per mile
8-Ton: Single Axle -- 16,000 lbs. Tandem Axle -- 32,000 lbs. 3 Axles or more -- 14,000 lbs. per axle Gross Vehicle Weight -- 105,500 lbs.	Permit Fee: $20-$70 per trip Ton Mile Fee: 105,501 lbs. to 120,000 lbs. GVW -- $1 per mile Over 120,000 lbs. GVW – $1 per mile **plus** $5 per ton per mile for that weight exceeding 120,000 lbs. GVW Exceeding restricted axle limits -- $1 per ton per mile
7-Ton: Single Axle -- 14,000 lbs. Tandem Axle -- 28,000 lbs. 3 Axles or more -- 12,000 lbs. per axle Gross Vehicle Weight -- 105,500 lbs.	Permit Fee: $20-$70 per trip Ton Mile Fee: 105,500 lbs. to 110,000 lbs. GVW -- $1 per mile Over 110,000 lbs. GVW – $1 per mile **plus** $5 per ton per mile for that weight exceeding 110,000 lbs. GVW Exceeding restricted axle limits -- $1 per ton per mile
6-Ton: Single Axle -- 12,000 lbs. Tandem Axle -- 24,000 lbs. 3 Axles or more -- 10,000 lbs. per axle Gross Vehicle Weight -- 80,000 lbs.	Permit Fee: $20-$70 per trip Ton Mile Fee: $5 per ton per mile for all weight exceeding 80,000 lbs. GVW Exceeding restricted axle limits -- $1 per ton per mile
5-Ton: Single Axle -- 10,000 lbs. Tandem Axle -- 20,000 lbs. 3 Axles or more -- 10,000 lbs. per axle Gross Vehicle Weight -- 80,000 lbs.	No overweight movement allowed

SINGLE UNIT FIXED LOAD VEHICLES SUCH AS TRUCK CRANES AND WORKOVER RIGS

A. Permit Fee and Ton Mile Fee for Self-Propelled Fixed Load Vehicles.

1. Permit Fee: $25 per trip

2. $1 per ton per mile for all weight in excess of restricted axle limits or in excess of legal limits on state highways in areas where road restrictions are in force. When the gross weight of an axle grouping exceeds 48,000 pounds, the $1 per ton per mile shall apply to all weight in excess of 15,000 pounds per axle (see weight classification chart in section C.)

3. $5 **per ton per mile** for all movements exceeding the following gross vehicle weight limits:

    a. 105,500 lbs. GVW on unrestricted state highways, other than interstate highways, in areas where road restrictions are in force.
    b. 105,500 lbs. GVW on 8-ton highways.
    c. 105,500 lbs. GVW on 7-ton highways.
    d. 80,000 lbs. GVW on 6-ton highways.
    e. No overweight movement allowed on 5-ton highways

B. Permit Fees for Work-Over Rigs and Special Mobile Equipment Exceeding 650 but not 670 Pounds Per Inch Width of Tire.

1. Permit Fee:
    a. $50 per trip on work-over rigs up to 650 pounds per inch width.
    b. $75 per trip on work-over rigs that exceed 650 but not 670 pounds per inch width of tire.
2. The work-over rig shall be stripped to the most minimum weights.
3. A minimal number of state highway miles shall be used.
4. District engineer approval shall be obtained prior to movement when vehicle exceeds restricted axle weights by more than 5,000 pounds.
5. A validation number ending in TM must be obtained from the Highway Patrol prior to using a self-issue single trip movement approval form.
6. The ton mile shall be waived.

NOTICE

U.S. DEPARTMENT OF TRANSPORTATION

"HOT LINE"

As part of its continuing investigation into Highway Construction Contract Bid Rigging and abuses in the Disadvantaged Business Enterprise Program, the Inspector General for the Department of Transportation (DOT) has established a "HOT LINE" to receive information from contractors, suppliers, or anyone with knowledge of such activities.

The toll-free "HOT LINE' telephone number is 1-800-424-9071 and will be manned during normal working hours (8 a.m. to 5 p.m. EST). This operation is under the direction of DOT's Inspector General. All information will be treated confidentially and anonymity will be respected.

CALL
Inspector General's 'HOT LINE'
Toll Free 1-800-424-9071
Washington, DC Area:
202-366-1461
Fax: 202-366-7749

WRITE
Inspector General
Post Office Box 23178
Washington, DC 20026-0178

Email: hotline@oig.dot.gov

The field office address and telephone number for NORTH DAKOTA is:

CHICAGO REGIONAL OFFICE

Special Agent-in-Charge
Commercial: 312-353-0106
111 N. Canal St., Suite 677
Chicago, Illinois 60606

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
PRICE SCHEDULE FOR MISCELLANEOUS ITEMS (PS-1)

The Contractor agrees to accept the following unit prices for each listed item of work and or material when no project contract unit price exists for that item. Materials and construction methods used in performing maintenance and restoration work for 107. 08 Haul Roads shall meet the requirements of the relevant specifications.

Each price listed will be full compensation for the cost of labor, material, and equipment necessary to provide the item of work and/or material, complete in place, including (but not limited to) royalty, disposal of unsuitable material, equipment rental, sales tax, use tax, overhead, profit, and incidentals.

Each listed item is referenced to the Standard Specifications by Section number and Section name.

Spec	Code	Specification Section No.	Section Name	Item	Price
100	9950	704.04 C.5	Temporary Traffic Control	Flagging	$60.00 per MHR
100	9951	216.04	Water	Water	$30.00 per M Gal
100	9952	430.04 G & I.3	HMA – Bituminous Materials	Patching – Machine Placed	$250.00 per Ton
100	9952	430.04 G & I.3	HMA – Bituminous Materials	Patching – Hand Placed	$260.00 Per Ton
100	9954	302.04 B	Aggregate Base and Surface Course	Aggregate Base CL 13	$40.00 per Ton [1]
100	9955	203.01 C	Rock Excavation	Rock Excavation	$30.00 per CY
100	9956	203.01 D	Shale Excavation	Shale Excavation	$8.50 per CY
100	9957	203.01 E	Muck Excavation	Muck Excavation	$10.50 per CY
100	9958	203.01 G & 203.05 G.3	Excavation and Embankment	Overhaul	$0.08 per CY-Sta
100	9960	420.04 E	Bituminous Seal Coat	Blotter Sand	$30.00 per Ton [1]
100	9962	260.06	Silt Fence	Cleaning Silt Fence	$5.00 per LF
100	9963	261.06	Fiber Rolls	Cleaning of Fiber Rolls	$5.00 per LF
100	9964	260.06	Silt Fence	Removal of Silt Fence [2]	$5.00 per LF
100	9965	261.06	Fiber Rolls	Removal of Fiber Rolls [2]	$5.00 per LF

[1] Price Includes haul up to 10 miles. Payment for haul exceeding 10 miles will be according to Section 109.03 E, “Force Account.” The haul distance for aggregate base will be based on the average haul. The haul distance for blotter sand will be from the point where the haul begins to the point where it enters the project.

[2] This is only for pre-existing items that were not installed under the Contract.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION SPECIAL PROVISION: DISADVANTAGED BUSINESS ENTERPRISE (DBE) PROGRAM

PROJECT TMA-SU-FXP-8-992(045) (PCN-23537)

RACE/GENDER CONSCIOUS GOAL The DBE goal for this project is: **3.50%**

NDDOT Contact Information	
Contractor Sign In & Submit Advertisements at: https://apps.nd.gov/dot/cr/csi/login.htm	Amy Conklin, DBE Program Administrator 701-328-3116 - or - aconklin@nd.gov
Submit quotes and post bid documentation to: subquotes@nd.gov	Ramona Bernard, Civil Rights Division Director 701-328-2576 - or - rbernard@nd.gov
Search DBE Directory https://dotnd.diversitycompliance.com/	All times are stated in Central Time. **The day of the bid opening is not counted as one of the business days.**

PURPOSE

These provisions:

1. Provide an explanation of the federal law and outline the obligations to comply with the Federal DBE requirements applicable to this contract,
2. Explain the process NDDOT will follow to evaluate bidders' efforts to obtain DBE participation
3. Provide the standards NDDOT will use to measure compliance with the requirements
4. Identify sanctions for failing to comply with DBE program requirements.

This Special Provision is written per 49 CFR Part 26 and Appendix A – Guidance Concerning Good Faith Efforts (GFE).

Contract award will be made to the lowest responsive bidder whose proposal substantially complies with the requirements prescribed herein, has submitted all required documentation and who has met the goal for DBE participation, or has demonstrated, to the satisfaction of the Department, adequate GFE to do so.

QUOTES:

All DBEs quoting on this project MUST submit all quotes and a list of contractors they quoted to NDDOT no later than 9 PM the day before each bid opening to subquotes@nd.gov

Prime contractors preparing to bid on NDDOT highway projects have requested that quotes be sent to them the day before the bid opening by:

2 PM Central - Suppliers (brokers/regular dealers), vendors, & manufacturers
5 PM Central - Subcontractors under $500,000
8 PM Central - Subcontractors over $500,000

REQUIREMENT FOR ALL BIDDERS AT TIME OF BID:

- Must submit SFN 52013 List of Businesses that Submitted Quotes (Form B)
  - Complete form listing information for each subcontractor (DBE and non-DBE) you receive quotes from for this project.
    - The NAICS code to be selected for each firm should match the type of work of the entire project. If more than one type of work is within the project, select the NAICS code that reflects the largest portion of work to be performed overall.
    - Primes may require the information to complete the form to be provided by subcontractors along with their quote. If a subcontractor refuses to provide the information needed note that in the address field. Primes may be asked to provide proof of attempt(s) to collect the data.

ADDITIONAL REQUIREMENTS FOR ALL BIDDERS:

- Must submit Form A (DBE utilization identification) with bid package at the time of bid opening. This is completed as part of your bid in the electronic bidding system, there is not a separate form for it.
    - The DBE participation will be based on the information identified on Form A at the time your bid is submitted. Additional DBE participation attained after the bid opening is acceptable and will count toward the Department's overall goal but will not be counted towards the individual project goal submitted at the time of bid.
        - Example: The project goal is 5.00%, the DBE participation listed on Form A submitted with the bid shows 4.89% and the Form C(s) identify 5.15% DBE participation at time of submission. The Department's view is the project goal has not been met, therefore GFE will be scrutinized on participation at the time of bid listed on Form A.
- Prime contractors are strongly encouraged to submit their bid documentation in one electronic file. Forms incorrectly submitted could result in a technicality, forcing the Department to award to the next responsive bidder.
- Any DBEs used on federal aid projects must be supplied a copy of the Proposed Progress Chart within 7 days of project award.

REQUIREMENTS FOR APPARENT LOW BIDDER (ALB) WHEN THE PROJECT DBE GOAL IS MET AT THE TIME OF BID OPENING:

- Follow both REQUIREMENTS FOR ALL BIDDERS sections above, and in addition, include:
    - Must submit SFN 52160 Notification of Intent to Use (Form C) for any **DBE subcontractor, trucking, manufacturer, or other** categories used in all tiers of subcontracting to meet or exceed the project goal by 4:00 pm CST 2 business days after the bid opening. Applicable quote must be attached to each Form C. Sumit Form C(s) for any DBEs added after award.
    - Must submit SFN 62503 Notification of Intent to Use – DBE Regular Dealer/Distributor (Form C) for any **DBE supplier and/or distributor** used in all tiers of subcontracting to meet or exceed the project goal by 4:00 pm CST 2 business days after the bid opening. Applicable quote must be attached to each Form C. Submit Form C(s) for any DBEs added after award.
    - When the goal is met, if required documents are not submitted by the deadline or submitted incorrectly, the Department may consider the bid non-responsive and could be rejected per 102.12 Irregular Bid, NDDOT Standard Specification for Road and Bridge Construction.

REQUIREMENTS FOR ALB WHEN THE PROJECT DBE GOAL IS NOT MET AT THE TIME OF BID OPENING:

- Follow both REQUIREMENTS FOR ALL BIDDERS above, and in addition, include:
- A cover letter, submitted with SFN 60829 Contractor Good Faith Efforts Documentation explaining actions taken attempting to meet the project goal. See Page 3 & 4, questions # 1-9 to help explain your actions in the cover letter. Cover letter and form must be submitted by 4:00 pm CST 2 business days of the bid opening.
- SFN 60829 Contractor Good Faith Efforts Documentation and supporting documentation must be submitted by 4:00 pm CST 2 business days of the bid opening. Failure to demonstrate GFE may cause the Department to "Not Award".
- If a non-DBE is used over a DBE, or a prime is to self-perform, a Bid Differential (BD) table in SFN 60829 should be completed, showing a comparison of like items, (apples to apples) along with the reason for not using the DBE. Primes may need to supplement the DBE or Non-DBE quote to get an apples-to-apples comparison. Any BD that does not clearly address all items quoted by the DBE, the non-DBE, prime or combination of quotes, will not be considered. Applicable copies of quotes must be supplied for each bid differential.
- Must submit Form C (SFN 52160 and/or SFN 62503) for DBE's used in all tiers. Must submit Form C for non-DBE's used in a bid differential. All Form Cs must be received by 4:00 pm CST 2 business days after the bid opening. **Attach quotes for every Form C submitted.**
- When the goal is not met, if required documents are not submitted by the deadline, the Department may consider the bid non-responsive and could be rejected per 102.12 Irregular Bid, NDDOT Standard Specification for Road and Bridge Construction.

REQUIREMENTS FOR NON-ALBs WHEN THE PROJECT DBE GOAL IS NOT MET AT THE TIME OF BID OPENING AND/OR WHEN ALB DOESN'T SUBMIT REQUIRED PAPERWORK:

- When the ALB does not meet goal, or doesn't submit paperwork on time, other bidders may be contacted to submit the applicable ALB documentation. If other bidders are contacted, they have until 4:00 pm CST 5 business days after the bid opening to submit the required documents via email to subquotes@nd.gov to be considered.

GOOD FAITH EFFORTS

The bidder is responsible for taking actions toward achieving the project goal as required by 49 CFR Appendix A to Part 26 – Guidance Concerning Good Faith Efforts. Therefore, it is a bidder's responsibility to either achieve the project goal at the time of bid opening, or to follow a course of actions that would, by their scope, intensity, and appropriateness, reasonably be expected to obtain sufficient DBE participation, even if they were not fully successful.

NDDOT will measure the bidder's efforts by actions demonstrated/taken prior to submitting their bid. The description and documentation of these efforts must adequately show NDDOT that the bidder took all necessary and reasonable steps to achieve the DBE goal.

The efforts employed by the bidder should be those that one could reasonably expect if the bidder were actively and aggressively trying to obtain DBE participation sufficient to meet the DBE contract goal.

The following questions are not intended to be a checklist or an exhaustive list of what is considered in evaluating GFE, but will help organize your explanation of your efforts to obtain DBE participation in your cover letter.

1) Did you use the DBE Directory to solicit DBEs who are certified to perform the work on the project?
    a. Primes are not required to solicit DBEs that indicate they do not work within North Dakota, however, if a DBE quotes a Prime and their Directory listing indicates they do not work within North Dakota that quote must still be addressed.
2) Did you send timely written **email solicitation notices** to certified DBE's?
3) Did you maintain a follow-up log to track responses to your initial solicitations?
    a. For firms that do not respond to your initial solicitation it is required to attempt to contact them at least one more time and document it.
    b. Initial solicitations must be made via email.
        i. Follow-ups can be made via email or telephone. For emails, if a read receipt was attached and the DBE firm responded as the email being "read" a follow-up is not required. If a read receipt was not attached and/or the DBE did not respond to the first email a follow-up is required.
    c. Keep copies of emails as proof, if requested.
4) Did you provide DBEs with information about the plans, specifications, and requirements of the contract so they are able to respond to your solicitation in a timely manner?
5) Did you solicit DBE participation for work you could have self-performed?
    a. It is the bidder's responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. The fact that there may be some additional costs involved in finding and using DBEs is not in itself sufficient reason for a bidder's failure to meet the contract DBE goal, as long as such costs are reasonable.
6) Did you ask your firm's subcontractors to solicit DBE work for the subcontractors' portion of the project?
    a. Provide documentation within your GFE submission.
7) Did you receive and evaluate all DBE quotes?
    a. The quotes **must be** converted to an acceptable format, whether the quotes are calculated by ton-mile, hour, acre, or square mile.
    b. Any DBE quote not selected due to Bid Differential must be evaluated properly within the GFE form. **A copy of the DBE and non-DBEs quote must accompany SFN 60829 for each Bid Differential.**
    c. Complete the
8) Did you advertise using one or both of the following options? Submit a copy with your GFE documentation.
    OPTION 1: Place an advertisement soliciting DBE participation using the electronic DBE

Advertisement System.

- Submit the required information online at https://apps.nd.gov/dot/cr/csi/login.htm no later than noon, 15 calendar days before the bid opening.

OPTION 2: Directly contact by email, all DBEs certified in the specific work type (NAICS) required for the job.

- Make contact with DBEs no later than 5 pm 7 calendar days before the bid opening.
- Use the DBE Directory to determine the DBE firms certified in the work to be subcontracted.

Either method of advertisement must:

- Provide the name, email address, telephone, and fax number of the company contact who will be available to discuss and/or receive quotes.
- Offer assistance to DBEs in interpreting plans; quantities; expected overtime; project scheduling; pit and batch plan locations, length of haul, type of road; method of measurement (seeding by the mile or acre, hauling by hour or by ton-mile) or other issues that may affect a price quote.

9) Did you sign-in?
Indicate your intention to bid and/or receive quotes on specific jobs by using the Department's Bid Opening Sign in System

- The **Bid Opening Sign-In** web application located at https://apps.nd.gov/dot/cr/csi/login.htm.

  Sign-In opens at 8 am 7 calendar days prior to the bid opening and closes at 11 AM the day before the bid opening.
- Fill in the online form fields as required.
- Log in to download the "Bid Opening Contact Report" at https://apps.nd.gov/dot/cr/csi/public/listBidOpenings.htm

EVALUATION OF GOOD FAITH EFFORTS

Proposals may be considered irregular and may be rejected by the Department if there is non-compliance with the DBE requirements, or submitted documentation is incorrect or received after 4:00 pm CST 2 business days after the bid opening. The Department reserves the right to waive minor irregularities and/or certain elements of this special provision.

Federal regulations require the Department to scrutinize a bidder's documented GFE (see appropriate actions on pages 3-4).

If the Committee determines the ALB has adequately demonstrated GFE, the committee will recommend "Award".

If the Committee determines the ALB has not adequately demonstrated GFE, the committee may recommend "Not Award". Some of the factors considered are:

1. Whether the ALB fails to meet the contract goal, but others meet it
2. If the ALB fails to meet or exceed the average DBE participation of other bidders
3. If the ALB fails to submit adequate GFE documentation by 4:00 pm CST 2 business days after the bid opening
4. If the ALB submits no documentation of its GFE
5. If the ALB submits incorrect forms
6. If the Bid Differentials submitted by the ALB are not excessive
7. If the ALB did not address all DBE quotes received
8. If the ALB failed to Sign-In and/or Advertise

Upon notification of a recommendation for a Not Award determination, the Director's designee(s) will consider the Committee's recommendation. If the Designee(s) agrees with the Committee's recommendation, the Designee(s) will contact the ALB to inform them of the determination, the reasons for it, and that administrative reconsideration is available.

Administrative Reconsideration 49 CFR § 26.53 (d)

- An in-person reconsideration meeting is available at the ALB's request.
- The Director's designee(s) will consider any information submitted prior to or presented at the hearing as to whether the ALB met the goal or made adequate efforts to do so.
- The NDDOT reconsideration decision will be made by the Director's designee(s), who will not have taken part in the original determination.
    - If the Director's designee(s) determines the ALB made adequate GFE to meet the goal, the job will be recommended for award.
    - If the Director's designee(s) determines that the ALB has failed to sway the decision from "Not Award", the ALB will receive written notice of the decision.
- Director will make the final decision and may exercise such discretion as deemed appropriate.
- The decision is not subject to administrative appeal to the U.S. Department of Transportation (49 CFR § 26.53(d)(5)).

POST-AWARD REQUIREMENTS

FEDERAL AUTHORITY

It is the prime contractors' responsibility to ensure all tiers of subcontractors, brokers, manufacturers, suppliers, vendors, and regular dealers comply with the requirements of this special provision. In addition, the prime contractor has the responsibility to monitor DBE performance on the project.

PRIME CONTRACTOR'S MONITORING, RESPONSIBILITIES, REPORTING

For the life of the project, the prime contractor is responsible for the DBEs listed on Form C and for the specific spec/code items or products that the prime committed to during the award process.

The prime is responsible to:

- Report payments to all DBEs and non-DBE subcontractors used on the project.
    - See Project Payments Special Provision for more information.
- Invite and encourage all subcontractors and all DBEs listed on Form C to the pre-construction conference.
- Provide minutes to any DBE not in attendance at the pre-construction conference.
- Ensure their firm as well as any subcontractors, manufacturers, and regular dealers/suppliers comply with the requirements of this special provision.
- Provide all DBE firms identified on Form Cs a copy of the Proposed Progress Chart within 7 days of award.
- Maintain project records and documentation of payments to DBEs for three years following acceptance of the final payment from NDDOT (per FHWA-1273, Section II Nondiscrimination #11).
    - This reporting requirement also applies to any certified DBE.
    - NDDOT may perform interim audits of contract payments to DBEs to ensure that the actual amount paid to DBEs equals or exceeds the dollar amount stated on Form C.
    - Make these records available for inspection, upon request, by an authorized representative of the NDDOT or USDOT.

If any requirements are not met, progress payments will be withheld from the prime until completed.

If award of the contract is made based on the contractor's GFE, the goal will not be waived; the contractor must make GFE throughout the duration of the project.

The prime contractor shall not terminate or replace a DBE subcontractor without the Department's prior written consent. 49 CFR 26.53(f)(1)i.

The Department's contract includes a provision stating:

1. That the contractor shall utilize the specific DBEs listed to perform the work and/or supply the materials unless the contractor obtains written consent; and

2. That, unless the Department's consent is provided, the contractor shall not be entitled to any payment for work or material unless it is performed or supplied by the listed DBE.

SFN 60595 - Replacement Approval Request must be submitted and approved prior to replacement of each DBE firm(s), or Non-DBE/BD(s), or any work the prime originally intended to self-perform prior to the commencement of any replacement work. No payment will be made if work commences without written approval.

If the prime has not achieved the goal and additional work becomes available, the prime must follow the replacement approval request process using SFN 60595.

EXCEPTION FOR REPLACEMENTS DUE TO PUBLIC NECESSITY

When replacement work is required as a matter of public necessity, (e.g., safety, storm water issues), the contractor must immediately notify the project engineer and the DBE or Non-DBE/BD intended at the time of award. If the DBE or Non-DBE/BD is unable to perform the work within the time specified by permit or administrative rule, the DBE or Non-DBE/BD must notify the prime immediately; and, within one business day, a written explanation must be submitted to the prime with a copy to the project engineer. The project engineer refers all replacement approval requests to the Assistant District Engineer (ADE). In a case of public necessity, the ADE has the authority to allow the contractor to self-perform the replacement work or to find another contractor to complete it.

TERMINATION FOR CAUSE

A DBE or Non-DBE/BD may not be terminated without the Department's prior written consent. (49 CFR 26.53(f)(1)(I))

The Department will provide such written consent if the Department agrees that the contractor or subcontractor has good cause to terminate the DBE firm or Non-DBE/BD.

Circumstances which may be considered good cause for termination include when the listed DBE or Non-DBE/BD:

- Fails or refuses to execute a written contract
- Fails or refuses to perform the work of its subcontract in a way consistent with the contract and/or with normal industry standards, provided, that good cause does not exist if the failure or refusal of the listed DBE or Non-DBE/BD to perform its work on the subcontract results from the bad faith or discriminatory action of the prime or subcontractor
- Fails or refuses to meet the prime contractor's reasonable nondiscriminatory bond requirements
- Becomes bankrupt, insolvent, or exhibits credit unworthiness
- Is ineligible to work on public works projects because of Federal Highway Administration suspension and debarment proceedings.
- Is ineligible to receive DBE credit for the type of work required
- Dies or becomes disabled with the result that the listed DBE or Non-DBE/BD is unable to complete its work on the contract
- Other documented good cause that the Department determines compels the termination of the listed DBE or Non-DBE/BD

Good cause does not exist if the prime contractor or subcontractor seeks to terminate a DBE or Non-DBE/BD which was relied upon to obtain the contract so that the contractor can self-perform the work for which the DBE or Non-DBE/BD was engaged or so that the contractor can substitute another DBE or Non-DBE contractor after contract award.

The contractor must immediately give written termination notice to DBE or the Non-DBE/BD. At the same time, SFN 60595 and its supporting documentation must be provided to the project engineer for review and analysis of the reasons for the intended termination.

The contractor must give the DBE or Non-DBE/BD 5 business days to respond to the termination notice. Within that time, the DBE or Non-DBE/BD should respond with a written explanation of their reasons and/or objections to the proposed termination and specifically address why the Department should deny the contractor's request. This explanation should be submitted in reply to the contractor with a copy to the project engineer.

The project engineer will send the contractor's SFN 60595, the DBE or Non-DBE/BD's written response(s) and any other accompanying documentation to the Civil Rights Division (CRD). If the CRD concurs that a termination is warranted, the contractor must seek a DBE to perform the work.

All DBEs currently certified in the specific area of work to be performed, must be contacted in writing or by phone, and quotes solicited. If available, a DBE will be selected to perform a dollar value of work, equal to the value of the commitment not achieved, unless the contractor can demonstrate the DBE quote is unreasonable, using the same comparison in section "GFE Documentation."

Upon receipt of appropriate written GFE documentation, and prior to commencement of any replacement work, CRD will consider the contractor's efforts and provide a final written decision to the project engineer.

UNFULFILLED OBLIGATIONS

The Department requires SFN 60595 and its supporting documentation when a contractor, DBE, or Non-DBE/BD does not fulfill her or his obligations in any of the following situations:

- The prime contractor is unable to perform the full amount of work committed to be completed, by the prime's workforce and equipment, at the time of award, or
- The DBE or Non-DBE/BD to which the prime contractor committed using at the time of award, is unable to perform the full amount of work, or
- The DBE or Non-DBE/BD withdraws voluntarily from the project and provides to the prime written notice of its withdrawal.

SFN 60595 and its supporting documentation must be provided to the project engineer for review and analysis. If the DBE or Non-DBE/BD is not able to perform, the prime contractor must provide written documentation from the DBE or Non-DBE/BD as to the reasons. The Civil Rights Division will provide a written final determination to the project engineer. The project engineer informs the contractor of the approval or rejection of the replacement of work.

If the Department concurs that a substitution is warranted, the prime contractor will seek a DBE to perform the work. All DBEs currently certified in the specific area of work to be performed, must be contacted in writing or by phone, and quotes solicited. If available, a DBE will be selected to perform a dollar value of work, equal to the value of the commitment not achieved, unless the contractor can demonstrate the DBE quote is unreasonable, using the same bid differential comparison in section "GFE Documentation."

The prime contractor is responsible for any additional costs incurred as a result of the prime contractor's failure to fulfill the original commitment or the DBE or Non-DBE/BD's failure to perform.

NON-COMPLIANCE, FAILURE TO PERFORM, AND SANCTIONS

If the Department determines that a contractor should be sanctioned, the Department will provide written notice to the contractor informing them of the sanction for the following:

- Not submitting required documentation in a timely manner
- Not paying a DBE or non-DBE subcontractor in a timely manner
- Not having a DBE perform the specified dollar amount of work (subject to plan quantity changes) tasks or bid items
- For otherwise not fulfilling the requirements of this DBE special provision
- Repeated instances of failure to perform the contract requirements
- Repeated instances of late contract-related payments
- Documented fraudulent practices

If the Department determines that a DBE should be sanctioned, the Department will provide written notice to the DBE informing them of the sanction for the following:

- Failure to perform work as specified in the contract
- Failure to pay contract-related bills in a timely manner
- Failure to perform a commercially useful function

- Failure to notify the prime contractor orally and in writing if they are unable to perform a commercially useful function
- Otherwise not fulfilling the requirements of this DBE special provision

If sanctions are applied, the contractor or the DBE may make a written request to the Department for reconsideration. The contractor or the DBE must provide a written statement defending their actions within 3 business days.

If the Department does not receive a written request for reconsideration, or if the contractor or DBE does not provide sufficient evidence that the provisions have been met, the Department may suspend the contractor or the DBE bidding or quoting privileges and not allow the contractor or the DBE to participate in one or more scheduled bid openings after the date the sanction is imposed.

Other sanctions which may be imposed by the Department for failure on the part of the contractor may include, but are not limited to:

- Withhold the contractor's progress payment until the contractor complies with all DBE contract provisions
- Deduct, from the contractor's progress payments, the dollar amount of DBE participation committed to but not achieved by the contractor
- Find the contractor in default
- Liquidated damages
- Disqualifying the contractor from future bidding
- Take other corrective action determined by the Department to be appropriate
- Any combination of the above.

NDDOT MONITORING AND ENFORCEMENT MECHANISMS

The Department will bring any false, fraudulent, or dishonest conduct in connection with the DBE program to the attention of USDOT. USDOT may pursue action as provided in 49 CFR § 26.107. Actions include referral to the Department of Justice for criminal prosecution or referral to the USDOT Office of Inspector General for action under suspension and debarment, or Program Fraud and Civil Remedies rules. The Department will also consider similar action under its own legal authority, including responsibility determination in future contracts.

COMMERCIALLY USEFUL FUNCTION

A Commercially Useful Function (CUF) - SFN 62120 - must be completed by NDDOT or consultant project personal as soon as the DBE begins the work.

CUF refers to those services the DBE is certified to perform. Certified services for each DBE are listed in the online DBE Directory. It is a DBE's responsibility to immediately notify the prime contractor in writing if the DBE is unable to perform a CUF. Non-compliance of the DBE with program requirements noted on the CUF form may result in changes to and/or termination of certification.

The Department counts participation to a DBE contractor toward DBE goals only if the DBE is performing a CUF on that contract.

- A DBE performs a CUF when it is responsible for execution of the work of the contract and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. To perform a CUF, the DBE must also be responsible, with respect to materials and supplies used on the contract, for negotiating price, determining quality and quantity, ordering the material, installation and paying for the material itself. 49 CFR § 26.55(c)(1)
- A DBE does not perform a CUF if its role is limited to that of an extra participant in a transaction, contract, or project through which funds are passed in order to obtain the appearance of DBE participation. 49 CFR § 26.55(c)(2)
- The Department's decisions on CUF matters are subject to review by Federal Highway Administration, but are not administratively appealable to USDOT. 49 CFR § 26.55(c)(5)

COUNTING RACE/GENDER CONSCIOUS DBE PARTICIPATION - 49 CFR § 26.55

The Department does not count participation of a DBE subcontractor toward a contractor's final compliance with its DBE obligations on a contract until the amount being counted has been paid to the DBE. 49 CFR § 26.55 (h)

The Department will count DBE participation toward the overall annual goal as noted below:

Manufacturer: Manufacturer credit is appropriate when the DBE maintains a factory or establishment that produces, on the premises, the materials, supplies, articles, or equipment required under the contract and of the general character described by the specifications. Alterations or customization of a "stock" product would be eligible for manufacturer credit. DBE credit is awarded at 100% for this type of work. Delivery type is not relevant in this type of credit.

Broker Credit (Manufacture Representative, Procurement Specialist, Leasing): Broker credit is appropriate when the DBE arranges or expedites the transaction of materials or supplies that it does not manufacture or deliver and is never in possession of the products. In this type of transaction, a DBE would serve as a third-party intermediary between the manufacturer and the contractor providing project driven sales. The DBE assumes little to no risk in this transaction and is awarded DBE credit for the "mark-up" of the product only. Drop ship transactions would only be eligible for broker credit. There is no maintained facility where inventory is kept on a regular basis for sale.
For direction on how a specialty item can be eligible for supplier credit, see the information provide below. A specialty item that does not fully meet these requirements can only be credited at brokerage rates.

Regular Dealers/Suppliers: Supplier credit is appropriate when the DBE owns, operates, and maintains a store, warehouse, or other establishment in which the materials, supplies, articles, or equipment of the general character described by the specifications and required under the contract are bought, kept in stock, and regularly sold or leased to the public in the usual course of business sells to the general public with inventory on hand. If a legitimate public warehouse exists, that regularly stocks, deals and sells to the walk-in public, then the method of delivery of the goods is not examined. At least 51% of materials provided by a DBE Regular Dealer/Supplier must come from their own inventory, except for Bulk Items and Specialty Products. Supplier credit would be awarded at 60% of the cost of the materials. 49 CFR 26.55 (e)(ii).

Distributor
Distributors are permitted to drop-ship from manufacturers if the firm has a distributorship agreement or assumes all responsibility for the materials after point of origin, allowing for 40% credit for the cost of materials.

Bulk Items 49 CFR 26.55 (e)(ii)
A DBE may be eligible for supplier credit in regard to non-specialty bulk items (i.e. petroleum, steel, asphalt, aggregate) without a warehouse or storefront. If bulk items are purchased directly from the manufacturer the DBE must both own and operate its own distribution equipment. The DBE may supplement its own distribution equipment through a long-term lease (defined as more than one year) but the DBE must demonstrate unimpeded access to the leased equipment and operate the equipment with the DBE's own employees. If all these circumstances do not exist, the DBE is only edible for broker credit.

Specialty Products
Specialty products are those products that are ordered contract-specific for a job. Examples may include, but are not limited to, steel beams, concrete beams, box culverts or piping. Supplier credit is available in two different scenarios:

- Supplier credit would be available if the DBE owns its own facility and is in the business of selling products and materials to the public and sells products of similar nature to the specialty item and the DBE must take possession of the specialty item to determine quality and quantity of the specialty item(s). To be eligible for supplier credit, the DBE must deliver the specialty item with its own distribution equipment and employees.
- Supplier credit would be available if the DBE does not own its own facility but does own its own distribution equipment which it uses to pick up the specialty item(s) and deliver to the job site with the DBEs own employees

Any other scenario dealing with specialty products would only be eligible for broker credit.

Regular Dealers vs. Brokers/Expediters/Facilitators: On a case-by-case basis, DBE regular dealers may count only the fees/commissions charged for providing procurement assistance as a manufacturers' representative or expediter of transactions. The key factor in this determination is whether the prime and/or its subcontractors could have ordered the materials without the DBE's assistance. If a non-DBE contractor could have procured the materials or supplies without the intervention of the DBE, the DBE is not performing a regular dealer capacity. To assist in determining the difference, the Department may poll each regular dealer to request their ordering and delivery process.

Trucking: The Department counts DBE trucking on a one-for-one basis. A DBE, on each of its contracts, must first own and operate at least one fully licensed, insured, and operational truck. A DBE may then supplement its fleet using lease/broker agreements. Only trucks leased from a reputable dealer count towards the firms DBE participation. Full credit is given for the transportation value of leased/brokered trucks owned, operated, and insured by other DBEs.

- Example: DBE A owns/operates 2 trucks and subcontracts to DBE B who own/operates 3 DBE trucks. All 5 DBE owned/operated trucks count towards the DBE participation on the project.

A DBE trucking firm may subcontract to non-DBE trucking firms. If a DBE subcontracts trucks from non-DBEs, the total value of trucking services provided by non-DBEs cannot exceed the value of trucking services provided by DBEs. This is referred to as the 1:1 DBE Trucking Ratio (Ratio).

- Example: DBE owns 2 trucks and subcontracts 2 non-DBE match trucks. The total number of trucks that may be counted towards DBE participation is the amount paid for all 4 trucks (100%)
- Example: DBE owns 5 trucks and subcontracts 5 trucks from non-DBE(s). The total number of trucks that may be counted towards DBE participation is the amount paid for 10 of the 10 trucks (100%)
- Example: DBE owns 1 truck and subcontracts 4 non-DBE trucks. 1 of the no-DBE trucks acts as a match truck and the other 3 are non-DBE non-match trucks. The amount of the total subcontract with the DBE that may be counted is 40%.

When a DBE leases more non-DBE than DBE trucks, only the fee or commission the DBE trucker receives is credited for the extra non-DBE trucks.

- Example: DBE owns 2 trucks and subcontracts 4 trucks from non-DBE(s). Total DBE participation is amount paid for 4 of the 6 trucks plus the brokerage or other fee may also be counted toward DBE participation for the 2 non-DBE non-match trucks.

No DBE participation is given for the use of DBE trailers without DBE trucks and DBE employed drivers. A DBE trucking firm cannot count the materials they are hauling unless they are a legitimate DBE supplier or manufacturer of the materials (see Regular Dealer/Supplier and Manufacturer sections).

A legitimate subcontract must be in place between the DBE and non-DBE trucking firm to count participation. The non-DBE trucking firm must be added to the Utilization Plan/Contract in the Certification and Compliance System (CCS) under the DBE and the DBE is required to report payments to the non-DBE trucking firm for the participation to be counted. Additional reporting lines under the DBE on the contract within CCS may also be necessary to report non-DBE non-match payments and/or brokerage/fees for non-DBE non-match trucks if applicable. Certified payroll requirements also apply.

A DBE trucking firm is responsible for identifying the number of trucks to be used on a project for DBE participation credit. If a DBE trucking firm utilizes the Ratio and is used by a Prime contractor that was the apparent low bidder, the number of trucks (DBE, non-DBE Match & non-DBE non-Match) must be identified on the Form C as well as the total dollar amount allocated to each and the non-DBE firm(s) the DBE intends to use. SFN 60781 DBE Weekly Trucking Report is required to be completed and submitted to the project engineer weekly when the Ratio is being utilized, which will indicate the number of DBE-owned trucks and the number of non-DBE trucks the DBE has provided for use on the contract. DBE trucking firms that are utilizing the 1:1 DBE Trucking Ratio must also display signage in the non-DBE match trucks on the job site that identify them as subcontracting to the DBE as part of the overall project DBE participation. The signage must be clear enough for project personnel to easily identify them while on site. The CUF form includes a section for 1:1 DBE Trucking that must also be completed by the project engineer. **Any non-DBE match trucks must be added to the contract in B2Gnow under the DBE by Civil Rights. The usage of the 1:1 Ratio may be revoked at any time if the DBE is not following all required actions.**

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
EEO AFFIRMATIVE ACTION REQUIREMENTS

March 15, 2014

Bidders shall become familiar with the following requirements and be prepared to comply in good faith with all of them:

APPENDIX A

Notice or Requirement for Affirmative Action to Ensure Equal Employment Opportunity (Executive Order 11246).

1. The Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate work force in each trade on all construction work in the covered area, are as follows:

   a. Goals for Female Participation in Each Trade – Statewide 6.9%

   b. Goals for Minority Participation in Each Trade by County:
   Barnes, Cass, Dickey, Eddy, Foster, Griggs, LaMoure, Logan,
   McIntosh, Ransom, Richland, Sargent, Steele, Stutsman, Traill 0.7%

   Grand Forks 1.2%

   Benson, Cavalier, Nelson, Pembina, Ramsey, Towner, Walsh 2.0%

   Burleigh, Morton 0.4%

   Adams, Billings, Bowman, Dunn, Emmons, Golden Valley, Grant,
   Hettinger, Kidder, Mercer, Oliver, Sheridan, Sioux, Slope, Stark, Wells . . .1.3%

   Bottineau, Burke, Divide, McHenry, McKenzie, McLean, Mountrail,
   Pierce, Renville, Rolette, Ward, Williams 4.4%

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the contractor performs construction work in a geographical area located outside the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the contractor also is subject to the goals for both federally involved and nonfederally involved construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR 60-4 shall be based on its implementation of the Equal Opportunity Clause specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3 (a),

and its efforts to meet the goals established for the geographical area where the contract resulting from this solicitation is to be performed. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order, and the regulations in 41 CFR part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall notify the Office of Federal Contract Compliance Programs, in writing, within ten working days of award of any subcontract in excess of $10,000. The notification shall include the name, address, and telephone number of the subcontractor and their employer identification number; dollar amount of the contract, estimated starting and completion dates of the contract; the contract number; and geographical area in which the contract is to be performed.

   Notification should be sent to:

   U.S. Department of Labor/ESA
   OFCCP
   Denver District Office
   1244 Speer Boulevard
   Denver, Colorado 80202
   Phone: 720-264-3200
   Fax: 720-264-3211

4. As used in this "Notice" and in the contract for this project, the "covered area" is the State of North Dakota.

APPENDIX B

Standard Federal Equal Employment Opportunity Construction Contract Specifications (Executive Order 11246)

1. As used in these specifications:

   a. "Covered area" means the geographical area described in the proposal from which this contract resulted.

   b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority.

   c. "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.

   d. "Minority" includes:

(1) Black (all persons having origins in any of the Black African racial groups, not of Hispanic origin);

(2) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish Culture or origin, regardless of race);

(3) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and

(4) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation of community identification).

2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the proposal from which this contract resulted.

3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved Plan does not excuse any covered Contractor's or Subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7a through p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. The Contractor is expected to make substantially uniform progress toward its goals in each craft.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

6. In order for the nonworking training hours of apprentices and trainees to be counted

in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor. (Training programs approved by the North Dakota Department of Transportation are recognized by the U.S. Department of Labor.)

7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

    a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all Foremen, Superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

    b. Establish and maintain a current list of minority and female recruitment sources; provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its union have employment opportunities available, and maintain a record of the organization's responses.

    c. Maintain a current file of the names, addresses, and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source or community organization and of what action was taken with respect to each individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union, or if referred, not employed by the Contractor, this shall be documented in the file with the reason therefore, along with whatever additional actions the Contractor may have taken.

    d. Provide immediate written notification to the Director when the union with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

    e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to

the sources compiled under 7b above.

f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the Company newspaper, annual report, etc., by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the Company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually, the Company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination, or other employment decisions including specific review of these items with on- site supervisory personnel such as Superintendents, General Foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing it with the Contractors and Subcontractors with whom the Contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written, to minority, female, and community organizations, to schools with minority and female students, and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minorities and women, and where reasonable, provide after school, summer, and vacation employment to minority and female youth both on the site and in other areas of the Contractor's work force.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities and encourage these to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments, and other personnel practices do not have a discriminatory effect by continually monitoring

all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and Company activities are non-segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction Contractors and Suppliers, including circulation of solicitations to minority and female Contractor associations and other business associations.

p. Conduct a review, at least annually, of all Supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligation.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7a through p). The efforts of a Contractor association, joint Contractor- union, Contractor-community, or other similar group of which the Contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7a through p of these Specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female work force participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's, and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

9. Goals for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minorities, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

11. The Contractor shall not enter into any subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termina-

tion, and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

14. The Contractor shall designate a responsible official to monitor all employment-related activity to ensure that the Company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government, and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation, if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form, however, to the degree that existing records satisfy this requirement, Contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

REQUIRED CONTRACT PROVISIONS
FEDERAL-AID CONSTRUCTION CONTRACTS

I. General
II. Nondiscrimination
III. Non-segregated Facilities
IV. Davis-Bacon and Related Act Provisions
V. Contract Work Hours and Safety Standards Act Provisions
VI. Subletting or Assigning the Contract
VII. Safety: Accident Prevention
VIII. False Statements Concerning Highway Projects
IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
X. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion
XI. Certification Regarding Use of Contract Funds for Lobbying
XII. Use of United States-Flag Vessels:

ATTACHMENTS

A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under title 23, United States Code, as required in 23 CFR 633.102(b) (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services). 23 CFR 633.102(e).

The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider. 23 CFR 633.102(e).

Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services) in accordance with 23 CFR 633.102. The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.

Contracting agencies may reference Form FHWA-1273 in solicitation-for-bids or request-for-proposals documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract). 23 CFR 633.102(b).

2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract. 23 CFR 633.102(d).

3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.

4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. 23 U.S.C. 114(b). The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors. 23 U.S.C. 101(a).

II. NONDISCRIMINATION (23 CFR 230.107(a); 23 CFR Part 230, Subpart A, Appendix A; EO 11246)

The provisions of this section related to 23 CFR Part 230, Subpart A, Appendix A are applicable to all Federal-aid construction contracts and to all related construction subcontracts of $10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR Part 60, 29 CFR Parts 1625-1627, 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding $10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR Part 60, and 29 CFR Parts 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with 23 U.S.C. 140, Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. 794), and Title VI of the Civil Rights Act of 1964, as amended (42 U.S.C. 2000d et seq.), and related regulations including 49 CFR Parts 21, 26, and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR Part 230, Subpart A, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. Equal Employment Opportunity: Equal Employment Opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (*see* 28 CFR Part 35, 29 CFR Part 1630, 29 CFR Parts 1625-1627, 41 CFR Part 60 and 49 CFR Part 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140, shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR Part 35 and 29 CFR Part 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:

a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract. 23 CFR 230.409 (g)(4) & (5).

b. The contractor will accept as its operating policy the following statement:

> "It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, sexual orientation, gender identity, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."

2. EEO Officer: The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.

3. Dissemination of Policy: All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action or are substantially involved in such action, will be made fully cognizant of and will implement the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:

a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer or other knowledgeable company official.

b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.

c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.

d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.

e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.

4. Recruitment: When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.

a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.

b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.

c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.

5. Personnel Actions: Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age or disability. The following procedures shall be followed:

a. The contractor will conduct periodic inspections of project sites to ensure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.

b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.

c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.

d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action

within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.

6. Training and Promotion:

a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.

b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs (i.e., apprenticeship and on-the-job training programs for the geographical area of contract performance). In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).

c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.

d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.

7. Unions: If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. 23 CFR 230.409. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:

a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.

b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually bound to refer applicants without regard to their race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability.

c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.

d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.

8. Reasonable Accommodation for Applicants / Employees with Disabilities: The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established thereunder. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.

9. Selection of Subcontractors, Procurement of Materials and Leasing of Equipment: The contractor shall not discriminate on the grounds of race, color, religion, sex, sexual orientation, gender identity, national origin, age, or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.

a. The contractor shall notify all potential subcontractors, suppliers, and lessors of their EEO obligations under this contract.

b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.

10. Assurances Required:

a. The requirements of 49 CFR Part 26 and the State DOT's FHWA-approved Disadvantaged Business Enterprise (DBE) program are incorporated by reference.

b. The contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to:
(1) Withholding monthly progress payments;
(2) Assessing sanctions;
(3) Liquidated damages; and/or
(4) Disqualifying the contractor from future bidding as non-responsible.

c. The Title VI and nondiscrimination provisions of U.S. DOT Order 1050.2A at Appendixes A and E are incorporated by reference. 49 CFR Part 21.

11. Records and Reports: The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.

a. The records kept by the contractor shall document the following:

(1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;

(2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and

(3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women.

b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of more than $10,000. 41 CFR 60-1.5.

As prescribed by 41 CFR 60-1.8, the contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, sexual orientation, gender identity, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location under the contractor's control where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding $2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size), in accordance with 29 CFR 5.5. The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. 23 U.S.C. 113. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. 23 U.S.C. 101. Where applicable law requires that projects be treated as a project on a Federal-aid highway, the provisions of this subpart will apply regardless of the location of the project. Examples include: Surface Transportation Block Grant Program projects funded under 23 U.S.C. 133 [excluding recreational trails projects], the Nationally Significant Freight and Highway Projects funded under 23 U.S.C. 117, and National Highway Freight Program projects funded under 23 U.S.C. 167.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 “Contract provisions and related matters” with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages (29 CFR 5.5)

a. *Wage rates and fringe benefits.* All laborers and mechanics employed or working upon the site of the work (or otherwise working in construction or development of the project under a development statute), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of basic hourly wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. As provided in paragraphs (d) and (e) of 29 CFR 5.5, the appropriate wage determinations are effective by operation of law even if they have not been attached to the contract. Contributions made or costs reasonably anticipated for bona fide fringe benefits under the Davis-Bacon Act (40 U.S.C. 3141(2)(B)) on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.e. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics must be paid the appropriate wage rate and fringe benefits on the wage determination for the classification(s) of work actually performed, without regard to skill, except as provided in paragraph 4. of this section. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: *Provided,* That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classifications and wage rates conformed under paragraph 1.c. of this section) and the Davis-Bacon poster (WH–1321) must be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

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

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

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

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

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

c. *Conformance.* (1) The contracting officer must require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract be classified in conformance with the wage determination. Conformance of an additional classification and wage rate and fringe benefits is appropriate only when the following criteria have been met:

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

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

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

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

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

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

(5) The contracting officer must promptly notify the contractor of the action taken by the Wage and Hour Division under paragraphs 1.c.(3) and (4) of this section. The contractor must furnish a written copy of such determination to each affected worker or it must be posted as a part of the wage determination. The wage rate (including fringe benefits where appropriate) determined pursuant to paragraph 1.c.(3) or (4) of this section must be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

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

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

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

2. Withholding (29 CFR 5.5)

a. *Withholding requirements.* The contracting agency may, upon its own action, or must, upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor so much of the accrued payments or advances as may be considered necessary to satisfy the liabilities of the prime contractor or any subcontractor for the full amount of wages and monetary relief, including interest, required by the clauses set forth in this section for violations of this contract, or to satisfy any such liabilities required by any other Federal contract, or federally assisted contract subject to Davis-Bacon labor standards, that is held by the same prime contractor (as defined in § 5.2). The necessary funds may be withheld from the contractor under this contract, any other Federal contract with the same prime contractor, or any other federally assisted contract that is subject to Davis-Bacon labor standards requirements and is held by the same prime contractor, regardless of whether the other contract was awarded or assisted by the same agency, and such funds may be used to satisfy the contractor liability for which the funds were withheld. In the event of a contractor's failure to pay any laborer or mechanic, including any apprentice or helper working on the site of the work all or part of the wages required by the contract, or upon the contractor's failure to submit the required records as discussed in paragraph 3.d. of this section, the contracting agency may on its own initiative and after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

b. *Priority to withheld funds.* The Department has priority to funds withheld or to be withheld in accordance with paragraph

2.a. of this section or Section V, paragraph 3.a., or both, over claims to those funds by:

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

(2) A contracting agency for its reprocurement costs;

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

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

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

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

3. Records and certified payrolls (29 CFR 5.5)

a. *Basic record requirements* (1) *Length of record retention.* All regular payrolls and other basic records must be maintained by the contractor and any subcontractor during the course of the work and preserved for all laborers and mechanics working at the site of the work (or otherwise working in construction or development of the project under a development statute) for a period of at least 3 years after all the work on the prime contract is completed.

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

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

(4) *Additional records relating to apprenticeship.* Contractors with apprentices working under approved programs must maintain written evidence of the registration of apprenticeship programs, the registration of the apprentices, and the ratios and wage rates prescribed in the applicable programs.

b. *Certified payroll requirements* (1) *Frequency and method of submission.* The contractor or subcontractor must submit weekly, for each week in which any DBA- or Related Acts-covered work is performed, certified payrolls to the contracting agency. The prime contractor is responsible for the submission of all certified payrolls by all subcontractors. A contracting agency or prime contractor may permit or require contractors to submit certified payrolls through an electronic system, as long as the electronic system requires a legally valid electronic signature; the system allows the contractor, the contracting agency, and the Department of Labor to access the certified payrolls upon request for at least 3 years after the work on the prime contract has been completed; and the contracting agency or prime contractor permits other methods of submission in situations where the contractor is unable or limited in its ability to use or access the electronic system.

(2) *Information required.* The certified payrolls submitted must set out accurately and completely all of the information required to be maintained under paragraph 3.a.(2) of this section, except that full Social Security numbers and last known addresses, telephone numbers, and email addresses must not be included on weekly transmittals. Instead, the certified payrolls need only include an individually identifying number for each worker (*e.g.,* the last four digits of the worker's Social Security number). The required weekly certified payroll information may be submitted using Optional Form WH–347 or in any other format desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division website at *https://www.dol.gov/sites/dolgov/files/WHD/legacy/files/wh347/.pdf* or its successor website. It is not a violation of this section for a prime contractor to require a subcontractor to provide full Social Security numbers and last known addresses, telephone numbers, and email addresses to the prime contractor for its own records, without weekly submission by the subcontractor to the contracting agency.

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

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

(ii) That each laborer or mechanic (including each helper and apprentice) working on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR part 3; and

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

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

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

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

(7) *Length of certified payroll retention.* The contractor or subcontractor must preserve all certified payrolls during the course of the work and for a period of 3 years after all the work on the prime contract is completed.

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

d. *Required disclosures and access* (1) *Required record disclosures and access to workers.* The contractor or subcontractor must make the records required under paragraphs 3.a. through 3.c. of this section, and any other documents that the contracting agency, the State DOT, the FHWA, or the Department of Labor deems necessary to determine compliance with the labor standards provisions of any of the applicable statutes referenced by § 5.1, available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and must permit such representatives to interview workers during working hours on the job.

(2) *Sanctions for non-compliance with records and worker access requirements.* If the contractor or subcontractor fails to submit the required records or to make them available, or refuses to permit worker interviews during working hours on the job, the Federal agency may, after written notice to the contractor, sponsor, applicant, owner, or other entity, as the case may be, that maintains such records or that employs such workers, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available, or to permit worker interviews during working hours on the job, may be grounds for debarment action pursuant to § 5.12. In addition, any contractor or other person that fails to submit the required records or make those records available to WHD within the time WHD requests that the records be produced will be precluded from introducing as evidence in an administrative proceeding under 29 CFR part 6 any of the required records that were not provided or made available to WHD. WHD will take into consideration a reasonable request from the contractor or person for an extension of the time for submission of records. WHD will determine the reasonableness of the request and may consider, among other things, the location of the records and the volume of production.

(3) *Required information disclosures.* Contractors and subcontractors must maintain the full Social Security number and last known address, telephone number, and email address of each covered worker, and must provide them upon request to the contracting agency, the State DOT, the FHWA, the contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or other compliance action.

4. Apprentices and equal employment opportunity (29 CFR 5.5)

a. *Apprentices* (1) *Rate of pay.* Apprentices will be permitted to work at less than the predetermined rate for the work they perform when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship (OA), or with a State Apprenticeship Agency recognized by the OA. A person who is not individually registered in the program, but who has been certified by the OA or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice, will be permitted to work at less than the predetermined rate for the work they perform in the first 90 days of probationary employment as an apprentice in such a program. In the event the OA or a State Apprenticeship Agency recognized by the OA withdraws approval of an apprenticeship program, the contractor will no longer be permitted to use apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

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

(3) *Apprenticeship ratio.* The allowable ratio of apprentices to journeyworkers on the job site in any craft classification must not be greater than the ratio permitted to the contractor as to the entire work force under the registered program or the ratio applicable to the locality of the project pursuant to paragraph 4.a.(4) of this section. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in paragraph 4.a.(1) of this section, must be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under this section must be paid not less than the applicable wage rate on the wage determination for the work actually performed.

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

b. *Equal employment opportunity.* The use of apprentices and journeyworkers under this part must be in conformity with

the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.

c. Apprentices and Trainees (programs of the U.S. DOT).

Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. 23 CFR 230.111(e)(2). The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeyworkers shall not be greater than permitted by the terms of the particular program.

5. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract as provided in 29 CFR 5.5.

6. Subcontracts. The contractor or subcontractor must insert FHWA-1273 in any subcontracts, along with the applicable wage determination(s) and such other clauses or contract modifications as the contracting agency may by appropriate instructions require, and a clause requiring the subcontractors to include these clauses and wage determination(s) in any lower tier subcontracts. The prime contractor is responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in this section. In the event of any violations of these clauses, the prime contractor and any subcontractor(s) responsible will be liable for any unpaid wages and monetary relief, including interest from the date of the underpayment or loss, due to any workers of lower-tier subcontractors, and may be subject to debarment, as appropriate. 29 CFR 5.5.

7. Contract termination: debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract as provided in 29 CFR 5.5.

9. Disputes concerning labor standards. As provided in 29 CFR 5.5, disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

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

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

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

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

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

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

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

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

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

Pursuant to 29 CFR 5.5(b), the following clauses apply to any Federal-aid construction contract in an amount in excess of $100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchpersons and guards.

1. Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek. 29 CFR 5.5.

2. Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in paragraph 1. of this section the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages and interest from the date of the underpayment. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or

mechanic, including watchpersons and guards, employed in violation of the clause set forth in paragraph 1. of this section, in the sum currently provided in 29 CFR 5.5(b)(2)* for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph 1. of this section.

* $31 as of January 15, 2023 (See 88 FR 88 FR 2210) as may be adjusted annually by the Department of Labor, pursuant to the Federal Civil Penalties Inflation Adjustment Act of 1990.

3. Withholding for unpaid wages and liquidated damages

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

b. *Priority to withheld funds.* The Department has priority to funds withheld or to be withheld in accordance with Section IV paragraph 2.a. or paragraph 3.a. of this section, or both, over claims to those funds by:

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

(2) A contracting agency for its reprocurement costs;

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

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

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

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

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

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

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

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

c. Cooperating in any investigation or other compliance action, or testifying in any proceeding under CWHSSA or this part; or

d. Informing any other person about their rights under CWHSSA or this part.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System pursuant to 23 CFR 635.116.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).

a. The term “perform work with its own organization” in paragraph 1 of Section VI refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions: (based on longstanding interpretation)

(1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
(2) the prime contractor remains responsible for the quality of the work of the leased employees;

(3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and

(4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.

b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract. 23 CFR 635.102.

2. Pursuant to 23 CFR 635.116(a), the contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.

3. Pursuant to 23 CFR 635.116(c), the contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.

4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract. (based on long-standing interpretation of 23 CFR 635.116).

5. The 30-percent self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements. 23 CFR 635.116(d).

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR Part 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract. 23 CFR 635.108.

2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR Part 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704). 29 CFR 1926.10.

3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR Part 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 11, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT (42 U.S.C. 7606; 2 CFR 200.88; EO 11738)

This provision is applicable to all Federal-aid construction contracts in excess of $150,000 and to all related subcontracts. 48 CFR 2.101; 2 CFR 200.327.

By submission of this bid/proposal or the execution of this contract or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, subcontractor, supplier, or vendor agrees to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act, as amended (33 U.S.C. 1251-1387). Violations must be reported to the Federal Highway Administration and the Regional Office of the Environmental Protection Agency. 2 CFR Part 200, Appendix II.

The contractor agrees to include or cause to be included the requirements of this Section in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements. 2 CFR 200.327.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost $25,000 or more – as defined in 2 CFR Parts 180 and 1200. 2 CFR 180.220 and 1200.220.

1**. Instructions for Certification – First Tier Participants:**

a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.

b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction. 2 CFR 180.320.

c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default. 2 CFR 180.325.

d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances. 2 CFR 180.345 and 180.350.

e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900-180.1020, and 1200. “First Tier Covered Transactions” refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction. 2 CFR 180.330.

g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold. 2 CFR 180.220 and 180.300.

h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. 2 CFR 180.300; 180.320, and 180.325. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. 2 CFR 180.335. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (https://www.sam.gov/). 2 CFR 180.300, 180.320, and 180.325.

i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default. 2 CFR 180.325.

* * * * *

2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:

(1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.335;.

(2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State, or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property, 2 CFR 180.800;

(3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification, 2 CFR 180.700 and 180.800; and

(4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default. 2 CFR 180.335(d).

(5) Are not a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(6) Are not a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability (USDOT Order 4200.6 implementing appropriations act requirements).

b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal. 2 CFR 180.335 and 180.340.

* * * * *

3. **Instructions for Certification - Lower Tier Participants:**

(Applicable to all subcontracts, purchase orders, and other lower tier transactions requiring prior FHWA approval or estimated to cost $25,000 or more - 2 CFR Parts 180 and 1200). 2 CFR 180.220 and 1200.220.

a. By signing and submitting this proposal, the prospective lower tier participant is providing the certification set out below.

b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances. 2 CFR 180.365.

d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180, Subpart I, 180.900 – 180.1020, and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. “First Tier Covered Transactions” refers to any covered transaction between a recipient or subrecipient of Federal funds and a participant (such as the prime or general contract). “Lower Tier Covered Transactions” refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). “First Tier Participant” refers to the participant who has entered into a covered transaction with a recipient or subrecipient of Federal funds (such as the prime or general contractor). “Lower Tier Participant” refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).

e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated. 2 CFR 1200.220 and 1200.332.

f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the $25,000 threshold. 2 CFR 180.220 and 1200.220.

g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the System for Award Management website (https://www.sam.gov/), which is compiled by the General Services Administration. 2 CFR 180.300, 180.320, 180.330, and 180.335.

h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily

excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment. 2 CFR 180.325.

* * * * *

4. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

a. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals:

(1) is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency, 2 CFR 180.355;

(2) is a corporation that has been convicted of a felony violation under any Federal law within the two-year period preceding this proposal (USDOT Order 4200.6 implementing appropriations act requirements); and

(3) is a corporation with any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability. (USDOT Order 4200.6 implementing appropriations act requirements)

b. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant should attach an explanation to this proposal.

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XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed $100,000. 49 CFR Part 20, App. A.

1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed $100,000 and that all such recipients shall certify and disclose accordingly.

XII. USE OF UNITED STATES-FLAG VESSELS:

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, or any other covered transaction. 46 CFR Part 381.

This requirement applies to material or equipment that is acquired for a specific Federal-aid highway project. 46 CFR 381.7. It is not applicable to goods or materials that come into inventories independent of an FHWA funded-contract.

When oceanic shipments (or shipments across the Great Lakes) are necessary for materials or equipment acquired for a specific Federal-aid construction project, the bidder, proposer, contractor, subcontractor, or vendor agrees:

1. To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels. 46 CFR 381.7.

2. To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, ‘on-board’ commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (b)(1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Office of Cargo and Commercial Sealift (MAR-620), Maritime Administration, Washington, DC 20590. (MARAD requires copies of the ocean carrier's (master) bills of lading, certified onboard, dated, with rates and charges. These bills of lading may contain business sensitive information and therefore may be submitted directly to MARAD by the Ocean Transportation Intermediary on behalf of the contractor). 46 CFR 381.7.

ATTACHMENT A - EMPLOYMENT AND MATERIALS PREFERENCE FOR APPALACHIAN DEVELOPMENT HIGHWAY SYSTEM OR APPALACHIAN LOCAL ACCESS ROAD CONTRACTS (23 CFR 633, Subpart B, Appendix B)
This provision is applicable to all Federal-aid projects funded under the Appalachian Regional Development Act of 1965.

1. During the performance of this contract, the contractor undertaking to do work which is, or reasonably may be, done as on-site work, shall give preference to qualified persons who regularly reside in the labor area as designated by the DOL wherein the contract work is situated, or the subregion, or the Appalachian counties of the State wherein the contract work is situated, except:

a. To the extent that qualified persons regularly residing in the area are not available.

b. For the reasonable needs of the contractor to employ supervisory or specially experienced personnel necessary to assure an efficient execution of the contract work.

c. For the obligation of the contractor to offer employment to present or former employees as the result of a lawful collective bargaining contract, provided that the number of nonresident persons employed under this subparagraph (1c) shall not exceed 20 percent of the total number of employees employed by the contractor on the contract work, except as provided in subparagraph (4) below.

2. The contractor shall place a job order with the State Employment Service indicating (a) the classifications of the laborers, mechanics and other employees required to perform the contract work, (b) the number of employees required in each classification, (c) the date on which the participant estimates such employees will be required, and (d) any other pertinent information required by the State Employment Service to complete the job order form. The job order may be placed with the State Employment Service in writing or by telephone. If during the course of the contract work, the information submitted by the contractor in the original job order is substantially modified, the participant shall promptly notify the State Employment Service.

3. The contractor shall give full consideration to all qualified job applicants referred to him by the State Employment Service. The contractor is not required to grant employment to any job applicants who, in his opinion, are not qualified to perform the classification of work required.

4. If, within one week following the placing of a job order by the contractor with the State Employment Service, the State Employment Service is unable to refer any qualified job applicants to the contractor, or less than the number requested, the State Employment Service will forward a certificate to the contractor indicating the unavailability of applicants. Such certificate shall be made a part of the contractor's permanent project records. Upon receipt of this certificate, the contractor may employ persons who do not normally reside in the labor area to fill positions covered by the certificate, notwithstanding the provisions of subparagraph (1c) above.

5. The provisions of 23 CFR 633.207(e) allow the contracting agency to provide a contractual preference for the use of mineral resource materials native to the Appalachian region.

6. The contractor shall include the provisions of Sections 1 through 4 of this Attachment A in every subcontract for work which is, or reasonably may be, done as on-site work.

CONTRACT SPECIAL PROVISION
MANDATORY USE OF
AUTOMATED CERTIFIED
PAYROLL

All contractors on NDDOT federal-aid projects, including city/county projects, must file weekly Certified Payrolls, as required under Davis-Bacon and Related Acts (DBRA). **The NDDOT requires the use of LCPtracker, a paperless online system for entering and filing these certified payrolls. Certified payrolls in paper form will no longer be accepted, and all contractors must file their payroll electronically.**

After award, the Prime Contractor (Prime) must:

1. Designate an individual as Prime Approver for the project. The Prime Approver will oversee DBRA payroll for all subcontractors of all tiers on the project. A contractor may inform the NDDOT Civil Rights Division (CRD) that the same individual will be Prime Approver on all projects. CRD will set up the Prime Approver Account for the project. Thereafter, the Prime Approver will have the responsibility to use the Account to approve all payroll on the project. Until payroll is approved by the Prime Approver, it cannot be viewed by the NDDOT and it is not deemed submitted to the NDDOT.

2. The prime contractor has the responsibility to assign subcontractors within the LCPtracker system to the project and to ensure that all subcontractors are aware of the necessity to file payrolls electronically and are set up within the system. Any subcontractor not on Approved Subcontractor List or the Qualified Contractor List must register and be placed one of these lists before entry of the subcontractor into LCPtracker. These lists may be found at: https://www.dot.nd.gov/construction-and-planning/construction-and-contractor-resources/contractor-information. Only Prime Approvers or the CRD may enter subcontractors into LCPtracker.

3. The prime contractor has the responsibility to see that all required payrolls are filed by subcontractors of all tiers. If payroll is rejected or project staff otherwise requests a correction of payroll by any subcontractor on the project, the prime contractor has a responsibility to see that corrected payroll is submitted.

4. For further information on certified payroll, go to the NDDOT Labor Compliance Program (Davis-Bacon)/LCPtracker page at: https://www.dot.nd.gov/about-nddot/civil-rights/labor-compliance-program-davis-bacon. On this page, contractors will find a Getting Started on LCPtracker Guide and a Prime Approver Guide. Recorded trainings are also available on this page for both contractors and prime approvers. Contractors can obtain an LCPtracker user name and password by calling the NDDOT Civil Rights Division at (701) 328- 2605 or (701) 328-2576.

CONTRACT SPECIAL PROVISION
MANDATORY USE OF ONLINE
PROJECT PAYMENT REPORTING

A. DESCRIPTION

This Special Provision (SP) replaces Section 109.04 D, "Prompt Payment"

This SP details the requirements for Contractors to document payment to all tiers of DBE subcontractors and suppliers and all non-DBE subcontractors. For the purposes of this SP, the term "payee" will be used to denote all tiers of DBE subcontractors and suppliers as well as all tiers of non-DBE subcontractors.

The Department utilizes the Certification and Compliance System (CCS) for this purpose. The direct web address to this system is https://dotnd.diversitycompliance.com/

B. PROMPT PAYMENT REQUIREMENTS

Within 20 calendar days of receiving payment from the Department, pay all payees their portion of the payment less applicable retainage, not to exceed 2 percent. If the Contractor does not make prompt payment, the payee may notify the Engineer.

The Contractor may withhold payment to a payee for just cause. If withholding payment from a payee, immediately provide written notification to the payee and the Engineer with the reasons for withholding the payment. If the Engineer determines the Contractor is withholding payment with just cause, interest will not accrue.

If the Engineer determines the Contractor is withholding payment without just cause, beginning on the 21st calendar day after the Contractor's receipt of payment from the Department interest will accrue for the payee at the rate provided by NDCC 13-01.1-02. Additionally, the Department may withhold all payments to the Contractor until the Contractor properly pays the payee and agrees to make all future payments to payees as required by the contract.

The Department will apply these prompt payment procedures to all payees, in accordance with 49 CFR 26.29.

C. REPORTING REQUIREMENTS

1. General.

Create a vendor account with CCS if one does not exist. Create a user for each employee who will use the system and identify the main user. The main user will receive communications from the Department.

2. Utilization Plan.

Complete a Utilization Plan (UP) and submit it for approval in CSS within 14 days of being notified the UP is available, or contract execution, whichever is later. The Department may grant an extension upon written request from the Contractor.

List all payees with the UP and at the proper tier. Ensure payees are completing their requirements and provide assistance as necessary.

The Department's Civil Rights Division will review the UP, verify the DBE participation is reported correctly, and approve the UP or return it for updates. If the UP is returned it will contain a note describing the necessary updates. Complete changes and resubmit within 7 days of receiving a returned UP.

a. Non-Account Holders.

If a payee does not already have an account within CSS when creating the UP send the information listed below to the compliance officer via CSS:

- Company name;
- Mailing address;
- Phone number;
- Contact person's name; and
- Contact person's email address.

The NDDOT will then set up a vendor account within CCS for the payee and notify the contractor when they are available to add to the UP.

b. Additional Payees.

If a payee is added after the initial UP is approved, submit a request for the payee to be added via the "Subs" tab inside CCS. Complete this process before the payee is due payment.

3. Payments.

Once the UP is approved, the UP is locked in and contractor progress payments will be reported, and the monthly auditing process begins. An audit is the term used in the system to refer to a monthly period while the project is active.

Contractors must report any payments for all payees for each audit period. A payment may be marked as final and if the payee agrees to the final payment no other reporting will be required on that payee. Payments of $0 must be reported or the audit will be considered incomplete. Audits are available in subsequent months, meaning the January audit period will open in February. Payments not reported within 30 days will be considered past due. Audits containing past due payments must be unlocked by a system administrator.

4. Payment Discrepancies.

Payees are required to confirm payments or open a Discrepancy (dispute original submission) within 30 days of the payment being recorded. Payments not confirmed nor disputed within 30 days will be auto-confirmed by the system administrators and the ability to dispute that payment will no longer be available. Contractors are to ensure the payees on their project are timely confirming/disputing payments.

Attempts should be made to resolve Discrepancies between the two parties. CCS provides functionality for each party to comment publicly or privately (private comments are visible to system administrators only). If the parties cannot come to a resolution, the Department will make a resolution. The Department may request additional information, if applicable, before making a resolution.

5. **Certification and Compliance System Assistance.**
   A user manual for UP's and recording project payments is available within the system. The user manual and other training is offered by navigating to it once logged in. A UP does not have to be assigned to an entity to view the guide or attend system training.

   For further assistance, contact the Civil Rights Division for DBE related inquiries and the Construction Services Division for all other inquiries.

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NOTICE:

All employees of contractors performing electrical work outdoors as part of a highway construction project must be classified and compensated under the applicable Line Construction rates. Electrical work that is performed exclusively within a commercial building structure, such as a rest area facility, must be classified and compensated under the Electrician rates. Contractors are prohibited from classifying employees engaged in any phase of electrical work on highway construction projects as power equipment operators or laborers and should be classified and compensated in either the line construction or electrician rates.

Apprentices in Line Construction

Apprentices in Line Construction must be classified and paid as Apprentice Linemen, with wages based on a percentage of the journeyman rate that corresponds to their current level of training in the apprenticeship program. When performing work as an Apprentice Lineman, the employee must receive the correct apprentice wage and fringe benefits.

If an Apprentice Lineman is assigned duties that fall under a different line construction classification—such as Groundman—they must be reclassified and paid accordingly for the duration of that work.

Contractors are responsible for:

- Monitoring the progress of employees enrolled in the U.S. Department of Labor (DOL) Lineman/Electrical Apprenticeship Program.
- Uploading all approved apprenticeship documents under the eDocuments tab in LCPtracker.
- Updating the employee's profile within LCPtracker to reflect their apprentice status and current training level.
- Notifying the LCPtracker Administrator once the documents and profile updates are complete, so the apprenticeship submission can be reviewed and approved.

As an apprentice advances in their program, it is the contractor's responsibility to update the system and notify the LCPtracker Administrator to ensure accurate wage classification and compliance.

For assistance or questions concerning Davis-Bacon Wages and Requirements, go to:

https://www.dot.nd.gov/manuals/civilrights/davisbacon.pdf

Or contact:

Civil Rights Division
North Dakota Department of Transportation
608 East Boulevard Avenue
Bismarck, ND 58505-0700
Phone: 701-328-2605 Email: civilrights.nd.gov

LABOR RATES FROM U.S. DEPARTMENT OF LABOR

NDDOT's *Davis-Bacon Wage and Payroll Requirements Handbook* is available at:
https://www.dot.nd.gov/about-nddot/civil-rights/labor-compliance-program-davis-bacon

U.S. DEPARTMENT OF LABOR

STATE	COUNTY	
NORTH DAKOTA	STATEWIDE	ND20250006 Page 1

DATE OF DECISION
01-03-2025

Revised 05/30/2025 (Mod No. 1)

	Basic Hourly Rates	Fringe Benefits Payments H & W/Pensions
CARPENTERS	$35.85	$ 7.60
CEMENT MASONS/FINISHERS	35.85	7.60
LINE CONSTRUCTION:		
Lineman	53.48	8.80 + 29.5%
Cable Splicer	53.48	8.80 + 29.5%
Line Equipment Operator	45.41	8.80 + 29.5%
Groundman	30.26	8.80 + 19.5%
ELECTRICIANS:		
Electrician	53.48	8.80 + 29.5%
Cable Splicer	53.48	8.80 + 29.5%
(Adams, Billings, Bottineau, Bowman, Burke, Divide, Dunn, Emmons, Golden Valley, Grant, Hettinger, McHenry, McKenzie, Mclean, Mercer, Mountrail, Oliver, Pierce, Renville Rolette, Sheridan, Sioux, Slope, Ward and Williams Counties)		
Electrician	53.48	8.80 + 29.5%
Cable Splicer	53.48	8.80 + 29.5%
(Barnes, Benson, Cavalier, Dickey, Eddy, Foster, Grand Forks, Griggs, Kidder, La-Moure, Logan, Mcintosh, Nelson, Pembina, Ramsey, Ransom, Richland, Sargent, Steele, Stutsman, Towner, Traill, Walsh, and Wells Counties)		
Electrician	53.48	8.80 + 29.5%
Cable Splicer	53.48	8.80+ 29.5%
(Burleigh, Morton and Stark Counties)		
Electrician	35.35	16.32
(Cass County)		
WELDERS:		
Receive rate prescribed for craft performing operation to which welding is incidental		

	Basic Hourly Rates	Fringe Benefits Payments H & W/Pensions
LABORERS:		
Group 1 General Construction Laborers: Sack Shaker (cement and mineral filler); pipe handler; drill runner tender; salamander heater and blower tender; light truck; pickup driver; flaggers; pilot car drivers.	$27.65	$ 3.15
Group 2 Semi Skilled Laborer: bulk cement handler; conduit layer, telephone or electrical, form setter (pavement); gas electric or pneumatic tool operator; chipping hammer; grinders and paving breakers (tamper-dirt); concrete vibrator operator; chain saw operator; Concrete saw operator, concrete curing man (not water); bituminous worker (shoveler, dumper, raker and floated); kettleman (bituminous or lead); concrete bucket signalman; power buggy operator; brick and mason tender; muti-plate pipelayer; culvert pipe layers; carpenters tenders.	27.90	3.15
Group 3 Caisson Worker: Bottom Man (Sanitary sewer, storm sewer, water and gas liners); Concrete Mixer Operator (one bag capacity); Mortar Mixer.	28.05	3.15
Group 4 Drill Runner (includes Wagon Chum or Air Track); Pipe Layers (sanitary sewer, storm sewer, water, and gas lines); Powderman; gunite and sandblast; Nozzleman; Rein forcing Steel Sellers/Tiers: Concrete Finisher Tender.	28.80	3.15
POWER EQUIPMENT OPERATORS:		
Group 1 All Cranes 60 tons and over; Cranes doing piling, sheeting, dragline/clam work; Derrick (Guy and Stiff); Gentry Crane Operator; Helicopter Operator; Mole Operator or Tunnel Mucking Machine; Power Shovel;3-1/2 CY and over; Traveling Tower Crane.	35.05	21.90
Group 2 All Cranes 59 tons and under; Backhoe Operator 3 CY. and over; Creter Crane; Dredge Operator 12” and over; Equipment Dispatcher; Equipment Foreman; Finish Dozer; Finish Motor Grader; Front End Loader Operator 8 CY. and over; Master Mechanic (when supervising 5 or more Mechanics); Mon-O-Rail Hoist Operator; Power Shovel up to and including 3 CY; Tugboat.	33.65	21.90

	Basic Hourly Rates	Fringe Benefits Payments H & W/Pensions
POWER EQUIP.OPERATORS: (CONT.)		
Group 3 Asphalt Paving Machine Operator; Asphalt Plant Operator; Automated Grade Trimmer; Backhoe Operator, 1 CY. up to and including 2-1/2 CY.; Boom Truck Hydraulic 8 tons and over; Cableway Operator; Concrete Batch Plant Operator (electronic or manual); Concrete Mixer Paving Machine Operator; Concrete Paver Bridge Decks; Concrete Pump; Concrete Spreader Operator and Belt Placer; Crushing Plant Operator; Dozer Operator; Dredge Operator or Engineer 11" and under; Drill Rigs, Heavy Duty Rotary or Churn or Cable Drill; Front End Loader Operator, 3-1/2 CY up to and including 7-1/2 CY; Gravel Washing and Screening Plant Operator; Lazer-Screed Operator; Locomotive, all types; Mechanic or Welder(Heavy Duty); Motor Grader Operator; Pavement Breaker (Non-Hydro Hammer Type, Pipeline Wrapping, Cleaning and Bending Machine Operator); Power Actuated Auger and Horizontal Boring Machine Operator 6" and over; Refrigeration Plant Engineer; Rota Milling Machine (SurfacePlaner) 43" and over; Scraper Operator; Slip Form Concrete Paving Operator; Tandem Pushed Quad 9 or similar; Tractor with Boom Attachment; Trenching Machine Operator 100 H.P. and over.	$33.40	$21.90
Group 4 Articulated/Off Road Hauler; Asphalt Dump Person(Controls the spread of asphalt); Asphalt Paving Screed Operator; Backhoe, up to and including 1/2 CY; Boring Machine Locator; Console Board Operator; Curb Machine Operator; Distributor Operator (Bituminous); Forklift Operator; Front End Loader,1-1/2 CY up to and including 3 CY; Fuel/ Lube Truck Operator; Grade Person(Responsible for establishing and determining grade through instrumentation); Gravel Screening Plant Operator (not Crushing or Washing); Greaser; Hydro Vac and Hydro Excavator self propelled; Longitudinal Float and Spray Operator; Micro Surfacer Machine; Motor Grader Operator (Haul Roads); Paving Breaker HydroHammer Type; Pugmill Operator; Push Tractor; Roller, Steel and Rubber on Hot Mix Asphalt Paving; Rotomilling Machine (Surface Planer), up to and including 42"; Rumble Strip Machine; Sand and Chip Spreader; Self-Propelled Sheepsfoot Packer with or without Blade Attachment; Self Propelled Traveling Soil Stabilizer; Sheepsfoot Packer with Dozer Attachment 100 H.P. and over; Shouldering Machine; Slip Form, Curb and Gutter Operator; Slurry Seal Machine; Tamping Machine Operator; Tie Tamper and Ballast Machine; Trenching Machine Operator, 46 H.P. up to and including 99 H.P.; Truck Mechanic; Tub Grinder; Well Points.	33.25	21.90
Group 5 Boom Truck, A-Frame or Hydraulic 2 tons up to and including 7 tons; Broom Self-Propelled; Concrete Saw (power operated); Cure Bridge Operator; Front End Loader Operator, less than 1-1/2 CY; Mobile Cement Mixer-Non-Truck; Power Actuated Auger and Horizontal Boring MachineOperator up to and including 5"; Roller (on other than hot mix asphalt		

	Basic Hourly Rates	Fringe Benefits Payments H & W/Pensions
POWER EQUIP.OPERATORS: (CONT.)		
Group 5 (CONT.) paving); Oilers; Vibrating Packer Operator (Pad Type) (Self Propelled); Water Spraying Equipment-Self Propelled; Skidsteer Operator with attachments.	$32.40	$21.90
Group 6 Assistant/Apprentice Operator; Brakeman or Switchman; Dredge or Tugboat Deckhand; Drill Truck Gravel/Testing Operator; Form Trench Digger (Power); Gunite Operator Gunall; Paint Machine Striping Operator; Pickup Sweeper, 1 CY and over Hopper Capacity; Scissor Jack {Self -Propelled) Platform Lift; Straw Mulcher, Blower and straw press; Stump Chipper Operator; Tillage Equipment Operator; Tractor Pulling Compaction or Aerating Equipment and no till drills; Trenching Machine Operator up to and including 45 H.P.	31.60	21.90
TRUCK DRIVERS:		
Single-Axle Truck	32.88	17.99
Tandem- and Tri-Axle Truck	33.00	17.99
Tandem- and Tri-Axle Semi, Lowboy	33.31	17.99
Off Road Heavy Duty End Dumps 20 Yards and Under	33.31	17.99
Euclid, Over 20 Yards	34.83	17.99

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

HIGHWAY CONSTRUCTION PROJECTS

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(1).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022: Executive Order 14026 generally applies to the contract. The contractor must pay all covered workers at least $17.75 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing the contract in 2025.

If the contract was awarded on or between January 1 ,2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022: Executive Order 13658 generally applies to the contract. The contractor must pay all covered workers at least $13.30 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2025.

The applicable Executive Order minimum rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at http://www.dol.gov/whd/govcontracts.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION (NDDOT)
ON-THE-JOB TRAINING SPECIAL PROVISION

The bidder's signature on the proposal sheet indicates the bidder agrees to take part in the On-the-Job Training (OJT) Program and to follow the OJT Program Manual and Special Provision. Contractors that fail to do so will be subject to suspension of progress payments or sanctions up to and including revocation of bidding privileges.

OJT is training conducted in a highway construction work environment designed to enable minority, female, and economically disadvantaged individuals to learn a bona fide skill and qualify for a specific occupation through demonstration and practice.

After a training program and trainee candidate have been approved, the contractor begins training its regular employee according to the approved program. The goal of this training is to retain the trainee as a permanent employee within the ND Highway Construction industry. OJT involves individuals at the entry level. Training is designed to help participants reach their fullest potential and become self-sufficient in the job.

I. POLICY STATEMENT

The purpose of the OJT Program is to provide training in the highway construction industry for minority, female, and economically disadvantaged individuals, from this time known as the targeted group. Pursuant to 23 Code of Federal Regulations Part 230, Subpart A, Appendix B - Training Special Provisions, this program provides for on-the-job training aimed at developing journey-level workers in skilled trades.

The Contractor shall take all necessary and reasonable steps to ensure that minorities and women have the opportunity to compete for and participate as trainees or apprentices and to develop as journey-level workers employed in the skilled trades.

Contractors should select a training program(s) based on their company’s employment/staffing needs as stated in the OJT Program Manual.

II. INTRODUCTION/PROGRAM BACKGROUND

The OJT Program was originally prepared through the cooperative efforts of the Associated General Contractors of North Dakota (AGC); the Federal Highway Administration (FHWA); the North Dakota Department of Transportation (Department); and, other program stakeholders.

Successful operation of the OJT Program requires contractors to follow uniform and basic training procedures, keep records of trainee progress, and report each trainee's completion or termination.

III. ASSIGNED OJT POSITIONS

A. Trainee positions are assigned based only on federal highway dollars awarded to contractors from April to March. Trainee assignments are not project specific; that means the contractor may train program participants on any project where training opportunities exist within the state of North Dakota.

The number of trainee positions assigned will be determined by formula based on calculations involving particular project specification numbers on applicable projects. Once the formula calculations are determined the OJT Program Administrator completes a further analysis based on number of trainees per contractor, contractor work type,

location, past assignments, etc.

The types of projects NOT applicable in the calculation to assign trainee positions are:

- County-only or state-only funded projects
- Emergency relief, concrete pavement repair (CPR), electrical, rest area, signing, striping projects
- Projects subject to Tribal Employment Rights Ordinances (TERO)
- Projects not let as part of NDDOT bid openings

B. Contractors will receive the number of positions assigned and links to resources necessary for completion of program requirements via email.

C. The number of trainee positions assigned to each contractor will increase proportionately, as shown below, for any applicable federally funded projects awarded to them.

For all federal highway dollars awarded from April to March the following year:

8,000,000	to 16,000,000	1	trainee
16,000,001	to 24,000,000	2	trainees
24,000,001	and above	3	trainees

A maximum of three (3) trainee positions in a federal fiscal year will be assigned to any prime contractor regardless of dollar amount. Carryover positions from a prior construction season are not included in the three trainee maximum, e.g., a contractor with one carryover and three assigned positions may have a total four trainees.

Contractors assigned OJT positions are required to attend one-on-one meetings with the OJT Program Administrator and the OJT Supportive Services Consultant in early spring. The meeting is conducted virtually via Microsoft TEAMS. At this meeting any changes to the program and other important information will be shared and the contractor will have an opportunity to ask any questions they may have.

Failure to follow the OJT Special Provision and OJT Program Manual may result in suspension of progress payments or sanctions up to and including revocation of bidding privileges.

IV. FUNDING

The Department will establish an OJT fund annually from which contractors may bill the Department directly for eligible trainee hours. The funds for payment of trainee hours on federal-aid projects will be made available based on 23 USC 504(e) to a maximum of $100,000. The funds for payment of trainee hours on state-aid only projects will be allocated to a maximum of $10,000.

V. ONLINE RESOURCES

SFN 60226 Request for On-the-Job Training Program and Trainee Approval:
http://www.dot.nd.gov/forms/sfn60226.pdf

SFN 51023 Voucher for On-the-Job Training Program Hourly Reimbursement:
http://www.dot.nd.gov/forms/sfn51023.pdf

SFN 62136 On-The-Job Training (OJT) Program Dependent Child Care Reimbursement:
https://www.dot.nd.gov/forms/sfn62136.pdf

Davis-Bacon and Related Acts (DBRA) Handbook:
https://www.dot.nd.gov/manuals/civilrights/davisbacon.pdf

VI. APPROVALS REQUIRED

A. Requests for Approval of Training Programs and Trainee Candidates must be submitted to Civil Rights Division (CRD). Contractors must request and receive program and trainee candidate approval in order to pay trainees less than the established Davis-Bacon wage for the job classification concerned. **No training program hours will count toward the fulfillment of an assigned trainee position or be eligible for reimbursement without prior approval.** No retroactive approval will be granted.

1. Submit SFN 60226 *Request for On-the-Job Training Program and Trainee Approval* with each trainee's employment application. http://www.dot.nd.gov/forms/sfn60226.pdf and the pre-approved training curriculum for each trainee position assigned by April 1 or within fifteen (15) calendar days of notification.

2. Submit *SFN 7857 Application for Eligibility* directly to Job Service North Dakota (JSND) for approval of an economically disadvantaged individual for participation in the OJT Program.

B. Pre-approved curriculum: NDDOT's OJT Program Manual contains pre-approved training curriculum for a number of skilled trade positions. Contractors should select a training program(s) based on their company's employment/staffing needs.

C. Customized curriculum: To request a training curriculum not included in the pre-approved curriculum, submit a written request for approval by NDDOT Civil Rights Division.

The request must include:

- A training curriculum, including the classification requested, minimum number of hours required, and type of training the individual will receive to achieve journey-level worker status.
- A minimum wage scale.

If approved, each new classification must comply with the provisions specified in the OJT Program Manual. No hours worked prior to approval will be credited toward completion of the customized training program. Training programs for classifications not covered by the Davis-Bacon and Related Acts (DBRA) will be considered on a limited basis.

The contractor may commence its "customized" training as of the date of the written approval.

D. Union apprenticeship and on-the-job training programs registered with the Bureau of Apprenticeship and Training (BAT), U.S. Department of Labor, may be used for trainee positions assigned under the OJT Program, provided the trainees or apprentices are minority, female, or economically disadvantaged. Nonminority males not certified as economically disadvantaged may only be used when the contractor has requested and received approval, from the Department, for additional trainee positions. The apprenticeship indenture agreements serve as the trainee's job application and must be provided prior to any hours being credited toward OJT Program completion.

E. Power Equipment Operators:

The contractor may train an individual on a combination of equipment if each piece of equipment falls within the same groups of power equipment operators identified in the training curricula (groups 1-3 and groups 4-6). These power equipment operator groups are referenced to the federal DBRA wage rates contained in the contract proposal. As an example, a "utility operator" may receive training on a broom, a front-end loader less than 1½ cubic yards, or other piece of equipment that is used around a paver if each piece falls within either groups 1-3 or groups 4-6. When multiple wage rates apply, the trainee's wage will be based on the equipment being operated at the time or on the highest of the applicable wage rates.

Use of the classification "pickup machine operator (asphalt dump-person)" as a group 4 power equipment operator is considered standard industry practice. The classification is defined as: "Operates the controls on the pickup machine that runs in front of the paver, trips the levers on the dump trucks, and balances the loads for the paver. The pickup machine operates on similar principles as a shouldering machine."

F. Contractors not qualifying for the OJT Program, or contractors desiring to train more than the allotted number of trainees, may apply to the Department for additional trainee positions. Approval of additional positions will be at the sole discretion of the Department. The Department will take into consideration whether there is enough work for the trainee to successfully complete the curriculum and whether the contractor will be exceeding the allowable ratio of trainees to journey-workers (generally considered to be one trainee or apprentice to every three to five journey-workers).

The additional positions may be filled by individuals outside of the targeted groups. The contractor may pay the reduced training rates to additional trainees outside of the targeted groups but will not receive hourly reimbursement for any individuals not directly assigned by NDDOT.

VII. NDDOT'S RESPONSIBILITIES

A. The NDDOT OJT supportive services (OJTSS) consultant will monitor excerpts from the weekly certified payrolls or LCP Tracker for NDDOT projects submitted with the monthly vouchers for reimbursement. On contracts where certified payrolls are not required and not available for supporting documentation, contractors may enter trainee wages, hours in training, and the project control number(s) (PCN) in a spreadsheet to support their reimbursement vouchers. In this case, contractors should work with OJTSS to assure that all information required for payment is provided.

B. The OJTSS will review Daycare Reimbursement Forms and make recommendations to CRD on approvals. CRD approves any reimbursements and the OJTSS will process any payments. OJTSS tracks funds available/expended in order to stay within the limit of available funds that season/year. OJTSS Daycare reimbursements are made using OJTSS funding, which may be limited or unavailable year to year.

C. The OJTSS consultant will assess when the trainees have completed the specified number of hours and their wages are increased accordingly. The OJTSS consultant will also assure that applicable fringe benefits are paid either directly to the trainees or for the trainee into approved plans, funds, or programs.

D. The OJTSS consultant is charged with visiting trainees and monitoring their progress under the OJT Program. To facilitate the on-site visits, the OJTSS consultant will contact contractors for the location of the trainees weekly.

VIII. CONTRACTOR'S RESPONSIBILITIES

A. Consistently demonstrate efforts to recruit, hire, and train candidates for the OJT Program.

B. Assign each trainee to a particular person–either a supervisor or an employee proficient in the skills to be trained–who shall see that the trainee is given timely, instructional experience. This person must be familiar with the OJT Program, keep proper records, and ensure completion of the required training hours in accordance with the training curriculum.

C. Appoint a company employee who will be available and responsive to weekly contacts by the OJTSS consultant. OJTSS monitors the status of assigned trainee positions (e.g., program and trainee approvals, trainees' progress, etc.). The OJTSS consultant will contact the individual listed on the company's approved SFN 60226 Request for OJT Trainee Approval. This person must reply to communications from the Department and the OJTSS consultant in a timely manner.

D. Must have trainees available to the OJTSS consultant for at least two on-site visits during the construction season. The OJTSS consultant will be provided a private location to meet with the trainee and the trainee will be allowed as much time away from the project as necessary to complete the on-site visit.

E. Make the trainer and project superintendent available to the OJTSS consultant for at least two on-site visits each construction season.

F. Make trainees aware they are formally enrolled in the OJT program.

G. Inform trainees on availability of Daycare Reimbursement Program while in an approved training curriculum and assist them with completing the required paperwork, if applicable.

H. Identify trainees on the payroll excerpts, for example: "grp. 4 roller operator trainee." This includes trainees in job classifications not covered by DBRA. Handwritten notes are appropriate for identification.

I. Notify the Department when a trainee completes the number of hours required to graduate from the OJT Program. The Department will issue the trainee a confirmation letter as proof of the graduate's successful training program completion.

J. Notify the Department to "propose graduation" or discontinue the training period of a trainee who has completed 90% or more of their hours and thereafter advance the trainee to journey-worker status.

K. Elect to upgrade proficient trainees from one power equipment operator group or truck driver group to another, with the approval of CRD. Fewer hours are required to complete the upgraded position.

Minimum number of hours required:

Power Equipment Operator Groups 4-6 to Groups 1-3 = 400 hrs.
Class C Truck Driver to Class B = 200 hrs.
Class B Truck Driver to Class A = 200 hrs.

Depending on the variety of experience the trainee has gained under the previous curriculum, the difference in the hours may be deducted from the actual operation of the piece of equipment or truck. The contractor will need to review the trainee's past performance to make this determination.

K. May hire commercial driver's license (CDL) holders as truck driver trainees. Those having over-the-road driving experience, with little or no highway construction experience, may be considered to have completed the Class C truck driver training

curriculum and, therefore, are eligible to be upgraded to a Class B truck driver trainee, with the approval of CRD.

L. May transfer trainees from one project to another to complete the OJT Program. If transfers are made, CRD must be notified and provided with the name of the trainer.

M. May train trainees on municipal, private, or other non-highway work. These training hours must be paid at the OJT minimum wage scale to count toward their OJT Program completion; however, no program reimbursement will be made for those hours. Payrolls of employees trained on non-NDDOT projects must be provided to prove appropriate wages are paid.

N. Must train trainees on projects within North Dakota. Cannot train trainees on projects located outside of the state lines. The OJTSS consultant must be able to visit the trainee twice during their program. It is unreasonable for the OJTSS consultant to make these visits outside of the state.

O. May delegate or reassign trainee positions to subcontractors, with the acceptance of the subcontractors and the approval of CRD. The prime contractor must verify that the trainee will be able to accumulate enough hours to complete his or her training program. If approved, the subcontractor must obtain training program and trainee approval from CRD before the trainee begins work under the OJT program. Program reimbursement will be made directly to the prime contractor. The trainee position will remain the responsibility of the prime contractor.

P. May use trainees on projects subject to TERO requirements as part of the core crew. The training hours will count toward overall OJT Program completion; however, no program reimbursement will be made for those hours unless it is a NDDOT let project.

Q. Must not use one trainee to simultaneously fill multiple trainee positions

R. May use a trainee on a piece of equipment in groups 1-3 or groups 4-6 for one assigned trainee position, then once that trainee has completed the program, the trainee may be trained on a different piece of equipment in groups 1-3 or groups 4-6 to fulfill a second assigned trainee position. When a trainee is used for a second time within a group, the contractor must pay that trainee at the higher wage rate as described in paragraph B under Wage Rates (page 8).

IX. CLASSROOM TRAINING

A. Classroom training may be used to train employees. Each classroom training curriculum must be approved by CRD if the contractor wishes to count the classroom hours as training hours and be reimbursed.

Submit a proposed classroom training curriculum to CRD for approval. Define the type of training the individual will receive, classroom training curriculum, and the minimum number of hours required. The Department will determine the number of hours of credit each trainee will receive toward their training. No retroactive approval will be granted.

Contractors will be reimbursed for classroom training hours after the trainee has completed 40 hours of work on highway construction projects.

Reimbursement for classroom training will be limited to 40 hours per trainee per construction season.

B. The minimum wage scale to be used for classroom training will be that of the first federal-aid highway construction project on which the trainee will be employed. If the trainee is already employed on a federal-aid highway construction project, the trainee will be paid in accordance with the minimum wage scale applicable to that project. However, if the first project on which the trainee will be employed is a state funded only contract, the minimum wage scale to be used for the classroom training will be that of the appropriate DBRA wage in effect at the time of award of the state funded contract.

X. WAGE RATES

A. When the contractor is submitting the trainee's hours toward training program, wages paid shall in no case be less than that of those stated in the approved curriculum. A trainee working on a non-federal aid project, must be paid the DBRA wage rate in effect at the time of award for the type of work the trainee is performing as a trainee. Current and prior labor rates can be found on the NDDOT website at: https://www.dot.nd.gov/divisions/civilrights/laborcompliance.htm

B. The minimum wage rates shall not be less than 80% of the journey-worker rate for the first two quarters of training, 85% of the journey-worker rate for the third quarter, and 90% of the journey-worker rate for the fourth quarter.

- Under the power equipment operator training curricula only, once a trainee has completed a training curriculum in either groups 1-3 or groups 4-6, the contractor may enroll the trainee in another training curriculum on a different piece of equipment in either groups 1-3 or groups 4-6.
- The minimum wage rate under the trainee's second program shall not be less than 85% of the journey-worker rate for the first two quarters of training, 90% of the journey-worker rate for the third quarter, and 95% of the journey-worker rate for the fourth quarter.
- For the purpose of the OJT Program, a quarter is 25% of the hours the trainee works toward completion of their approved program. The first two quarters of a 550-hour training curriculum would end after 275 hours, the third quarter after 138 hours, and the fourth after 137 hours.

C. At any time hours are being attributed toward the completion of the approved training program, trainees shall be paid full fringe benefit amounts, where applicable, in accordance to DBRA requirements. DBRA requirements can be found on the NDDOT website at https://www.dot.nd.gov/divisions/civilrights/laborcompliance.htm

D. At the completion of the OJT Program, the trainee shall receive the wages of a skilled journey-worker.

XI. RECRUITMENT AND SELECTION

A. Prerequisites:

Trainees must possess basic physical fitness for the work to be performed, dependability, willingness to learn, ability to follow instructions, and an aptitude to maintain a safe work environment. Trainees must be a North Dakota resident during their training program.

B. Licenses:

Truck driver trainees must possess appropriate driver permits or licenses for the

operation of Class A, B, and C trucks. When an instructional permit is used in lieu of a license, the trainee must be accompanied by an operator who:

1. Holds a license corresponding to the vehicle being operated;
2. Has had at least one year of driving experience; and
3. Is occupying the seat next to the driver.

C. Recruitment:

1. Place notices and posters setting forth the contractor's Equal Employment Opportunity (EEO) Policy and the availability of the OJT Program in areas readily accessible to employees, applicants for employment, and potential employees.
2. Employ members of the targeted group (minority, female, or economically disadvantaged individuals) for all trainee positions assigned in accordance with the OJT Program. Additional positions requested by the contractor may be filled by individuals outside of the targeted groups.
3. Conduct systematic and direct recruitment through public and private employee referral sources.
4. Screen present employees for upgrading to higher skilled crafts. A present employee may qualify as a trainee; however, no work hours will be reimbursed or counted toward program completion prior to training program and trainee approval by CRD.

D. Selection:

1. Hire and enroll OJT trainee candidates who qualify as an individual in the targeted group.
2. Select a training program(s) based on their company’s employment/staffing needs.
3. Individuals in the targeted group having experience in the selected curriculum may be eligible to participate in the OJT Program providing they:
    - are not or have not been journey-workers in the selected curriculum, and/or
    - have not been previously trained in the selected curriculum.

E. Daycare Reimbursement Program:

Approved trainees may apply for the OJT Daycare Reimbursement Program and be eligible for up to $3,500 in reimbursement of daycare costs. The trainee must be the legal primary custodial guardian of the dependent(s) they are requesting reimbursement for. Dependent(s) must reside at the same address as the trainee for more than 50% of the calendar year. Proof of cost and other documentation will be required to be submitted with the OJT Dependent Child Care Reimbursement Form.

- Availability of program and eligible funds dependent on FHWA funding annually
- Once funding for the program has been expended for the year no further reimbursements are available
- W-9 will be required prior to any reimbursement
- Only daycare services provided during the dates/times the trainee is being trained in their approved OJT program will be reimbursed.

F. Completion Bonus Program:

Trainees that successfully complete their approved program may be eligible for a $500 completion bonus. These funds are provided directly from NDDOT to the trainee once

completion is determined.

- Availability of program and eligible funds dependent on FHWA funding annually
- Once funding for the program has been expended for the year no further funds are available
- W-9 will be required prior to any payment
- Any voluntary positions and/or carryover positions are not eligible

G. Commercial Drivers License (CDL) Program Reimbursement:

Individuals that qualify may request reimbursement for tuition costs in an approved CDL Program upon completion up to $6,000.

- Availability of program and eligible funds dependent on FHWA funding annually
- Once funding for the program has been expended for the year no further funds are available
- Pre-approval form and completion form required
- Periodic check-ins with instructors conducted to ensure compliance
- W-9 will be required prior to any reimbursement
- Only CDL Programs within ND on NDDOTs approved program list are available for reimbursement

XII. BASIS OF PAYMENT

A. Contractors will be paid $4.00 for each hour of training in accordance with the OJT Program Manual.

B. Reimbursement will be made directly to the contractor. Complete SFN 51023 Voucher for On-the-Job Training Program Hourly Reimbursement for each trainee. LCPtracker must be utilized on NDDOT projects for reporting certified payrolls. The OJTSS consultant will be verifying hours submitted on NDDOT projects through this online reporting system. For non-NDDOT projects the firm must attach excerpts from the weekly certified payrolls showing the trainee's hours, rate of pay, and how applicable fringe benefits were paid. Vouchers without excerpts from payrolls will not be paid until the excerpts are provided. If the excerpts from the payrolls are not provided within one week, the voucher will not be paid, and the trainee's hours will not be credited toward completion.

C. On contracts where certified payrolls are not required and not available for supporting documentation, contractors may enter trainee wages, hours in training, and the project control number(s) (PCN) in a spreadsheet to support their reimbursement vouchers. In this case, contractors should work with OJTSS to assure that all information required for payment is provided.

D. Submit completed vouchers to CRD for approval and processing by the fifteenth (15^{th}) calendar day of every following month the trainee is employed under the OJT Program.

Regardless, all vouchers for trainee hours worked on state funded only projects from July 1 to June 30 must be received by CRD no later than July 15 in order to be

reimbursed. All vouchers for trainee hours worked on federally funded projects from October 1 to September 30 must be received by CRD no later than October 15 in order to be reimbursed. This is due to state and federal end-of-the-year budget fiduciary requirements.

XIII. FAILURE TO PROVIDE THE TRAINING OR HIRE THE TRAINEE AS A JOURNEY-WORKER

A. The contractor is required to consistently demonstrate efforts to recruit, hire, and train candidates for the OJT Program.

B. If the contractor does not show in a timely manner good faith efforts to recruit, hire, and train candidates in the targeted group, the Department may withhold progress payments

C. If payments have been made, the Department will deduct the amount paid from the contractor's progress payment.

D. No payment shall be made to a contractor for failure to provide the required training or failure to hire the trainee as a journey-worker when such failure is caused by the contractor and evidences a lack of good faith on the part of the contractor in meeting the requirements of this OJT Program Special Provision.

E. Hiring a trainee to begin training as soon as feasible after start of work is evidence of a contractor's good faith efforts to comply with the OJT Program requirements. Additional evidence supporting a contractor's good faith efforts would be to keep the trainee employed as long as training opportunities exist in the approved work classification or until the trainee has completed his or her training program.

F. It is not required that all trainees be employed for the entire length of the construction season. A contractor will have fulfilled its responsibilities under this OJT Special Provision if it has provided acceptable training to the number of trainees assigned.

XIV. UNFILLED OR INCOMPLETE TRAINEE POSITIONS

A. By October 1, provide written explanation of the firm's good faith efforts for unfilled or incomplete trainee assignments to CRD. CRD will decide, on a case-by-case basis, whether to carry the assigned positions over to the next construction season.

B. Positions carried over from the previous construction season must be among the first positions filled at season startup. To notify CRD of the trainee's rehiring, submit *SFN 60226 Request for On-the-Job Trainee Approval*, marking 'Check if Carryover Trainee' in the Approved Training Program section of the form. There is no need for the training position or a returning trainee to be re-approved.

C. Sanctions, up to and including revocation of bidding privileges, may be imposed on the contractor for failure to provide sufficient explanation and documentation for reasons assigned trainee positions when unfilled or incomplete.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES

GENERAL

Install, maintain, and remove appropriate Temporary Erosion and Sediment Control Measures (ESCMs).

Definitions:

A. Temporary Erosion and Sediment Control Measures are to be installed and maintained before and during the term of the land disturbance activity. These items are removed when permanent erosion and sediment ESCMs are installed.

B. Permanent Erosion and Sediment Control Measures are to be installed and maintained once the project is completed so that the applicable permits can be terminated.

In some instances, individual temporary and permanent erosion and sediment ESCMs for a site may consist of identical ESCMs. In these cases, the temporary erosion and sediment ESCMs may be used as the permanent erosion and sediment ESCMs if they meet the following criteria:

1. The ESCM was installed correctly,
2. Is in a functional condition,
3. Has had all accumulated sediment removed.

C. The Stormwater Pollution Prevention Plan (SWPPP) is the document that identifies potential sources of sediment or other pollution from construction activity and ensures practices are used to reduce the contribution of pollutants from construction site runoff.

D. Contractor Controlled Areas are project areas not included in the contract, but are obtained and solely controlled by the Contractor (e.g., concrete or asphalt batch plants, concrete washout areas, equipment staging yards, material storage areas, excavated material disposal areas, Contractor furnished borrow areas, etc.).

E. Maintenance is any action taken to keep an ESCM in working condition. These actions may consist of repairing failures of the ESCM itself.

F. Noncompliance is any action or inaction that violates the regulations imposed by the applicable permits or the requirements of this special provision and other contract documents. Failure of an ESCM does not necessarily constitute noncompliance as long as the ESCM is repaired, replaced or supplemented within the timelines established in the applicable permits and no sediment is discharged from the site or into a water of the state.

CONSTRUCTION REQUIREMENTS

A. General.

Develop a SWPPP specific to the project. The creation of the SWPPP is a cooperative effort between the NDDOT who creates the project plan sheets and the Contractor who creates a complete SWPPP which incorporates the plan sheets and the Contractor's means and methods. The project plan sheets by themselves do not meet the requirements of a complete SWPPP and should not be considered as such. The Contractor has the flexibility to modify the design and implementation of the temporary erosion and sediment controls to match the Contractor's means and methods and/or field conditions. These changes must be documented in the SWPPP and meet all regulatory requirements.

B. Permits.

Obtain appropriate permit coverage for the activities conducted in Contractor Controlled Areas. A permit will be required for these areas regardless of their size. The NDDOT will have no responsibility for these areas. Provide copies of the completed and signed Notice of Intent submitted for permit coverage to the Engineer before activities in these areas commence. Do not commence activities in these areas until after permit coverage has begun. Provide copies of Permit Coverage Letters for these areas to the Engineer within 7 days of receiving them from the regulating agency.

C. Submittals.

1. **Preconstruction**

   Provide, at the preconstruction conference, documentation of any Subcontractor hired for erosion control showing that the Subcontractor's on-site supervisor is certified through the NDDOT Erosion & Sediment Control Construction (ESCC) Certification Training. This certification must be maintained by the Subcontractor's onsite supervisor through the term of the contract. The Engineer will provide a verification of their certification through the NDDOT ESCC Certification Training at the preconstruction conference and will maintain that certification through the term of the contract.

   For projects covered by an Environmental Protection Agency (EPA) Construction General Permit, provide at the preconstruction conference, the documentation of EPA construction inspection certification for all individuals conducting inspections under this permit.

2. **Changes to the Erosion Control Plan.**

   Provide immediate written notification to the Engineer of proposed changes to the erosion control plan or SWPPP. The Engineer will review the proposed changes and determine if they are adequate. Documentation of maintenance and inspections that does not affect the erosion control plan or SWPPP does not require approval by the Engineer.

3. **Inspection Reports**

   Provide copies of all inspections, documentation, record keeping, maintenance, remedial actions, and repairs required by the applicable permits to the Engineer. Provide inspection and maintenance reports within 3 working days after an inspection has been conducted.

D. Construction.

Install a rain gauge to monitor rainfall amounts as required by the appropriate permit.

Install perimeter erosion and sediment ESCMs according to the plans/SWPPP before site disturbance.

Do not rely on perimeter ESCMs as the sole method of controlling erosion. As the project progresses, install temporary erosion and sediment ESCMs within the perimeter ESCMs to control erosion resulting from the construction of the project.

Change the location of temporary erosion and sediment ESCMs to fit the field conditions.

Use temporary erosion and sediment ESCMs to prevent contamination of adjacent streams or other watercourses, lakes, ponds or other areas of water impoundment.

Update the SWPPP as work progresses, or as directed by the Engineer. Update the SWPPP to show changes due to revisions in work schedules or sequence of construction. Update the site map to reflect erosion and sediment ESCMs that have been installed, changed, or removed.

Install stabilization ESCMs (mulch, seeding and mulch, etc.) in areas that have been disturbed where work has temporarily or permanently ceased following the timelines established in the applicable permits. If implementation of stabilization is precluded by snow cover, undertake such measures as soon as conditions allow or perform winter stabilization techniques.

Coordinate temporary erosion and sediment ESCMs with the construction of permanent erosion and sediment ESCMs to provide continuous erosion control. Do not install temporary erosion and sediment ESCMs when permanent erosion and sediment ESCMs are able to be installed. Once the permit is terminated or transferred to the Department, the maintenance of the permanent erosion and sediment ESCMs becomes the responsibility of the NDDOT.

E Maintenance.

Maintain the effectiveness of the temporary erosion and sediment ESCMs as long as required to contain sediment runoff. Inspect the temporary erosion and sediment ESCMs and complete the inspection and maintenance reports every 14 days and within 24 hours of a rainfall event of 0.25 inch or more. During prolonged rainfall (more than 1 day), conduct an inspection within 24 hours of the first day of the event and within 24 hours after the end of the event. Inspections are required only during normal business hours.

Correct any deficiencies in the ESCMs within the timelines established in the applicable permits. If conditions do not permit access to the ESCM, corrective actions can be taken by installing additional ESCMs. Correct the original deficiencies as soon as conditions allow access to their location without causing additional damage to the slopes. In the inspection logs, document the conditions that prohibit access.

F. Removal.

Remove the temporary devices when directed by the Engineer or when permanent erosion and sediment controls are installed.

Erosion and Sediment Control Supervisor.

A. General.
Designate an erosion and sediment control supervisor. Provide the name and contact information for the supervisor at the preconstruction meeting. If this erosion and sediment control supervisor becomes unavailable on the project, designate a replacement supervisor. Notify the Engineer if this supervisor changes and provide the contact information for the new supervisor.

B. Qualifications.
Provide a supervisor that is an employee of the Prime Contractor and has the following qualifications:

1. Familiar with installation, maintenance, and removal of ESCMs and the requirements of the erosion and sediment control plans, applicable permit requirements, specifications, plans and this provision;

2. Competent to supervise personnel in erosion and sediment control operations; and

3. Certified through the NDDOT ESCC Certification Training and maintain that training throughout the term of the contract. The EPA construction inspection course cannot take the place of the NDDOT ESCCC. No other certifications may take the place of this requirement.

C. Duties.
The supervisor's duties shall include the following:

1. Provide erosion and sediment control as required by the SWPPP, Plans, and Specifications.

2. Be on the site to supervise the installation, operation, inspection, maintenance, and removal of the erosion and sediment ESCMs.

3. Update the SWPPP as work progresses to show changes due to revisions in work schedules or sequence of construction, or as directed by the Engineer. Update the site map to reflect erosion and sediment ESCMs that have been installed, changed, or removed.

4. Propose changes to improve erosion and sediment control.

5. Be accessible to the job site within 24-hours.

6. Provide the Engineer with documentation of all erosion and sediment control activities and inspections as required above.

EROSION AND SEDIMENT CONTROL INSPECTOR FOR EPA CONSTRUCTION GENERAL PERMIT

For projects covered by EPA Construction General Permit, provide individuals conducting the Erosion and Sediment Control Inspections that have taken the EPA Construction inspection

course developed for this permit. These individuals must have passed the exam or hold a valid construction inspection certification or license from an equivalent program.

The NDDOT ESCC certification cannot take the place of EPA construction inspection certification. Only third-party training that is listed as EPA approved on the EPA website will be considered equivalent.

Provide the names of any individuals who will be conducting the Erosion and Sediment Control inspections on EPA projects. Notify the Engineer if this person changes and provide the new contact information.

The EPA Construction Inspection Certification or License must be active for the duration of the project.

PERFORMANCE

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. Assess 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; or

4. Withhold payment on other contract items/pay estimates.

These actions will be applied until deficiencies have been corrected.

METHOD OF MEASUREMENT

ESCM items will be measured as specified in the “Method of Measurement” portion of the appropriate section of the specifications.

BASIS OF PAYMENT

A. General.

ESCM installation will be paid for at the contract unit price for erosion and sediment control for the appropriate items and sections. The plans will detail the required ESCMs for temporary and permanent installations. The same bid items may be used for temporary and permanent ESCMs.

ESCM item removal will be paid for at the contract unit price for “Remove _____”in the appropriate section of the specifications.

Include the costs for labor, materials, maintenance, equipment, disposal, adherence to the permit, and SWPPP modifications in the respective pay items.

B. Replacement of ESCMs.

When the Engineer directs the replacement of temporary erosion and sediment ESCMs that are no longer functional because of deterioration or functional incapacity and those items were

installed as specified in the Contract or as directed by the Engineer, the Department will pay for replacement ESCMs

No payment will be made for replacing temporary erosion and sediment ESCMs that the Engineer determines are ineffective because of improper installation, lack of maintenance, or the Contractor's failure to pursue timely installation of permanent erosion and sediment ESCMs as required in the Contract.

No payment will be made for replacing temporary erosion and sediment ESCMs due to contractor operations. Include the cost to move Flotation Silt Curtain as work progresses in the price bid for "Flotation Silt Curtain".

C. Removal of Sediment.

Removal of sediment from silt fence and fiber rolls will be paid for at the price listed in the "Price Schedule PS-1."

D. Contractor Controlled Areas.

Erosion and sediment controls for Contractor Controlled Areas are the responsibility of the Contractor and will not be paid for by the Department.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

LOCAL AGENCY CONTRACTS

References to NDDOT, Department, Director, or Engineer in the Standard Specifications for Road and Bridge Construction and other portions of the Contract must be construed as referring to the Owner of the project.

If the Contractor intends to file a claim for additional compensation for work or material not covered by the Contract, the Contractor is required to prosecute the claim in accordance with the Standard Specifications for Road and Bridge Construction, Section 104.05, “Claims for Adjustment”. The provisions of Section 104.05 D, “Conditions Precedent to Contractor’s Demand for Arbitration”, are not applicable to this Contract, nor are the provisions of North Dakota Century Code §24-02-26 et seq. regarding arbitration applicable, as the North Dakota Department of Transportation is not a party to the Contract.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

LIMITATIONS OF OPERATIONS

DESCRIPTION

Section 108.05, “Limitations of Operations” is no longer valid. Use this Special Provision in its place.

108.05 LIMITATION OF OPERATIONS

A. General.

Perform the work in a manner and sequence that minimizes interference to traffic, and with due regard to the location of detours and provisions for handling traffic. Do not begin work to the prejudice or detriment of work already started; the contract may require a section of roadway to be finished before starting additional sections if the opening of the section is essential to public convenience.

If the prosecution of the work is discontinued, provide the Engineer at least 24-hours notice before resuming operations.

B. Holidays.

Unless the contract allows work on holidays, perform work on holidays only with the Engineer’s prior written approval. Submit a written request to the Engineer by noon 2 business days before the requested holiday.

C. Nighttime Operations and Extended Hours.

1. General.

When performing work in low light conditions, implement proper safety precautions and provide adequate lighting for the performance and inspection of the work.

The following operations are exempt from the definitions of extended hours and nighttime operations:

- Pavement coring;
- Concrete joint cutting; and
- Temporary traffic control.

Work conducted less than 1 hour after sunset and less than 1 hour before sunrise is considered extended hours. All other operations conducted under darkness fall under nighttime operations.

2. Nighttime Operations.

Unless the contract allows for nighttime operations, perform work at night only with the Engineer’s prior written approval.

Submit a written request to the Engineer before anticipated nighttime operations. Allow up to 7 calendar days for the Engineer to review the request. The Engineer may deny the request or delay approval if it would require additional staffing considerations. If nighttime

operations require the Engineer to hire additional forces, nighttime operations may not be allowed for up to 30 days from the receipt of the request.

When requesting to perform nighttime operations, include a plan to ensure the safety of all individuals on the project site, including the Contractor's and subcontractor's workers, Department representatives, and the traveling public.

The Department bears no liability for costs or delays resulting from the Engineer's approval, rejection, or delay for staffing purposes of a request to perform nighttime operations.

3. Extended Hours.

Extended hours are allowed before sunrise with verbal notice given to the Engineer the previous day. Extended hours are allowed after sunset with verbal notice given to the Engineer that same day.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

STANDARD SPECIAL PROVISION

FEDERAL PROHIBITION ON CERTAIN TECHNOLOGICAL HARDWARE

DESCRIPTION

This Special Provision details technological items that are prohibited from use on Department contracts. The contents of this SP take precedent over requirements regarding affected equipment in all other contract documents.

CONTRACT REQUIREMENTS

Equipment, services, and systems using telecommunications equipment or services are prohibited from containing equipment produced by:

- Huawei Technologies Company;
- ZTE Corporation; and
- Any subsidiary or affiliate of the named entities.

Video surveillance and telecommunications equipment are prohibited from containing equipment produced by:

- Hytera Communications Corporation;
- Hangzhou Hikvision Digital Technology Company;
- Dahua Technology Company; and
- Any subsidiary or affiliate of the named entities.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

STANDARD SPECIAL PROVISION

BUY AMERICA/BUILD AMERICA BUY AMERICA

DESCRIPTION

Replace Section 106.08, “Buy America”, with the following:

BUY AMERICA FOR INFRASTRUCTURE PROJECTS

A. General.

Provide materials from domestic sources when products are permanently incorporated into the work.

The requirements of this SP are not applicable to equipment, tools, and temporary items.

This definitions and requirements in this SP have been assembled based on the following Federal requirements:

- Iron and steel requirements are based on 23 CFR part 635, “Buy America”; and
- Construction materials and manufactured products are based on 2 CFR part 184, “Buy America Preferences for Infrastructure Projects” (BABA).

B. Certifications.

All certifications are submitted by the prime Contractor. When submitting certifications for materials that are subject to the requirements of this provision, the prime Contractor shall include a signed letter stating that the submitted documentation is the documentation that was received by the prime Contractor for material incorporated into the work. The prime Contractor’s signature on the Department’s Certificate of Compliance form meets this requirement.

C. Determination of Material Category.

1. General.

Only single category of requirements will apply to an item.

Some contract items are composed of multiple components that may fall into different categories. Individual components will be categorized based on their nature when they arrive at the work site. In cases where the classification of an item is in question or dispute, the Engineer’s determination of the classification will be binding.

EXCEPTION:

Iron and steel components included in items classified as manufactured products must meet the requirements of Section D, “Steel and Iron Certification” of this SP.

2. Iron and Steel.

All iron and steel permanently incorporated into the work must meet the requirements of Section D, “Steel and Iron Certification” of this Special Provision. Buy America requirements do not apply to iron and steel items used by the Contractor to facilitate

construction that are left in place upon completion of the work and are not required to be permanently installed as part of the contract requirements.

3. **Manufactured Products.**
An FHWA general applicability waiver exists for Manufactured Products and this category is therefore currently not subject to BABA requirements; however, they are included in this Special Provision to maintain the category definition and consistency with Federal language.

Manufactured product is defined as articles, materials, or supplies that have been:
- Processed into specific form or shape; or
- Combined with other articles, materials, or supplies to create a product with different properties than the individual articles, materials, or supplies.

4. **Construction Materials.**
The category of construction materials excludes cement and cementitious materials, aggregates such as stone, sand, or gravel, or aggregate binding agents or additives.

Construction materials are materials that consist primarily of:
- Non-ferrous metals;
- Plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables);
- Glass (including optic glass);
- Fiber optic cables (including drop cable);
- Optical fiber;
- Lumber;
- Engineered wood; or
- Drywall.

Minor additions of articles, materials, supplies, or binding agents to a construction material do not change the categorization.

5. **Exempt Materials [Section 70917(c) Materials].**
The following materials are exempt from the requirements of this provision per Section 70917(c) of the Build America, Buy America Act:
- Cement and cementitious materials;
- Aggregates such as stone, sand, or gravel; or
- Aggregate binding agents or additives.

D. Steel and Iron Certification.

1. **General.**
Ensure all manufacturing processes, including applications of coatings, occur in the United States. A coating includes all processes required to apply the coating to a product to protect or enhance the value of the product.

2. Bulk Manufactured Steel and Iron Materials.
In addition to the requirements of Section 106.01 C, "Certificate of Compliance", submit a contractor's Certificate of Compliance stating that the iron and steel products listed in Table 1 are of domestic origin.

Table 1

Mailbox supports	Cable Fence Materials
Chain Link Fence Materials	Barbed Wire Fence Materials
Guardrail Components	Woven Wire Fence Materials
Culvert Markers	Delineators
Perforated Tube Sign Supports and Related Materials	

3. Other Steel and Iron Products.
For steel and iron products that are not listed in Table 1, submit a manufacturer's Certificate of Compliance as specified in Section 106.01 C, "Certificate of Compliance" and the following information:

a. A signed mill test report.
b. A signed certification from each fabricator and manufacturer that has handled the steel and iron products affirming that all processes performed on the steel and iron products were conducted in the United States.
c. Material descriptions, quantities, and a means of material identification (lot number, bin number, heat number, or factory identification) for each process performed on the steel and iron products.

Each certification shall contain the material identification from all previous fabricators and manufacturers in the process.

4. Foreign or Uncertified Products.
These requirements allow the use of steel and iron products produced and manufactured outside the United States, or products that cannot be certified as originating in the United States, of a total value less than 0.1 percent of the original contract amount, or $2,500, whichever is greater.

The total value is that shown to be the cost of the steel and iron products as delivered to the project site.

Document the cost of:
- Foreign steel and iron products, plus
- Steel and iron products which cannot be certified as originating in the United States.

Submit the documentation of foreign and uncertified products with the required certifications.

E. Manufactured Products
An FHWA general applicability waiver exists for Manufactured Products and this category is therefore currently not subject to BABA requirements; however, they are included in this Special Provision to maintain the category definition and consistency with Federal language.

A manufactured product is acceptable under this provision if:

- The product was manufactured in the United States; and
- The cost of the components of the manufactured product that are mined, produced, or manufactured in the United States is greater than 55 percent of the total cost of all components of the manufactured product.

Compute the cost of components of manufactured products as follows:

- For components purchased by the manufacturer, the acquisition cost, including transportation costs to the place of incorporation into the manufactured product and any applicable duty; or
- For components manufactured by the manufacturer, all costs associated with the manufacture of the component, including transportation costs described in the prior bullet, plus allocable overhead costs, but excluding profit. Cost of components does not include any costs associated with the manufacture of the manufactured product.

F. Construction Materials.

1. General.
Each material classified as a construction material has a specific standard for the material to be considered in compliance with this provision.

Except as specifically provided, only a single standard under this section should be applied to a single construction material.

2. Non-Ferrous Metals.
For non-ferrous metals, all manufacturing processes from initial smelting or melting through final shaping, coating, and assembly, occurred in the United States.

3. Plastic and Polymer-Based Products.
For plastic and polymer-based products; including polyvinylchloride, composite building materials, and polymers used in fiber optic cables; all manufacturing processes, from initial combination of constituent plastic or polymer-based inputs, or, where applicable, constituent composite materials, until the item is in its final form, occurred in the United States.

4. Glass.
For glass; including optic glass; all manufacturing processes, from initial batching and melting of raw materials through annealing, cooling, and cutting, occurred in the United States.

5. Fiber Optic Cable.
For fiber optic cable; including drop cable; all manufacturing processes, from the initial ribboning if applicable, through buffering, fiber stranding and jacketing, occurred in the United States.

All manufacturing processes also include the standards for glass and optical fiber, but not for non-ferrous metals, plastic and polymer-based products, or any others.

6. **Optical Fiber.**
   For optical fiber, all manufacturing processes, from the initial preform fabrication stage through the completion of the draw, occurred in the United States.

7. **Lumber.**
   For lumber, all manufacturing processes, from initial debarking through treatment and planing, occurred in the United States.

8. **Drywall.**
   For drywall, all manufacturing processes, from initial blending of mined or synthetic gypsum plaster and additives through cutting and drying of sandwiched panels, occurred in the United States.

9. **Engineered Wood.**
   For engineered wood, all manufacturing processes from the initial combination of constituent materials until the wood product is in its final form, occurred in the United States.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

PUBLIC LIABILITY AND PROPERTY DAMAGE INSURANCE

DESCRIPTION

This SP replaces Section 107.14 Public Liability and Property Damage Insurance.

107.14 Public Liability and Property Damage Insurance.

A. General Requirements.

Submit to the Department the certificates of insurance effecting the requirements in this section for the Commercial General Liability and Commercial Automobile Liability Insurances with the contract and the contract bond in accordance with Section 103.06, "Execution and Approval of Contract."

Provide insurance policies executed by a corporation qualified and authorized to write the policies in the State of North Dakota. The State reserves the right to obtain complete, certified copies of all required insurance documents, policies, or endorsements at any time.
Secure and maintain insurance in full force and effect before starting the work and until completion of all work required and accepted by the Department or owner. The policies shall provide 30 calendar days notice to the Department or the owner of any intent to cancel or materially alter such insurance.

Failure to maintain the insurance as required constitutes a material breach of contract. The Department or the owner may, after giving 5 business days notice to the Contractor to correct the breach, immediately terminate the Contractor in accordance with Section 108.08, "Termination of the Contract for Default," and procure or renew such insurance and pay all premiums. The Department or the owner may demand repayment of premium costs by the Contractor, or may offset the premium costs against funds due the Contractor from the Department or the owner.

B. Insurance Requirements.

Secure and maintain in full force and effect during the term of the contract the following insurance coverages:

1. Commercial General Liability for limits not less than $2,000,000 combined single limit per occurrence and aggregate for bodily injury, property damage, personal injury and completed operations/product liability. Provide products and completed operations coverage for a period of one year following final acceptance of the work. Provide coverage with the aggregate limit applied separately to occurrences at the location or project described in this contract. Provide a policy including a "stop-gap" Employers Liability endorsement to cover the employer's liability for injury to employees falling outside the State Worker's Compensation Law.

2. Commercial Automobile Liability for limits not less than $2,000,000 combined single limit per accident for bodily injury and property damage.

3. Workers Compensation coverage as required by the State of North Dakota.

The General Liability and Automobile policies shall provide an additional insured endorsement in favor of the State of North Dakota and the Owner and shall contain a “Waiver of Subrogation” to waive any right of recovery that the Insurance company may have against the State and the Owner. The coverage required under this agreement shall be primary for the State and the Owner, and shall not be affected by any other insurance or coverage obtained by the State or the Owner on their own behalf.

Any right of the State to receive indemnification and insurance shall not give rise to a duty on the part of the State to exercise its rights or status for the benefit of the owner, or any other person or entity.

C. Subcontractor.

If subletting a portion of the contract, the Contractor shall obtain insurance protection in accordance with Section 107.14.B, “Insurance Requirements,” to provide liability coverage to protect the Contractor, State, and owner for work undertaken by the subcontractor. Ensure public liability and property damage insurance coverage in accordance with Section 107.14.B, “Insurance Requirements,” for all parties performing work under the contract.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

CITY OF WEST FARGO SPECIFICATIONS

PROJECT NUMBER: TMA-SU-FXP-8-992(045)

PCN: 23537

This Special Provision incorporates the City of West Fargo Specifications into the contract. Portions of the City of West Fargo Specifications will govern over the Standard Specifications as indicated throughout the plans. The Contractor shall be responsible for verifying the applicable governing specification for all items of work prior to beginning work.

ENGINEERING SPECIFICATIONS

Updated – February 20, 2025

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2025 Specification Changes and Proposed Revisions

310516 Aggregates for Earthwork

1. Switched Type A4 from NDDOT Class 7 to Class 43.

312316 Topsoil, Fills and Embankments, and Subgrade Preparation

1. Revised to state that subgrade must be smooth before performing the test.

329316 Seeding

1. Late or Early season seeding may require the addition of 10 lbs of oats or rye to the seed mixture as determined by the Engineer. This will be incidental to the cost of the work.

Public Sanitary Sewerage Gravity Piping

1. Sanitary services not in use will be sealed with a solvent welded cap to ensure water and air tightness.

330130.72 Cured in Place Pipe Lining/Manhole Rehabilitation

1. Company installing product must include references from at least 3 Cities as part of the qualification process.
2. Added Liner Products of Paoli, Indiana, to list of approved manufacturers.
3. Added corrosion cleaning to pipe preparation.
4. Removed pre-approved list of installers.

330130.81 Manhole Rehabilitation

1. Approved manufacturers are required to provide a 5 year warranty on structure coatings.
2. Added Epoxytec Series 456 and Zebron.

330505.43 Mandrel Testing

1. Gravity Sanitary Sewer required to be deflection tested with a mandrel prior to the start of any roadway component. This is in addition to any North Dakota Plumbing or Ten States Standards design or installation requirements.

330561 Precast Concrete Structures

1. Added type 2 chimney seal system.
2. Remove bottom lip of I & I barrier when installing on storm sewer or install a grouted seating ring prior to installation.
3. Grout holes when manhole steps are not installed.

330597 Identification and Signage for Utilities

1. Boabox to be used for residential water services.
2. Added that conduit for hydrant terminal connections must be grey electrical conduit.

333111- Public Sanitary Sewerage Gravity Piping

1. Added section on backfilling similar to Public Water Utility Distribution Piping.

CITY OF WEST FARGO ENGINEERING

01 - GENERAL REQUIREMENTS

SECTION 011000 - SUMMARY

1.1 SUMMARY

A. Section Includes:

1. Contract description.
2. Owner-furnished products.
3. Contractor's use of Site.
4. Work sequence.
5. Owner occupancy.
6. Permits.
7. Specification conventions.

1.2 CONTRACT DESCRIPTION

A. Work of the Project includes construction municipal facilities for the City of West Fargo.

B. Perform Work of each Contract under unit price Contract with Owner according to Conditions of Contract.

C. Work of each separate Contract is identified on Drawings.

1.3 OWNER-FURNISHED PRODUCTS

A. Owner's Responsibilities:

1. Arrange for and deliver Owner-reviewed Shop Drawings, Product Data, and Samples to Contractor.
2. Arrange and pay for delivery to Site.
3. Upon delivery, inspect products jointly with Contractor.
4. Submit claims for transportation damage and replace damaged, defective, or deficient items.
5. Arrange for manufacturers' warranties, inspections, and service.

B. Contractor's Responsibilities:

1. Review Owner-reviewed Shop Drawings, Product Data, and Samples.
2. Receive and unload products at Site; inspect for completeness or damage jointly with Owner.
3. Handle, store, install, and finish products.
4. Repair or replace items damaged after receipt.

C. Items furnished by Owner for installation by Contractor are shown on the Drawings.

1.4 CONTRACTOR'S USE OF SITE

A. Limit use of Site to allow:

1. Owner occupancy.
2. Use of Site by the public as indicated on the Drawings.

B. Construction Operations: Limited to areas indicated on Drawings.

C. Time Restrictions for Performing Work:

1. Monday through Saturday from 7:00 AM to 7:00 PM, unless otherwise noted.
2. Sunday and Holidays by permission only.

D. Utility Outages and Shutdown:

1. Coordinate and schedule electrical and other utility outages with Owner.
2. Outages: Allowed only at previously agreed upon times.

E. Sound Level Restrictions: Per City Ordinance Chapter 15-14 – Noise Control.

1.5 WORK SEQUENCE

A. Construct Work in order to accommodate Owner's occupancy requirements during construction period. Coordinate construction schedule and operations with Engineer.

1.6 OWNER OCCUPANCY

A. Schedule and substantially complete designated portions of the Work for occupancy before Substantial Completion of the entire Work.

1. Owner's use and occupancy of designated areas before Substantial Completion of the entire Project do not relieve Contractor of responsibility to maintain specified insurance coverages on a 100 percent basis until date of final payment.

B. Cooperate with Owner to minimize conflict and to facilitate Owner's operations.

C. Schedule the Work to accommodate Owner occupancy.

1.7 PERMITS

A. Furnish all necessary permits for construction of Work in accordance with Section 014126 – Permits

1.8 SPECIFICATION CONVENTIONS

A. These Specifications are written in imperative mood and streamlined form. This imperative language is directed to Contractor unless specifically noted otherwise. The words “shall be” are included by inference where a colon (;) is used within sentences or phrases.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION - Not Used

END OF SECTION 011000

SECTION 012000 - PRICE AND PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Cash allowances.

B. Mobilization.

C. Schedule of Values.

D. Application for Payment.

E. Change procedures.

F. Defect assessment.

G. Unit prices.

H. Alternates.

1.2 CASH ALLOWANCES

A. Costs Included in Cash Allowances: Cost of product to Contractor or Subcontractor, less applicable trade discounts; delivery to Site and applicable taxes unless stated otherwise in Allowance Schedule.

B. Costs Not Included in Cash Allowances but Included in Contract Price: Product handling at Site including unloading, uncrating, and storage; protection of products from elements and from damage; and labor for installation and finishing unless stated otherwise in Allowance Schedule.

C. Engineer Responsibilities:

1. Consult with Contractor for consideration and selection of products, suppliers and installers.
2. Select products in consultation with Owner and transmit decision to Contractor.
3. Prepare Change Order.

D. Contractor Responsibilities:

1. Assist Engineer in selection of products, suppliers, and installers.
2. Obtain proposals from suppliers and installers and offer recommendations.
3. Upon notification of selection by Engineer, execute purchase agreement with designated supplier and installer.
4. Arrange for and process Shop Drawings, Product Data, and Samples. Arrange for delivery.

5. Promptly inspect products upon delivery for completeness, damage, and defects. Submit claims for transportation damage.

E. Differences in costs will be adjusted by Change Order.

1.3 MOBILIZATION

A. Mobilization consists of costs incurred for preparatory work and operations that must be performed before beginning work on the project site.

B. Payment for mobilization will be based on the table below.

Original Contract Amount Earned	**Payment will be the Lesser of;**	
	Mobilization Bid Amount	**Original Contract Amount**
5%	25%	2.5%
10%	50%	5.0%
50%	100%	7.5%
75%	100%	10.0%

1.4 SCHEDULE OF VALUES

A. If requested by Engineer, submit printed schedule on Progress Estimate schedule on EJCDC C-620.

B. Submit Schedule of Values within 30 days after date of Owner-Contractor Agreement.

C. Format: Provide Schedule of Values for each pay item identified with Lump Sum (LS) unit, where basis of payment is not provided in other portions of this specification.

D. Include within each line item, direct proportional amount of Contractor's overhead and profit.

1.5 APPLICATION FOR PAYMENT

A. Submit each Application for Payment on EJCDC C-620 - Contractor's Application for Payment.

B. Content and Format: Use Schedule of Values for listing items in Application for Payment.

C. Submit updated construction schedule with each Application for Payment.

D. Payment Period: Submit at intervals stipulated in the Agreement.

E. Submit submittals with transmittal letter as specified in Section 013300 - Submittal Procedures.

1.6 CHANGE PROCEDURES

A. Submittals: Submit name of individual who is authorized to receive change documents and is responsible for informing others in Contractor's employ or Subcontractors of changes to the Work.

B. Carefully study and compare Contract Documents before proceeding with fabrication and installation of Work. Promptly advise Engineer of any error, inconsistency, omission, or apparent discrepancy.

C. Requests for Interpretation (RFI) and Clarifications: Allot time in construction scheduling for liaison with Engineer; establish procedures for handling queries and clarifications.

1. Engineer may respond with a direct answer on the Request for Interpretation form, EJCDC C-942 - Field Order.

D. Engineer will advise of minor changes in the Work not involving adjustment to Contract Price or Contract Time by issuing supplemental instructions on EJCDC C-942.

E. Engineer may issue Proposal Request including a detailed description of proposed change with supplementary or revised Drawings and Specifications, a change in Contract Time for executing the change with the period of time during which the requested price will be considered valid. Contractor will prepare and submit estimate within 7 days.

F. Contractor may propose changes by submitting a request for change to Engineer, describing proposed change and its full effect on the Work. Include a statement describing reason for the change and the effect on Contract Price and Contract Time with full documentation.

G. Stipulated Sum/Price Change Order: Based on Proposal Request and Contractor's fixed price quotation or Contractor's request for Change Order as approved by Engineer.

H. Unit Price Change Order: For Contract unit prices and quantities, the Change Order will be executed on a fixed unit price basis. For unit costs or quantities of units of that which are not predetermined, execute Work under Work Directive Change. Changes in Contract Price or Contract Time will be computed as specified for Time and Material Change Order.

I. Work Directive Change: Engineer may issue directive, on EJCDC C-940 - Work Change Directive signed by Owner, instructing Contractor to proceed with change in the Work, for subsequent inclusion in a Change Order. Document will describe changes in the Work and designate method of determining any change in Contract Sum/Price or Contract Time. Promptly execute change.

J. Time and Material Change Order: Submit itemized account and supporting data after completion of change, within time limits indicated in Conditions of the Contract. Engineer will determine change allowable in Contract Sum/Price and Contract Time as provided in Contract Documents.

K. Maintain detailed records of Work done on time and material basis. Provide full information required for evaluation of proposed changes and to substantiate costs for changes in the Work.

L. Document each quotation for change in Project Cost or Time with sufficient data to allow evaluation of quotation.

M. Change Order Forms: EJCDC C-941 - Change Order.

N. Execution of Change Orders: Engineer will issue Change Orders for signatures of parties as provided in Conditions of the Contract.

O. Correlation of Contractor Submittals:

1. Promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as separate line item and adjust Contract Sum/Price.
2. Promptly revise Progress Schedules to reflect change in Contract Time, revise subschedules to adjust times for other items of Work affected by the change, and resubmit.
3. Promptly enter changes in Record Documents.

1.7 DEFECT ASSESSMENT

A. Replace the Work, or portions of the Work, not conforming to specified requirements.

B. If, in the opinion of Engineer, it is not practical to remove and replace the Work, Engineer will direct appropriate remedy or adjust payment.

C. The defective Work may remain, but unit sum/price will be adjusted to new sum/price at discretion of Engineer.

D. Defective Work will be partially repaired according to instructions of Engineer and unit sum/price will be adjusted to new sum/price at discretion of Engineer.

E. Individual Specification Sections may modify these options or may identify specific formula or percentage sum/price reduction.

F. Authority of Engineer to assess defects and identify payment adjustments is final.

G. Nonpayment for Rejected Products: Payment will not be made for rejected products for any of the following reasons:

1. Products wasted or disposed of in a manner that is not acceptable.
2. Products determined as unacceptable before or after placement.
3. Products not completely unloaded from transporting vehicle.
4. Products placed beyond lines and levels of the required Work.
5. Products remaining on hand after completion of the Work.
6. Loading, hauling, and disposing of rejected products.

1.8 UNIT PRICES

A. Items of work described herein are specifically listed in the Bid Form for separate measurement and payment.

B. No other item of Work required by the Drawings or Specifications shall be measured or paid for as a separate item, but shall be included as part of the listed unit price item to which the Work pertains. Failure to list all such related Work in the descriptions of unit price items shall not invalidate this stipulation.

C. Items shall include all costs for submittal of shop drawings, product data and operation and maintenance data, and providing start-up and system demonstration, where required.

D. Authority: Measurement methods are delineated in individual Specification Sections.

E. Measurement methods delineated in individual Specification Sections complement criteria of this Section. In event of conflict, requirements of individual Specification Section govern.

F. Take measurements and compute quantities. Engineer will verify measurements and quantities.

G. Unit Quantities: Quantities and measurements indicated on Bid Schedule are for Contract purposes only. Quantities and measurements supplied or placed in the Work shall determine payment.

1. When actual Work requires more or fewer quantities than those quantities indicated, provide required quantities at contracted unit sum/prices.

H. Payment Includes: Full compensation for required labor, products, tools, equipment, plant and facilities, transportation, services and incidentals; erection, application, or installation of item of the Work; overhead and profit.

I. Final payment for Work governed by unit prices will be made on basis of actual measurements and quantities accepted by Engineer multiplied by unit sum/price for Work incorporated in or made necessary by the Work.

J. Measurement of Quantities:

1. Weigh Scales: Inspected, tested, and certified by applicable by a scale service company registered with the North Dakota Public Service Commission within past 9 months.
2. Platform Scales: Of sufficient size and capacity to accommodate conveying vehicle.
3. Metering Devices: Calibrated at start of project.
4. Measurement by Weight: Concrete reinforcing steel, rolled or formed steel, or other metal shapes will be measured by handbook weights. Welded assemblies will be measured by handbook or scale weight.
5. Measurement by Volume: Measured by cubic dimension using mean length, width, and height or thickness.
6. Measurement by Area: Measured by square dimension using mean length and width or radius.
7. Linear Measurement: Measured by linear dimension, at item centerline or mean chord.
8. Stipulated Sum/Price Measurement: Items measured by weight, volume, area, or linear means or combination, as appropriate, as completed item or unit of the Work.
9. Plan dimensions will be used to calculate the pay quantity for any Contract Item with a ”P” designation. Adjustment of a ”P” designated quantity will only be made if the dimensions of the Work are revised or the ”P” designated quantity is incorrect.

Adjustments will only be made for the revised or corrected portions of the ”P” designated Contract Item.

10. Determinations of volume will be based on the following:
    a. Excavated Volume (EV) — Cubic Yard
        1) Cross-section method or digital surface model method to measure the material in its original position.
    b. Compacted Volume (CV) — Cubic Yard
        1) Cross-section method or digital surface model method to measure the compacted material in its final position, in accordance with the placement dimensions.
    c. Loose Volume in Vehicular Measure (LV) — Cubic Yard
        1) Measurement of material at the point of delivery will be made to the nearest 0.13 cu yd. Use of vehicles for hauling material may be of any size or type if vehicle body capacity can be easily determined and contents can be viewed. Engineer will determine the struck capacity for each vehicle. Mark the struck or level perimeter line on the inside of the box of each vehicle. Level the load. Provide over-allowance for settlement of the load during transit. Direction may be given to level any load upon its arrival at the point of delivery. Measurement will not be made on material heaped above the struck capacity of the vehicle. Deductions will be made in 0.65 cu. yd. increments on loads that contain less than the struck capacity. Provide hauling vehicles with a conspicuous, legible identification mark.
    d. Stockpiled Volume (SV) — Cubic Yard
        1) Cross section method or the digital surface model method to measure material in the stockpiled position. Shape the stockpile to a condition directed by the Engineer before measurement.

1.9 ALTERNATES

A. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at Owner's option. Accepted Alternates will be identified in Owner-Contractor Agreement. The Owner-Contractor Agreement may identify certain Alternates to remain an Owner option for a stipulated period of time.

B. Coordinate related Work and modify surrounding Work. Description for each Alternate is recognized to be abbreviated but requires that each change shall be complete for scope of Work affected.

1. Coordinate related requirements among Specification Sections as required.
2. Include as part of each Alternate: Miscellaneous devices, appurtenances, and similar items incidental to or necessary for complete installation.
3. Coordinate Alternate with adjacent Work and modify or adjust as necessary to ensure integration.

C. Schedule of Alternates: Identified on the Plans

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION - Not Used

END OF SECTION 012000

SECTION 012500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Quality assurance.

B. Product options.

C. Product substitution procedures.

1.2 QUALITY ASSURANCE

A. Contract is based on products and standards established in Contract Documents without consideration of proposed substitutions.

B. Products specified define standard of quality, type, function, dimension, appearance, and performance required.

C. Substitution Proposals: Permitted for specified products except where specified otherwise. Do not substitute products unless substitution has been accepted and approved in writing by Owner.

1.3 PRODUCT OPTIONS

A. See Section 016000 - Product Requirements.

1.4 PRODUCT SUBSTITUTION PROCEDURES

A. Document EJCDC C-200 - Instructions to Bidders specifies time restrictions for submitting requests for substitutions during Bidding period.

B. Substitutions may be considered when a product becomes unavailable through no fault of Contractor.

C. Document each request with complete data, substantiating compliance of proposed substitution with Contract Documents, including:

1. Manufacturer's name and address, product, trade name, model, or catalog number, performance and test data, and reference standards.
2. Itemized point-by-point comparison of proposed substitution with specified product, listing variations in quality, performance, and other pertinent characteristics.
3. Reference to Article and Paragraph numbers in Specification Section.

4. Cost data comparing proposed substitution with specified product and amount of net change to Contract Sum.
5. Changes required in other Work.
6. Availability of maintenance service and source of replacement parts as applicable.
7. Certified test data to show compliance with performance characteristics specified.
8. Samples when applicable or requested.
9. Other information as necessary to assist Engineer's evaluation.

D. A request constitutes a representation that Bidder or Contractor:

1. Has investigated proposed product and determined that it meets or exceeds quality level of specified product.
2. Will provide same warranty for substitution as for specified product.
3. Will coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Owner.
4. Waives claims for additional costs or time extension that may subsequently become apparent.
5. Will coordinate installation of the accepted substitute, making such changes as may be required for the Work to be complete in all respects.
6. Will reimburse Owner and Engineer for review or redesign services associated with reapproval by authorities having jurisdiction.

E. Substitutions will not be considered when they are indicated or implied on Shop Drawing or Product Data submittals without separate written request or when acceptance will require revision to Contract Documents.

F. Substitution Submittal Procedure:

1. Submit requests for substitutions digitally.
2. Limit each request to one proposed substitution.
3. Submit Shop Drawings, Product Data, and certified test results attesting to proposed product equivalence. Burden of proof is on proposer.
4. Engineer will notify Contractor in writing of decision to accept or reject request.

1.5 INSTALLER SUBSTITUTION PROCEDURES

A. Document EJCDC C-200 - Instructions to Bidders specifies time restrictions for submitting requests for substitutions during Bidding period.

B. Document each request with:

1. Installer's qualifications.
2. Installer's experience in work similar to that specified.
3. Other information as necessary to assist Engineer's evaluation.

C. Substitution Submittal Procedure:

1. Submit Request for Substitution for consideration. Limit each request to one proposed substitution.

2. Engineer will notify Contractor in writing of decision to accept or reject request.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION - Not Used

END OF SECTION 012500

SECTION 013000 - ADMINISTRATIVE REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Coordination and Project conditions.

B. Preconstruction meeting.

C. Progress meetings.

D. Closeout meeting.

1.2 PRECONSTRUCTION UTILITY MEETING

A. Contractor will schedule and preside over meeting after Notice of Award, but prior to Preconstruction Meeting with Owner.

B. Attendance Required: Owner (Optional), Engineer, Resident Project Representative, Utility Owners, major Subcontractors, and Contractor.

C. Minimum Agenda:
   1. Review of Utility Conflict Plans relative to each Utility Owner
      a. Schedule for accommodations to be made for each utility conflict
   2. Critical Work sequencing for utility conflict accommodations
   3. Use of premises by Utility Owners
   4. Communications between Contractor and Utility Owners

D. Contractor: Record minutes and distribute digitally to participants within three days after meeting, to Engineer, Utility Owners, and Owner.

1.3 COORDINATION AND PROJECT CONDITIONS

A. Coordinate scheduling, submittals, and Work of various Sections of Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements.

B. Coordinate Work of various Sections having interdependent responsibilities for installing, connecting to, and placing operating equipment in service.

C. Coordinate scheduling and work of utility companies to ensure efficient and orderly sequence of installation of construction elements.
   1. Private utility companies shall have access to the site during the Contract in order to install their facilities. Initial coordination shall occur at the Preconstruction Conference, followed by schedule coordination as the work progresses in order for private utility installation to proceed in a swift, efficient manner.

2. Unless otherwise noted, any removal, relocation, replacement, or bracing of power poles or any other utilities shall be incidental. Contractor to coordinate all utility relocations.

D. Coordination Meetings: In addition to other meetings specified in this Section, hold coordination meetings with personnel and Subcontractors to ensure coordination of Work.

E. Coordinate completion and clean-up of Work of separate Sections in preparation for Substantial Completion and for portions of Work designated for Owner's partial occupancy and for portions of Work designated for Owner's occupancy.

F. After Owner's occupancy of premises, coordinate access to Site for correction of defective Work and Work not complying with Contract Documents, to minimize disruption of Owner's activities.

G. Public Notice: Contractor and Resident Project Representative shall work together to create construction notices. Contractor to deliver construction notices to the affected residents and businesses. Hand-delivered construction notices shall not be placed in mailboxes. Place notices securely in front doors or an equally conspicuous location. Construction notices may include information about multiple activities, but if the schedule of operations will deviate from the schedule shown on a particular notice, a revised notice must be delivered. At a minimum, construction notices shall detail:

1. Contractor and Engineer contact information.
2. Type of construction activity about to take place and what can be expected.
3. Duration of the activity and when the activity will cease.
4. Next activity that will take place.
5. When normal conditions will be restored.

1.4 PRECONSTRUCTION MEETING

A. Engineer will schedule and preside over meeting after Notice of Award.

B. Attendance Required: Engineer, Owner, Resident Project Representative, City of West Fargo representatives, Funding Agency Representatives (if applicable), major Subcontractors, and Contractor.

C. Minimum Agenda:
1. Submission of list of Subcontractors, list of products, schedule of values, and Progress Schedule.
2. Designation of personnel representing parties in Contract and Engineer.
3. Communication procedures.
4. Procedures and processing of requests for interpretations, field decisions, field orders, submittals, substitutions, Applications for Payments, proposal request, Change Orders, and Contract closeout procedures.
5. Scheduling.
6. Critical Work sequencing.
7. Scheduling activities of Geotechnical Engineer.
8. Owner’s policies, procedures, and concerns.
9. Funding Agency requirements for construction (if applicable).
10. Use of premises by Owner and Contractor.

D. Engineer: Record minutes and distribute digitally to participants within two days after meeting, to Contractor, Owner, and those affected by decisions made.

1.5 PROGRESS MEETINGS

A. Schedule and administer meetings throughout progress of the Work at maximum weekly intervals.

B. Engineer will make arrangements for meetings, prepare agenda with copies for participants, and preside over meetings.

C. Attendance Required: Job superintendent, major Subcontractor, Contractors, Suppliers, and Engineer, Owner, as appropriate to agenda topics for each meeting.

D. Minimum Agenda:

1. Review minutes of previous meetings.
2. Review of Work progress.
3. Field observations, problems, and decisions.
4. Identification of problems impeding planned progress.
5. Review of submittal schedule and status of submittals.
6. Review of off-Site fabrication and delivery schedules.
7. Maintenance of Progress Schedule.
8. Corrective measures to regain projected schedules.
9. Planned progress during succeeding work period.
10. Coordination of projected progress.
11. Maintenance of quality and work standards.
12. Effect of proposed changes on Progress Schedule and coordination.
13. Other business relating to Work.

E. Engineer: Record minutes and distribute digitally to participants within two days after meeting, to Contractor, Owner, and those affected by decisions made.

1.6 CLOSEOUT MEETING

A. Schedule Project closeout meeting with sufficient time to prepare for requesting Substantial Completion. Preside over meeting and be responsible for minutes.

B. Attendance Required: Contractor, major Subcontractors, Engineer, Owner, Funding Agency Representative (if applicable) and others appropriate to agenda.

C. Notify Engineer 7 days in advance of meeting date.

D. Minimum Agenda:

1. Start-up of facilities and systems.
2. Operations and maintenance manuals.
3. Testing, adjusting, and balancing.
4. System demonstration and observation.

5. Operation and maintenance instructions for Owner's personnel.
6. Contractor's inspection of Work.
7. Contractor's preparation of an initial "punch list."
8. Procedure to request Engineer inspection to determine date of Substantial Completion.
9. Completion time for correcting deficiencies.
10. Partial release of retainage.
11. Final cleaning.
12. Preparation for final inspection.
13. Closeout Submittals:

    a. Project record documents.
    b. Operating and maintenance documents.
    c. Operating and maintenance materials.
    d. Affidavits.

14. Final Application for Payment.
15. Contractor's demobilization of Site.
16. Maintenance.

E. Engineer: Record minutes and distribute digitally to participants within two days after meeting, to Contractor, Owner, and those affected by decisions made.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION – Not Used

END OF SECTION 013000

SECTION 013216 - CONSTRUCTION PROGRESS SCHEDULE

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Submittals.

B. Bar chart schedules.

C. Review and evaluation.

D. Updating schedules.

E. Distribution.

1.2 SUBMITTALS

A. Submit digitally in PDF format.

B. Schedule Updates:

1. Overall percent complete, projected and actual.
2. Completion progress by listed activity and subactivity, to within five working days prior to submittal.
3. Changes in Work scope and activities modified since submittal.
4. Delays in submittals or resubmittals, deliveries, or Work.
5. Adjusted or modified sequences of Work.
6. Other identifiable changes.
7. Revised projections of progress and completion.

1.3 BAR CHART SCHEDULES

A. Format: Bar chart Schedule, to include at least:

1. Identification and listing in chronological order of those activities reasonably required to complete the Work, including:

a. Subcontract Work.
b. Major equipment design, fabrication, factory testing, and delivery dates including required lead times.
c. Move-in and other preliminary activities.
d. Equipment and equipment system test and startup activities.
e. Project closeout and cleanup.
f. Work sequences, constraints, and milestones.

2. Listings identified by Specification Section number.
3. Identification of the following:

    a. Horizontal time frame by year, month, and week.
    b. Duration, early start, and completion for each activity and subactivity.
    c. Critical activities and Project float.
    d. Subschedules to further define critical portions of Work.

1.4 REVIEW AND EVALUATION

A. Participate in joint review and evaluation of schedules with Engineer at each submittal.

B. Evaluate Project status to determine Work behind schedule and Work ahead of schedule.

C. After review, revise schedules incorporating results of review, and resubmit within 10 days.

1.5 UPDATING SCHEDULES

A. Maintain schedules to record actual start and finish dates of completed activities. Updated schedule shall be submitted with each Application for Payment.

B. Indicate progress of each activity to date of revision, with projected completion date of each activity. Update schedules to depict current status of Work.

C. Identify activities modified since previous submittal, major changes in Work, and other identifiable changes.

D. Upon approval of a Change Order, include the change in the next schedule submittal.

E. Indicate changes required to maintain Date of Substantial Completion.

F. Submit sorts as required to support recommended changes.

G. Prepare narrative report to define problem areas, anticipated delays, and impact on schedule. Report corrective action taken or proposed and its effect including effects of changes on schedules of separate Contractors.

1.6 DISTRIBUTION

A. Following joint review, distribute copies of updated schedules to Contractor's Project site file, to Subcontractors, suppliers, Engineer, Owner, and other concerned parties.

B. Instruct recipients to promptly report, in writing, problems anticipated by projections shown in schedules.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION - Not Used

END OF SECTION 013216

SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Definitions.

B. Submittal procedures.

C. Construction progress schedules.

D. Proposed product list.

E. Product data.

F. Use of electronic CAD or Data files of Project Drawings.

G. Shop Drawings.

H. Samples.

I. Other submittals.

J. Design data.

K. Test reports.

L. Certificates.

M. Manufacturer's instructions.

N. Manufacturer's field reports.

O. Contractor review.

P. Engineer review.

1.2 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require Engineer's responsive action.

B. Informational Submittals: Written and graphic information and physical Samples that do not require Engineer's responsive action. Submittals may be rejected for not complying with requirements.

1.3 SUBMITTAL PROCEDURES

A. Transmit each submittal with Engineer-accepted form.

B. Sequentially number transmittal forms. Mark revised submittals with original number and sequential alphabetic suffix.

C. Identify: Project, Contractor, Subcontractor and supplier, pertinent Drawing and detail number, and Specification Section number appropriate to submittal.

D. Apply Contractor's stamp, signed or initialed, certifying that review, approval, verification of products required, field dimensions, adjacent construction Work, and coordination of information is according to requirements of the Work and Contract Documents.

E. Schedule submittals to expedite Project, and submit electronic submittals via email as PDF electronic files. Coordinate submission of related items.

F. For each submittal for review, allow 15 days excluding delivery time to and from Contractor.

G. Identify variations in Contract Documents and product or system limitations that may be detrimental to successful performance of completed Work.

H. Allow space on submittals for Contractor and Engineer review stamps.

I. When revised for resubmission, identify changes made since previous submission.

J. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report inability to comply with requirements.

K. Submittals not requested will not be recognized nor processed.

L. Incomplete Submittals: Engineer will not review. Complete submittals for each item are required. Delays resulting from incomplete submittals are not the responsibility of Engineer.

1.4 CONSTRUCTION PROGRESS SCHEDULES

A. Comply with Section 013216 - Construction Progress Schedule

1.5 PROPOSED PRODUCT LIST

A. Within 15 days after date of Owner-Contractor Agreement, submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.

B. For products specified only by reference standards, indicate manufacturer, trade name, model or catalog designation, and reference standards.

1.6 PRODUCT DATA

A. Product Data: Action Submittal: Submit to Engineer for review for assessing conformance with information given and design concept expressed in Contract Documents.

B. Submit electronic submittals via email as PDF electronic files.

C. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.

D. Indicate product utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

E. After review, produce copies and distribute according to "Submittal Procedures" Article and for record documents described in Section 017000 - Execution and Closeout Requirements.

1.7 ELECTRONIC CAD FILES OF PROJECT DRAWINGS

A. Electronic CAD and Data Files of Project Drawings: May be used to aid in construction for the Project.

B. Electronic CAD and Data Files of Project Drawings: Distributed only under the following conditions:

1. Use of files is solely at receiver's risk. Engineer does not warrant accuracy of files. Receiving files in electronic form does not relieve receiver of responsibilities for measurements, dimensions, and quantities set forth in Contract Documents. In the event of ambiguity, discrepancy, or conflict between information on electronic media and that in Contract Documents, notify Engineer of discrepancy and use information in hard-copy Drawings and Specifications.
2. CAD or Data files do not necessarily represent the latest Contract Documents, existing conditions, and as-built conditions. Receiver is responsible for determining and complying with these conditions and for incorporating addenda and modifications.
3. User is responsible for removing information not normally provided on Shop Drawings and removing references to Contract Documents. Shop Drawings submitted with information associated with other trades or with references to Contract Documents will not be reviewed and will be immediately returned.
4. Receiver shall not hold Engineer responsible for data or file clean-up required to make files usable, nor for error or malfunction in translation, interpretation, or use of this electronic information.
5. Receiver shall understand that even though Engineer has computer virus scanning software to detect presence of computer viruses, there is no guarantee that computer viruses are not present in files or in electronic media.
6. Receiver shall not hold Engineer responsible for such viruses or their consequences, and shall hold Engineer harmless against costs, losses, or damage caused by presence of computer virus in files or media.

C. Electronic Project Data provided:

1. Electronic CAD file of the project Drawing line work in AutoCad DXF format.
2. Electronic Data file of the project alignments in .XML format.
3. Electronic Data file of the survey control points in .CSV format.

D. Electronic Project Data not specifically listed as provided: Additional CAD or Data files must be obtained through a separate Agreement with the Engineer.

1.8 SHOP DRAWINGS

A. Shop Drawings: Action Submittal: Submit to Engineer for assessing conformance with information given and design concept expressed in Contract Documents.

B. Indicate special utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

C. When required by individual Specification Sections, provide Shop Drawings signed and sealed by a professional Engineer responsible for designing components shown on Shop Drawings.

1. Include signed and sealed calculations to support design.
2. Submit Shop Drawings and calculations in form suitable for submission to and approval by authorities having jurisdiction.
3. Make revisions and provide additional information when required by authorities having jurisdiction.

D. Electronic submittals via email as PDF electronic files are acceptable.

E. After review, produce copies and distribute according to "Submittal Procedures" Article and for record documents described in Section 017000 - Execution and Closeout Requirements.

1.9 SAMPLES

A. Samples: Action Submittal: Submit to Engineer for assessing conformance with information given and design concept expressed in Contract Documents.

B. Samples for Selection as Specified in Product Sections:

1. Submit to Engineer for aesthetic, color, and finish selection.
2. Submit Samples of finishes, textures, and patterns for Engineer selection.

C. Submit Samples to illustrate functional and aesthetic characteristics of products, with integral parts and attachment devices. Coordinate Sample submittals for interfacing work.

D. Include identification on each Sample, with full Project information.

E. Submit number of Samples specified in individual Specification Sections; Engineer will retain one Sample.

F. Reviewed Samples that may be used in the Work are indicated in individual Specification Sections.

G. Samples will not be used for testing purposes unless specifically stated in Specification Section.

H. After review, produce copies and distribute according to "Submittal Procedures" Article and for record documents described in Section 017000 - Execution and Closeout Requirements.

1.10 OTHER SUBMITTALS

A. Closeout Submittals: Comply with Section 017000 - Execution and Closeout Requirements.

B. Informational Submittal: Submit data for Engineer's knowledge as Contract administrator or for Owner.

C. Submit information for assessing conformance with information given and design concept expressed in Contract Documents.

1.11 TEST REPORTS

A. Informational Submittal: Submit reports for Engineer's knowledge as Contract administrator or for Owner.

B. Submit test reports for information for assessing conformance with information given and design concept expressed in Contract Documents.

1.12 CERTIFICATES

A. Informational Submittal: Submit certification by manufacturer, installation/application Subcontractor, or Contractor to Engineer, in quantities specified for Product Data.

B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

C. Certificates may be recent or previous test results on material or product but must be acceptable to Engineer.

1.13 MANUFACTURER'S INSTRUCTIONS

A. Informational Submittal: Submit manufacturer's installation instructions for Engineer's knowledge as Contract administrator or for Owner.

B. Submit printed and digital instructions for delivery, storage, assembly, installation, startup, adjusting, and finishing, to Engineer in quantities specified for Product Data.

C. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

1.14 MANUFACTURER'S FIELD REPORTS

A. Informational Submittal: Submit reports for Engineer's knowledge as Contract administrator or for Owner.

B. Submit report digitally within 5 days of observation to Engineer for information.

C. Submit reports for information for assessing conformance with information given and design concept expressed in Contract Documents.

1.15 ERECTION DRAWINGS

A. Informational Submittal: Submit Drawings for Engineer's knowledge as Contract administrator or for Owner.

B. Submit Drawings for information assessing conformance with information given and design concept expressed in Contract Documents.

C. Data indicating inappropriate or unacceptable Work may be subject to action by Engineer or Owner.

1.16 CONTRACTOR REVIEW

A. Review for compliance with Contract Documents and approve submittals before transmitting to Engineer.

B. Contractor: Responsible for:

1. Determination and verification of materials including manufacturer's catalog numbers.
2. Determination and verification of field measurements and field construction criteria.
3. Checking and coordinating information in submittal with requirements of Work and of Contract Documents.
4. Determination of accuracy and completeness of dimensions and quantities.
5. Confirmation and coordination of dimensions and field conditions at Site.
6. Construction means, techniques, sequences, and procedures.
7. Safety precautions.
8. Coordination and performance of Work of all trades.

C. Stamp, sign or initial, and date each submittal to certify compliance with requirements of Contract Documents.

D. Do not fabricate products or begin Work for which submittals are required until approved submittals have been received from Engineer.

1.17 ENGINEER REVIEW

A. Do not make "mass submittals" to Engineer. "Mass submittals" are defined as six or more submittals or items in one day or 20 or more submittals or items in one week. If "mass

submittals" are received, Engineer's review time stated above will be extended as necessary to perform proper review. Engineer will review "mass submittals" based on priority determined by Engineer after consultation with Owner and Contractor.

B. Informational submittals and other similar data are for Engineer's information, do not require Engineer's responsive action, and will not be reviewed or returned with comment.

C. Submittals made by Contractor that are not required by Contract Documents may be returned without action.

D. Submittal approval does not authorize changes to Contract requirements unless accompanied by Change Order, Field Order, or Work Change Directive.

E. Owner may withhold monies due to Contractor to cover additional costs beyond the second submittal review.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION - Not Used

END OF SECTION 013300

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Quality control.

B. Tolerances.

C. References.

D. Labeling.

E. Testing and inspection services.

F. Manufacturers' field services.

1.2 QUALITY CONTROL

A. Monitor quality control over suppliers, manufacturers, products, services, Site conditions, and workmanship, to produce Work of specified quality.

B. Comply with specified standards as the minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

C. Perform Work using persons qualified to produce required and specified quality.

D. Products, materials, and equipment may be subject to inspection by Engineer and Owner at place of manufacture or fabrication. Such inspections shall not relieve Contractor of complying with requirements of Contract Documents.

E. Supervise performance of Work in such manner and by such means to ensure that Work, whether completed or in progress, will not be subjected to harmful, dangerous, damaging, or otherwise deleterious exposure during construction period.

F. Items identified by NDDOT or MnDOT Item Numbers shall comply with NDDOT or MnDOT Standard Specifications for Construction.

1.3 TOLERANCES

A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply with manufacturers' recommended tolerances and tolerance requirements in reference standards. When such tolerances conflict with Contract Documents, request clarification from Engineer before proceeding.

C. Adjust products to appropriate dimensions; position before securing products in place.

1.4 REFERENCES

A. For products or workmanship specified by association, trade, or other consensus standards, comply with requirements of standard except when more rigid requirements are specified or are required by applicable codes.

B. Conform to reference standard by date of issue current as of date for receiving Bids except where specific date is established by code.

C. Obtain copies of standards and maintain on Site when required by product Specification Sections.

D. When requirements of indicated reference standards conflict with Contract Documents, request clarification from Engineer before proceeding.

E. Neither contractual relationships, duties, responsibilities of parties in Contract nor those of Engineer shall be altered from Contract Documents by mention or inference in reference documents.

F. Contract Requirements and General Requirements within the Contract Documents shall take precedence over any General Provisions or General Requirements of reference standards, other than that indicated in Section 012000 1.7 J.

1.5 LABELING

A. Attach label from agency approved by authorities having jurisdiction for products, assemblies, and systems required to be labeled by applicable code.

B. Label Information: Include manufacturer's or fabricator's identification, approved agency identification, and the following information, as applicable, on each label:

1. Model number.
2. Serial number.
3. Performance characteristics.

C. Manufacturer's Nameplates, Trademarks, Logos, and Other Identifying Marks on Products: Not allowed on surfaces exposed to view in public areas, interior or exterior.

1.6 TESTING AND INSPECTION SERVICES

A. Owner will pay for specified services of an independent firm to perform testing and inspection as part of a Contractor testing bid item.

B. Independent firm will perform tests, inspections, and other services specified for soils, aggregates, concrete, riprap, and bituminous and concrete paving, in individual Specification Sections and as required by Engineer.

1. Laboratory: Authorized to operate in State of North Dakota.
2. Laboratory Staff: Maintain full-time Professional Engineer on staff to review services.
3. Testing Equipment: Calibrated at reasonable intervals with devices of accuracy traceable to National Bureau of Standards or accepted values of natural physical constants.

C. All other required testing such as disinfection, televising, installed pipe and manhole testing, and manufacturer testing shall be the responsibility of the Contractor.

D. Testing, inspections, and source quality control may occur on or off Project Site. Perform off-Site testing as required by Engineer or Owner.

E. Reports shall be submitted by independent firm to Engineer, Contractor, and authorities having jurisdiction, digitally, indicating observations and results of tests and compliance or noncompliance with Contract Documents.

1. Submit final report indicating correction of Work previously reported as noncompliant.

F. Cooperate with independent firm; furnish samples of materials, design mix, equipment, tools, storage, safe access, and assistance by incidental labor as requested.

1. Notify Engineer and independent firm 24 hours before expected time for operations requiring services.
2. Make arrangements with independent firm and pay for additional Samples and tests required for Contractor's use.

G. Employment of testing agency or laboratory shall not relieve Contractor of obligation to perform Work according to requirements of Contract Documents.

H. Retesting or re-inspection required because of nonconformance with specified or indicated requirements shall be performed by same independent firm on instructions from Engineer. Payment for retesting or re-inspection will be charged to Contractor by deducting testing charges from Contract Sum/Price.

I. Agency Responsibilities:

1. Test Samples of mixes submitted by Contractor.
2. Provide qualified personnel at Site. Cooperate with Engineer and Contractor in performance of services.

3. Perform indicated sampling and testing of products according to specified standards.
4. Ascertain compliance of materials and mixes with requirements of Contract Documents.
5. Promptly notify Engineer and Contractor of observed irregularities or nonconformance of Work or products.
6. Perform additional tests required by Engineer.
7. Attend preconstruction meetings and progress meetings.

J. Agency Reports: After each test, promptly submit digital copies of report to Engineer, Contractor, and authorities having jurisdiction. When requested by Engineer, provide interpretation of test results. Include the following:

1. Date issued.
2. Project title and number.
3. Name of inspector.
4. Date and time of sampling or inspection.
5. Identification of product and Specification Section.
6. Location in Project.
7. Type of inspection or test.
8. Date of test.
9. Results of tests.
10. Conformance with Contract Documents.

K. Limits on Testing Authority:

1. Agency or laboratory may not release, revoke, alter, or enlarge on requirements of Contract Documents.
2. Agency or laboratory may not approve or accept any portion of the Work.
3. Agency or laboratory may not assume duties of Contractor.
4. Agency or laboratory has no authority to stop the Work.

1.7 MANUFACTURER'S FIELD SERVICES

A. When specified in individual Specification Sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe Site conditions, conditions of surfaces and installation, quality of workmanship, startup of equipment, testing, adjusting, and balancing of equipment, and commissioning as applicable, and to initiate instructions when necessary.

B. Report observations and Site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturer's written instructions.

C. Refer to Section 013300 - Submittal Procedures, "Manufacturer's Field Reports" Article.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION - Not Used

END OF SECTION 014000

SECTION 014126 – PERMIT REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:

1. Permits obtained by Owner.
2. Permits obtained by Contractor.

B. Related Requirements:

1. Section 011000 - Summary.
2. Section 013000 – Administrative Requirements.
3. Section 013300 – Submittal Procedures.
4. Section 015000 – Temporary Facilities and Controls.
5. Section 017000 – Execution and Closeout Requirements.

C. General Permit Requirements:

1. Obtain permits required for the execution of the Work. A list of known permits required is provided in this Section, along with the entity responsible for obtaining the permits. Completeness of the list is not guaranteed by Owner. The absence of information does not relieve Contractor of responsibility for determining and verifying the extent of permits required and for obtaining permits.
2. Furnish copies of permits obtained by the Contractor to the Engineer.
3. Comply with conditions of the permits and with Laws and Regulations applicable to the performance of the Work, in accordance with General Conditions, Paragraphs 7.08 Permits and 7.10 Laws and Regulations.
4. Inform Engineer of conflicts between permit requirements and the Contract Documents. Comply with permit requirements.
5. Copies of permits obtained by Owner will be provided by the Engineer. Maintain a notebook of permits onsite during construction.

1.2 PRECONSTRUCTION SUBMITTALS

A. Furnish submittals in accordance with Section 013300 - Submittal Procedures.

B. Submit copies of permits and approvals for construction as required by Laws and Regulations and governing agencies within 14 days of approval.

C. Submit copies of compliance reports or other documentation whether submitted by Contractor to a regulatory agency or provided to Contractor by a regulatory agency within 2 days of receipt.

1.3 SUMMARY OF PERMITS

A. Owner provided permits:

1. As listed on the Drawings.

B. Contractor obtained permits:

1. North Dakota Department of Environmental Quality.
   a. Required for disturbance of more than 1 acre.
   b. Permit Name: National Pollutant Discharge Elimination System (NPDES) General Construction Permit NDR10-0000.
   c. Permit covers: Construction site stormwater discharges.
   d. Permittee: City of West Fargo.
   e. Prepare a project specific SWPPP and submit to the Engineer in accordance with the General Permit and these Specifications. An electronic template of the SWPPP is available on the North Dakota Department of Environmental Quality website at https://deq.nd.gov/WQ/2_NDPDES_Permits/7_Stormwater/StW.aspx.
      1) Drawings and selected supporting data for the Storm Water Pollution Prevention Plan (SWPPP) will be provided by Owner.
         a) Supplied Drawings and data represent the minimum requirements established by the Owner, but do not satisfy all permit requirements for the SWPPP.
         b) Contractor must complete all additional information required under the General Permit.
      2) The Engineer will review the SWPPP within 7 working days once a complete SWPPP submittal is received.
   f. Submit a Notice of Intent (NOI) to the Engineer for Owner's review and signature. An electronic template of the NOI is available on the North Dakota Department of Environmental Quality website at https://deq.nd.gov/WQ/2_NDPDES_Permits/7_Stormwater/StW.aspx.
      1) The Engineer will review and submit the NOI to the Owner for signature within 7 working days once a complete NOI is received.
      2) The Engineer will return a signed copy of the NOI to the Contractor.

2. Stormwater Management Permit – City of West Fargo.
   a. Template provided at City website www.westfargond.gov and in the Project Manual.

3. Additional permits as listed on the Drawings.

1.4 CLOSEOUT SUBMITTALS

A. Notice of Termination (NOT): Submit to the Engineer for review and signature prior to transmitting.

B. SWPPP Records: Submit the SWPPP including all revisions, if applicable, to the Engineer along with all inspection reports and documentation required for record keeping and record retention as required by the Permit.

PART 2 - PRODUCTS – Not Used

PART 3 - EXECUTION – Not Used

END OF SECTION 014126

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Temporary Utilities:

1. Temporary sanitary facilities.

B. Construction Facilities:

1. Field offices and sheds.
2. Vehicular access.
3. Parking.
4. Progress cleaning and waste removal.
5. Haul roads.

C. Temporary Controls:

1. Barriers.
2. Traffic Control.
3. Security.
4. Water control.
5. Dust control.
6. Noise control.
7. Pollution control.
8. Temporary mail handling.

D. Removal of utilities, facilities, and controls.

1.2 UNIT PRICE – MEASUREMENT AND PAYMENT

A. Section 012000 – Price and Payment Procedures: Contract sum/Price modification procedures.

B. Traffic Control

1. Basis of Measurement: By lump sum.
2. Basis of Payment: Includes all required labor, equipment, and materials required to install, maintain, and remove traffic devices.
3. Payment Schedule: The Owner will make payment equal to:
    a. 50 percent of the unit price at the time the traffic control is installed;
    b. 25 percent of the unit price when the contract is 50 percent complete; and

c. The remining 25 percent of the unit price when the traffic control is removed from the project.

C. Calcium Chloride for Dust Control

1. Basis of Measurement: Calcium chloride solution measured by the gallon.
2. Basis of Payment: Includes calcium chloride, water, transportation, and placement.

D. Water for Dust Control

1. Shall be included in other bid items.

1.3 REFERENCES

A. ASTM International:

1. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
2. ASTM E 90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
3. ASTM E 119 - Standard Test Methods for Fire Tests of Building Construction and Materials.

1.4 TEMPORARY SANITARY FACILITIES

A. Provide and maintain required facilities and enclosures. Provide facilities at time of Project mobilization.

B. At end of construction, return existing facilities used for construction operations to same or better condition as original condition.

1.5 FIELD OFFICES AND SHEDS

A. Locate field offices, trailers, and sheds a minimum distance of 30 feet from existing and new structures.

B. Do not use permanent facilities for field offices or for storage.

C. Construction: Portable or mobile buildings, or buildings constructed with floors raised aboveground, securely fixed to foundations with steps and landings at entrance doors.

1. Construction: Structurally sound, secure, weathertight enclosures for office and storage spaces. Maintain during progress of Work; remove enclosures when no longer needed.
2. Thermal Resistance of Floors, Walls, and Ceilings: Compatible with occupancy and storage requirements.

3. Exterior Materials: Weather-resistant, finished in one color acceptable to Engineer.

D. Storage Areas and Sheds: Size to storage requirements for products of individual Sections, allowing for access and orderly provision for maintenance and inspection of products to suit requirements in Section 016000 - Product Requirements.

E. Preparation: Fill and grade Sites for temporary structures sloped for drainage away from buildings.

F. Installation:

1. Install field office spaces ready for occupancy 15 days after date established Owner-Contractor Agreement.
2. Employee Residential Occupancy: Not allowed on Owner's property.

G. Maintenance and Cleaning:

1. Weekly cleaning and maintenance for sheds and storage areas.
2. Maintain walks free of mud, water, snow, and the like.

H. Removal: At completion of Work remove buildings, foundations, utility services, and debris. Restore areas to same or better condition as original condition.

1.6 VEHICULAR ACCESS

A. Construct temporary all-weather access roads from public thoroughfares to serve construction area, of width and load-bearing capacity to accommodate unimpeded traffic for construction purposes.

B. Construct temporary bridges and culverts to span low areas and allow unimpeded drainage.

C. Extend and relocate vehicular access as Work progress requires and provide detours as necessary for unimpeded traffic flow.

D. Locate as indicated on Drawings.

E. Provide unimpeded access for emergency vehicles. Maintain 20 foot-wide driveways with turning space between and around combustible materials.

F. Provide and maintain access to fire hydrants and control valves free of obstructions.

G. Provide means of removing mud from vehicle wheels before entering streets.

H. Use designated existing on-Site roads for construction traffic.

1.7 PARKING

A. Provide temporary gravel surface parking areas to accommodate construction personnel.

B. Locate as approved by Engineer.

C. If Site space is not adequate, provide additional off-Site parking.

D. Use of existing on-Site streets and driveways used for construction traffic is permitted. Tracked vehicles are not allowed on paved areas.

E. Maintenance:

1. Maintain traffic and parking areas in sound condition free of excavated material, construction equipment, products, mud, snow, ice, and the like.
2. Maintain existing and permanent paved areas used for construction; promptly repair breaks, potholes, low areas, standing water, and other deficiencies, to maintain paving and drainage in original condition.

F. Removal, Repair:

1. Remove temporary materials and construction when permanent paving is usable.
2. Repair existing and permanent facilities damaged by use, to original condition.

G. Mud from Site vehicles: Provide means of removing mud from vehicle wheels before entering streets.

1.8 PROGRESS CLEANING AND WASTE REMOVAL

A. Maintain areas free of waste materials, debris, and rubbish. Maintain Site in clean and orderly condition.

B. Collect and remove waste materials, debris, and rubbish from Site periodically and dispose of off-Site.

C. If operations take place on the normal garbage or recycling collection day which impede the Sanitation Department from collecting garbage or recycling items, the Contractor shall gather all garbage or recycling items placed out for collection and bring these items to an accessible location where the Sanitation Department's vehicles can collect them. Coordinate with the Sanitation Department (701-433-5410) the week prior. Residents and businesses to be notified one week in advance.

1.9 HAUL ROADS

A. Take whatever steps necessary to insure that no overloading occurs.

B. Insure that no city, county, state or other restrictions are violated.

C. Become familiar with all local regulations before starting construction.

D. Repair any road damaged to the original condition at the contractor's expense, to the satisfaction of the engineer.

1.10 BARRIERS

A. Provide barriers to prevent unauthorized entry to construction areas, to allow for Owner's use of Site, and to protect existing facilities and adjacent properties from damage from construction operations.

B. Provide barricades required by authorities having jurisdiction for public rights-of-way.

1. Barricade Construction: per NDDOT Standard Specifications.

C. Tree and Plant Protection: Preserve and protect existing trees and plants designated to remain.

1. Protect areas within drip lines from traffic, parking, storage, dumping, chemically injurious materials and liquids, ponding, and continuous running water.
2. Provide 6-foot-high barriers around drip line, with access for maintenance.
3. Replace trees and plants damaged by construction operations.

D. Protect non-owned vehicular traffic, stored materials, Site, and structures from damage.

1.11 TRAFFIC CONTROL

A. Provide Temporary Traffic Control in accordance with Section 704 of the North Dakota Department of Transportation Standard Specification for Road and Bridge Construction.

B. Notify Engineer a minimum of 1 weeks prior to instillation of traffic control.

C. No additional compensation will be paid for revisions to the traffic control plan to facilitate construction operations or any required flagging operations to maintain traffic.

1.12 SECURITY

A. Security Program:

1. Protect Work on premises from theft, vandalism, and unauthorized entry.
2. Initiate program at Project mobilization.
3. Maintain program throughout construction period until Owner's acceptance precludes need for Contractor's security.

B. Entry Control:

1. Restrict entrance of persons and vehicles to Project Site and existing facilities.
2. Allow entrance only to authorized persons with proper identification.
3. Maintain log of workers and visitors and make available to Owner on request.
4. Coordinate access of Owner's personnel to Site.

1.13 WATER CONTROL

A. Grade Site to drain. Maintain excavations free of water. Provide, operate, and maintain necessary pumping equipment.

B. Protect Site from puddles or running water. Provide water barriers as required to protect Site from soil erosion.

1.14 DUST CONTROL

A. Execute Work by methods that minimize raising dust from construction operations.

B. Provide positive means to prevent airborne dust from dispersing into atmosphere.

1.15 NOISE CONTROL

A. Provide methods, means, and facilities to minimize noise produced by construction operations.

B. Comply with sound level restrictions in Section 011000-Summary.

1.16 POLLUTION CONTROL

A. Provide best management practices (BMP’s) to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances and pollutants produced by construction operations.

B. Prepare and administer Storm Water Pollution Prevention Plan (SWPPP) meeting the requirements of the North Dakota Department of Environmental Quality.

C. Obtain and comply with NPDES General Permit No. NDR10-000 for Storm Water Discharges Associated with Construction Activity.

D. Obtain and comply with City of West Fargo Storm Water Management Permit.

E. Install all BMP’s prior to disturbance activities.

F. Maintenance

1. Correct all areas of noncompliance within 24 hours after notification by engineer. If corrective actions are not taken within 24 hours, engineer may deduct liquidated damages of $500 per day from the contract amount until the noncompliance is corrected.

1.17 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

A. Remove temporary utilities, equipment, facilities, and materials before Substantial Completion.

B. Clean and repair damage caused by installation or use of temporary Work.

C. Restore existing and permanent facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

1.18 TEMPORARY MAIL HANDLING

A. When construction impacts the ability to provide mail service within the work area temporary mailboxes shall be provided for each mailbox. Two days prior to setting up temporary mailboxes, the Contractor shall contact the West Fargo Post Office and provide notice to the affected residents and businesses. The temporary mailbox location shall be near the entrance to the project area and be approved by the West Fargo Post Office.

B. Contractor shall assemble temporary mailboxes in a location that follows the detail for permanent mailbox locations (i.e. height, distance from edge of roadway, etc.). Address numbers shall be clearly marked in large black font and visible from the front. The temporary boxes shall be securely anchored to prevent tipping or sliding. The Contractor shall remove the temporary mailboxes as soon as the permanent boxes are reset.

PART 2 - PRODUCTS

2.1 DUST CONTROL

A. Water:
   1. Reasonably clean.
   2. Apply at rate to abate dust and avoid unwanted loss of water through evaporation, absorption or drainage.

B. Calcium Chloride:
   1. Liquid form containing a minimum of 38 percent, by mass (weight), anhydrous $CaCl_2$.
   2. Application rates for 38% solution:
      a. Initial Use: 0.2 gal/yd^2
      b. Additional Use: 0.1 gal/yd^2

PART 3 - EXECUTION

3.1 DUST CONTROL

A. Apply water as required to abate dust.

B. Apply calcium chloride as directed by the Engineer.

END OF SECTION 015000

SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Products.

B. Product delivery requirements.

C. Product storage and handling requirements.

D. Product options.

1.2 PRODUCTS

A. At minimum, comply with specified requirements and reference standards.

B. Specified products define standard of quality, type, function, dimension, appearance, and performance required.

C. Furnish products of qualified manufacturers that are suitable for intended use. Furnish products of each type by single manufacturer unless specified otherwise. Confirm that manufacturer's production capacity can provide sufficient product, on time, to meet Project requirements.

1.3 PRODUCT DELIVERY REQUIREMENTS

A. Transport and handle products according to manufacturer's instructions.

B. Promptly inspect shipments to ensure products comply with requirements, quantities are correct, and products are undamaged.

C. Provide equipment and personnel to handle products; use methods to prevent soiling, disfigurement, or damage.

1.4 PRODUCT STORAGE AND HANDLING REQUIREMENTS

A. Store and protect products according to manufacturer's instructions.

B. Store products with seals and labels intact and legible.

C. Store sensitive products in weathertight, climate-controlled enclosures in an environment suitable to product.

D. For exterior storage of fabricated products, place products on sloped supports aboveground.

E. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.

F. Store loose granular materials on solid flat surfaces in well-drained area. Prevent mixing with foreign matter.

G. Provide equipment and personnel to store products; use methods to prevent soiling, disfigurement, or damage.

H. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

I. Storage of materials on City streets is not allowed unless approved by Engineer. Contractor shall be responsible for obtaining any storage or staging areas as needed for their operations.

1.5 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Products complying with specified reference standards or description.

B. Products Specified by Naming One or More Manufacturers: Products of one of manufacturers named and complying with Specifications; no options or substitutions allowed.

C. Products Specified by Naming One or More Manufacturers with Provision for Substitutions: Submit Request for Substitution for any manufacturer not named, according to Section 012500 - Substitution Procedures.

1.6 PRODUCTS ON CONTACT WITH DRINKING WATER

A. All products (treatment chemicals and materials) that may come into contact with water intended for use in a public water system shall be certified to American National Standards Institute (ANSI) /National Sanitation Foundation (NSF) International Standards 14, 60, 61, or 372 as appropriate.

PART 2 - PRODUCTS – Not Used

PART 3 - EXECUTION - Not Used

END OF SECTION 016000

SECTION 017000 - EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Field engineering.

B. Closeout procedures.

C. Starting of systems.

D. Demonstration and instructions.

E. Testing, adjusting, and balancing.

F. Operation and maintenance data.

G. Manual for materials and finishes.

H. Manual for equipment and systems.

I. Spare parts and maintenance products.

J. Product warranties and product bonds.

K. Examination.

L. Execution.

M. Protecting installed construction.

N. Final cleaning.

1.2 FIELD ENGINEERING

A. The Owner will furnish field engineering services to the extent indicated. Contractor shall provide any further field engineering services necessary over and above that provided by the Owner.

B. Contractor shall protect all survey control, reference points and staking. Any survey point that is disturbed by contractor shall be reset at his expense. Survey control includes any control point, property pin, section corner, or any other monuments either existing or set by the Owner's representative that are necessary to properly layout the project. If Owner is requested to complete field engineering that requires survey point replacement, Owner shall be allowed a minimum of two working days to complete this portion of the work. The actual time of notice shall begin at the time of re-establishment of field engineering. There shall be no time

extension allowed for any delays caused by the disturbance of field engineering by the Contractor.

C. A working day is defined as a calendar day on which work can be reasonably completed.

1. A working day does not include the following:
    a. Holidays: Memorial Day; Independence Day; Labor Day; Thanksgiving, Christmas Day; New Year's Day.
    b. Saturdays or Sundays unless the contractor submits a written request which shows a schedule of Work that includes Saturday. Under no circumstances will Sunday be considered a working day for this section.
    c. Days in which weather or site conditions cause unfavorable working conditions as deemed by the engineer.

D. Hours of operation for field engineering during a typical working day shall be from 7:30 AM to 5:30 PM or as daylight permits whichever is shorter.

E. Owner shall provide stakes for the construction items with designated minimum completion times from arrival on-site, as listed below:

1. Water Mains/ Force Mains
    a. Centerline with offsets at 50' intervals (1 hour per 100').
    b. Cut stakes to top of pipe with hubs, if plan calls for specified grades (0.5 hour per 100').
    c. Curb Stop Locations (0.25 hour per curb stop).
2. Storm-Sanitary Sewers
    a. Centerline stakes with offsets and cuts to inverts at 50' intervals (1 hour per 100').
    b. Manholes with offsets (0.25 hour per manhole).
    c. Inlets with offsets (0.25 hour per inlet).
    d. Wye locations (0.10 hour per location).
    e. Service ends with grades (0.10 hour per location)
3. Streets
    a. Initial dirt grade stakes with lath every 100' and at high and low points (0.5 hour per 100').
    b. Subgrade blue tops for centerline and curb and gutter areas if so specified in special conditions (1.25 hour per 100' at 25' stations).
    c. Centerline gravel blue tops if so specified in special conditions (0.75 hour per 100' at 25' stations).
    d. Curb & gutter flow line stakes with offsets every 25' (1 hour per 100' per side).
    e. Concrete Paving grade stakes with offset at 25' intervals plus high and low points (1 hour per 100' per side of paving).
4. Lift Station
    a. Location & elevation of rim and invert centerline of wet well, dry well, and/or check valve manhole (4 hours per lift station).
5. Buildings
    a. Location & elevation of corners of first floor with offsets.
    b. Location & elevation of corners of footing with offsets.
6. Sidewalks/Bikepaths
    a. Elevation & location of "Outside" finished edge (one edge) of Sidewalk or bikepath @ 25' stationing (1 hour per 100').

7. Channels/Embankments
    a. Centerline cut/fill, daylights, and temporary construction easement limits (every 200')
    b. Culvert alignment, lengths, and invert elevations with offsets
    c. Structure locations and invert elevations with offsets
8. Ponds/Lakes
    a. Location and elevation of bottom of lake/pond, location and elevation of contour defining bottom of rock or planting area used to protect slopes, and topsoil stripping location. Plus 3 elevation control points.

F. Minimum Completion times are based on "typical" construction conditions such as: accessible site; site unobstructed from equipment, dirt piles, etc; intact survey control; fair weather; etc.

G. Use the provided request form to submit all survey requests. Verify (through the superintendent) with the owner's representative on-site to determine if the request is reasonable and necessary. Survey requests will only be accepted by the prime contractor's designated representative. Survey requests from sub-contractors shall be coordinated through the prime contractor's designated representative. The survey request shall specify the date/time that the site is ready, the date/time the staking shall be completed by, specific items to be staked by referencing plan alignments and stationing, and the direction for offsets.

H. Give sufficient notice of need for the establishment of field engineering. All efforts shall be made to provide the staking at the earliest possible time, but a 48-hour period will be reserved if needed. The Contractor shall, at his own expense, correct any mistakes that may be caused by their disturbance or removal of survey stakes or control points.

I. No additional compensation shall be allowed the Contractor for any claims of crews being held up because of lack of field engineering unless he submits the written request form with appropriate signatures to the Engineer at least two working days in advance of such need and is following a previously approved schedule of work.

J. Upon completion of field engineering by the Owner, the Contractor shall verify along with the Owner's representative, that the survey complies with the survey request; and check the survey for accuracy with respect to the plans and specifications.

K. The Owner shall not be held liable for any expenses incurred by the Contractor if items are not completed within specified times due to Contractor's lack of responsibility to make the site accessible or workable, due to Contractor's negligence in maintaining survey control, or Acts of God.

L. If the site is not ready for requested survey work at the time specified on the Survey Request form or by the allotted time established by the Survey Request form, the Contractor shall be charged a fee that shall be deducted from the Owner's contract with the Contractor for that particular project. The fee shall be the cost of mileage, overhead, labor, etc. required for the survey crew to arrive at the site and reestablish itself at an alternate work site.

M. Control datum for survey is indicated on Drawings.

N. Protect survey control points prior to starting Site Work; preserve permanent reference points during construction.

O. Promptly report to Engineer loss or destruction of reference point or relocation required because of changes in grades or other reasons.

1.3 CLOSEOUT PROCEDURES

A. Prerequisites to Substantial Completion: Complete following items before requesting Certification of Substantial Completion, either for entire Work or for portions of Work:

1. Submit maintenance manuals, Project record documents, and other similar final record data in compliance with this Section.
2. Complete facility startup, testing, adjusting, balancing of systems and equipment, demonstrations, and instructions to Owner's operating and maintenance personnel as specified in compliance with this Section.
3. Conduct inspection to establish basis for request that Work is substantially complete. Create comprehensive list (initial punch list) indicating items to be completed or corrected, value of incomplete or nonconforming Work, reason for being incomplete, and date of anticipated completion for each item. Include copy of list with request for Certificate of Substantial Completion.
4. Obtain and submit releases enabling Owner's full, unrestricted use of Project and access to services and utilities.
5. Deliver tools, spare parts, extra stocks of material, and similar physical items to Owner.
6. Discontinue or change over and remove temporary facilities and services from Project Site, along with construction tools, mockups, and similar elements.
7. Perform final cleaning according to this Section.

B. Substantial Completion Inspection:

1. When Contractor considers Work to be substantially complete, submit to Engineer:
   a. Written certificate that Work, or designated portion, is substantially complete.
   b. List of items to be completed or corrected (initial punch list).
2. Within seven days after receipt of request for Substantial Completion, Engineer and Owner will make inspection to determine whether Work or designated portion is substantially complete.
3. Should Engineer and Owner determine that Work is not substantially complete:
   a. Engineer will promptly notify Contractor in writing, stating reasons for their opinion.
   b. Contractor shall remedy deficiencies in Work and send second written request for Substantial Completion to Engineer and Owner.
   c. Engineer and Owner will re-inspect Work.
   d. Redo and Inspection of Deficient Work: Repeated until Work passes Engineer's and Owner's inspection.
4. When Engineer and Owner finds that Work is substantially complete, Engineer will:
   a. Prepare Certificate of Substantial Completion accompanied by Contractor's list of items to be completed or corrected as verified and amended by Engineer and Owner (final punch list).
   b. Submit Certificate to Owner and Contractor for their written acceptance of responsibilities assigned to them in Certificate.
5. After Work is substantially complete, Contractor shall:

a. Allow Owner occupancy of Project under provisions stated in Certificate of Substantial Completion.
b. Complete Work listed for completion or correction within time period stipulated.

6. Owner will occupy completed work as specified in Section 011000 - Summary.

C. Prerequisites for Final Completion: Complete following items before requesting final acceptance and final payment.

1. When Contractor considers Work to be complete, submit written certification that:
   a. Contract Documents have been reviewed.
   b. Work has been examined for compliance with Contract Documents.
   c. Work has been completed according to Contract Documents.
   d. Work is completed and ready for final inspection.
2. Submittals: Submit following:
   a. Final punch list indicating all items have been completed or corrected.
   b. Final payment request with final releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.
   c. Specified warranties, workmanship/maintenance bonds, maintenance agreements, and other similar documents.
   d. Accounting statement for final changes to Contract Sum.
   e. Contractor's affidavit of payment of debts and claims.
   f. Contractor affidavit of release of liens.
   g. Consent of surety to final payment.
3. Perform final cleaning for Contractor-soiled areas according to this Section.

D. Final Completion Inspection:

1. Within seven days after receipt of request for final inspection, Engineer and Owner will make inspection to determine whether Work or designated portion is complete.
2. Should Engineer and Owner consider Work to be incomplete or defective:
   a. Engineer will promptly notify Contractor in writing, listing incomplete or defective Work.
   b. Contractor shall remedy stated deficiencies and send second written request to Engineer and Owner that Work is complete.
   c. Engineer and Owner will re-inspect Work.
   d. Redo and Inspection of Deficient Work: Repeated until Work passes Engineer's and or Owner's inspection.

1.4 STARTING OF SYSTEMS

A. Coordinate schedule for startup of various equipment and systems.

B. Notify Engineer seven days prior to startup of each item.

C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions, which may cause damage.

D. Verify that tests, meter readings, and electrical characteristics agree with those required by equipment or system manufacturer.

E. Verify that wiring and support components for equipment are complete and tested.

F. Execute startup under supervision of manufacturer's representative or Contractors' personnel according to manufacturer's instructions.

G. When specified in individual Specification Sections, require manufacturer to provide authorized representative who will be present at Site to inspect, check, and approve equipment or system installation prior to startup and will supervise placing equipment or system in operation.

H. Submit a written report according to Section 013300 - Submittal Procedures that equipment or system has been properly installed and is functioning correctly.

1.5 DEMONSTRATION AND INSTRUCTIONS

A. If required by Specifications, demonstrate operation and maintenance of products to Owner's personnel two weeks prior to date of Substantial Completion.

B. Demonstrate Project equipment, instructed by manufacturer's representative who is knowledgeable about the Project.

C. Video Recordings: Provide high-quality color video recordings of demonstration and instructional sessions. Engage commercial videographer to record sessions. Include classroom instructions, demonstrations, board diagrams, and other visual aids. Include menu navigation.

D. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.

E. Use operation and maintenance manuals as basis for instruction. Review contents of manual with Owner's personnel in detail to explain all aspects of operation and maintenance.

F. Demonstrate startup, operation, control, adjustment, troubleshooting, servicing, maintenance, and shutdown of each item of equipment at scheduled time designated location.

G. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.

H. Required instruction time for each item of equipment and system is specified in individual Specification Sections.

1.6 TESTING, ADJUSTING, AND BALANCING

A. Owner will appoint, employ, and pay for services of independent firm to perform testing, adjusting, and balancing.

1.7 OPERATION AND MAINTENANCE DATA

A. Submit in PDF composite electronic indexed file.

B. Prepare PDF cover with the title "OPERATION AND MAINTENANCE INSTRUCTIONS," title of Project, and subject matter of binder when multiple binders are required.

C. Internally subdivide PDF contents with permanent page dividers, logically organized as described below; with tab titling clearly printed under reinforced laminated plastic tabs.

D. Drawings: Provide PDF drawings.

E. Contents: Prepare table of contents for each volume, with each product or system description identified, typed on white paper, in three parts as follows:

1. Part 1: Directory, listing names, addresses, and telephone numbers of Engineer, Contractor, Subcontractors, and major equipment suppliers.
2. Part 2: Operation and maintenance instructions arranged by system and subdivided by Specification Section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Include the following:
    a. Significant design criteria.
    b. List of equipment.
    c. Parts list for each component.
    d. Operating instructions.
    e. Maintenance instructions for equipment and systems.
    f. Maintenance instructions for special finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.
    g. Safety precautions to be taken when operating and maintaining or working near equipment.
3. Part 3: Project documents and certificates, including the following:
    a. Shop Drawings and product data.
    b. Air and water balance reports.
    c. Certificates.
    d. Photocopies of warranties and bonds.

1.8 MANUAL FOR MATERIALS AND FINISHES

A. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. Engineer will review draft and return one copy with comments.

B. For equipment or component parts of equipment put into service during construction and operated by Owner, submit documents within ten days after acceptance.

C. Submit one copy of completed volumes before Substantial Completion. Draft copy be reviewed and returned after Substantial Completion, with Engineer comments. Revise content of document sets as required prior to final submission.

D. Submit in PDF composite electronic indexed file of final manual within ten days after final inspection.

E. Building Products, Applied Materials, and Finishes: Include product data, with catalog number, size, composition, and color and texture designations. Include information for re-ordering custom-manufactured products.

F. Instructions for Care and Maintenance: Include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

G. Moisture Protection and Weather Exposed Products: Include product data listing applicable reference standards, chemical composition, and details of installation. Include recommendations for inspections, maintenance, and repair.

H. Additional Requirements: As specified in individual product Specification Sections.

I. Include listing in table of contents for design data, with tabbed fly sheet and space for insertion of data.

1.9 MANUAL FOR EQUIPMENT AND SYSTEMS

A. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit documents within ten days after acceptance.

B. Submit one copy of completed volumes before Substantial Completion. Draft copy will be reviewed and returned after Substantial Completion, with Engineer comments. Revise content of document sets as required prior to final submission.

C. Submit in PDF composite electronic indexed file of final manual within ten days after final inspection.

D. Each Item of Equipment and Each System: Include description of unit or system and component parts. Identify function, normal operating characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and model number of replaceable parts.

E. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications; typed.

F. Include color-coded wiring diagrams as installed.

G. Operating Procedures: Include startup, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shutdown, and emergency instructions. Include summer, winter, and special operating instructions.

H. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and troubleshooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

I. Include servicing and lubrication schedule and list of lubricants required.

J. Include manufacturer's printed operation and maintenance instructions.

K. Include sequence of operation by controls manufacturer.

L. Include original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

M. Include control diagrams by controls manufacturer as installed.

N. Include Contractor's coordination drawings with color-coded piping diagrams as installed.

O. Include charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.

P. Include list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

Q. Include test and balancing reports as specified in Section 014000 - Quality Requirements.

R. Additional Requirements: As specified in individual product Specification Sections.

S. Include listing in table of contents for design data with tabbed dividers and space for insertion of data.

1.10 SPARE PARTS AND MAINTENANCE PRODUCTS

A. Furnish spare parts, maintenance, and extra products in quantities specified in individual Specification Sections.

B. Deliver to and place in location as directed by Owner; obtain receipt prior to final payment.

1.11 PRODUCT WARRANTIES AND PRODUCT BONDS

A. Obtain warranties and bonds executed in duplicate by responsible Subcontractors, suppliers, and manufacturers within ten days after completion of applicable item of Work.

B. Execute and assemble transferable warranty documents and bonds from Subcontractors, suppliers, and manufacturers.

C. Verify documents are in proper form, contain full information, and are notarized.

D. Co-execute submittals when required.

E. Submit prior to final Application for Payment.

F. Time of Submittals:

1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within ten days after acceptance.
2. Make other submittals within ten days after date of Substantial Completion, prior to final Application for Payment.

3. For items of Work for which acceptance is delayed beyond Substantial Completion, submit within ten days after acceptance, listing date of acceptance as beginning of warranty or bond period.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that existing Site conditions and substrate surfaces are acceptable for subsequent Work. Beginning new Work means acceptance of existing conditions.

B. Examine and verify specific conditions described in individual Specification Sections.

C. Verify that utility services are available with correct characteristics and in correct locations.

3.2 EXECUTION

A. Comply with manufacturer's installation instructions, performing each step in sequence. Maintain one set of manufacturer's installation instructions at Project Site during installation and until completion of construction.

B. When manufacturer's installation instructions conflict with Contract Documents, request clarification from Engineer before proceeding.

C. Verify that field measurements are as indicated on approved Shop Drawings or as instructed by manufacturer.

D. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

1. Secure Work true to line and level and within specified tolerances, or if not specified, industry-recognized tolerances.

3.3 PROTECTING INSTALLED CONSTRUCTION

A. Protect installed Work and provide special protection where specified in individual Specification Sections.

B. Provide temporary and removable protection for installed products. Control activity in immediate Work area to prevent damage.

C. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.

D. Use durable sheet materials to protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects.

E. Prohibit traffic or storage upon waterproofed or roofed surfaces. When traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.

F. Prohibit traffic from landscaped areas.

3.4 FINAL CLEANING

A. Clean debris drainage systems.

B. Clean Site; sweep paved areas, rake clean landscaped surfaces.

C. Remove waste and surplus materials, rubbish, and construction facilities from Site.

END OF SECTION 017000

02 – EXISTING CONDITIONS

SECTION 024200 - REMOVAL AND SALVAGE OF CONSTRUCTION MATERIALS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes.

1. Removal of sanitary manholes.
2. Removal of sanitary cleanouts.
3. Removal of watermain and service pipe.
4. Removal of gate valves.
5. Removal of fire hydrants.
6. Removal of landscaping.

B. Related Requirements:

1. Section 310513- Soils for Earthwork: Backfill materials.
2. Section 310516 - Aggregates for Earthwork: Backfill materials.
3. Section 312316.13 – Trenching: Excavation and backfilling.

1.2 UNIT PRICE – MEASUREMENT AND PAYMENT

A. Removal of Manhole and Inlets

1. Basis of Measurement: By each.
2. Basis of Payment: Includes excavation, removal, disposal offsite, backfilling, and compaction.

B. Sanitary Sewer Cleanout – Remove

1. Basis of Measurement: By each.
2. Basis of Payment: Includes excavation, removal, disposal offsite, backfilling, and compaction.

C. Removal of Pipe

1. Basis of Measurement: By linear foot.
2. Basis of Payment: Includes excavation, removal of pipe, removal of end sections, small appurtenances, disposal offsite, backfilling, and compaction.

D. Abandon Pipe

1. Basis of Measurement: By linear foot.
2. Basis of Payment: Includes excavation, filling pipe with flowable fill, plugging pipe ends, backfilling, and compaction.

E. Abandon Manhole

1. Basis of Measurement: By linear each.
2. Basis of Payment: Includes excavation, removing top 4’ of manhole section, plugging pipe ends, filling manhole with sand, backfilling, and compaction.
3.

F. Removal of Casting, Valves, and Hydrants

1. Basis of Measurement: By each.
2. Basis of Payment: Includes excavation, removal, disposal offsite, backfilling, and compaction.

G. Landscaping - Salvage

1. Basis of Measurement: By lump sum:
2. Basis of Payment: Includes salvage and removal of landscaping items and placing in a safe location. Items include, but are not limited to, blocks, pavers, bricks, stones, fabric and timbers.

H. Removal of Pavement
1. Basis of Measurement: By square yard.
2. Basis of Payment: Includes excavation, removal, disposal offsite, and saw cutting.

I. Clearing and Grubbing
1. Basis of Measurement: By lump sum
2. Basis of Payment: Includes all work associated with removal and disposal offsite.

J. Tree Removal
1. Basis of Measurement: By each.
2. Basis of Payment: Includes all above ground work and pulling of root ball from the ground. Unless otherwise specified, grinding shall not be allowed.

K. Removal of Curb & Gutter
1. Basis of Measurement: By linear foot measured along the flowline.
2. Basis of Payment: Includes excavation, removal, disposal offsite, backfilling, and compaction.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 013000 - Administrative Requirements: Verification of existing conditions before starting work.

B. Identify salvage area for placing salvaged materials.

3.2 PREPARATION

A. Call Local Utility Line Information service North Dakota One Call at 800-795-0555 or 811 within the statutory timelines before performing Work.

1. Request underground utilities to be located and marked within and surrounding construction areas.

3.3 PROTECTION

A. Protect buildings, structures, utilities, trees, shrubs, plant growth and features designated to remain.

B. Protect bench marks, survey control points, and existing structures from damage or displacement.

3.4 REMOVAL

A. Remove items as indicated on the Drawings.

B. Neatly saw cut edges at right angles, full depth prior to removal.

C. All items or materials designated to be removed and salvaged shall be delivered to the Owner. Including the following:

1. Inlet and manhole castings.
2. Valve boxes.
3. Fire hydrants.
4. Lift Station Components including:
    a. Controls and panel
    b. Pumps
    c. Guide rails
    d. Lift chains

Deliver to Public Works Building at 810 12th Avenue NW except for signs which are to be delivered to the City Sign Shop at 327L 34th Avenue East.

D. Contractor is responsible for proper disposal of all materials removed but not incorporated in the finished project.

E. Disposal of all removed materials shall be in accordance with all applicable federal, state or local regulations.

F. Contractor is responsible for maintaining temporary access to pedestrians and vehicular traffic in pavement removal locations. This includes building temporary access ramps, blading, watering and he fixing soft areas as necessary.

3.5 TOPSOIL EXCAVATION

A. Excavate topsoil from removal areas, without mixing with foreign materials for use in finish grading.

B. Stockpile excavated topsoil in area designated on-site and protect from erosion.

C. Remove topsoil not intended for reuse from site.

D. Spread Topsoil to specified depth.

3.6 TREE REMOVAL

A. Remove all tree's designated by the Engineer with a trunk measuring 6 inches in diameter at a point 4.5 feet off the ground.

B. Pull from the ground or remove the root ball (stump) of all removed trees. Grinding of the root ball is not allowed without approval of the City Engineer or their designee.

C. Dispose of all materials off site.

3.7 CLEARING AND GRUBBING

A. Prior to topsoil stripping, ensure all topsoil is free from vegetation over six inches in height, trash, stones, and all other debris.

B. Removal all trees with a trunk measuring less than 6 inches in diameter at a point 4.5 feet off the ground.

C. Properly dispose of all cleared material off site.

END OF SECTION 024200

SECTION 028213.33 - ASBESTOS ABATEMENT FOR UTILITIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Removal of ACP or ACM-contaminated pipeline and pipeline coatings.
2. Cutting of ACP or pipelines containing or coated with ACM.
3. Monitoring of Work area during cutting and cleaning operations.

B. Related Requirements:

1. Section 024200 - Removal and Salvage of Construction Materials.
2. Section 331113 - Public Water Utility Distribution Piping: Coordination of pipe, valves, and appurtenances during removal operations.

1.2 DEFINITIONS

A. ACM: Asbestos Containing Material.

B. ACP: Asbestos Cement Pipe.

1.3 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Removal of Asbestos Cement Pipe:

1. Basis of Measurement: By linear foot (LF).
   a. Measured along piping and including fittings and appurtenances.
2. Basis of Payment: Includes excavation, cleaning, cutting, removal, packaging, transport, disposal, and any other items required to maintain compliance with applicable local, state, and federal regulations.

1.4 REFERENCE STANDARDS

A. Occupational Safety and Health Administration (OSHA):

1. 29 CFR Part 1926 - Safety and Health Regulations for Construction.
2. 40 CFR Part 763, Subpart E, Appendix E, Section 1- Polarized Light Microscopy.
3. 42 CFR Part 84, Subpart K - Non-Powered Air-Purifying Particulate Respirators.

B. U.S. Environmental Protection Agency:

1. National Emission Standards for Hazardous Air Pollutants (NESHAPs).

C. North Dakota Department of Environmental Quality

1. Interoffice Memo Dated August 13, 2018: Removal or Abandonment In-Place of Asbestos Cement Pipe.
2. North Dakota Administrative Code (NDAC) 33-15-13-02.
3. Emission Standards for Asbestos NDAC 33-20 Solid Waste Management Rules.

1.5 SUBMITTALS

A. Section 013300 - Submittal Procedures: Requirements for submittals.

B. Product Data: Submit manufacturer information on respirators and air monitor.

C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

D. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.

E. Qualifications Statements:

1. Submit qualifications for contractor, on-Site representative, and disposal firm.
2. Submit qualifications for testing laboratory.

1.6 QUALITY ASSURANCE

A. Perform Work according to NESHAPs, OSHA (HAZWOPER), State of North Dakota, and NDDEQ standards.

1.7 QUALIFICATIONS

A. Contractor: Company specializing in repairing, modifying, cleaning, or removing ACP or ACM-coated pipe as specified in this Section with minimum three years' documented experience.

B. On-Site Representative: Person trained in performing Work of this Section with minimum three years' documented experience.

C. Supervisor and/or Inspector: Certified by the State of North Dakota.

D. Disposal Firm: Company specializing in packaging and hauling ACM to disposal site.

E. Active Waste Disposal Site: Solid waste disposal site permitted to accept ACM waste.

F. Testing Laboratory: Company participating in National Voluntary Laboratory Accreditation Program for asbestos, administered by National Institutes of Standards and Technology.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Section 016000 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.

B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.

C. Store materials according to manufacturer instructions.

D. Respirators Not in Use:

1. Store in sanitary location that protects respirators from dust, sunlight, heat, extreme cold, excessive moisture, and potentially damaging chemicals.
2. Place in plastic bags or closed containers.

PART 2 - PRODUCTS

2.1 RESPIRATORS

A. Description:

1. Comply with 42 CFR Part 84, Subpart K.
2. Type: Half-face mask; reusable after washing.
3. Maintenance: Replaceable filters and cartridges only.
4. Single-use respirators are not acceptable.

B. Filters: Top air inlet.

C. Performance and Design Criteria:

1. Application: Asbestos abatement for concentrations up to 10 times permissible exposure limit (PEL).
2. Design: Low profile.

2.2 AIR MONITOR

A. Description:

1. Type: Laser.
2. Power Source: Batteries.
3. Screen: LCD.
4. Output: Greater than 0.5 micron and 2.5 micron particulates.

PART 3 - EXECUTION

3.1 PREPARATION

A. Provide notification to the North Dakota Division of Air Quality - Asbestos Program by completing and submitting a Notification of Demolition and Renovation form at least 10 working days prior to removing, cutting, or damaging ACM Piping.

B. Consult with a North Dakota - certified asbestos inspector to determine if asbestos cement pipe (ACP) is friable or non-friable.

C. Retain a North Dakota - certified asbestos supervisor, on-site during work activities, whenever mechanical tools are used for cutting or removal or the material has been classified as friable.

D. Perform ACP or ACM removal without damage to or contamination of adjacent Work or existing area.

E. Perform cleaning operations without taking pipeline out of service.

3.2 APPLICATION

A. Removal of Pipe:

1. Cutting and Disposal:
    a. Utilize appropriate cutting methods.
        1) Crushing or bursting shall not be permitted.
    b. Keep the material wet during all times of pipe cutting/removal to minimize asbestos fiber release. Remove and dispose of all wet soil appropriately.
    c. Transport removed piping to a restricted, central, staging area to cut for transport or disposal.
    d. Deposit bagged pipeline pieces in leak-proof metal collection box secured with tarpaulin covers. Use appropriate warning labels.
    e. Transport filled boxes to an approved landfill. Recycling is prohibited.
    f. A licensed and certified asbestos supervisor will accompany transport vehicles to manage transport process.
    g. Maintain supply of fresh water near cutting operation to keep freshly cut areas of ACP or ACM damp while cutting piping.
    h. Individually wrap each joint of piping and pipe ends prior to loading.
    i. Maintain waste manifest records. Send copies of all records to the North Dakota Division of Air Quality within 30 days of disposal.

3.3 FIELD QUALITY CONTROL

A. Sample Testing:

1. Test pipe or pipe coating for asbestos prior to repairing, modifying, or removing pipelines.
2. Remove samples of pipe or coating along entire length of piping to be removed and have testing laboratory determine quantity of asbestos that may be present.

END OF SECTION 028213.33

CITY OF WEST FARGO ENGINEERING

10 – SPECIALTIES

SECTION 101400 - SIGNAGE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Traffic Signs

1.2 UNIT PRICE – MEASUREMENT AND PAYMENT

A. Signage

1. Basis of Measurement – By the Square Foot measured to the closest 1/10 square foot.
2. Basis of Payment – Includes labor, equipment, and materials to supply and mount sign.

B. Perforated Tube

1. Basis of Measurement – By Linear Foot of post and anchor
2. Basis of Payment – Includes all materials, equipment, and labor to install the anchor, post, brackets and hardware.

C. Remove and Reset Sign

1. Basis of Measurement – By Each.
2. Basis of Payment - Includes all materials, equipment, and labor to install a new anchor and reattach the existing post, brackets, and sign.

D. Flexible Delineator

1. Basis of Measurement – By Each.
2. Basis of Payment - Includes all materials, equipment, and labor to perform work.

1.3 SUBMITTALS

A. Section 013300 - Submittal Procedures: Requirements for submittals.

B. Shop Drawings: Indicate sign styles, lettering font and size, foreground and background colors, locations, and overall dimensions of each sign.

C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

D. Manufacturer Instructions: Submit detailed instructions on installation requirements, including storage and handling procedures.

E. Qualifications Statement:

1. Submit qualifications for manufacturer.

1.4 QUALITY ASSURANCE

A. Perform Work according to Section 754 of the North Dakota Department of Transportation Standard Specifications for Road and Bridge Construction.

1.5 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years' documented experience.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Section 016000 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.

B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.

C. Storage:

1. Store materials according to manufacturer instructions.

D. Protection:

1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
2. Provide additional protection according to manufacturer instructions.

PART 2 - PRODUCTS

2.1 SIGN BACKING MATERIAL

A. Flat Sheet Aluminum.
1. Provide flat sheet aluminum that is an alloy meeting ASTM B209 Alloy 6061 T6, or 5052-H38.
2. Aluminum for signs with a width less than 36 inches shall be 0.080 inches thick.
3. Aluminum for signs with a width of 36 inches or more shall be 0.100 inches thick.

B. Extruded Aluminum.
1. Provide Extruded Aluminum Panels that meet ASTM B221 Alloy 6063 T6. Furnish the panels in 12 inch and 6 inch sections. Provide panels that are flat and straight.

C. Shop Surface Preparation and Processing.

1. Prepare the aluminum in accordance with:
   a. ASTM B449, Class 2;
   b. ASTM B921; or
   c. Degreased and lightly acid etch before the retroreflective surfacing is applied.
2. Shop drill or punch holes. Do not field drill any holes required in the sign backing.
3. Punch or drill holes in accordance with Federal Guidelines.
4. Punch street name signs
   a. 7/16-inch diameter holes centered 1 inch from the top and bottom edge.
   b. 5/16-inch diameter holes centered 1 inch from the left and right sign edge.

2.2 RETROREFLECTIVE SHEETING MATERIALS

A. All sign reflective sheeting to be Type XI, 3M Series 4000 Diamond Grade DG^3 or approved equal.

B. All Pedestrian warning signs to be florescent yellow-green.

2.3 POSTS AND HARDWARE FOR SIGNS

A. Provide materials in accordance with Section 894 of the North Dakota Department of Transportation Standard Specification for Road and Bridge Construction.

B. Signs mounted on light poles to be mounted with stainless steel bandits or equal.

C. Surface Mounting Bracket
   1. Kleen Break Assembly
      Model 425 Surface Mount Assembly
   2. Approved Equal

2.4 FLEXIBLE DELINEATORS

A. FG336UR with three 4-inch Type IV Yellow wrap with yellow HD base or Approved Equal.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General
   1. Confirm the support lengths with the Engineer before ordering sign support posts.
   2. Use a driving cap when driving supports.
   3. Firmly set all supports and plumb after erection.
   4. Use the same breakaway couplet system throughout the contract.

B. Anchor for Telescoping Tube Supports

1. Drive anchors for telescoping perforated tubes supports a maximum of 4 inches above the ground or surfacing.
2. If installation is in bituminous material, omit the soil plate or use a surface mount anchor base.
3. When mounting in concrete use a surface mount and install per manufacturer's instructions.

3.2 REMOVING AND RESETTING SIGNS AND SUPPORTS

A. General
1. Remove and reset existing signs and supports as specified. Deliver all signs and supports not to be reset to the City Sign Shop at 3271 34th Avenue E.
2. Replace removed or reset signs and supports that are damaged during removal, resetting, or stockpiling at no additional cost to the Owner.
3. Remove existing signs and supports at the beginning of construction and replace prior to substantial completion.

END OF SECTION 101400

31 – EARTHWORK

SECTION 310513 - SOILS FOR EARTHWORK

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Subsoil materials.
2. Topsoil materials.

B. Related Requirements:

1. Section 310516 - Aggregates for Earthwork: Coarse and fine aggregate materials.
2. Section 312316.13 - Trenching: Excavating as required for utilities.
3. Section 329300 - Plants: Preparation of subsoil and topsoil, topsoil bedding, trees, plants, ground cover, mulch, fertilizer, pruning, and maintenance.

1.2 REFERENCE STANDARDS

A. ASTM International:

1. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3).
2. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System).
3. ASTM D6938 - Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

1.3 SUBMITTALS

A. Section 013300 - Submittal Procedures: Requirements for submittals.

B. Product Data: Submit name of imported materials source.

C. Samples: Submit, in airtight containers, 35-lb. sample of each type of fill to testing laboratory.

1.4 QUALITY ASSURANCE

A. Furnish each subsoil and topsoil material from single source throughout Work.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Subsoil:

1. Type S2:
   a. Excavated and reused material.
   b. Graded.
   c. Free of lumps larger than 3 inches, rocks larger than 6 inches, frost, and debris.
   d. Organic content of less than 3 percent for material placed below structures.
   e. Organic content of less than 5 percent for materials placed within 3 vertical feet of the top of finished pavement subgrades.

B. Topsoil:

1. Type S4:
   a. Excavated and reused material.
   b. Graded.
   c. Free of roots, rocks larger than 1 inch, subsoil, debris, large weeds, and foreign matter.
2. Type S5:
   a. Imported borrow.
   b. Friable loam.
   c. Reasonably free of roots, rocks larger than 1 inch, subsoil, debris, large weeds, and foreign matter.

2.2 SOURCE QUALITY CONTROL

A. Section 014000 - Quality Requirements: Requirements for testing, inspection, and analysis.

B. Testing and Analysis:

1. Subsoil Material: Comply with ASTM D698 and ASTM D6938.
2. If tests indicate materials do not meet specified requirements, replace material or modify in place and retest.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Excavation:

1. Excavate subsoil and topsoil from designated areas.
2. Strip topsoil to full depth of topsoil in designated areas.
3. Remove excess excavated materials, subsoil, and topsoil not intended for reuse from Site.

4. Remove excavated materials not meeting requirements for subsoil and topsoil materials from Site.

B. Stockpiling:

1. Stockpile excavated material meeting requirements for subsoil and topsoil materials.
2. Stockpile materials on Site at locations as designated by Engineer.
3. Stockpile in sufficient quantities to meet Project schedule and requirements.
4. Separate differing materials with dividers or stockpile apart to prevent intermixing of soil types or contamination.
5. Direct surface water away from stockpile to prevent erosion or deterioration of materials.
6. Stockpile hazardous materials on impervious material and cover to prevent erosion and leaching until they are disposed.

3.2 CLEANING

A. Section 017000 - Execution and Closeout Requirements: Requirements for cleaning.

B. Stockpile:

1. Remove stockpile and leave area in clean and neat condition.
2. Grade Site surface to prevent freestanding surface water.
3. If directed by Engineer, leave unused materials in neat, compact stockpile with slopes not to exceed 4:1.

END OF SECTION 310513

SECTION 310516 - AGGREGATES FOR EARTHWORK

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Coarse-aggregate materials.
2. Fine-aggregate materials.

B. Related Requirements:

1. Section 310513 - Soils for Earthwork: Fill and grading materials.
2. Section 312316.13 - Trenching: Excavating as required for utilities.
3. Section 331413 – Public Utility Distribution Piping: Pipe materials and fittings.
4. Section 331417 - Site Water Service Utility Laterals: Pipe materials and fittings.
5. Section 333111 – Public Sanitary Sewerage Gravity Piping: Pipe materials and accessories normally encountered with gravity sanitary piping.

1.2 REFERENCE STANDARDS

A. American Association of State Highway and Transportation Officials:

1. AASHTO M 147 - Standard Specification for Materials for Aggregate and Soil-Aggregate Subbase, Base, and Surface Courses.

B. ASTM International:

1. ASTM C136/C136M - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.
2. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3).
3. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System).
4. ASTM D4318 - Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.
5. ASTM D6938 - Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

1.3 SUBMITTALS

A. Section 013300 - Submittal Procedures: Requirements for submittals.

B. Product Data: Submit name of imported materials source.

C. Samples: Submit, in airtight containers, 35-lb. sample of each type of Type of aggregate to testing laboratory.

1.4 QUALITY ASSURANCE

A. Furnish each aggregate materials from single source throughout Work.

B. Perform Work according to North Dakota Department of Transportation standards.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Coarse Aggregate:

1. Type A1 (base): Conforming to North Dakota Department of Transportation Class 5, see Table 816-01 of the Standard Specifications for Road and Bridge Construction with the following revisions:

Sieve Size	Percent Passing
No. 200	6-10

2. Type A2 (recycled base): Conforming to North Dakota Department of Transportation Salvaged Base Course, see Section 817 of the Standard Specifications for Road and Bridge Construction.
3. Type A3 (surface): Conforming to North Dakota Department of Transportation Class 13, see Table 816-01 of the Standard Specifications for Road and Bridge Construction.
4. Type A4 (drainage): Conforming to North Dakota Department of Transportation Class 43, see Table 816-01 of the Standard Specifications for Road and Bridge Construction.
5. Coarse Aggregate Type A5 (pipe bedding and cover): Conforming to North Dakota Department of Transportation Class 3, see Table 816-01 of the Standard Specifications for Road and Bridge Construction.
6. Coarse Aggregate Type A6 (crushed): Washed, crushed rock with nominal size of 1.25 inches.

B. Fine Aggregate:

1. Type A7 (Sand): Natural river or bank sand; washed; free of silt, clay, loam, friable or soluble materials, and organic matter; graded according to ASTM D2487 Group Symbol SW; within the following limits:
   a. Percent Passing per Sieve Size:
      1) No. 4 100.
      2) No. 14 10 to 100.
      3) No. 50 5 to 90.
      4) No. 100 4 to 30.
      5) No. 200 Zero.

2.2 SOURCE QUALITY CONTROL

A. Section 014000 - Quality Requirements: Requirements for testing, inspection, and analysis.

B. Testing and Analysis:

1. Aggregate Material: Comply with AASHTO M 147.
2. If tests indicate materials do not meet specified requirements, change material and retest.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Stockpiling:

1. Stockpile materials on Site at locations as designated by Engineer.
2. Stockpile in sufficient quantities to meet Project schedule and requirements.
3. Separate different aggregate materials with dividers or stockpile apart to prevent intermixing of aggregate types or contamination.
4. Direct surface water away from stockpile site to prevent erosion or deterioration of materials.

3.2 CLEANING

A. Section 017000 - Execution and Closeout Requirements: Requirements for cleaning.

B. Stockpile:

1. Remove stockpile and leave area in clean and neat condition.
2. Grade Site surface to prevent freestanding surface water.

END OF SECTION 310516

SECTION 312316 – TOPSOIL, FILLS AND EMBANKMENTS, SUBCUT, AND SUBGRADE PREPARATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Soil densification.
2. Excavating for paving, roads, and parking areas.
3. Excavating for slabs-on-grade.
4. Excavating for landscaping.

B. Related Sections:
1. Section 310513 - Soils for Earthwork: Stockpiling excavated materials.
2. Section 310516 - Aggregates for Earthwork: Stockpiling excavated materials.
3. Section 312213 - Rough Grading: Topsoil and subsoil removal from site surface.
4. Section 312316.13 - Trenching: Excavating for utility trenches.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Topsoil:
1. Basis of Measurement: By Cubic Yard.
2. Basis of Payment: Includes furnishing all equipment, labor, and incidentals to excavate, stockpile, and respread topsoil as specified.

B. Topsoil Imported:
1. Basis of Measurement: By Cubic Yard.
2. Basis of Payment: Includes furnishing all materials, transport, equipment, labor, royalties. and incidentals to import and spread topsoil as specified.

C. Excavation:
1. Basis of Measurement: By Cubic Yard.
2. Basis of Payment: Includes furnishing all equipment, labor, and incidentals to excavate and compact embankment in grading areas as specified.

D. Excavation Waste:
1. Basis of Measurement: By Cubic Yard.
2. Basis of Payment: Includes furnishing all equipment, transportation, labor, and incidentals to excavate, haul, and dispose of excess or unsuitable soils as specified.

E. Excavation Import:
1. Basis of Measurement: By Cubic Yard.
2. Basis of Payment: Includes furnishing all materials, transport, equipment, labor, royalties. and incidentals to import and compact embankment as specified.

F. Subcut Excavation:
   1. Basis of Measurement: By Cubic Yard.
   2. Basis of Payment: Includes furnishing all materials, equipment, labor, and incidentals to remove and dispose of unsuitable soils as specified.

G. Subgrade Preparation:
   1. Basis of Measurement: By Square Yard.
   2. Basis of Payment: Includes furnishing all, equipment, labor, and incidentals to complete the work as specified.

1.3 REFERENCES

A. American Association of State Highway and Transportation Officials:
   1. AASHTO-99 - Standard Method for Moisture-Density Relations of Soils Using a 2.5-kg (5.5-lb) Rammer and a 305-mm (12-in.) Drop.

B. ASTM International:
   1. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3)).
   2. ASTM D6938 - Standard Test Method For In-Place Density And Water Content of Soil And Soil-Aggregate By Nuclear Methods (Shallow Depth)

1.4 SUBMITTALS

A. Section 013300 - Submittal Procedures: Requirements for submittals.

B. Excavation Protection Plan: Describe sheeting, shoring, and bracing materials and installation required to protect excavations and adjacent structures and property; include structural calculations to support plan.

1.5 QUALIFICATIONS

A. Prepare excavation protection plan when necessary under direct supervision of Professional Engineer experienced in design of this Work and licensed at Project location.

PART 2 - PRODUCTS

2.1 Ensure existing topsoil adheres to Type S4 as specified in Section 310513 – Soils for Earthwork.

2.2 Provide imported topsoil according to Type S5 as specified in Section 310513 – Soils for Earthwork.

2.3 Include all water required for dust control and to obtain proper moisture content and compaction in the associated bid items.

PART 3 - EXECUTION

3.1 PREPARATION

A. Call Local Utility Line Information service North Dakota One Call at 800-795-0555 or 811 at not less than two working days before performing Work.
   1. Request underground utilities to be located and marked within and surrounding construction areas.

B. Identify required lines, levels, contours, and datum.

C. Notify utility company to remove and relocate utilities.

D. Protect utilities indicated to remain from damage.

E. Protect plant life, lawns, and other features remaining as portion of final landscaping.

F. Protect benchmarks, survey control points, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

3.2 EXCAVATION

A. Topsoil
   1. Remove topsoil to its full depth or a depth up to 6 inches, whichever is less, from all excavation and embankment areas.
      a. Do not remove the subsoil or other deleterious material with topsoil.
      b. Stockpile that are to remain permanently must have mowable slopes not to exceed a steepness of 4:1.
   2. Scarify the surface to a depth of 2 inches before replacing topsoil.
   3. Uniformly spread the stockpiled topsoil to a depth, as specified in the plans, over the disturbed areas.
   4. Remove excess excavated topsoil not intended for reuse from the Site.
   5. Remove excavated materials not meeting requirements for topsoil materials from Site.

B. Topsoil Imported
   1. Scarify the surface to a depth of 2 inches before replacing topsoil.
   2. Spread topsoil to minimum depth, as specified in the plans, over the disturbed areas.
   3. Use all existing stockpiled topsoil before importing topsoil.

C. Subcut
   1. Engineer will determine whether subcutting operations will be required to correct extremely wet subgrade conditions.
   2. Haul unsuitable material from the entire width and depth of the excavation as directed by the Engineer.
   3. Scarify the subcut areas to a depth of 6 inches.
   4. Allow sufficient time for Engineer to cross-section or measure in some other form the subcut area before backfilling.
   5. Aerate the subcut/excavation area to achieve a uniform working platform prior to backfilling operations.
   6. Place fill per requirements specified for Fills and Embankments.

D. Fills and Embankments
   1. Scarify and compact subgrade per requirements above for subcut.
   2. Place fill in level successive horizontal layers not to exceed six (6) inches compacted thickness.
      a. Use motor graders or other equipment acceptable to the Engineer to spread the material uniformly.
      b. Accomplish compaction with equipment specifically made to uniformly compact the soil.
      c. Use hand tampers to compact areas inaccessible to rollers
   3. Provide continuous leveling, and disking to assure uniform soil distribution, moisture, and density control.
   4. Provide benching when material is placed against slopes 4:1 or steeper.
      a. Place horizontal cuts as close together as slopes permit with a minimum step width of 24 inches.
      b. Begin each horizontal cut at the intersection of the original ground and the vertical sides of the previous cut.
      c. Compact excavated material along with embankment material.
      d. Include the cost of benching in the price bid for other items.

E. Subgrade Preparation
   1. Upon completion of cross section scarify the entire subgrade to depth as indicated in the plans.
   2. Fill any low areas with suitable material.
   3. Use hand tampers to compact areas inaccessible to rollers.
   4. Complete fine grading ahead of paving operations to allow adequate time for final check for finish grade and compaction.
   5. Proof roll all pavement subgrades prior to aggregate placement, along all travel lanes to verify the uniformity of the underlying subgrade throughout the roadway section and to check the presences of localized soft or weak zones.

6. Do not start paving until results of compaction tests are known, the final grade has been checked and the Contractor has been given notice to proceed by the Engineer.
7. Engineer may direct contractor to re-perform proof roll at their discretion at no additional cost.

F. Boulevard Filling and Grading
1. Remove all debris from behind the curb.
2. For new construction projects bring boulevard dirt to a straight grade from the plan specified depth below the sidewalk to the plan specified depth below the back of curb.
3. For reconstruction projects grade boulevards uniformly and place moderately compacted topsoil as specified on the plans.
4. Raise all curb stops to finished grade.
   a. Correct any deficiencies noted by the Engineer with no additional compensation.
5. Use native topsoil free of sod, hard lumps, gravel, rocks, subsoil, or other undesirable materials.
6. Backfill boulevards as soon as the adjacent concrete slabs, curbs, sidewalks, or driveways achieve 75% of their design strength.

G. Excess Material
1. Any remaining material following excavation and embankment to become the contractor's property, removed, and disposed from the project site.
2. On projects where the city retains ownership of the excess material stockpile on the project site in location(s) shown on the plans or identified by the Engineer in the field. No material may leave the project limits without approval of the Engineer.

3.3 TOLERANCES

A. Subcut
1. After scarifying and prior to placing any fills, compact area of excavation to 90% of standard proctor.
2. Ensure a moisture content within 5% of optimum.

B. Fills and Embankments
1. Compact to 95% of standard proctor.
2. Ensure moisture content within 3% below optimum and not more than 3.0% above optimum.

C. Subgrade
1. Compact to 95% standard proctor.
2. Ensure moisture content within 1% below optimum and not more than 3.0% above optimum.
3. Final profile within ½ inch of design.

D. Boulevard Fill
1. Compact to 90% of Standard Proctor.

2. Ensure a moisture content within 5% of optimum.

3.4 FIELD QUALITY CONTROL

A. Section 014000 - Quality Requirements: Field inspecting, testing, adjusting, and balancing.

B. Field test method for density and moisture control to be in accordance with ASTM D6938 – Standard Test Method for in-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow).

C. Compact materials according to AASHTO-99 Standard Proctor.

D. 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. Subgrade shall be smoothed before performing the test. Proof roll at a vehicle speed of 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 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.

3.5 PROTECTION

A. Prevent displacement or loose soil from falling into excavation; maintain soil stability.

B. Protect bottom of excavations and soil adjacent to and beneath foundation from freezing.

C. Protect structures, utilities and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth operations.

D. Protect Boulevard grading from equipment weighing more than the average lawn-building equipment during placing and leveling of the topsoil.

END OF SECTION 312316

SECTION 312316.13 - TRENCHING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Excavating trenches for utilities.
2. Compacted fill from top of utility bedding to subgrade elevations.
3. Backfilling and compaction.

B. Related Sections:

1. Section 310513 - Soils for Earthwork: Soils for fill.
2. Section 310516 - Aggregates for Earthwork: Aggregates for fill.
3. Section 331413 - Public Water Utility Distribution Piping: Water piping and bedding.
4. Section 331417 - Site Water Service Utility Laterals: Pipe materials and fittings.
5. Section 333111 – Public Sanitary Sewerage Gravity Piping: Pipe materials and accessories normally encountered with gravity sanitary piping.

1.2 REFERENCES

A. ASTM International:

1. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3).
2. ASTM D6938 - Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

1.3 DEFINITIONS

A. Utility: Any buried pipe, duct, conduit, or cable.

1.4 QUALIFICATIONS

A. Prepare excavation under the direction of a Competent Person in accordance with OSHA standards and comply with requirements of OSHA 29 CFR, Part 1926, Subpart P, requirements for excavation and trenching operations.

B. OSHA requires a Registered Professional Engineer to evaluate slopes or excavations over 20 feet in depth.

1.5 COORDINATION

A. Section 013000 - Administrative Requirements: Coordination and project conditions.

B. Verify Work associated with lower elevation utilities is complete before placing higher elevation utilities.

PART 2 - PRODUCTS - Not Used

2.1 FILL MATERIALS

A. Subsoil Fill: Type S2 as specified in Section 310513 - Soils for Earthwork.

B. Structural Fill: Type A1 as specified in Section 310516 - Aggregates for Earthwork.

C. Granular Fill: Type A5 as specified in Section 310516 – Aggregates for Earthwork.

PART 3 - EXECUTION

3.1 LINES AND GRADES

A. Lay pipes to lines and grades indicated on Drawings.

1. Engineer reserves right to make changes in lines, grades, and depths of utilities when changes are required for Project conditions.

B. Use laser-beam instrument with qualified operator to establish lines and grades.

3.2 PREPARATION

A. Call Local Utility Line Information service North Dakota One Call at 800-795-0555 or 811 within the statutory timelines before performing Work.

1. Request underground utilities to be located and marked within and surrounding construction areas.

B. Identify required lines, levels, contours, and datum locations.

C. Protect plant life, lawns, rock outcropping and other features remaining as portion of final landscaping.

D. Protect bench marks, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

E. Maintain and protect above and below grade utilities indicated to remain.

F. Establish temporary traffic control and detours when trenching is performed in public right-of-way. Relocate controls and reroute traffic as required during progress of Work.

3.3 TRENCHING

A. Excavate subsoil required for utilities.

B. Remove lumped subsoil, boulders, and rock up to 1/6 cubic yard, measured by volume.

C. Perform excavation within 24 inches of existing utility service in accordance with utility's requirements.

D. Do not advance open trench more than 100 feet ahead of installed pipe unless approved by the Engineer.

E. Cut trenches sufficiently wide to enable installation, meet requirements of compaction equipment, and allow inspection. Remove water or materials that interfere with Work.

F. Excavate bottom of trenches maximum 24 inches wider than outside diameter of pipe.

G. Excavate trenches to depth indicated on Drawings. Provide uniform and continuous bearing and support for bedding material and pipe.

H. Do not interfere with 45 degree bearing splay of foundations or structures.

I. When Project conditions permit, slope side walls of excavation starting 2 feet above top of pipe. When side walls cannot be sloped, provide sheeting and shoring to protect excavation as specified in this section.

J. When subsurface materials at bottom of trench are loose or soft, excavate to greater depth as directed by Engineer until suitable material is encountered.

K. Cut out soft areas of subgrade not capable of compaction in place. Backfill with Fill Type S2 and compact to density equal to or greater than requirements for subsequent backfill material.

L. Trim excavation. Hand trim for bell and spigot pipe joints. Remove loose matter.

M. Correct over excavated areas with compacted backfill as specified for authorized excavation or replace with fill concrete as directed by Engineer.

N. Remove excess subsoil not intended for reuse, from site.
   1. If directed by Engineer, stockpile excess subsoil in area designated on site in accordance with Section 310513.

3.4 SHEETING AND SHORING

A. Sheet, shore, and brace excavations to prevent danger to persons, structures and adjacent properties and to prevent caving, erosion, and loss of surrounding subsoil.

B. Sheeting, shoring, or other support of trench works in relation to the soil type and depth of cut must be in compliance with the most current OSHA standards.

C. Design sheeting and shoring to be removed at completion of excavation work.

D. Repair damage caused by failure of the sheeting, shoring, or bracing and for settlement of filled excavations or adjacent soil.

E. Repair damage to new and existing Work from settlement, water or earth pressure or other causes resulting from inadequate sheeting, shoring, or bracing.

3.5 BACKFILLING

A. Backfill trenches to contours and elevations with unfrozen fill materials.

B. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen, or spongy subgrade surfaces.

C. Place material in continuous layers as follows:

1. Subsoil Fill: Maximum 12 inches loose depth.
2. Structural Fill: Maximum 6 inches compacted depth.
3. Granular Fill: Maximum 6 inches compacted depth.

D. Employ placement method that does not disturb or damage utilities in trench, and surrounding structures.

E. Maintain moisture content of fill materials to attain required relative compaction.

F. Do not leave more than 50 feet of trench open at end of working day, unless determined by the Engineer that site conditions are unsatisfactory.

G. Protect open trench to prevent danger to Owner and the public.

3.6 TOLERANCES

A. Section 014000 - Quality Requirements: Tolerances.

B. Top Surface of Backfilling Under Paved Areas: Plus or minus 0.04 feet from required elevations.

C. Top Surface of General Backfilling: Plus or minus 0.08 feet from required elevations.

3.7 FIELD QUALITY CONTROL

A. Section 014000 - Quality Requirements and 017000 - Execution and Closeout Requirements: Field inspecting, testing, adjusting, and balancing.

B. Perform laboratory material tests in accordance with ASTM D698.

C. Perform in place compaction tests in accordance with the following:

1. Density and Moisture Tests: ASTM D6938

D. When tests indicate Work does not meet specified requirements, remove Work, replace, compact, and retest.

E. Frequency of Tests:

1. One test along Utility trenches at maximum 500 foot intervals per 2 feet of vertical lift.
2. Two tests per structure (manhole) at ⅓ and ⅔ depth.
3. One test per service trench.

3.8 PROTECTION OF FINISHED WORK

A. Section 017000 - Execution and Closeout Requirements: Protecting finished work.

B. Reshape and re-compact fills subjected to vehicular traffic during construction.

3.9 SCHEDULE

A. Water and Sanitary Piping:

1. Cover pipe and bedding with Fill Type S2: To subgrade elevation.
2. Compact uniformly to minimum 95 percent of Standard Proctor (ASTM 698) maximum dry density. Moisture shall be not less than 1 percentage point below, nor more than 5 percentage points above optimum moisture content.

END OF SECTION 312316.13

SECTION 312500 - EROSION AND SEDIMENTATION CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Erosion Control Blanket.
2. Turf Reinforcement Mat.
3. Fiber Rolls.
4. Flotation Curtain.
5. Stabilized Construction Entrance.
6. Concrete Washout.
7. Inlet Protection.
8. Dewatering Structures.
9. Storm Water Management.

B. Related Sections:

1. Section 310513 - Soils for Earthwork.
2. Section 310516 - Aggregates for Earthwork.
3. Section 312323 - Fill.
4. Section 313700 - Riprap.
5. Section 329219 - Seeding.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Erosion Control Blanket and Turf Reinforcement Mat:

1. Basis of Measurement: By square yard.
2. Basis of Payment: Includes furnishing all materials, equipment, labor, maintenance, and incidentals.

B. Silt Fence:

1. Basis of Measurement: By linear foot.
2. Basis of Payment: Includes furnishing all materials, equipment, labor, installation maintenance, incidentals, inspection, and removal.

C. Fiber Roll, Rock Logs, and Composite Rolls:

1. Basis of Measurement: By linear foot.
2. Basis of Payment: Includes furnishing all materials, equipment, labor, installation maintenance, incidentals, inspection, and removal.

D. Flotation Curtain:

1. Basis of Measurement: By linear foot.
2. Basis of Payment: Includes furnishing all materials, equipment, labor, installation maintenance, incidentals, and removal.

E. Stabilized Construction Entrance:

1. Basis of Measurement: By each.
2. Basis of Payment: furnishing all materials, equipment, labor, and incidentals to complete the work as specified.

F. Inlet Protection:

1. Basis of Measurement: By each.
2. Basis of Payment: Includes all materials, equipment, labor, incidentals to install, maintain, and remove inlet protection devices.

G. Storm Water Management:

1. Basis of Measurement: By lump sum.
2. Basis of Payment: Includes preparation and administration of Storm Water Pollution Prevention Plan (SWPP), obtaining City of West Fargo Storm Water Management Permit, and obtaining NPDES General Permit for Storm Water Discharge Associated with Construction Activity.

1.3 REFERENCES

A. American Association of State Highway and Transportation Officials:

1. AASHTO M288 – Table 1 Geotextile Strength Property Requirements.

B. ASTM International:

1. ASTM D968 – Standard Test Method for Abrasion Resistance of Organic Coatings by Falling Abrasive
2. ASTM D792 – Standard Test Method for Density and Specific Gravity (Relative Density) of Plastics by Displacement.
3. ASTM D1248 – Standard Specification for for Polyethylene Plastics Extrusion Materials for Wire and Cable.
4. ASTM D1308 - Standard Test Method for Effect of Household Chemicals on Clear and Pigmented Coating Systems.
5. ASTM D1505 - Standard Test Method for Density of Plastics by the Density-Gradient Technique.
6. ASTM D2152 – Standard Test Method for Adequacy of Fusion of Extruded Poly(Vinyl Chloride) (PVC) Pipe and Molded Fittings by Acetone Immersion.
7. ASTM D3354 – Standard Test Method for Blocking Load of Plastic Film by Parallel Plate Method.
8. ASTM D3786 – Standard Test Method for Bursting Strength of Textile Fabrics – Diaphragm Bursting Strength Tester Method
9. ASTM D4355 – Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture, and Heat in a Xenon Arc-Type Apparatus.

10. ASTM D4491 – Standard Test Method for Water Permeability of Geotextiles by Permittivity.
11. ASTM D6460 – Standard Test Method for Determination of Rolled Erosion Control Product (RECP) Performance in Protecting Earthen Channels from Stormwater-Induced Erosion.
12. ASTM D6475 – Standard Test Method for Measuring Mass per Unit Area of Erosion Control Blankets.
13. ASTM D6525 – Standard Test Method for Measuring Nominal Thickness of Rolled Erosion Control Products.
14. ASTM D6566 – Standard Test Method for Measuring Mass Per Unit Area of Turf Reinforcement Mats.
15. ASTM D6818 – Standard Test Method for Tensile Properties of Rolled Erosion Control Products

1.4 SUBMITTALS

A. Section 013300 - Submittal Procedures: Requirements for submittals.

B. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.

C. Contractor weekly and rainfall event inspections forms.

1.5 CLOSEOUT SUBMITTALS

A. Section 017000 - Execution and Closeout Requirements: Requirements for submittals.

1.6 QUALITY ASSURANCE

A. Perform Work according to related sections of the North Dakota Department of Transportation Standard Specifications for Road and Bridge Construction.

B. Perform Work according to City of West Fargo Storm Water Management Standards for Commercial and Large Scale Residential Construction.

PART 2 - PRODUCTS

2.1 Erosion Control Blanket

A. Provide erosion control blanket (ECB) of organic biodegradable mulch material such as straw, curled wood excelsior, coconut fiber, or any combination of these materials. Provide ECB that has a consistent thickness of mulch material evenly distributed over the entire area. Secure the ECB materials on at least one side with netting. Use netting of photodegradable polypropylene or other plastic material fused to the strand intersections. Provide ECB that has a minimum width of 48 inches and is weed and pest free.

B. Provide ECB that meets the requirements of the tables below for the type specified in the plans.

Type	ECB 1		ECB 2	
Material	100% Straw	100% Excelsior Fibers	100% Straw	100% Excelsior Fibers
fiber Length 80% Must Be Greater Than	3 inches	80%> 6 inches	3 inches	6 inches
Min Thickness ASTM D6525	0.25 inch	0.25 inch	0.25 inch	0.25 inch
Net Opening Minimum (inch)	0.5 x 0.5	0.75 x 0.75	0.5 x 0.5	0.75 x 0.75
Max Shear Stress at 0.50 inches of soil loss ASTM D6460	N/A	1.50 lbs/sf	1.50 lbs/sf	1.75 lbs/sf
Slope Gradient Appli-cation	≤ 3H:1V	< 3H:1V - 2H:1V	≤ 2H:1V	< 2H:1 - 1.5H:1V
Net Backing Type	Rapid Photodegradable Polypropylene		Polypropylene	
Functional Longevity	≤ 3 months		≤ 12 months	
Min Machine Direct Tensil Strength ASTM D6818	50 lbs/ft		75 lbs/ft	
Type	**ECB 3**		**ECB 4**	
Material	70% Straw and 30% Co-conut	100% Excelsior Fibers	100% Coconut Fibers	100% Excelsior Fibers
fiber Length 80% Must Be Greater Than	3 inches	80%> 6 inches	3 inches	80%> 6 inches
Min Thickness ASTM D6525	0.25 inch	0.25 inch	0.25 inch	0.50 inch
Max Shear Stress at 0.50 inches of soil loss ASTM D6460	1.75 lbs/sf	2.00 lbs/sf	2.25 lbs/sf	2.25 lbs/sf
Slope Gradient Appli-cation	≤ 1.5H:1V	≤ 1.5H:1V	≤ 1H:1V	≤ 1H:1V
Net Backing Type	Polypropylene		Black UV Stabilized Polypropylene	
Functional Longevity	12 to 24 months		> 24 months	
Min Machine Direct Tensil Strength ASTM D6818	100 lbs/ft		125 lbs/ft	

C. Wood Excelsior Blanket
1. Provide wood excelsior blanket that consists of a machine-produced blanket of curled wood excelsior in which 80 percent of the fibers are 6 inches or longer. Provide a wood excelsior blanket that is smolder-resistant without the use of additives.

D. Straw Blanket
1. Provide straw blanket that consists of agricultural straw in which 80 percent of the fibers are at least 3 inches in lengths. Ensure the straw is certified by an accredited agency to be 100 percent weed free.

E. Straw and Coconut Blanket
1. Provide a machine-produced straw and coconut blanket that consists of 70 percent straw and 30 percent coconut fibers by weight in which 80 percent of the fibers are 3 inches or longer.

2.2 Turf Reinforcement Mat

A. Provide turf reinforcement mat (TRM) that is three dimensional structure of entangled filaments. Use filaments that are either bonded by heat fusion at the intersections or stitched with polypropylene, nylon, or polyester threads between two UV-Stabilized nettings. Provide TRM that promotes and maintains the integrity of the grass root system.

B. Provide TRM that meets the requirements of the table below for the type specified in the plans.

Type	**TRM 1**	**TRM 2**
Matrix Fill Material	Wood Excelsior, Coconut or Polymer Fibers	100% Stabilized Polypropylene
Min Mass Unit Area ASTM D6475 (natural fibers) D6566 (synthetics)	0.625 lbs/sy	0.625 lbs/sy
Minimum Thickness ASTM D6525	0.25 inch	0.5 inch
Minimum Roll Width	6.5 ft	6.5 ft
Size of Net Opening	0.5 x 0.5 inch	0.5 x 0.5 inch
Max Shear Stress at 0.50 inches of soil loss ASTM D6460	6.0 lbs/sf	8.0 lbs/sf
ASTM D6818	125 lbs/ft	150 lbs/sf

2.3 Silt Fence

A. Posts: Do not use silt fence with posts pre-attached. Use posts that have a minimum length of 4 feet.
1. Wood Posts: Use either minimum 2-inch diameter round wood posts or 1.5 x 1.5 inch rectangular wood posts.
2. Steel Posts: Use steel posts that are a minimum of 0.95 pounds per foot and have projections for fastening wire or fabric.

B. Filter fabric: Provide filter fabric as specified in AASHTO M288. Use fabric with a minimum width of 36 inches. Protec the filter fabric from moisture and ultraviolet exposure before placement.

C. Silt Fence Supported: Use wire backing or monofilament silt fence when installing supported fence.
   1. If backing for a silt fence is required, use a steel wire fence fabric meeting the following:
      a. A minimum of 32 inches wide;
      b. Has a maximum opening size of 6 x 6 inches; and
      c. Is a minimum of 14 gauge, grade 60.

2.4 Fiber Rolls

A. Provide fiber rolls that are composed of degradable netting that contains compressed hay or straw that is seed and noxious weed free, or wood excelsior.

2.5 Flotation Silt Curtain

A. Provide materials in accordance with the following;

Material Property	**Requirement**
Curtain fabric	Impermeable vinyl-coated nylon
Grab Tensile Strength	500 lb
Flotation	8 inch diameter marine quality expanded polystyrene
Net Buoyancy per Foot	20 lb
Top Load Carrying Components	Fabric plus 5/16 inch galvanized steel cable 9,800 lb min break strength
Ballast (min)	5/16 inch galvanized chain
Connections Between Sections	Aluminum collar reinforced quick disconnect

2.6 Stabilized Construction Entrance

A. Composed of 1 to 2 inch crushed rock, crushed concrete, or wood material.

B. Geosynthetic Fabric: Type R1 in accordance with section 858 of the North Dakota Department of Transportation Standard Specifications for Road and Bridge Construction.

2.7 Concrete Washout.

A. Aggregate – 2” minimum washed rock.

B. Geosynthetic Fabric: Type R1 in accordance with section 858 of the North Dakota Department of Transportation Standard Specifications for Road and Bridge Construction.

2.8 Inlet Protection.

A. Constructed Inlet Protection.
1. Inlet Protection Type A-1.
a. Fence Post – minimum 5’ long free of excess deformation.
b. Wire Mesh Reinforcement – Free from rust and in good general condition at time of installation.
c. Geotextile Fabric – woven monofilament product having a water flow rate of 100-110 gpm/sf (ASTM D4491), a minimum 70% UV resistance (ASTM D4355), and a minimum Mullen burst rating of 300 psi (ASTM D3786).
2. Inlet Protection Type A-2.
a. 2”x4” wood frame made from hard wood that is sturdy and free from cracking.
b. Geotextile Fabric – woven monofilament product having a water flow rate of 100-110 gpm/sf (ASTM D4491), a minimum 70% UV resistance (ASTM D4355), and a minimum Mullen burst rating of 300 psi (ASTM D3786).

B. Manufactured Inlet Protection
1. Inlet Protection Type B.
a. Preformed liner low density polyethylene barrier with mounting frame.
b. Conform to the following standards: ASTM D3354, ASTM D792/1505, ASTM D968, ASTM D1248, ASTM D1308, and ASTM D2152.
c. Frame as specified by the supplier.
d. Geotextile Fabric – woven monofilament product having a water flow rate of 100-110 gpm/sf (ASTM D4491), a minimum 70% UV resistance (ASTM D4355), and a minimum Mullen burst rating of 300 psi (ASTM D3786).
2. Inlet Protection Type C.
a. Preassembled protection device designed for drop inlet protection.
b. Consists of reusable, open topped receptacle that rests inside a storm sewer inlet casting allowing the grating to be reinstalled in the casting.
c. If needed incorporate a rear deflector plate into the unit to protect open back castings from sediment.
d. Include a filtration system to filter storm water.
e. Include an overflow large enough to minimize/ eliminate street flooding during rain events.
f. Approved manufacturers:
1) Wimco.
2) Lang IPD.
3) Flexstorm.
4) Approved Equal.
3. Inlet Protection Type C-2.
a. Consists of a sediment control plate meeting H20 loading per OSHA 1910.23.
b. Paint ¼” perforated steel lid yellow.
c. Provide a two position HDPE basket that is able to be fixed in the up or down position.
d. Attach a 400-micron filter bag to the basket.
e. Approved manufacturers:
1) Wimco.
2) Lang IPD.
3) Flexstorm.
4) Approved Equal.

4. Inlet Protection Type D.
    a. Sewn geotextile fabric unit fitted to the individual grate.
    b. Includes lifting straps to allow manual inspection of the storm water system.
    c. Utilize an orange monofilament fabric.
    d. Approved manufacturers
        1) Dandy Products.
        2) Approved Equal.

2.9 Dewatering Structure

A. Dewatering Structure Type 1.
1. Aggregate: ¼ inch average diameter pea gravel
2. Fiber rolls or silt fence as described within.

B. Dewatering structure Type 2.
1. Geotextile Fabric: minimum flow rate of 8 gpm/sf (ASTM D4491), a minimum 80% UV resistance (ASTM D4355), and a minimum Mullen burst rating of 300 psi (ASTM D3786).
2. Rip Rap: 12” – 18” minimum diameter rock.
3. Aggregate: 3/16” average diameter rock.
4. Stakes: minimum 5-inch height and comprised of hard wood that is sturdy and free of cracking.

C. Dewatering Structure Type 3.
1. Sediment filter bag: Non-woven geotextile material of appropriate size and flow characteristics to treat the capacity of water being pumped. To be determined by manufacturer specifications in accordance with the pump being used.

2.10 Accessories
1. Staples: Use staples for ECM and TRM that are constructed of 11 gauge or heavier steel wire and that are either U-shaped measuring 1 inch across the top and at least 8 inches along each leg, or that are T-shaped measuring at least 4 inches across the top and at least 8 inches in length.

2.11 SOURCE QUALITY CONTROL (AND TESTS)

A. Section 014000 - Quality Requirements: Testing, inspection and analysis requirements.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 013000 - Administrative Requirements: Verification of existing conditions before starting work.

3.2 Erosion Control Blanket and Turf Reinforcement Mat

A. Remove all rocks or clods greater than 1 inch in diameter, and all sticks and deleterious material from the area to be covered.

B. ECB and TRM 1
1. Complete seeding prior to placing ECB and TRM.

C. TRM 2
1. If the TRM requires soil filling, fill the TRM with topsoil, compost, or a blend of each.
2. Place seed and fertilizer on the soil filled TRM.
3. Apply hydraulic mulch or place ECB on the seeded TRM.
4. Place the ECB with the netting on top and the fibers in contact with the soil.
5. On embankments shorter than 10 feet, unroll ECB horizontally or vertically to the slope.

D. Repair
1. Restore the damaged area to the proper contour.
2. Re-seed the affected area.
3. Replace the ECB and TRM with the required type.

3.3 Silt Fence

A. Installation.
1. Install continuous silt fence transverse to the flow and following the contours of the site.
2. Place the fence so water cannot flow around the end of the fence.
3. If joining two sections of filter fabric, overlap at support posts a minimum of 18 inches in such a manner that prevents silt from passing through the fence.

B. Maintenance.
1. Remove sediment when it reaches 1/3 of the exposed height of any section of the silt fence, or as directed by the Engineer.
2. The Engineer may direct the installation of additional silt fence if removing the sediment deposit is not feasible.
3. Inspect the silt fence within 24 hours of each rainfall greater than 0.25 inches and at least daily during prolonged rainfall events.
4. Submit a silt fence inspection report within 24 hours of each inspection.
5. Immediately repair or remove and replace ineffective silt fence.

C. Removal.
1. Do not remove the silt fence without the Engineer’s approval.
2. Level, smooth, seed, and mulch the removal area to match existing conditions.

3.4 Fiber Rolls

A. Install in accordance with detail in drawings.

B. Maintenance.
1. Remove sediment when it reaches 1/3 of the exposed height of any section of the fiber roll, or as directed by the Engineer.

2. The Engineer may direct the installation of a second fiber roll if removing the sediment deposit is not possible.
3. Inspect Fiber rolls within 24 hours of each rainfall greater than 0.25 inches and at least daily during prolonged rainfall.
4. Submit a fiber rolls inspection within 24 hours of each inspection.
5. Remove and replace fiber rolls when necessary.

C. Removal.
1. Do not remove fiber roll without the Engineer approval.
2. Level, smooth, seed, and mulch the removal area to match existing conditions.

3.5 Flotation Silt Curtain

A. Installation
1. Attach anchor lines to the flotation device.
2. Still water.
   a. Secure both ends of the curtain on land using the anchor points.
   b. Use anchor buoys if bottom anchors are used.
   c. Tow out the curtain in the furled condition and attach to the anchor points.
   d. Sed additional anchor points as necessary and attach them firmly to the curtain to maintain the desired location of the curtain.
   e. Release the furling lines to let the curtain skirt drop.
3. Moving Water.
   a. Set all anchor points.
   b. Ensure the anchor points keep the curtain in the desired location.
   c. Use anchor buoys on all anchor points.
   d. Start securing the furled curtain to the anchor points on the upstream side and work downstream.
   e. Make any necessary adjustments.
   f. Release the furling lines to let the curtain skirt drop.
   g. Do not install the curtain across the entire width of a flowing channel.

B. Maintenance.
1. Discontinue work if the silt curtain sinks below the surface or detaches from the anchor points or buoys. Repair or replace the curtain before continuing work.
2. Remove silt curtain before the water freezes for winter. Replace silt curtain in the spring once ice is out.

C. Removal.
1. Place bank protection before removing the silt curtain.
2. If bank protection is not specified, complete final grading of the adjacent slopes and install sediment control devices at the toe of the slope before removing the silt curtain.

3.6 Stabilized Construction Entrance

A. Remove topsoil before construction of stabilized construction access.

B. If the access restricts water flow, provide temporary drainage through the stabilized construction access.

C. Maintenance.
   1. Maintain the stabilized construction access so that it retains its effectiveness.
   2. Add material as needed.

D. Removal.
   1. After removal, restore the disturbed area to its original condition.
   2. Spread topsoil, seed, and mulch.

3.7 Concrete Washout

A. Installation.
   1. Excavate the required depth shown on the drawings.
   2. Install Geosynthetic barrier.
   3. Install a barrier fence around excavated area.
   4. Install rock washing area as shown on the drawings.

B. Maintenance.
   1. Clean washout when 80% of its capacity is achieved.
   2. Dispose of all removed material off site.

C. Removal.
   1. Do not remove concrete washout without the approval of the Engineer.
   2. Level, smooth, seed, and mulch the removal area to match existing conditions.

3.8 Inlet Protection

A. Seasonal Considerations
   1. Remove all devices installed in a street section that have the potential to cause damage to snow removal equipment by November 1st and reinstall as directed by the Engineer in the spring.
   2. This work is considered normal maintenance and no additional compensation will be paid.

B. Protect newly installed sewer inlets from sediment laden runoff by installation of an inlet protection device within a maximum of 48 hours after installation.

C. Ensure all inlets are protected over a weekend.

D. Protect existing inlets that will receive water from the construction site prior to commencing land disturbing activities.

E. Maintain or replace all inlet protection at the direction of the Engineer.

F. Inlet protection will only be paid for once for each inlet protected, regardless of whether multiple types of devices are used on an inlet over the course of a project.

G. No additional compensation will be paid due to Contractor carelessness or modification to the anticipated phasing of construction.

H. Constructed inlet protection.
   1. Inlet Protection Type A1.
      a. Install metal posts no more than 3 feet apart to support wire mesh and geotextile fabric.
      b. Install fabric in one continuous piece wrapped around the posts, overlapped across the last gap, its ends securely fastened to separate posts.
      c. Ensure the assembly provides for the wire mesh and geotextile fabric to be securely in contact with the existing ground to prevent sediment laden water from running under the device.
      d. This device is intended to protect inlets within the future paving section. The Contractor is responsible for maintaining and disposal.
   2. Inlet Protection Type A2.
      a. Primarily used around all inlets not in a street section, such as rear yard inlets.
      b. Securely fasten geotextile fabric to wooden 2”x4” or prefabricated frame.
      c. Ensure the assembly provides for the wire mesh and geotextile fabric to be securely in contact with the existing ground to prevent sediment laden water from running under the device.
      d. This device remains on site requiring maintenance by the Contractor throughout the project and becomes the responsibility of the developer/property owner to maintain upon final completion of the project.

I. Manufactured Inlet Protection.
   1. Ensure devices are equipped with an emergency overflow to minimize the threat of street flooding during an intense rainfall event.
   2. Ensure all manufactured devices are installed per manufacturers instructions.
   3. Inlet Protection Type B.
      a. Primarily used to protect inlets within future paving sections.
      b. Fit frame into the top of a cones section of a catch basin.
      c. Wrap device with geotextile sock approximately 2 times the circumference of the barrel.
      d. This device will remain the property of the Contractor.
   4. Inlet Protection Type C.
      a. Remove the inlet grate.
      b. Insert the device into the casting frame.
      c. Install grate into casting frame over top of device.
      d. This device remains on site requiring maintenance by the Contractor throughout the project and becomes the responsibility of the developer/property owner to maintain upon final completion of the project.
   5. Inlet Protection Type C-2.
      a. Primarily used to protect inlets within future paving sections.
      b. Fit frame into the top of a cones section of a catch basin.
      c. Wrap device with geotextile sock approximately 2 times the circumference of the barrel.
      d. This device will remain the property of the Contractor.
   6. Inlet Protection Type D.
      a. Remove grate from each inlet.
      b. Stand the grate on end. Move the top lifting straps out of the way and place the grate into the sack unit so that the grate is below the top straps and above the lower straps.

c. Holding the lifting devices insert the grate into the inlet being careful not to damage the bag unit.
d. Remove all accumulated sediment and debris from vicinity of unit after each rain event or as directed by Engineer.
e. Remove sediment and debris from sack once it is 1/3 full.
f. This device will remain the property of the Contractor and will be removed upon completion of the project.

3.9 Dewatering Structure.

A. Dewatering Structure Type 1.
1. Determine the appropriate size of the of the dewatering structure based on the discharge capacity of the pump being used for dewatering.
2. Locate an area of established grass or prepare an area for use by removing all trash and debris.
3. Lay geotextile fabric of appropriate size to cover the entire area to be used for dewatering.
4. Fill the area with ¼" pea rock to a minimum depth of 6".
5. Surround the perimeter of the drainage area with silt fence or fiber roll.
6. Cease all pumping activities if fiber roll (if used) is overtopped by pumped water.
7. Remove and dispose of sediment and install additional pea rock to restore functionality if buildup of soil and sediment deter the function of the dewatering structure.

B. Dewatering Structure Type 2.
1. Determine the appropriate size of the of the dewatering structure based on the discharge capacity of the pump being used for dewatering.
2. Excavate to required dimensions and install straw bales butted tightly together and staked in place.
3. Place geotextile fabric as straw bales are installed.
4. Locate the pump discharge and place rip rap of sufficient size and depth to resist movement and prevent erosion where pumped water will enter the structure.
5. Build a spillway out of 12"-18" diameter rocks, with a minimum depth of 6" depth from the top of the structure.
6. Place a 6" thick later of 3/16" aggregate on the inside of the spillway.
7. Monitor the structure during pumping activities.
8. Cease pumping activities once water nears the spillway until dewatering area has discharged to the level of the excavated area.
9. Removed buildup of soil and sediment when excavation area is filled to ½ its depth.
10. Replace any decomposed, torn, or collapsed material immediately.

C. Dewatering Structure Type 3.
1. Place prefabricated sediment containment filter bag on an area of established grass or on a prepared 6" minimum depth aggregate base.
2. Orient bag in such a manner as to divert flow away from construction area and discharge filtered water into a swale, grass field, or secondary sediment containment system.
3. Monitor sediment containment bag during pumping activities.
4. Cease all pumping activities when the bag is filled, in accordance with manufactures specifications, until the bag has discharged the water pumped into it.

5. Remove and dispose of soil and sediment to restore functionality if buildup deters in anyway.

3.10 FIELD QUALITY CONTROL

A. Section 014000 - Quality Requirements: Field inspecting, testing, adjusting, and balancing.

B. Inspect erosion control devices on a weekly basis and after each runoff event. Make necessary repairs to ensure erosion and sediment controls are in good working order.

3.11 CLEANING

A. Section 017000 - Execution and Closeout Requirements: Requirements for cleaning.

B. Do not damage structure or device during cleaning operations.

C. Do not permit sediment to erode into construction or site areas or natural waterways.

D. Maintain all erosion and sedimentation control items as specified in this Section. Correct all deficiencies identified by inspection or as directed by Engineer within 24 hours. If corrective actions are not completed within 72 hours of notification, Engineer may deduct liquidated damages of $500 per day from the contract amount until the non-compliance is corrected.

3.12 PROTECTION

A. Section 017000 - Execution and Closeout Requirements: Requirements for protecting finished Work.

END OF SECTION 312500

SECTION 313716.13 - RUBBLE-STONE RIPRAP

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Riprap placed loose.

B. Related Requirements:
1. Section 312213 - Rough Grading: Removal of topsoil and filling associated with contouring of Site.
2. Section 312316.13 - Trenching: Trenching and backfilling for Site utilities.
3. Section 312323 - Fill: Backfilling as required at building perimeter and Site structures.
4. Section 334213 – Public Storm Sewer.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Section 012000 - Price and Payment Procedures: Contract Sum/Price modification procedures.

B. Riprap <Grade or Special>:

1. Basis of Measurement: By cubic yard.
2. Basis of Payment: Includes supply, testing, and placing of riprap.

1.3 COORDINATION

A. Section 013000 - Administrative Requirements: Requirements for coordination.

B. Coordinate Work of this Section with rough grading, excavating, and utilities Work.

1.4 SUBMITTALS

A. Section 013300 - Submittal Procedures: Requirements for submittals.

B. Product Data: Submit manufacturer information regarding size distribution and types for rock for riprap.

C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

1.5 QUALITY ASSURANCE

A. Furnish each riprap material from single source throughout Work of this Section.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Riprap

1. Description:
   a. Clean and
   b. Fieldstone or Quarry stone in accordance with Section 256 of the North Dakota Transportation Standard Specifications for Road and Bridge Construction.
   c. Size:

Grade I		Grade II		Grade III	
Size (Inches)	Percent Smaller	Size (Inches)	Percent Smaller	Size (Inches)	Percent Smaller
20	100	28	100	36	100
18	70-90	22	30-80	29	55-85
15	40-60	16	20-50	24	35-50
10	0-10	10	0-5	10	10-15
6	0-2	6	0-2	6	0-2

B. Riprap - Special:

1. Description:
   a. Angular riprap to be of granite material, sound, hard, and free of seams, cracks, or other structural defects and being generally round and cubical in shape. Fractured faces required. Slabby or elongated stone pieces having a width or thickness or less than one-third the length not to exceed 10 percent of the total.
   b. Granite: Quarried from an undisturbed deposit of rock that, meeting the requirements of Table 256-02 – quarry stone properties for soundness and abrasion. Local deposits of sandstones or limestones and similar stone of sedimentary origin not permitted.
   c. Specific gravity of angular riprap to be greater than 2.4.
   d. The maximum size of stones permitted for angular riprap installation not to exceed the plan thickness of the riprap by more than six inches in any dimension; however, the engineer may permit stone of this excess size up to ten percent of the total stone placed, providing the larger stone can be blended into the surface appearance of the riprap satisfactorily.
   e. Engineer to approve all materials
   f. Contractor to conduct gradation tests per ASTM D5519 in the presence of the Engineer. Gradation testing to be completed once every 1000 CY.

2. Size:
   a. Conform to the following gradations:

Mass (Pounds)	Size (inches)	Percent Passing
1000	24	100
250	15	75
120	12	50
5	4	10

PART 3 - EXECUTION

3.1 APPLICATION

A. Place geotextile fabric over substrate as specified in Section 310519.13 - Geotextiles for Earthwork.

B. Place riprap where indicated on Drawings.

C. Place riprap into position and remove foreign material from surfaces.

D. Do not place riprap over frozen or spongy subgrade surfaces.

E. Average Installed Thickness: As indicated on Drawings.

F. Do not drop riprap from a height greater than one foot above ground.

G. Place in uniformly disturbed manner as to ensure material is secure and without tendency to move.

END OF SECTION 313716.13

32 – EXTERIOR IMPROVEMENTS

SECTION 321123 - AGGREGATE BASE COURSES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Aggregate subbase.
2. Aggregate base course.
3. Geotextile Fabrics

B. Related Sections:
1. Section 312316.13 - Trenching: Compacted fill under base course.
2. Section 312323 - Fill: Compacted fill under base course.
3. Section 310516 - Aggregates for Earthwork.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Aggregate Base Course:

1. Basis of Measurement: By the section dimensions set forth in the plans and in-place Compacted volumes. By Cubic Yard.
2. Basis of Payment: Includes supplying fill material, stockpiling, scarifying substrate surface, placing where required, testing. and compacting.

B. Geotextile Fabric:

1. Basis of Measurement: By the Square Yard.
2. Basis of Payment: Includes all labor, material, and equipment to perform work. No payment to be made for overlaps.

1.3 REFERENCES

A. American Association of State Highway and Transportation Officials:

1. AASHTO M288 - Standard Specification for Geotextile Specification for Highway Applications.

B. ASTM International:

1. ASTM D1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.
2. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.

3. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
4. ASTM D2940 - Standard Specification for Graded Aggregate Material for Bases or Subbases for Highways or Airports.
5. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

1.4 SUBMITTALS

A. Section 013300 - Submittal Procedures: Requirements for submittals.

B. Materials Source: Submit name of aggregate materials suppliers.

C. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.

1.5 QUALITY ASSURANCE

A. Furnish each aggregate material from single source throughout the Work.

B. Perform Work according to Section 302 of the North Dakota Department of Transportation Standard Specifications for Road and Bridge Construction.

PART 2 - PRODUCTS

2.1 AGGREGATE MATERIALS

A. Coarse Aggregate: Fill Type A1 as specified in Section 310516.00.

B. Blended Aggregate: Fill Type A2 as specified in Section 310516.00.

2.2 ACCESSORIES

A. Geotextile Fabric: Types in accordance with Section 709 of the North Dakota Department of Transportation Standard Specifications for Road and Bridge Construction.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 013000 - Administrative Requirements: Verification of existing conditions before starting work.

B. Verify compacted substrate is dry and ready to support paving and imposed loads.

C. Verify substrate has been inspected, gradients and elevations are correct.

3.2 PREPARATION

A. Correct irregularities in substrate gradient and elevation by scarifying, reshaping, and re-compacting.

B. Do not place fill on soft, muddy, or frozen surfaces.

3.3 AGGREGATE PLACEMENT

A. Install geotextile fabric over subgrade according to manufacturer's instructions.

1. Lap ends and edges minimum 30 inches.
2. Anchor fabric to subgrade when required to prevent displacement until aggregate is installed.

B. Spread aggregate over prepared substrate to total compacted thickness indicated on Drawings.

C. Level and contour surfaces to elevations, profiles, and gradients indicated.

D. Add small quantities of fine aggregate to coarse aggregate when required to assist compaction.

E. Maintain optimum moisture content of fill materials to attain specified compaction density.

F. Use mechanical tamping equipment in areas inaccessible to compaction equipment.

3.4 TOLERANCES

A. Section 014000 - Quality Requirements: Tolerances.

B. Maximum Variation From Flat Surface: 1/4 inch measured with 10 foot straight edge.

C. Maximum Variation From Thickness: 1/4 inch.

D. Maximum Variation From Elevation: ½ inch.

3.5 FIELD QUALITY CONTROL

A. Section 014000 - Quality Requirements: Field inspecting, testing, adjusting, and balancing.

B. Select test standards referenced in the following paragraph appropriate for Project requirements. Consult geotechnical report.

C. Proof roll all aggregate bases prior to paving along all travel lanes to verify the uniformity of the underlying base 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 of between 1 ½ and 3 miles per hour along the aggregate base such that unrolled areas between wheel paths are not wider than 1 foot. Typical yielding should be limited to less than ½-inches for aggregate bases, provided the aggregate base 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. When tests indicate Work does not meet specified requirements, remove Work, replace and retest.

END OF SECTION 321123

SECTION 321216 - ASPHALT PAVING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Asphalt materials.
2. Aggregate materials.
3. Aggregate subbase.
4. Asphalt paving base course, binder course, and wearing course.
5. Asphalt paving overlay for existing paving.

B. Related Requirement:

1. Section 312213 - Rough Grading: Preparation of site for paving and base.
2. Section 312323 - Fill: Compacted subbase for paving.
3. Section 320516 - Aggregates for Exterior Improvements: Product requirements for aggregate for placement by this section.
4. Section 321123 - Aggregate Base Courses: Compacted subbase for paving.
5. Section 321723 - Pavement Markings: Painted pavement markings, lines, and legends.

1.2 PRICE AND PAYMENT PROCEDURES

A. Section 012000 - Price and Payment Procedures Contract Sum/Price

B. Superpave FAA<##>:

1. Basis of Measurement: By ton.
2. Basis of Payment: Includes tack coating surfaces, furnishing, placing, compacting, and quality control testing of bituminous material and aggregate.

1.3 REFERENCE STANDARDS

A. American Association of State Highway and Transportation Officials:

1. AASHTO M320 - Standard Specification for Performance-Graded Asphalt Binder.
2. AASHTO T308 – Standard Method of Test for Determining the Asphalt Binder Content of Asphalt Mixtures by the Ignition Method.

B. ASTM International:

1. ASTM D3549 - Standard Test Method for Thickness or Height of Compacted Bituminous Paving Mixture Specimens.

1.4 SUBMITTALS

A. Section 013300 - Submittal Procedures: Requirements for submittals.

B. Product Data:

1. Submit product information for asphalt and aggregate materials.
2. Submit mix design with laboratory test results supporting design.
3. If using a mix with RAP and a mix without RAP, submit mix designs for both mixes.

C. Certified Haul Sheets

D. Testing Reports

1.5 QUALITY ASSURANCE

A. Obtain materials from same source throughout.

B. Perform Work in accordance with North Dakota Department of Transportation Standard Specification for Road and Bridge Construction, Section 430

1.6 QUALIFICATIONS

A. Installer: Company specializing in performing work of this section with minimum 5 years documented experience.

1.7 AMBIENT CONDITIONS

A. Section 015000 - Temporary Facilities and Controls: Ambient conditions control facilities for product storage and installation.

B. Place a subsequent lift after the previous lift has cooled to 130°F.

C. If the top lift of asphalt is placed after September 30th, apply a fog seal to the top lift in accordance with Section 401 of the North Dakota Department of Transportation Standard Specification for Road and Bridge Construction. Apply fog seal following final rolling while the pavement is still above 120 °F. If necessary, spread Cl 44 blotter material to prevent tracking.

D. Place asphalt mixture without supplementary admixtures when ambient air or base surface temperatures are at or above the requirements in the table below:

Standard Paving Temperatures			
Compacted Thickness	Air Temp for Surface Course	Air Temp for Subsurface Course	Existing Mat
1-1/2 inches or less	45°F	40°F	40°F
More than 1-1/2 inches	40°F	35°F	40°F

E. Include a supplementary admixture such as Evotherm, AD-here LOF 65-00 EU, or an approved equal in the bituminous mixture when placing bituminous mix when temperatures are within the ranges shown in the table below. Submit admixture manufacturer's name and dosage rate to Engineer prior to use.

Paving Temperatures Using Supplementary Admixtures			
Compacted Thickness	Air Temp for Surface Course	Air Temp for Subsurface Course	Existing Mat
1-1/2 inches or less	40°F - 45°F	35°F - 40°F	35°F - 40°F
More than 1-1/2inches	35°F - 40°F	35°F or above	35°F - 40°F

F. Discharge mix from the mixer with a temperature no higher than the bituminous material manufacturer's recommendation. If there are no recommendations on maximum mix temperature, discharge mix with a maximum temperature of 300°F.

G. When the ambient temperature is 60°F or higher, hot mix asphalt with a temperature below 230°F will be rejected and removed from the worksite. When the temperature is below 60°F, hot mix asphalt with a temperature below 250°F will be rejected and removed from the worksite.

PART 2 - PRODUCTS

2.1 ASPHALT PAVING

A. Performance / Design Criteria:

1. Provide mix that meets the requirements of Superpave FAA 43 in accordance with Section 430 of the North Dakota Department of Transportation Standard Specification for Road and Bridge Construction.

B. Asphalt Materials:

1. Asphalt Binder: AASHTO M320; performance grade PG 58H-34.
2. Tack Coat: In accordance with Section 401 of the North Dakota Department of Transportation Standard Specifications for Road and Bridge Construction.
3. Recycled Asphalt Pavement (RAP):
   a. RAP may be incorporated into mix used for mainline pavement at a rate between 10 and 20 percent of the mix by weight.
   b. Provide recycled material with a maximum particle size of 1.5 inch.

c. Introduce recycled material so that it does not come into direct contact with the burner flame. Add binder to the combined virgin aggregate and recycled material.

C. Aggregate Materials:

1. Develop a mix design that contains an aggregate gradation that conforms to the requirements in in Section 430 of the North Dakota Department of Transportation Standard Specifications for Road and Bridge Construction.
2. Use the below gradation for leveling courses:

Sieve Size	% Passing by Weight
½"	100%
3/8"	85-100%
#4	50-80%
#10	35-65%
#30	25-45%
#100	5-20%
#200	3-10%
Maximum Shale and Soft Rock	4%
Maximum Clay	5%
Maximum Loss (L. A. Abrasion Test)	40%

D. Aggregate Subbase: Specified in Section 321123.

2.2 MIXES

A. Use dry material to avoid foaming. Mix uniformly.

B. Asphalt Paving Mixtures: Designed in accordance with Section 430 of the North Dakota Department of Transportation Standard Specifications for Road and Bridge Construction.

2.3 SOURCE QUALITY CONTROL

A. Section 014000 - Quality Requirements: Testing, inspection and analysis requirements.

B. Submit proposed mix design for review prior to beginning of Work.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for installation examination.

B. Verify utilities indicated under paving are installed with excavations and trenches backfilled and compacted.

C. Verify compacted granular base is dry and ready to support paving and imposed loads.

D. Verify gradients and elevations of base are correct.

E. Verify gutter drainage grilles and frames manhole frames and valve boxes are installed in correct position and elevation.

3.2 PREPARATION

A. Prepare subbase in accordance with Section 321123.

3.3 DEMOLITION

A. Saw cut and notch existing paving as indicted on Drawings.

B. Clean existing paving to remove foreign material, excess joint sealant and crack filler from paving surface.

C. Repair surface defects in existing paving to provide uniform surface to receive new paving.

3.4 INSTALLATION

A. Base:

1. Aggregate Base: Install as specified in Section 321123.

B. Tack Coat:

1. Apply tack coat on asphalt and concrete surfaces over subgrade surface at uniform rate.

    a. New Surfaces: 0.05 gal/sq yd.
    b. Existing Surfaces: 0.10 gal/sq yd.

2. Apply tack coat to contact surfaces of curbs, gutters and concrete pavement.
3. Coat surfaces of manhole, catch basin, and gate valves frames with oil to prevent bond with asphalt paving. Do not tack coat these surfaces.

C. Asphalt Paving:

1. Install Work in accordance with Section 430 of the North Dakota Department of Transportation Standard Specifications for Road and Bridge Construction
2. Place asphalt within 8 hours of applying primer or tack coat.
3. Place asphalt wearing course thickness indicated on Drawings.
    a. Maximum allowable lift: 3 inches.

4. Compact paving by rolling to specified density. Do not displace or extrude paving from position. Hand compact in areas inaccessible to rolling equipment.
5. Perform rolling with consecutive passes to achieve even and smooth finish without roller marks.

D. Asphalt Paving Overlay:

1. Verify existing surface is stable.
2. Pave surface no more than 3 days after milling operations.
3. Compact overlay by rolling to specified density. Do not displace or extrude paving from position. Hand compact in areas inaccessible to rolling equipment.
4. Perform rolling with consecutive passes to achieve even and smooth finish, without roller marks.

3.5 TOLERANCES

A. Section 014000 - Quality Requirements: Tolerances.

B. Flatness: Maximum variation of 3/16inch measured with 10 foot straight edge.

C. Scheduled Compacted Thickness: Within 1/4 inch.

D. Variation from Indicated Elevation: Within ½ inch.

3.6 FIELD QUALITY CONTROL

A. Section 017000 - Execution and Closeout Requirements: Requirements for testing, adjusting, and balancing.

B. Contractor Quality Control (QC) responsibility as shown in section 430.03B of the North Dakota Department of Transportation Field Sampling and Testing Manual will not apply.

C. Independent Testing Firm to provide Quality Assurance (QA) testing in accordance with Section 430.03 of the North Dakota Department of Transportation Field Sampling and Testing Manual at a frequency of one set of test per 1,000 Tons of mix production, and will conduct a minimum of one set of tests per production day and a minimum of two sets of test per project. Independent Testing Firm must provide NDDOT certified personnel to conduct all required asphalt testing. Send testing results to the Engineer withing 24 hours of the sample being received.

The following QA tests will be conducted in accordance with the modified table below:

Table 430-8	
Test	Worksheet
ND T 27, "Sieve Analysis of Fine and Coarse Aggregates"	SFN 9987, Aggregate Sample Worksheet
ND T 11, "Materials Finer than No. 200 Sieve in Mineral Aggregates by Washing"	SFN 9987, Aggregate Sample Worksheet
ND T 304, "Fine Aggregate Angularity"	SFN 51701, Uncompacted Void Content of Fine Aggregate
ND T 312, "Preparing and Determining the Density of Hot Mix Asphalt Specimens by Means of Superpave Gyratory Compactor"	SFN 50289, Maximum Density Worksheet
ND T 209, "Theoretical Maximum Specific Gravity and Density of Hot Mix Asphalt"	SFN 50289, Maximum Density Worksheet
ND T 166, "Bulk Specific Gravity of Compacted Hot Mix Asphalt Using Saturated Surface-Dry Specimens"	SFN 50289, Maximum Density Worksheet
AASHTO T 308, "Determining the Asphalt Binder Content of Hot mix Asphalt (HMA) by Ignition Method"	None

D. Provide Daily Cut-Off Reports for asphalt cement for each lot. Calculate average AC content at the end of each production day and record results on SFN 9988, Mix Bitumen Cut-Off Report. Complete SFN 9988 and submit to the Engineer the day following paving.

E. Independent Testing Firm will determine the asphalt content per AASHTO T308. One sample will be taken from the first half of the project and a second will be taken from the second half of the project using random numbers to determine when each sample will be taken. Use the results of the tests as a cross check for the AC Content from the Daily Cut-Off from that Lot.

F. Total the recorded average asphalt contents of the lots and divide by the number of Lots to obtain the average asphalt content for the job, Use this in the Asphalt Content Adjustment Factor in Section 430.05 C.3 of the North Dakota Department of Transportation's Standards Specifications for Road and Bridge Construction.

G. Engineer will divide the pavement into lots. A lot is equal to the amount of material, in tons, placed each production day.

H. A sublot is defined as a single lift, full street width, 2 blocks in length or 700 feet, whichever is less. A partial sublot less than 1 block or 350 feet will be included in the previous sublot. A partial sublot greater than 1 block or 350 feet will be considered a separate sublot.

I. Engineer will direct the Independent Testing Firm to obtain one core from each sublot with the core being marked out by the Engineer using random numbers for the station and offset for each core. Cores will be taken the following day prior to any successive lifts being placed. If the location of the core falls within one foot of the edge of the pavement, the Engineer will adjust the location or generate new random numbers to select a different area. Coring will be observed by both the Engineer and paving Contractor.

J. Engineer will record the information on SFN 10071, "Compaction Control" and will observe the coring procedure. The Engineer will take immediate possession of the cores.

K. The Independent Testing Firm will determine the density of the cores in accordance with ND T 166, "Bulk Specific Gravity of Compacted Hot Mix Asphalt Using Saturated Surface-Dry Specimens," and ND T 209, "Maximum Theoretical Density." The Engineer will determine the acceptance of the sublot based on the average of the two cores. The average of the two cores is recorded on SFN 59132, Density Pay Factor.

L. The density of a lot will be determined using the recorded average densities of the sublots contained within the lot. The recorded average densities of the sublots will be totaled and divided by the number of sublots within the lot to obtain the average density of the pavement.

M. When Ordinary Compaction is specified, cored samples will be taken at the frequencies listed above and will be used only to determine final pavement thickness.

N. Asphalt Paving Thickness: ASTM D3549; record pavement thickness for each cored sample taken.

O. Asphalt Paving Mix Temperature: Measure temperature at time of placement.

3.7 PROTECTION

A. Section 017000 - Execution and Closeout Requirements: Requirements for protecting finished Work.

B. Immediately after placement, protect paving from mechanical injury until surface temperature is less than 120°F.

END OF SECTION 321216

SECTION 321236–SEALCOATS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Preparation of surface, placing bituminous material and aggregate, and rolling final product.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Seal Coat:

1. Basis of Measurement: By square yard (SY).
2. Basis of Payment: Includes submittal of mix design, surface cleaning, placing bituminous material, aggregate, and blotter material, compacting and rolling, protection to adjacent surfaces, sweeping, removal of aggregate, and maintenance.

1.3 REFERENCES

A. Asphalt Institute:

1. AI MS-19 - Basic Asphalt Emulsion Manual.

B. ASTM International:

1. ASTM D4 - Standard Test Method for Bitumen Content.
2. ASTM D6 - Standard Test Method for Loss on Heating of Oil and Asphaltic Compounds.
3. ASTM D244 - Standard Test Methods and Practices for Emulsified Asphalts.

C. North Dakota Department of Transportation (NDDOT) Field Sampling and Testing Manual

1.4 SUBMITTALS

A. Section 013300 - Submittal Procedures: Requirements for submittals.

B. Product Data: Submit data on bituminous material, and aggregates.

C. Mix Design: Submit seal coat mix design to Engineer a minimum two (2) weeks prior to beginning Work.
1. The design shall include the following information:
   a. Aggregate gradation.
   b. Bulk specific gravity of the aggregate.
   c. Loose unit weight of the aggregate.

d. Asphalt type and rate of application.
e. Aggregate rate of application.

D. Equipment: Submit list of equipment intended for use on the Work.

1.5 QUALITY ASSURANCE

A. Independent Testing Firm to provide testing in accordance with NDDOT Field Sampling and Testing Manual Section 420.02 as follows:
1. Bitumen:
a. Under the observation of the Engineer, the Contractor will obtain a sample, which is two containers, of bitumen from each load delivered to the project following NDDOT 1, “Sampling of Bituminous Materials.” At the discretion of the Engineer, Independent Testing Firm will test the emulsified asphalt samples for sieve and viscosity only according to tests listed in AASHTO T 59, “Emulsified Asphalts.”
2. Aggregate:
a. Obtain three (3) random samples from each lot of cover coat material. Obtain and split aggregate samples according to ND T 2, “Sampling of Aggregate,” and ND T 248, “Reducing Samples of Aggregate to Testing Size.”
b. Test all samples from the lot and determine acceptance of the lot based on the average of the tests.

B. Test Method and Frequency:
1. ND T 27, “Sieve Analysis of Fine and Coarse Aggregates”: 1 test result per lot. Minimum of 2 tests per project.
2. ND T 11, “Materials Finer Than No. 200 Sieve in Mineral Aggregates by Washing”: 1 test result per lot. Minimum of 2 tests per project.

C. Definition of a lot:
1. 1,200 tons.
2. Plan Quantity if plan quantity is less than 1,200 tons
3. If the final lot is less than 600 tons, include it in the previous lot.
4. If the final lot is greater than 600 tons, it is a separate lot.
5. Lots continue from day to day. Each day does not start a new lot.

D. Compute the sieve analysis on SFN 9987, “Aggregate Sample Worksheet.” Results are recorded on SFN 10072, “Aggregate Quality Test Summary.”

1.6 ENVIRONMENTAL REQUIREMENTS

A. Section 016000 - Product Requirements: Environmental conditions affecting products on site.

B. Do not perform Work when weather conditions will not permit successful completion of the Work.

C. Begin chip seal work after May 15th and no later than September 1st.

D. Do not perform Work when pavement is wet.

E. Do not begin chip seal until ambient air and pavement temperature is 60 degrees F and rising.

F. On newly constructed asphalt surfaces the seal coat shall not be applied until after the rolling has been completed and the traffic permitted on the surface for not less than seven (7) days or longer if such longer interval is required for the surface to properly cure prior to receiving the seal.

PART 2 - PRODUCTS

2.1 BITUMINOUS MATERIAL

A. Polymer modified, cationic water-based emulsified asphalt:

1. As specified in the plans: Type CRS-2P or CHFRS-2P.
2. Conforms to the requirements of AASHTO M 316.
3. Conforms to the requirements of the State of North Dakota Standard Specifications for Road and Bridge Construction, Section 818.

2.2 AGGREGATE

A. Seal Coat aggregate:

1. Sound, durable particles of gravel, sand and stone.
2. Conforms to the requirements of the State of North Dakota Standard Specifications for Road and Bridge Construction, Section 816, Class 41M.
    a. Revise NDDOT Class 41M to limit percent passing the #200 sieve to 1 percent.
3. Wash aggregate using clean potable water prior to stockpiling on site.

2.3 EQUIPMENT

A. Heating/Spreading Equipment:

1. Self-propelled pressure distributor with adequate capacity to properly heat the bituminous materials.
2. The outside heating unit shall be provided with an accurate thermometer to indicate the temperature of the bituminous material in the unit in which heat is applied.
3. Contractor shall supply manufacturer’s recommendation for spray bar height above surface, nozzle size, and angle of spray fan with the spray axis.
4. Equipment must have an independent wheel to accurately measure speed in ft/min.
5. A bitumeter and tach chart shall be kept in truck.
6. A digital application rate indicator shall be used.
7. The use of any equipment or methods that introduce moisture into the bituminous material, injures, or in any way changes the characteristics of the material will not be permitted.

B. Power Broom or Blower.

C. Aggregate Spreader:

1. Self-propelled.

2. Adjustable spread rate to provide the specified material quantity per area.
3. Proof of spreader calibration is required at the time of construction.

D. Compactor:

1. Pneumatic tired roller.
2. Minimum of three units required.

PART 3 - EXECUTION

3.1 PREPARATION

A. Mechanically sweep pavement surfaces immediately prior to commencement of Work. Clean pavement surfaces of loose foreign matter. Verify surfaces are dry.

B. Protect existing improvements, overhanging trees, and plant life from heat damage by individual shielding.

C. Cover manhole covers, frames and concrete pads, catch basin covers and frames, gate valve boxes, and valley gutters with contractor building paper, roofing felt, or equivalent.

D. Route traffic to temporary detours, or confine work area to one half of the road at a time.

E. Verify forecasted weather conditions prior to beginning chip seal operation. No chip sealing should take place unless the roads are completely dry and clean. Resweep as necessary to achieve clean and dry streets.

F. Calibrate the chip spreader prior to performing the test strip.

G. Adjust and align distributor nozzles so that each nozzle is at the same angle, with the exception of the end nozzles.

H. Provide manual workforce sufficient to touch up areas that are missed by the mainline operation.

3.2 APPLICATION OF BITUMINOUS MATERIAL AND AGGREGATE

A. Apply emulsified asphalt and cover material at the following rates:
1. Emulsified Asphalt: 0.42 Gal/SY
2. Cover Coat Material Cl 41M: 25 Lb./SY

B. Construct a test strip of approximately 50 feet (min.) to verify application rates. Repeat as necessary and adjust application rates depending on existing pavement condition.
1. Adjust application rates to target 70% embedment of the seal aggregate after binder cure without bleeding or flushing.
2. The binder should rise almost to the top of the compacted chips to ensure proper embedment after the binder cures.

C. Use contractor building paper or roofing felt as a launching pad at all starts and stops to maintain a clean and straight edge and allow application at the proper rate upon reaching the untreated surface.

D. Apply bitumen in a uniform and continuous spread. Correct skipped areas and deficiencies. Prevent lapping at transverse junctions.

E. Immediately apply aggregate while the bituminous material is tacky and before the binder breaks.

F. Uniformly apply aggregate at the designed rate as adjusted by the test strips.

G. Immediately correct bleeding and flushing of the asphalt with an approved blotter material.

H. If unexpected rainfall occurs, discontinue chip sealing immediately. Do not resume work until streets are completely dry.

I. Cul-de-sacs: Adjust application rates as needed and phase application of binder to ensure the chips are placed and rolled before the binder breaks.

3.3 ROLLING AND COMPACTING

A. Roll and compact aggregate immediately after spreading for a minimum of four passes. Ensure the roller speed does not exceed 7 MPH on the initial pass.

B. Develop rolling with consecutive passes beginning at the edges and continuing towards the center.

C. Broom aggregate with approved broom drags concurrent with rolling operations until the aggregate for the seal coat is thoroughly embedded and the surface is thoroughly compacted and uniform in texture.

D. Remove protective paper from castings and concrete surfaces.

E. Within 24 hours after the chip seal has been completed, sweep all excess and loose cover coat material with a vacuum-type sweeper. Do not dislodge embedded aggregate.
   1. All excess chips shall be removed from the project.
   2. Do not sweep excess chips into boulevards or grassed areas.

3.4 MAINTENANCE

A. Maintain the chip seal during the chip seal operation and continue maintenance for five (5) calendar days after completion of the chip seal operation. Maintenance of the chip seal may include additional:
   1. application of bitumen;
   2. application of cover coat material;
   3. rolling; and
   4. sweeping

B. Do not place loose cover coat material from the shoulder onto the new sealed surface.

C. Perform a final sweeping at the end of the maintenance period. Remove excess material from the roadway and shoulders.

3.5 PROTECTION OF FINISHED WORK

A. Section 017000 - Execution and Closeout Requirements: Protecting finished work.

B. Do not permit traffic over surface where bituminous material is applied until spreading, rolling and brooming is complete.

END OF SECTION 321236

SECTION 321313 - CONCRETE PAVING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Concrete paving for:

a. Concrete curb and gutter.
b. Concrete valley gutter.
c. Concrete roads.

B. Related Requirements:
1. Section 312213 - Rough Grading: Preparation of site for paving and base.
2. Section 312323 - Fill: Compacted subbase for paving.
3. Section 321123 - Aggregate Base Courses
4. Section 321216 - Asphalt Paving: Asphalt.

1.2 PRICE AND PAYMENT PROCEDURES

A. Section 012000 - Price and Payment Procedures Contract Sum/Price

B. Concrete Paving:

1. Basis of Measurement: By Square Yard.
2. Basis of Payment: Includes forms, reinforcing, concrete, accessories, placing, finishing, curing, surface smoothness testing, and mix design.

C. Curb and Gutter

1. Basis of Measurement: By linear foot along the flowline.
2. Basis of Payment: Includes forms, reinforcing, concrete, accessories, placing, finishing, curing, and mix design.

D. Valley Gutter

1. Basis of Measurement: By Square Yard.
2. Basis of Payment: Includes forms, reinforcing, concrete, accessories, placing, finishing, curing, and mix design.

1.3 REFERENCE STANDARDS

A. American Association of State Highway and Transportation Officials:

1. AASHTO M324 - Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements.

B. American Concrete Institute:

1. ACI 301 - Specifications for Structural Concrete.
2. ACI 304 - Guide for Measuring, Mixing, Transporting, and Placing Concrete.

C. ASTM International:

1. ASTM A184 - Standard Specification for Fabricated Deformed Steel Bar Mats for Concrete Reinforcement.
2. ASTM A185 - Standard Specification for Steel Welded Wire Fabric, Plain, for Concrete Reinforcement.
3. ASTM A497 - Standard Specification for Steel Welded Wire Fabric, Deformed, for Concrete Reinforcement.
4. ASTM A615 - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
5. ASTM A706 - Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement.
6. ASTM A767 - Standard Specification for Zinc-Coated (Galvanized) Steel Bars for Concrete Reinforcement.
7. ASTM A775 - S Standard Specification for Epoxy-Coated Steel Reinforcing Bars.
8. ASTM A884 - Standard Specification for Epoxy-Coated Steel Wire and Welded Wire Reinforcement.
9. ASTM A934 - Standard Specification for Epoxy-Coated Prefabricated Steel Reinforcing Bars.
10. ASTM C31 - Standard Practice for Making and Curing Concrete Test Specimens in the Field.
11. ASTM C33 - Standard Specification for Concrete Aggregates.
12. ASTM C39 - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
13. ASTM C94 - Standard Specification for Ready-Mixed Concrete.
14. ASTM C143 - Standard Test Method for Slump of Hydraulic Cement Concrete.
15. ASTM C150 - Standard Specification for Portland Cement.
16. ASTM C172 - Standard Practice for Sampling Freshly Mixed Concrete.
17. ASTM C173 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method.
18. ASTM C231 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.
19. ASTM C260 - Standard Specification for Air-Entraining Admixtures for Concrete.
20. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
21. ASTM C494 - Standard Specification for Chemical Admixtures for Concrete.
22. ASTM C595 - Standard Specification for Blended Hydraulic Cements.
23. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete.
24. ASTM C979 - Standard Specification for Pigments for Integrally Colored Concrete.
25. ASTM C989 - Standard Specification for Ground Granulated Blast-Furnace Slag for Use in Concrete and Mortars.

26. ASTM C1017 - Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete.
27. ASTM C1064 - Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete.
28. ASTM C1116 - Standard Specification for Fiber-Reinforced Concrete and Shotcrete.
29. ASTM C1315 - Standard Specification for Liquid Membrane-Forming Compounds Having Special Properties for Curing and Sealing Concrete.
30. ASTM C1371 - Standard Test Method for Determination of Emittance of Materials Near Room Temperature Using Portable Emissometers.
31. ASTM C1549 - Standard Test Method for Determination of Solar Reflectance Near Ambient Temperature Using a Portable Solar Reflectometer.
32. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).
33. ASTM D1752 - Standard Specification for Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction.
34. ASTM D6690 - Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements.

1.4 SUBMITTALS

A. Section 013300 - Submittal Procedures: Requirements for submittals.

B. Product Data:

1. Submit data on concrete materials, joint filler, admixtures, and curing compounds.

C. Concrete Mix Design include per yard quantity of each material and the following information:
1. Cement Mill Certificate
2. Fly Ash Mill Certificate
3. Slag Cement Mill Certificate
4. Aggregate Sourcing including:
    a. Gradations
    b. Physical Test Results
    c. Absorption and Specific Gravity
    d. Deleterious reaction results
5. Admixtures

D. Hot Weather Plan
1. In accordance with ACI 305R – Guide to Hot Weather Concrete
2. Submit detailed procedures for the production, transportation, placement, protection, curing, and temperature monitoring during hot and/or windy weather.

E. Cold Weather Plan
1. In accordance with ACI 306R – Guide to Cold Weather Concrete
2. Submit detailed procedures for the production, transportation, placement, protection, curing, and temperature monitoring of concrete during cold weather.

F. Concrete Curing Plan including:

1. Certificate of Compliance
2. Trade name of curing compound
3. Statement that curing compound meets all requirements specified
4. Equipment and Methods used for applying curing compound

G. Joint sealant Certificate of Compliance including:
1. Type of backer rod
2. Joint sealant type

H. Reinforcement Steel, Dowel Bars, and Tie Bars Certified Mill Analysis

I. Jointing Plan

1.5 QUALITY ASSURANCE

A. Obtain cementitious materials from same source throughout.

B. Perform Work according to Section 550 of the North Dakota Department of Transportation Standard Specifications for Road and Bridge Construction.

1.6 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing Products specified in this section with minimum three years documented experience. Certified by an approved plant certification program by the National Ready Mix Concrete Association, MNDOT or NDDOT (in the current construction season).

B. Installer:
1. Company specializing in performing work of this section with minimum 5 years documented experience.
2. Minimum two employees with a current ACI concrete flatwork technician or flatwork finisher certification.
a. At lease one of the employees must be onsite performing quality control and guidance during all concrete forming, placement of reinforcement steel, dowel bars, and tie bars, pouring, finishing, and curing operations.

1.7 AMBIENT CONDITIONS

A. Section 015000 - Temporary Facilities and Controls: Ambient conditions control facilities for product storage and installation.

B. Do not place concrete on or against frozen ground

C. Perform patching when the ambient and pavement temperatures are greater than 40^F

D. Perform joint sealing when the ambient and pavement temperatures are greater than 40^F

PART 2 - PRODUCTS

2.1 AGGREGATE BASE COURSE

A. Aggregate Base Course: As specified in Section 321123.

2.2 CONCRETE PAVING

A. Form Materials:
1. Steel form material, at least 10 feet in length, profiled to suit conditions.
2. Wood form material may be used for irregular shapes and short sections.
3. Thickness equal to concrete to be placed.
4. Mortar and dirt free
5. No variations of more than 1/8inch.

B. Joint Materials:
1. Rubber material conforming to ASTM D 1752.

C. Reinforcement:
1. Deformed and Plain Steel Bars for Concrete Reinforcement
a. Use deformed and plain bars that meet AASHTO M 31, Grade 40 or 60. If epoxy coated bars are specified, use bars that have been coated as specified in ASTM A 775.
2. Welded Deformed Steel Bar Mats for Concrete Reinforcement
a. For concrete reinforcement, use fabricated steel bar or rod mats that meet AASHTO M 54, Grade 40 or 60.

D. Finishing Tools:
1. Use finishing tools constructed of aluminum, magnesium, or wood. Steel hand finishing tools are not allowed.

E. Concrete Materials
1. Provide concrete materials in accordance with Class AE of Section 802 of the North Dakota Department of Transportation Standard Specifications for Road and Bridge Construction.

2.3 MIXES

A. Concrete Mix - By Performance Criteria:

a. Compressive Strength:
1) 7-day: 3,000 psi.
2) 28-day: 4,000 psi.

b. Cement Content: 550 - 600 lb./cu yd.
c. Maximum Water/Cement Ratio: 0.47 by weight (mass).
d. Slump:

Slump Requirements		
Concrete Application	Min Inches	Max Inches
Formed Paving	1.0	4.0
Slip-form Paving	0.0	2.0

e. Air Entrainment: 5 - 8 percent Target 6%.

2. Limit the following cementitious materials to maximum percentage by mass of all cementitious materials:

a. Fly Ash: 29 percent.

2.4 ACCESSORIES

A. Curing Compound:
1. Standard Concrete Paving
a. According to ASTM C 309, Type 2, Class B with 100 percent poly-alpha-methylstyrene resin.
b. White pigmented in color.
2. Colored Concrete Paving
a. According to ASTM C 309, Type 1, Class A or B.
b. Transparent, non-yellowing.

B. Concrete Sealers
1. Colored Pedestrian Crosswalks
a. Chem-Crete Pavix CCC100 by International Chem-Crete Inc.
b. Or equal.

C. Joint Sealers: ASTM D6690 Type IV; hot applied type.
1. Except the penetration value required is revised from 120 to 150.
2. Provide joint sealant with a unit weight between 9.0 and 9.35 pounds per gallon.

D. Backer Rod:
1. Conform to ASTM D 5249, Type 1 or 3.

2.5 SOURCE QUALITY CONTROL

A. Section 014000 - Quality Requirements: Testing and Inspection Services

B. Submit proposed mix design of each class of concrete to appointed firm for review prior to commencement of Work.

C. Tests on cement, aggregates, and mixes will be performed to ensure conformance with specified requirements.

D. Test samples according to ACI 301.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for installation examination.

B. Verify compacted subgrade aggregate base is dry and ready to support paving and imposed loads.

C. Verify manholes, catch basins, and gate valves are at the correct elevation.

D. Verify gradients and elevations of base are correct.

3.2 PREPARATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for installation preparation.

B. Moisten substrate to minimize absorption of water from fresh concrete.

C. Notify Engineer minimum 24 hours prior to commencement of concreting operations.

3.3 INSTALLATION

A. Base Course:

1. Aggregate Base Course: Install as specified in Section 321123.

B. Forms:

1. Place and secure forms and screeds to correct location, dimension, profile, and gradient.
2. Assemble formwork to permit easy stripping and dismantling without damaging concrete.

C. Reinforcement:

1. Place reinforcement mid-depth of concrete thickness at dimensions as indicated on Drawings.
2. Overlap reinforcement a minimum of 20 inches and tie securely in place at all points where bars cross.
3. Place reinforcing on plastic, plastic coated, or epoxy coated bar supports to support reinforcement.

D. Placing Concrete:

1. Pour curb and gutter separate from concrete pavement.
2. Place all concrete pavement and curb and gutter by slip-form operation.

a. Use fixed forms in irregular areas, intersections, tapers, alleys, roundabouts, areas inaccessible to slip-form equipment or other areas approved by Engineer.

3. Uniformly moisten aggregate base immediately prior to concrete placement.
4. Install transverse construction joint if concrete placement is temporarily interrupted for more than 45 minutes.
5. Protect concrete from rain damage
   a. Do not place concrete when rain conditions appear imminent.
   b. Maintain on site sufficient waterproof material to protect concrete.
   c. Do not place concrete during rain that results in standing water on fresh concrete surface.

E. Slip-Form Paving

1. Use and maintain a taut stringline for operating the automatic equipment controls.
   a. Use of Automated Machine Guidance (AMG) is not permitted.
2. Consolidation Vibrator Operation
   a. Operate internal vibrators within a frequency range of 4,000 to 8,000 vibrations per minute.
   b. Operate surface vibrators within a frequency range of 3,500 to 6,000 vibrations per minute.
   c. Reduce vibratory frequency when forward motion of the paver is reduced and stop vibrators when forward motion of the paver is stopped.
   d. Use a vibrator monitor that records at intervals of 25 feet or 5 minutes, whichever occurs first. Provide both electronic and printed records each day that state:
      1) Time
      2) Station
      3) Speed
      4) Operating frequency of individual vibrator
   e. Do not delete the data from the vibratory monitoring system until the records are in their final form and given to the Engineer. The Engineer will allow one of the records to be produced in an office. Provide the original record before takin the data into the office. Provide an electronic record that is a comma or space delimited text file, adequate for insertion into a computerized spreadsheet software package.
   f. Provide a written explanation each week that details:
      1) Vibrator setting changes
      2) Out of tolerance vibratory operations
      3) Monitoring device malfunctions

F. Slip-Form Curbing

1. Automated Machine Guidance (AMG) operations may be an option in lieu of stringline slip-form curb and gutter paving.
2. Submit AMG operation plan containing the following:
   a. Location of project where AMG will be used
   b. Vertical and horizontal accuracies of the AMG
   c. Contractor’s past performance with AMG
      1) Project locations
      2) Amount of curbing installed
      3) Owner/Engineer references

d. Equipment manufacturer and type of equipment that would be used to operate the EMG system.

G. Fixed Form Concrete

1. Consolidate concrete using concrete finishing machine.
2. Engineer may allow hand operated vibrator.
   a. Must produce a minimum of 3600 impulses per minute.
3. Uniformly consolidate concrete with no segregations, honeycombing, or voids.
4. Check all finishing equipment with a straight edge in the presence of the Engineer.
5. All curb and gutter to be tied to existing curb and gutter with (3) No. 4 x 12" Bars.

H. Joints

1. General
   a. Layout joints and construction sequence per Jointing Plan

   b. Repair spalls deeper than ¼ inch by patching with an epoxy mortar.
      1) Clean the spall area
      2) Prime the spall surface with a brush application of epoxy binder.
      3) Mix the epoxy binder as recommended by the manufacturer.
      4) Insert materials in the joint that will not bond to the epoxy to form the faces of the spall patch.
      5) Blend dry concrete sand into the mixture to give an epoxy mortar of trowelable consistency.
      6) Place and finish the epoxy mortar surface.
      7) After the epoxy mortar has cured, remove the inserts.

2. Transverse Contraction Joints

   a. Extend joints across the entire width of the pavement through adjacent curb and gutter.
   b. Place reinforcement and/or dowel bars as indicated in the drawings.

3. Longitudinal Joints

   a. Place reinforcement as indicated in the drawings.
      1) Replace all loose or easily rotated bars by drilling in new tie-bar.

4. Construction Joints

   a. Construct at planned transverse or longitudinal joint locations per detail.
   b. Form by securely staking in place at right angles to the subbase and centerline of the pavement, a bulkhead of wood or metal cut to the cross-section of the pavement.
      1) Install dowels by inserting into plastic concrete or drilling.
   c. Do not incorporate grout from the paver grout box into the construction joint.

5. Expansion and Isolation Joints

a. Install as indicated on the Details.
b. Extend expansion material entirely through depth and width of concrete.
c. Use epoxy coated smooth bars unless otherwise specified.
d. Coat free end with approved lubricant and cover with an approved non-coercive metal or plastic dowel cap or sleeve.
e. Pre-punch expansion material to fit tightly around smooth bars.
f. Set top edge of expansion material flush with concrete surface.

6. Sawing

a. Extend saw joints through adjacent curb and gutter.
b. Saw all joints along a true and straight line established by the contractor
c. Saw concrete as soon as conditions permit to avoid raveling and before random cracking.
1) Delay sawing immediately if raveling is observed.
d. Early entry dry saw or "Soft-Cut" method only allowed with Engineer approval.

7. Uncontrolled Cracking

a. Remove pavement with uncontrolled cracks to the nearest planned longitudinal and transverse Joints.
b. Submit removal and replacement plan to Engineer.
c. Removal and replacement of concrete pavement and including any items damaged during operation are at the Contractor's expense.

I. Finishing:

1. Consolidate, level, finish, and apply cure within 45 minutes of concrete being placed on grade.
2. Use of water and evaporation retarders is not permitted. Use of items will result in non-payment, replacement, and/or repair of the wetted area as determined by the Engineer.
3. Remove forms from concrete no less than 15 hours after placing concrete.
4. Test the slab for trueness with a 10-foot straightedge immediately following floating operations.
a. Place straightedge parallel to pavement centerline and pass over slab to reveal any high or depression points.
b. Cut or fill high or depression points as needed with long handled float.
c. Check area again with straightedge.
d. Advance straightedge while maintaining ½ the length of the straightedge overlaps.
5. Finish all curb and gutter surfaces true to line and grade without any irregularities noticeable to the eye.
6. Replace any areas with segregation, honeycombing, and/or voids at Contractor's expense.

J. Final Surface Finish

1. Provide texture uniform in appearance and free of rough or porous spots, irregularities, depressions, and other objectionable features.
2. Slip-formed Paving
a. Texture surface using a seamless strip of artificial grass-type carpet, or by broom bristle sections.

1) Provide artificial grass type carpet with:
a) Molded polyethylene pile face
b) Blade length of 5/8 to 1 inch
c) Minimum weight of 70 ounces per square yard

b. Pull textured material longitudinally along pavement in a single pass.
c. Apply 1/16- to 1/8-inch-deep striations.
d. Other texturing methods allowed with Engineer approval.

3. Formed Paving
a. Draw broom across pavement at right angle to centerline.
b. Overlap broom strokes by 2 inches.
c. Wash and dry broom at frequent intervals during pave.

K. Curing and Protection

1. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
2. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete, minimum 72 hours.
3. Spray all finished surfaces with curing compound.
a. Apply curing compound uniformly at a rate not less than one gallon per 200 square feet of surface area.
b. Apply curing compound using mechanically pressurized spray equipment.
c. Limit handheld sprayer use to small areas.

L. Joint Sealing

1. Seal all concrete joints using hot sealant prior to opening to construction and public traffic and no more than 10 days after placement of concrete.
2. Clean all vertical joint faces by sandblasting
a. Minimum working pressure of 100 psi.
3. Completely remove oil, asphalt, slurry, curing compound, paint, rust, and other foreign material.
4. Immediately prior to sealing clean joints with compressed air at a working pressure of 100 psi.
5. Ensure all joints are dry prior to sealing.
6. Install backer rod on all transverse joints
7. Correct any joints filled above or below the specified level at Contractor’s expense.

3.4 TOLERANCES

A. Section 014000 - Quality Requirements: Tolerances.

B. Dowel Bar Placement Tolerances:

1. Alignment Placement: Within 1/8 inch on both horizontal and vertical planes.
2. Longitudinal Shift: ½ inch

C. Tie-Bar Placement Tolerance:

1. Longitudinal Shift: 3 inches

2. Vertical Placement: 1 inch
3. No less than 15 inches of transverse joint

D. Saw lines:

1. Maximum ½ inch deviation from straight line

E. Raveling:

1. Engineer will categorize the degree of raveling and determine whether a contract price adjustment to the pavement bid item or rejection of the pavement will be administered.
2. The Engineer will determine the degree of raveling by using the table below and areas of contract price adjustment by measuring the defective areas in square yards.
   a. Engineer will measure half of each adjoining panel in each direction from joint with raveling.
3. Engineer reserves the right to reject any concrete with joint raveling present.
4. The table below will be used to determine the degree of raveling.

Joint Raveling Deduct Adjustments	
Degree of Raveling	% Deduct per SY
No Raveling: 0” to ¼”	(0%)
Light Raveling: ¼” to 3/8”	(15%)
Moderate Raveling: 3/8” to ½”	(25%)
Severe Raveling: ½” +	Remove and Replace

F. Pop Out Tolerances:

1. A pop out is defined as a small, generally cone shaped cavity in horizontal concrete surface left after a near-surface aggregate particle has expanded and fractured. The cavity can range from1/2 inch to a few inches in diameter.
2. The Engineer will select random test locations for determining the number of visual pop outs.
   a. Engineer will mark a square yard perimeter and visually count pop outs ½ inch or greater located within the perimeter.
   b. Each separate pour will be considered a lot size for price adjustment.
   c. Then number of pop outs will be counted, and the arithmetic mean will be calculated for each lot.
3. Frequency of testing
   a. The Engineer will test three separate locations for lots less than 1000 square yards.
   b. The Engineer will test one location per 1000 square yards, or a minimum of three random locations, whichever is greater for lots greater than 1000 square yards.
4. The contract unit price for each lot will be adjusted according to the table below:

Pop Out Deduct Adjustments	
Average number of Pop Outs	Total Deduct per defined Lot Size
0-15	(0%)
16-25	(5%)
26-35	(15%)
36 or more	To be determined by Engineer

G. Curb & Gutter

1. Maximum deviation from line and grade: ¼ inch measured with a 10-foot straightedge.

H. Sealant

1. Seal joints from bottom up to a height approximately 1/8 inch below flush.

I. Pavement Surface Smoothness

1. Engineer may direct Contractor to use the 10-foot straight edge method, the profiler method, or both to determine surface smoothness.
2. Perform all pavement smoothness testing and corrective action at no additional cost.
3. Thresholds of localized roughness and smoothness are shown below.

	Methods of Measuring Localized Roughness and Smoothness			
Concrete Pavement Categories	MRI Threshold	ALR Threshold	RSE Threshold (Excluded Areas)	10'Straight Edge Threshold (Excluded Areas)
> 30 mph	120 in/mile	160 in/mile	0.25-inch deviation per 25 ft. segment	1/8-inch deviation
All others	140 in/mile	180 in/mile	0.25-inch deviation per 25 ft. segment	1/8-inch deviation

Definitions:
IRI – International Roughness Index
MRI – Mean Roughness Index
ALR – Areas of Localized Roughness
RSE – Rolling Straightedge

3.5 FIELD QUALITY CONTROL

A. Section 014000 – Quality Requirements: Requirements for inspecting testing.

B. Perform field inspection and testing according to ACI 301.

C. Inspect reinforcing placement for size, spacing, location, support.

D. Testing firm will take cylinders and perform slump and air entrainment tests according to ACI 301.

E. Strength Test Samples:

1. Sampling Procedures: ASTM C172.

2. Cylinder Molding and Curing Procedures: ASTM C31, cylinder specimens, standard cured.
3. Sample concrete and make one set of four cylinders for every class of concrete placed each day. Larger paving operations may require additional testing frequencies as directed by the Engineer.
4. Make one additional cylinder during cold weather concreting, and field cure.

F. Field Testing:

1. Slump Test Method: ASTM C143.
2. Air Content Test Method: ASTM C173.
3. Temperature Test Method: ASTM C1064.
4. Measure slump and temperature for each compressive strength concrete sample.
5. Measure air content in air entrained concrete for each compressive strength concrete sample.

G. Cylinder Compressive Strength Testing:

1. Test Method: ASTM C39.
2. Test Acceptance: Average compressive strength of three consecutive tests at or above 4,000 psi.
3. Test one cylinder at 7 days.
4. Test three cylinders at 28 days.
5. Core and retest pavement if design strength is not achieved within 28 days. The number and location of the cores will be at the discretion of the Engineer. Contractor is responsible for all expenses related to coring and retesting. All concrete found to be under-strength will be removed and replaced at the contractor's expense.

H. 10-foot Straight Edge Method

1. Furnish an approved 10-foot straight edge, depth gauge, and operator to aid Engineer in testing the pavement surface.
2. Use diamond grinding equipment to correct high or low spots of more than 1/8-inch and less than 1/4-inch in 10-feet. Ensure the deviation after grinding is less than 1/8-inch.
3. Submit a corrective action plan to Engineer that includes either grinding or removal and replacement of pavement if deviation exceeds ¼-inch.

I. Profiler Method

1. Inertial Profiler
    a. Furnish an inertial profiler capable of measuring International Roughness Index (IRI) in dual wheel paths, producing a profilogram, and exporting raw profile data in an unfiltered electronic Engineering Research Division (ERD) file format.
    b. Furnish proof of current profiler calibration and certification from MnDOT, or other approved agency, prior to performing profiling operations.
    c. Furnish equipment adhering to AASHTO M 328.
    d. Operator Certification.
        1) Provide an operator trained in the operation of the Inertial Profiler and knowledgeable in the use of the required Profile Analysis Software (ProVAL).

2) Provide operator with current MnDOT certification, or other approved agency. Provide Engineer documentation of certification.

e. Profiler Operation.
1) Clean and prepare the surface of pavement immediately prior to test.
2) Profile all mainline concrete for smoothness and ALR evaluation.
3) Report profiles in 0.1-mile segments, measured in each wheel path per lane based on Mean Roughness Index (MRI), the average IRI values from both wheel paths.
4) Exclude areas listed below from MRI smoothness and ALR. However, provide RSE in ProVal, and/or measured by 10-foot Straight Edge to identify bumps or dips for these areas if directed by the Engineer.
a) Intersection (PC to PC)
b) Roundabouts (Circular Portion)
c) Parking Lanes
d) Turn Lanes
e) Interchange Ramps and Loops
f) Railroad Crossings

f. Evaluation
1) Utilize the most current version of ProVal to calculate the MRI from the Engineering Research Division files. Send a copy of the ERD files to the Engineer upon completion of the data collection.
2) Ensure the low and high pass filters are set to zero.
3) Identify areas of localized roughness using the Smoothness Assurance Module (SAM) within the current version of Pro Val. Use the following settings.
a) Ride Quality Index: MRI
b) Base Length:
Short continuous – 25 feet.
Long continuous – 528 feet.
Fixed Interval – 528 feet.
c) Ride Quality Threshold:
160 in/mile for 30 mph or greater.
180 in/mile for less than 30 mph.
d) Apply a 250 mm filter to the file being analyzed
e) Calculate the localized roughness in inches per mile at the short continuous interval of 25 feet.
4) Identify areas of localized roughness using the Smoothness Assurance Module (SAM) within the current version of Pro Val. Use the following settings.
a) Ride Quality Index: MRI
b) Base Length:
Short continuous – 25 feet.
Long continuous – 528 feet.
Fixed Interval – 528 feet.
c) Ride Quality Threshold:
120 in/mile for 30 mph or greater.
140 in/mile for less than 30 mph.
d) Apply a 250 mm filter to the file being analyzed
e) Calculate the localized roughness in inches per mile at the long continuous interval of 528 feet.

f) Record MRI numbers in inches per mile for each 528-foot section for each travel lane of finished pavement. If the last segment is greater than 250 feet and less than 528 feet measure as an independent segment. IF the last segment is less than 250 feet include the profile for that segment in the evaluation for the previous profile.

5) Determine Roughness in excluded pavement areas as directed by the Engineer.

6) Identify areas of roughness using the Rolling Straight Edge (RSE) within the current version of ProVal. Correct any dips and bumps in excess of 0.25 inches. Use the following settings in the RSE.
   a) Straight Edge Length: 25-feet
   b) Deviation Threshold: 0.25 inches

J. Maintain records of placed concrete items. Record date, location of pour, quantity, air temperature, and test samples taken.

K. Rain Damaged Concrete:

1. Core at the direction of the Engineer and depth damage determined by petrographic examination.
   a. If depth of damage is ¼" or less the concrete may be corrected by diamond grinding.
2. Engineer reserves the right to reject any rain damaged concrete.
3. Contractor is responsible for all expenses related to coring for petrographic examination, and diamond grinding.

3.6 PROTECTION

A. Section 017000 - Execution and Closeout Requirements: Requirements for protecting finished Work.

B. Immediately after placement, protect paving from premature drying, excessive hot or cold temperatures, and mechanical injury.

C. Keep newly placed concrete clean of loose aggregates, dust, and debris at all times during construction.

D. Repair any part of pavement damaged from traffic or other causes occurring prior to the acceptance of the pavement at Contractor's expense.

E. Protect pavement from spills or smears when placing colored concrete or bituminous pavement adjacent to it.
1. Clean discolored concrete at Contractor's expense.

F. Protect pavement from pedestrian and vehicular access until a compressive strength of 75% of its design strength is achieved.

END OF SECTION 321313

SECTION 321623 – SIDEWALKS, DRIVEWAYS & MEDIANS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Concrete paving for sidewalks and Driveways.

B. Related Requirements:
   1. Section 321123 - Aggregate Base Courses

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Section 012000 - Price and Payment Procedures: Contract Sum/Price modification procedures.

B. Sidewalks:

   1. Basis of Measurement: By square yard.
   2. Basis of Payment: Includes subbase, forms, reinforcing, concrete, accessories, placing, finishing, curing, and testing.

C. Driveways:

   1. Basis of Measurement: By square yard.
   2. Basis of Payment: Includes subbase, forms, reinforcing, concrete, accessories, placing, finishing, curing, and testing.

D. Detectable Warning Panel:
   1. Basis of Measurement: By square foot.
   2. Basis of Payment: Includes all materials, labor, and equipment needed to perform the Work in accordance with this specification.

E. Pigmented Imprinted Concrete

   1. Basis of Measurement: By square yard.
   2. Basis of Payment: Includes subbase, forms, reinforcing, concrete, coloring, imprinting, accessories, placing, finishing, curing, and testing.

1.3 REFERENCE STANDARDS

A. American Association of State Highway and Transportation Officials:

   1. AASHTO M 148 – Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.

B. American Concrete Institute:

1. ACI 301 – Specification for Concrete Construction

C. ASTM International:
1. ASTM A615 - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.
2. ASTM C31 - Standard Practice for Making and Curing Concrete Test Specimens in the Field.
3. ASTM C39 - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
4. ASTM C143 - Standard Test Method for Slump of Hydraulic-Cement Concrete.
5. ASTM C172 - Standard Practice for Sampling Freshly Mixed Concrete.
6. ASTM C173 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method.
7. ASTM C979 - Standard Specification for Pigments for Integrally Colored Concrete.
8. ASTM C1064 - Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete.
9. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).

D. U.S. Access Board
1. Public Rights-of-Way Accessibility Guidelines (PROWAG)

E. Americans with Disabilities Act of 1990
1. The Public Right-of-Way (Title II)

1.4 SUBMITTALS

A. Section 013300 - Submittal Procedures: Requirements for submittals.

B. Product Data:

1. Submit required information regarding concrete materials, joint filler, admixtures, and curing compounds.
2. Mix Design:

a. Submit concrete mix design for each concrete strength prior to commencement of Work.
b. Submit separate mix designs if admixtures are required for hot- and cold-weather concrete Work.
c. Identify mix ingredients and proportions, including admixtures.

C. Detectable Warning Panel Certificate of Compliance

D. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.

E. Hot Weather Plan in accordance with Section 321313 – Concrete Paving

F. Cold Weather Plan in accordance with Section 321313 – Concrete Paving

1.5 QUALITY ASSURANCE

A. Perform Work according to Section 750 of the North Dakota Department of Transportation Standard Specifications for Road and Bridge Construction.

B. Obtain cementitious materials from same source throughout.

1.6 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years' documented experience.

B. Installer: Company specializing in performing Work of this Section with minimum three years' experience.

C. Sidewalk Contractor: On-site employee to have ADA Construction Certification as administered by the Minnesota Department of Transportation.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Section 016000 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.

B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.

C. Store materials according to manufacturer instructions.

D. Protection:

1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
2. Provide additional protection according to manufacturer instructions.

1.8 AMBIENT CONDITIONS

A. Section 015000 - Temporary Facilities and Controls: Requirements for ambient condition control facilities for product storage and installation.

B. Minimum Conditions: Do not place concrete if base surface temperature is less than 40 ^F, or if surface is wet or frozen.

C. Subsequent Conditions: Maintain surface temperature between 40^F and 90^F, for duration of the curing period.

1.9 EXISTING CONDITIONS

A. Field Measurements:

1. Verify field measurements prior to fabrication.
2. Indicate field measurements on Shop Drawings.

PART 2 - PRODUCTS

2.1 AGGREGATE SUBGRADE

A. As specified in Section 321123 - Aggregate Base Courses.

2.2 MATERIALS

A. Forms:

1. Material:

a. Wood: Straight and free from warping, twisting, loose knots, splits, or other defects.
b. Steel: Channel-formed sections.

2. Profile: To suit conditions.
3. Joint Filler:

a. Material: Asphalt-impregnated fiberboard or felt.
b. Comply with ASTM D1751 Type 5.
c. Thickness: 3/4 inch.

B. Reinforcement:

1. Deformed Reinforcing:

a. Steel: Comply with ASTM A615.
1) At all curb ramps and driveway connections to curb and gutter use epoxy coated bars as specified in ASTM A 775.
b. Yield Grade: 40 ksi.
c. Billet Bars: Deformed.
d. Finish: Uncoated.

C. Concrete:

a. Furnish materials according to Section 802 of the North Dakota Department of Transportation Standard Specifications for Road and Bridge Construction Class AE.

D. Color Pigment:

a. Comply with ASTM C979.
b. Resistant to mineral oxides, alkalis, and fading.

c. Color: As scheduled.

E. Detectable Warning Panels
1. All detectable warning panels to meet the requirements of Section 885 of the North Dakota Department of Transportation Standard Specifications for Road and Bridge Construction.
2. Approved Materials and Colors
a. Ductile Iron, No Finish (all areas)
b. Galvanized Steel, Yellow (residential areas only)
3. Refer to plans for material and color for project area.

2.3 ACCESSORIES

A. Curing Compound:

1. Sidewalks and Driveways
a. Conform to the requirements of AASHTO M 148 Type 2.
b. White pigmented in color.
2. Colored Concrete
a. Conform to the requirements of AASHTO M 148 Type 2.
b. Transparent (no color).

2.4 SOURCE QUALITY CONTROL

A. Section 014000 - Quality Requirements: Requirements for testing, inspection, and analysis.

B. Testing: Comply with ACI 301.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for installation examination.

B. Verify that compacted subgrade is dry and ready to support paving and imposed loads.

C. Verify that gradients and elevations of subgrade are as indicated on Drawings.

D. Verify reinforcing placement for proper size, spacing, location, and support.

3.2 PREPARATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for installation preparation.

B. Moisten substrate to minimize absorption of water from fresh concrete.

C. Notify Engineer minimum 24 hours prior to commencement of concreting operations.

3.3 INSTALLATION

A. Subgrade:

1. As specified in Section 321123 - Aggregate Base Courses.

B. Forms:

1. Place and secure forms and screeds to correct location, dimension, profile, and gradient.
2. Assemble formwork to permit easy stripping and dismantling without damaging concrete.
3. Clean forms and coat with form oil or wet each time before concrete is placed.
4. Sidewalk ramps to be 6 inches thick for a minimum of five feet from existing curb.

C. Reinforcement:

1. Place reinforcing as indicated on Drawings.
2. Sidewalk ramps to be tied to existing curb and gutter with No. 4 x 12” epoxy coated rebar placed mid depth at 18 inches on center.

D. Placing Concrete:

1. Place all concrete using formwork unless mechanical paver is used.
2. Rough finish concrete with mechanically vibrated screed assembly.
3. Use hand vibrators next to forms to prevent voids or honeycomb surfaces.

E. Joints:

1. Sidewalk
    a. Construct contraction joints as to divide the sidewalk into square slabs.
        1) Maximum horizontal dimension of 6 feet.
        2) Tooling of contraction joints 4 foot in length is permitted. Saw cut anything longer.
    b. Place expansion joints in sidewalk at 250-foot intervals, driveway edges, at every property corner and along existing curb abutting the sidewalk
        1) Place greased 3/8-inch smooth bar at mid-depth 6 inches in from each sidewalk edge through the expansion joint.
2. Driveway
    a. Space transvers joints evenly between the crossing plate and the curb
        1) Do not exceed 8 foot spacing.
    b. Space driveway longitudinal joints evenly across the driveway
        1) Do not exceed 12 foot spacing
3. Medians
    a. Construct contraction joints as to align with curb or adjacent slab joints.
        1) Tooling of contraction joints 4 foot in length is permitted. Saw cut anything longer.
    b. Place expansion joints between adjacent curb and decorative concrete median.

1) Hot pour sealant on expansion joint.

F. Finishing:

1. Provide a light broom finish.
2. Texture Direction: Transverse to paving direction.
3. Ramps: Broom perpendicular to slope.
4. Place curing compound on exposed concrete surfaces immediately after finishing.
5. Edges and Joints:

a. Edger Radius: 1/2 inch.
b. Spalled Corners and Edges: Clean and fill with mortar mixture and finish.

G. Curing

1. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
2. Maintain concrete with minimal moisture loss at relatively constant temperature for period. necessary for hydration of cement and hardening of concrete.
3. Spray all finished surfaces with curing compound.
   a. Apply curing compound with mechanically pressurized sprayer.
4. Cure for 72 hours minimum

H. Impressioned Concrete

1. Reinforce as indicated in the Drawings.
2. Follow normal procedures for sidewalk.
   a. Do not trowel surface more than once.
3. Use roller/stamp to obtain specified pattern.
   a. Ensure pattern is accurately aligned.
   b. Ensure uniform depth of 5/16 inch.
4. Saw joints to match joints in abutting concrete or as directed by Engineer.
5. Sandblast any colored concrete from roadway and/or curb and gutter surfaces.

I. Backfilling:

1. After curing, backfill against sides of the sidewalk and driveways to the top of concrete.
2. Slope fill to existing grade at maximum 1:4.

J. Accessible Sidewalks

1. Install all sidewalks and ramps in accordance with PROWAG standards.

3.4 TOLERANCES

A. Section 014000 - Quality Requirements: Requirements for tolerances.

B. Maximum Variation of Surface Flatness: 1/2 inch in 10 feet.

C. Maximum Variation from True Position: 1/2 inch.

D. Line and Grade for Forms: 1/8 inch in any 10-foot long section.

E. Raveling per Section 321313 – Concrete Paving

F. Pop Out Tolerances per Section 321313 – Concrete Paving

G. Running slope and cross slope of all sidewalks or ramps to not exceed the maximums allowed by PROWAG.

3.5 FIELD QUALITY CONTROL

A. Section 014000 - Quality Requirements: Requirements for inspecting testing.

B. Perform field inspection and testing according to ACI 301.

C. Inspect reinforcing placement for size, spacing, location, support.

D. Testing firm will take cylinders and perform slump and air entrainment tests according to ACI 301.

E. Strength Test Samples:

1. Sampling Procedures: ASTM C172.
2. Cylinder Molding and Curing Procedures: ASTM C31, cylinder specimens, standard cured.
3. Sample concrete and make one set of four cylinders once per day or at the discretion of the Engineer.
4. Make one additional cylinder during cold weather concreting, and field cure.

F. Field Testing:

1. Slump Test Method: ASTM C143.
2. Air Content Test Method: ASTM C173.
3. Temperature Test Method: ASTM C1064.
4. Measure slump and temperature for each compressive strength concrete sample.
5. Measure air content in air entrained concrete for each compressive strength concrete sample.

G. Cylinder Compressive Strength Testing:

1. Test Method: ASTM C39.
2. Test Acceptance: Average compressive strength of three consecutive tests at or above 4,000 psi.
3. Test one cylinder at 7 days.
4. Test two cylinders at 28 days.
5. Retain one cylinder for 56 days for testing if the average 28-day breaks are below 4,000 psi.

H. Maintain records of placed concrete items. Record date, location of pour, quantity, air temperature, and test samples taken.

I. Rain Damaged Concrete:
   1. Remove and replace all rain damaged concrete at the direction of the Engineer.
   2. Contractor is responsible for all costs associated with the removal and replacement of concrete.

J. Non-compliant Sidewalks and Ramps
   1. Remove and replace all sidewalks and curb ramps that do not meet PROWAG requirements.

3.6 Contractor is responsible for all costs associated with the removal and replacement of concrete.PROTECTION

A. Section 017000 - Execution and Closeout Requirements: Requirements for protecting finished Work.

B. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, rain and flowing water, and mechanical injury.

C. Do not permit pedestrian traffic over paving for minimum 24 hours after finishing and driveways for a minimum 7 days.

D. Damaged Concrete:

   1. Remove and reconstruct concrete that has been damaged for entire length between scheduled joints.
   2. Refinishing damaged portion is not acceptable.
   3. Dispose of damaged portions.
   4. Work completed at Contractor’s expense.

END OF SECTION 321623

SECTION 321723 - PAVEMENT MARKINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Traffic lines and markings.
2. Messages.
3. Paint.
4. Glass beads.

B. Related Requirements:

1. Section 321216 - Asphalt Paving: Asphalt paving for roads, parking areas, and sidewalks.
2. Section 321313 - Concrete Paving: Concrete paving for roads, parking areas, and sidewalks.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Section 012000 - Price and Payment Procedures: Contract Sum/Price modification procedures.

B. Traffic Lines and Markings:

1. Basis of Measurement: By linear foot.
2. Basis of Payment: Includes furnishing, installing, and inspecting.

C. Messages:

1. Basis of Measurement: By square foot.
2. Basis of Payment: Includes furnishing, installing, and inspecting.

1.3 REFERENCE STANDARDS

A. American Association of State Highway and Transportation Officials:

1. AASHTO M247 - Standard Specification for Glass Beads Used in Pavement Markings.

B. ASTM International:
1. ASTM D1213 – Standard Test Method for Crushing Resistance of Glass Spheres
2. ASTM D4541 – Standard Test Method for Pull-Off Strength of Coatings Using Portable Adhesion Testers.

1.4 SUBMITTALS

A. Section 013300 - Submittal Procedures: Requirements for submittals.

B. Product Data: Submit paint formulation for each type of paint.

C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

D. Provide proof of employee’s manufacturer certification ID Card or Certification paper upon request.

E. Test and Evaluation Reports: Indicate source and acceptance test results according to AASHTO M247.

F. Manufacturer Instructions:

1. Submit instructions for application temperatures, eradication requirements, application rate, line thickness, type of glass beads, and bead embedment and application rate.
2. Submit detailed instructions on installation requirements, including storage and handling procedures.

G. Qualifications Statements:

1. Submit qualifications for manufacturer and applicator.
2. Submit manufacturer's approval of applicator.

1.5 QUALITY ASSURANCE

A. Perform Work according to Section 762 of the North Dakota Department of Transportation Standard Specifications for Road and Bridge Construction.

1.6 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years' documented experience.

B. Applicator: Company specializing in performing Work of this Section with minimum three years' documented experience and provide a crew of which 50% are trained and “certified” by the manufacture.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Section 016000 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.

B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.

C. Protection:

1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
2. Provide additional protection according to manufacturer instructions.

1.8 AMBIENT CONDITIONS

A. Section 015000 - Temporary Facilities and Controls: Requirements for ambient condition control facilities for product storage and installation.

B. Do not apply materials if surface and ambient temperatures are outside temperature ranges required by paint product manufacturer.

C. Do not apply exterior coatings during rain or snow if relative humidity is outside range required by paint manufacturer, or if moisture content of surfaces exceeds that required by paint manufacturer.

D. Minimum Conditions: Do not apply paint if temperatures are expected to fall below 50 ^F within 24 hours after application.

E. Thermoplastic Compound: Do not apply unless pavement surface temperature is minimum 40 ^F and rising.

F. Maximum VOCs: Do not exceed limit required by State or Environmental Protection Agency.

1.9 WARRANTY

A. Section 017000 - Execution and Closeout Requirements: Requirements for warranties.

PART 2 - PRODUCTS

2.1 PAINTED PAVEMENT MARKINGS

A. Furnish materials according to Section 880 of the North Dakota Department of Transportations Standard Specifications for Road and Bridge Construction.

2.2 DURABLE METHACRYLATE MARKINGKS

A. Binders – 100% methacrylate reactive resin. Blends with other resins or liquid vehicles are not permitted.

B. Markings – Plural-component, liquid applied methacrylate material installed using equipment capable of producing and agglomerate pattern or extruding markings to full depth of groove. Include intermix beads in marking.
   1. Performance Criteria

Property	**Value**
Extrude Marking Thickness	Minimum 60 to a maximum 120 mils as specified
Spray Marking Thickness	Minimum 30 to maximum 120 mils as specified
Cure Time	Tack-free within 10-45 minutes
VOC Emissions	Less than 150 g/l
Adhesion	Minimum 250 psi or pavement failure
Shore Hardness	Minimum 50D after 24 hours
Dry Retroreflectivity	Initial* minimum 300 mcd/lx/m2 white Initial* minimum 200 mcd/lx/m2 yellow
Skid Resistance	Initial* minimum 45
Chemical Resistance	Resistant to calcium, chloride, sodium chloride, fuels, oils, and UV effects.

* Defined as 3-14 days after placement

C. Auxiliaries
   1. Primer - Plural-component, 100% reactive methacrylate resin.
   2. Hardener – 50% dibenzoyl peroxide powder or 40% liquid dispersion.
   3. Glass Beads
      a. Transparent, clean, dry, free-flowing, free from air inclusions and foreign matter including carbon residues.
      b. Bead size in accordance with Manufacturer's recommendation.
      c. Produced as a result of directly spherodizing glass from a molten glass tank. Any component of the batch process utilizing recycled glass should be sourced from North American waste streams.
      d. Methacrylate compatible silane coupling agent. Other silanes, moisture proof or floating coatings are not permitted.
      e. Bead refractive index of 1.5 or higher as required to meet the minimum retroreflectivicty levels for the prescribed period.
      f. The crush strength should be a minimum 30,000 psi when tested according to ASTM Method D 1213-54
      g. Particle-2, AASHTO M247 Type 1 bead or as approved by the Engineer and binder manufacturer.
      h. Apply beads at a rate of .066 lbs. per 100 square feet for Particle-1 and 6lbs. per 100 square feet for Particle-2

2.3 APPLICATION EQUIPMENT

A. Paint Application.

   1. Use a self-propelled, pneumatic or airless spraying machine with atomizing nozzles or airless nozzles capable of applying two 4 inch to 8 inch wide lines at one time. Equip the spray mechanism with quick opening and closing valves. Use equipment capable of

applying the materials at the specified rate and in an even and uniform thickness with clearly defined edges.

2. Use an applicator with reservoirs equipped with agitators that keep the material in a smooth, even mixture. Equip the applicator with an automatic skip control device that applies a stripe of specified length with a linear tolerance of 3 inches. Equip the applicator with a guide boom and make the applicator capable of retracing and applying materials to traffic markings in place.

3. Use hand operated equipment to place the pavement markings and reflectorized spheres on areas not accessible to the pavement marking applicator.

B. Bead Application.

1. Equip the machine with a dispenser adjusted and synchronized with the paint applicator to distribute the glass beads uniformly on the painted lines using air pressure. Equip the bead dispenser with an automatic cutoff control, synchronized with the cutoff of the striping material.

C. Grooving Equipment.

1. Use grooving equipment that has the following characteristics:
   a. Equipped with diamond blades mounted on a self propelled machine designed for grinding a recess into the pavement surface;
   b. Equipped with a dust collection system capable of removing and containing airborne emissions incurred during grooving operations;
   c. Use mounted diamond blades on a floating head with controls capable of providing uniform depth and alignment; and
   d. Capable of grooving a total width sufficient to install 8 inch wide pavement markings in a single pass.
2. Do not use equipment that causes strain or damage to the underlying surface of the pavement.

PART 3 - EXECUTION

3.1 PREPARATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for application preparation.

B. Do not apply paint to concrete surfaces until concrete has achieved 100% of its design strength.

C. Surface Preparation.

1. Clean and dry paved surfaces prior to painting.
2. Blow or sweep surface free of dirt, debris, oil, grease, or gasoline.
3. Spot location of final pavement markings, as specified and as indicated on Drawings.

3.2 REMOVAL METHODS FOR EXISTING MARKINGS

A. Obliterate Pavement Markings
   1. This item is used for the removal of existing markings in areas where the marking that is being removed will not be replaced with a new marking. Method of removal must be approved by Engineer before any removal can be done. Demonstrate removal method to Engineer in the field prior to commencement of Work.

B. Asphalt Overlay Removal
   1. Remove all existing durable methacrylate markings on asphalt overlay project that will not have the surface milled prior to installation of the overlay. Include this cost in the price bid for installing epoxy and durable methacrylate markings.

C. Existing Tape and Epoxy
   1. Remove any existing tape or epoxy that is to be replaced before grooving or laying new tape in the groove. Include this cost in the price bid for preformed patterned pavement marking.

D. Tape Replaced by Epoxy
   1. Remove any existing tape that is to be replaced with epoxy prior to installing epoxy. Include the work in the price bid for epoxy pavement markings.

E. Repair pavement or surface damage caused by removal methods.

3.3 GROOVED PAVEMENT MARKINGS

A. General.
   1. For messages, groove the same area as the messages, Do not groove a rectangular area to contain the message.
   2. After grinding, blow the grooved slot clean with high pressure compressed air to remove any residual and loose material before the installation of the pavement marking. Wet-grinding, is not permitted.

B. Grooves for Preformed Patterned Pavement Marking Film.
   1. If specified in the plan, groove a recess into the pavement surface for each stripe that meets the tolerances in the table below.

Parameter	Tolerance
Depth	90 to 110 mils
Smoothness	Ridges, within the groove, shall be no more than 6 mils higher than either adjacent valley
Width	Line width plus ½ inch
Length	Line length plus 3 inches per end of line
Line End Tapers	3 inches

   2. If pavement marking installation does not occur within 24 hours of grinding and rain or traffic is allowed on cut areas prior to blowing, sandblast the groove, and install the pavement markings the same day the sandblasting occurs.

C. Grooves for Epoxy Paint.

1. If specified in the plans, groove a recess into the pavement surface for each stripe that meets the tolerances specified in the table below.

Parameter	**Tolerance**
Depth	45 to 55 mils
Smoothness	Ridges, within the groove, shall be no more than 6 mils higher than either adjacent valley
Width	Minimum line width plus 1 inch
Length	Line length plus 3 inches per end of line
Line End Tapers	3 inches

2. After creating the groove, prepare the surface in accordance with the manufacturer's instruction.

D. Grooves for Durable Methacrylate.

1. If specified in the plan, groove a recess into the pavement surface for each stripe that meets the tolerances in the table below.

Parameter	**Tolerance**
Depth	120 mils
Smoothness	Ridges, within the groove, shall be no more than 6 mils higher than either adjacent valley
Width	Maximum line width plus 1 inch
Length	Line length plus 3 inches per end of line
Line End Tapers	3 inches

3.4 PREFORMED PAVEMENT MARKING FILM

A. Apply materials per manufacturers recommendations

3.5 EPOXY

A. General.

1. Apply pavement marking paint and glass beads by machine. Use hand application where machine application is not feasible.
2. Apply the epoxy pavement marking material at a thickness of 20 mils. Calculate thickness without drop on glass beads.
3. Apply glass beads immediately after the placement of the epoxy. Use a dispenser system that delivers at least 25 pounds of beads per gallon of epoxy material.
4. If application rates are not within the requirements, stop the marking application until corrections are made.
5. Do not apply material over a longitudinal joint.
6. Do not apply markings if the wind or other conditions cause a film of dust to be deposited on the pavement surface before the material can be applied.
7. If short term paint was applied, epoxy pavement markings may be placed directly over the short term paint.

8. Place epoxy material after bituminous material has been in place for a minimum of 7 days.

B. Retroreflectivity.
1. Place epoxy pavement markings so that the initial retroreflectivity values of the markings are at or above those shown in the Table below. The initial retroreflectivity values are those obtained at least 2 weeks after the placement of markings.

Retroreflectivity Values (mcd/mÔ/lux)	
White	Yellow
275	180

3.6 DURABLE METHACRYLATE MARKINGS

A. Extruded Methacrylate Marking.
1. Apply using walk-behind stripers, masking off area and pouring the material in the groove.
2. Spread the material out with a metal concrete rake or automatic extrusion equipment.

B. Spray Methacrylate Marking.
1. Markings do not require intermix beads.
2. When required, spray markings will also serve as an underlayment.
3. Spray markings must get approval by the Engineer in the field prior to being used.

3.7 TOLERANCES

A. Section 014000 - Quality Requirements: Requirements for tolerances.

B. Maximum Variation from Wet Film Thickness: -0/+10 mils.

C. Maximum Variation from Wet Paint Line Width: Plus or minus 1/4 inch.

D. Cycle Length Timer: Plus or minus 6 inches in a 40 foot cycle.

E. Paint Line-Length: Plus or minus 3 inch from specified length.

F. Maximum Variation from Alignment: 2 inches.

3.8 FIELD QUALITY CONTROL

A. Section 017000 - Execution and Closeout Requirements: Requirements for testing, adjusting, and balancing.

B. Request acceptance of surface preparation and groove from the project Engineer prior to application of Markings.

C. If required by the Engineer in the field or manufacturer due to failure bond without visual evidence, Bond tests will be conducted by an independent testing company and paid for by the City of West Fargo to judge the suitability of new concrete pavements. Markings will be applied and allowed to cure,and tested for adhesion in accordance with ASTM D4541. Bond strengths of less than 250 psi without pavements failure will result in the use of a primer prior to application of Markings. Primers will not be required on asphalt pavements.

D. Inspect for incorrect location, insufficient thickness, line width, coverage, retention, uncured or discolored material, and insufficient bonding.

E. A manufacturer's representative may be requested by the project Engineer for assistance during the commencement phase of the project. The representative will confer with the Contractor and project Engineer to ensure that Markings are being installed in accordance with the recommended procedure.

F. Acceptance:

1. Repair lines and markings which after application and curing do not meet following criteria:

a. Incorrect location.
b. Insufficient thickness, width, coverage, or retention.
c. Uncured or discolored material.
d. Insufficient bonding.

3.9 CLEANING

A. Section 017000 - Execution and Closeout Requirements: Requirements for cleaning.

B. Collect and legally dispose of residues from painting operations.

3.10 PROTECTION

A. Section 017000 - Execution and Closeout Requirements: Requirements for protecting finished Work.

B. Protect painted pavement markings from vehicular and pedestrian traffic until paint is dry and track free.

C. Unless material is track free at end of paint application convoy, use traffic cones to protect markings from traffic until track free.

D. If vehicle crosses a marking and tracks it, or if splattering or overspray occurs, eradicate affected marking and resultant tracking and apply new markings.

E. Follow manufacturer instructions or use minimum of 30 minutes of dry time.

F. Barrier cones are satisfactory protection for materials being dried.

END OF SECTION 321723

SECTION 329219 - SEEDING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Fertilizing.
2. Seeding.
3. Hydroseeding.
4. Mulching.
5. Water.
6. Turf Establishment.
7. Maintenance.

B. Related Sections:

1. Section 312316.13 - Trenching: Rough grading over cut.
2. Section 320513 - Soils for Exterior Improvements: Topsoil material.
3. Section 329300 - Plants.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Seeding:

1. Basis of Measurement: By square yard or acre.
2. Basis of Payment: Includes all costs for labor, equipment, and materials to complete work as specified per the following schedule:
   a. 50% when seeding is completed.
   b. 100% when seeding is established.

B. Hydraulic Mulch:
1. Basis of Measurement: By square yard or acre.
2. Basis of Payment: Includes all costs for labor, equipment, and materials to complete work as specified.

C. Straw Mulch:
1. Basis of Measurement: By square yard or acre.
2. Basis of Payment: Includes all costs for labor, equipment, and materials to complete work as specified.

D. Water:
1. Basis of Measurement: By M Gal.
2. Basis of Payment: Include all costs for labor, equipment, and water.
3. Basis of Estimate: 5.6 Gal/SY/Week Assuming 8 weeks.

E. Turf Establishment:
   1. Basis of Measurement: By lump sum.
   2. Basis of Payment: Includes all costs for labor, equipment, and materials to complete the Work as specified.

F. Herbicide Weed Control:
   1. Basis of Payment: By the square yard or acre.
   2. Basis of Payment: Includes all costs for labor, equipment, and materials to complete the Work as specified.

G. ASTM International:

   1. ASTM C602 - Standard Specification for Agricultural Liming Materials.

1.3 DEFINITIONS

A. Weeds: Vegetative species other than specified species to be established in given area.

1.4 SUBMITTALS

A. Section 013300 - Submittal Procedures: Requirements for submittals.

B. Product Data: Submit data for seed mix, fertilizer, mulch, and other accessories.

C. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.

D. Herbicide Reports – Submitted on a weekly basis.

E. Water Reports – Submitted on weekly basis.

1.5 CLOSEOUT SUBMITTALS

A. Section 017000 - Execution and Closeout Requirements: Requirements for submittals.

1.6 QUALITY ASSURANCE

A. Provide seed mixture in containers showing percentage of seed mix, germination percentage, inert matter percentage, weed percentage, year of production, net weight, date of packaging, and location of packaging.

B. Perform Work according to State of North Dakota Standard Specifications for Road and Bridge Construction, Section 251.

1.7 QUALIFICATIONS

A. Seed Supplier: Company specializing in manufacturing Products specified in this section with minimum three years documented experience.

B. Installer: Company specializing in performing work of this section with minimum three years documented experience.

C. Herbicide Applicator: Individual who has been trained regarding the product and application method, and meets any federal, state, and local laws and regulations. This individual is required to hold a certified applicators license or be under the direct supervision of a certified applicator. Supervisors of qualified applicators are required to hold a certified applicators license in the State of North Dakota.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Section 016000 - Product Requirements: Product storage and handling requirements.

B. Deliver grass seed mixture in sealed containers. Seed in damaged packaging is not acceptable.

C. Deliver fertilizer in waterproof bags showing weight, chemical analysis, and name of manufacturer.

1.9 MAINTENANCE SERVICE

A. Section 017000 - Execution and Closeout Requirements: Requirements for maintenance service.

B. Maintain seeded areas immediately after placement until grass is well established and exhibits vigorous growing condition.

PART 2 - PRODUCTS

2.1 SEED MIXTURE

*Seeding performed before June 15th may require the addition of 10 lbs. of Oats per acre. Seeding performed after August 15th may require the addition of 10 lbs. of Rye or Winter Wheat per acre. These items are to be added at the discretion of the engineer and shall be incidental to the cost of the work.

A. Description:
1. Sunny Mix

Species	Pounds Live Seed/Acre
Kentucky Bluegrass	120
Fine Lead Perennial Ryegrass	60
Creeping Red Fescue	20

	200

2. Shade Mix

Species	Pounds Live Seed/Acre
Kentucky Bluegrass	70
Fine Lead Perennial Ryegrass	60
Creeping Red Fescue	70
	200

3. Low Maintenance Mix (Only where noted on plans)

Species	Pounds Live Seed/Acre
Kentucky Bluegrass	80
Ephraim Crested Wheatgrass	40
Fairway Crested Wheatgrass	40
Perennial Ryegrass	40
	200

2.2 ACCESSORIES

A. Mulch Material Type 2 (Straw Mulch):
   1. Threshed stalks of native oats, wheat, barely or rye.
   2. Free of weeds.
   3. At least 50% by weight 10 inches or more in length.

B. Hydraulic Mulching Material:
   1. Virgin wood fiber for use in hydraulic planting.
   2. Cooked cellulose fiber that disperses readily in water and has no toxic effect when combined with seed.
   3. Treated with a tackifier to enhance placement and adherence to soil.
   4. Green in color.
   5. Equilibrium air-dried moisture content of 12% plus or minus 3% at the time of manufacturing.
   6. pH range of 3.5 to 5.0.
   7. No sawdust or byproduct mulch.

C. Fertilizer: Commercial grade; recommended for grass; of proportion necessary to eliminate deficiencies of topsoil, to the following proportions: Nitrogen 19 percent, phosphoric acid 19 percent, soluble potash 20 percent.

D. Water: Clean, fresh and free of substances or matter capable of inhibiting vigorous growth of grass.

E. Herbicide:
   1. Type A – Non-Selective Herbicide: Round-up, glyphosate, or Approved Equal.
   2. Type B – Selective Herbicide: Trimec, 2,4-D, or approved equal.

F. Stakes: Softwood lumber, chisel pointed.

G. String: Inorganic fiber.

2.3 SOURCE QUALITY CONTROL

A. Section 014000 - Quality Requirements: Testing, inspection and analysis requirements.

B. Testing is not required when recent tests and certificates are available for imported topsoil. Submit these test results to testing laboratory. Indicate, by test results, information necessary to determine suitability.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 013000 - Administrative Requirements: Verification of existing conditions before starting work.

B. Verify prepared soil base is ready to receive the Work of this section.

3.2 PREPARATION

A. Prior to or during grading and tillage operations, ensure the ground surface is raked and clear of all stumps, brush, sticks, stones larger than ½ inch in diameter, concrete chunks, rebar, wire or other material that may hinder seeding and maintenance operations. Dispose of any accumulated waste material.

B. Repair any damage from erosion or other causes that has occurred after the completion of grading and before the application of fertilizer.

C. Remove and dispose of any weeds from areas to be seeded.

D. Cultivate or disk the seed bed to a depth of 3-inches.

E. Utilize a harrow or cultipack to ensure seed bed is firm and the seed can be placed at the proper depth.

3.3 FERTILIZING

A. Apply fertilizer at the rate and to the depth specified immediately prior to seeding.

3.4 SEEDING

A. Seed Preparation.
   1. Clear all debris, rank vegetation, and other material that is detrimental to the preparation of the seed bed.
   2. Shape or blade to the plan’s cross section or to such cross section that best fits the existing conditions.

3. Disk, harrow, rake, or work by some other approved method into a reasonable smooth seed bed.

B. Seed Application.
1. Seed when the ground is open, not frozen or covered with snow, except as otherwise directed in writing by the Engineer.
2. Mechanically sow seed using approved equipment.
3. Check application rates periodically using approved methods.
4. Broadcast seeding.
   a. Only in areas where drill seeding equipment is unable to perform the work with a 20% increase to the application rate.
   b. Uniformly distribute with half the seed being sown in one direction and the other half being sown at right angles to the first half.
   c. Cover seed to an average depth of ½ inch by harrow or approved device.
   d. Broadcast seeding is not allowed during windy conditions.
5. Drill seeding.
   a. Utilize a force feed drill with a grass seed attachment which provides a uniform flow and depth of seed placement (1/4 to 1/2 inch), except that on slopes steeper than three to one or on areas to small to be seeded with a force feed drill, seed may be sown by power sprayer, blowers, or other approved methods.
   b. Calibrate grass drills to ensure proper seeding rates.
   c. Repack soil immediately after the seed is applied to firm the soil around the seed.
6. Hydroseeding.
   a. Allowed only when specified.
   b. Combine seed, water, and mulch and keep under constant agitation.
   c. Apply fertilizer, mulch and seeded slurry with hydraulic seeder at rate of 2000 lbs per acre evenly in one pass.

C. Planting Season:
1. Seed at such times in the year when the climatic conditions of temperature and moisture are most adaptable for growth and work of this nature.
2. It is preferred that seeding be accomplished before May 20 and after October 20 of each year.
3. Plant after October 20 when there is no chance of fall germination.
4. Plant early enough in the fall to allow at least forty days for seedlings to develop before they go dormant in the fall, preferably before September 10.
5. Planting between May 20 and September 10 will be allowed if adequate moisture can be provided.

3.5 MULCHING

A. Hydro Mulch.
1. Uniformly apply to cover the entire seedbed area up to 95%.
2. Ensure mulch permits percolation of water to the underlying soils.
3. Mix specified fiber mulch with fiber-mulch manufacturer’s recommended tackifier in water using equipment specifically designed for hydro mulch application.
4. Clean all fixtures, buildings, sidewalks, and other areas that may receive unwanted mulch spray.

B. Straw Mulch

1. Application.
    a. Place mulch at a rate of 2 tons per acre.
    b. Do not perform mulching operations when the sustained wind velocity is over 25 miles per hour.
    c. Avoid placing excessive cover that smothers seedlings.
2. Anchoring.
    a. Punching.
        1) Immediately following application, punch mulch into the soil using a puncher.
        2) Operate the tiller parallel to the contours of the ground.
        3) Push the mulch into the soil 3 inches, with the ends of the mulch exposed above the soil surface.
    b. Tackifier.
        1) Used tackifier on areas where slopes are steeper than 3:1.
        2) Apply the tackifier at the rate recommended by the manufacturer.
        3) If no manufacturer recommendations are available, apply at a rate between 175 and 275 pounds per acre by spraying with the mulch or immediately following the mulch application.
3. Maintenance.
    a. Repair or re-mulch damaged areas.

3.6 WATER

A. Immediately begin watering all seeded and mulched areas until Final Stabilization per ND Department of Health Construction General Permit NDR11-000.

B. Water only during morning hours.

C. Reduce water as necessary to account for rainfall during each week.

D. Provide the Engineer weekly reports of watering operations including
1. Dates,
2. Times,
3. Quantity of watering or rainfall amounts to indicate minimum moisture is being obtained.

3.7 WEED CONTROL

A. Use extreme caution when applying herbicides near water, adjacent to properties with plants that might be damaged, or other landscaped areas.

B. Remedy any damage resulting from improper use of herbicides.

C. Applicator is responsible for the purchase, storage, record keeping, and disposal of Herbicides.

D. Report all herbicide application weekly to the Engineer.

E. Type A – Non-Selective Herbicide.

1. Uniformly applied at the rate labeled by the manufacturer prior to soil preparation to reduce organic materials, to areas requested and designated by the Engineer to control unwanted vegetation.

F. Type B – Selective Herbicide.
1. Uniformly applied at the rate as labeled by the manufacturer after seed germination during turf establishment to reduce broad leaf weeds to areas requested and designated by the Engineer to control unwanted vegetation.

3.8 TURF ESTABLISHMENT

A. Turf establishment by a lump sum is for establishing permanent vegetation on small areas of 2 1/2 acres or less per Contract. Such Work includes soil bed preparation, fertilizer, mulch, rolled erosion prevention products, seed and repair of erosion rills of 3 inches or greater in width or depth.

B. Unless otherwise shown on the Plans, establish vegetation cover by seeding and mulching, and fertilizing.

C. The Engineer will accept the area after the perennial seed germinates, vegetation is at least 4 inches in height, and cover is uniform. If the seeding fails to germinate, correct, and reseed failed areas to establish turf.

3.9 SEED PROTECTION

A. Protect all seeded areas from traffic by placing warning signs or erecting barricades immediately after seeding is complete. Repair any damage that may occur prior to final acceptance by the Engineer at no additional cost.

B. Regrade, seed, and mulch erosion damaged areas.

C. When specified control the growth of weeds by applying herbicides in accordance with the manufacturer’s instructions.

3.10 MAINTENANCE

A. Seed.
1. Repair damage within the area caused by Contractor operations and within Contractor’s control at no expense to the Owner. Reseed areas where the original seed has failed to grow, as directed by the Engineer.

B. Mulch.
1. Re-mulch areas where the original mulch has eroded, washed away, or blown off, and reseed areas where the original seed has failed to grow, as directed by the Engineer. Use the same seed mixture used in the original seeding.

3.11 MOWING.

A. Mow seeded area when grass is 4 inches or taller.

B. Mow a minimum of 2 times before seeding is considered established.

END OF SECTION 329219

SECTION 329300.00 - PLANTS

PART 1 - GENERAL

1.1 SUMMARY

A. The scope of work includes all labor, materials, appliances, tools, equipment, facilities, transportation and services necessary for, and incidental to performing all operations in connection with furnishing, delivery, and installation of plants (also known as "trees") complete as shown on the drawings and as specified herein.

B. The scope of work in this section includes, but is not limited to, the following:

1. Locate, purchase, deliver and install all specified plants.
2. Water all specified plants.
3. Mulch, fertilize, stake, and prune all specified plants.
4. Maintenance of all specified plants until the end of the warranty period.
5. Plant warranty shall be 2 years
6. Clean up and disposal of all excess and surplus material.
7. Maintenance of all specified plants during the warranty period.

1.2 MEASUREMENT AND PAYMENT

A. Section 012000 - Price and Payment Procedures: Contract Sum/Price modification procedures.

B. Tree plantings:

1. Basis of Measurement: By each.
2. Basis of Payment: Includes all work and necessary materials in accordance with this section.

C. Tree Remove & Reset

1. Basis of Measurement: By each.
2. Basis of Payment: Includes all work to safely remove a tree, through spading or hand digging, and replanting the tree. Provide a tree warranty in accordance with this Specification.

1.3 CONTRACT DOCUMENTS

A. Shall consist of specifications and general conditions and the construction drawings. The intent of these documents is to include all labor, materials, and services necessary for the proper execution of the work. The documents are to be considered as one. Whatever is called for by any parts shall be as binding as if called for in all parts.

1.4 VERIFICATION

A. All scaled dimensions on the drawings are approximate. Before proceeding with any work, the Contractor shall carefully check and verify all dimensions and quantities, and shall immediately inform the City of West Fargo of any discrepancies between the information on the drawings and the actual conditions, refraining from doing any work in said areas until given approval to do so by the City of West Fargo.

1.5 PERMITS AND REGULATIONS

A. The Contractor shall obtain and pay for all permits related to this section of the work unless previously excluded under provision of the contract or general conditions. The Contractor shall comply with all laws and ordinances bearing on the operation or conduct of the work as drawn and specified. If the Contractor observes that a conflict exists between permit requirements and the work outlined in the contract documents, the Contractor shall promptly notify the City of West Fargo in writing including a description of any necessary changes and changes to the contract price resulting from changes in the work.

B. Wherever references are made to standards or codes in accordance with which work is to be performed or tested, the edition or revision of the standards and codes current on the effective date of this contract shall apply, unless otherwise expressly set forth.

C. In case of conflict among any referenced standards or codes or between any referenced standards and codes and the specifications, the more restrictive standard shall apply or the City of West Fargo shall determine which shall govern.

1.6 PROTECTION OF WORK, PROPERTY AND PERSON

A. The Contractor shall adequately protect the work, adjacent property, and the public, and shall be responsible for any damages or injury due to his/her actions.

1.7 CHANGES IN THE WORK

A. The City of West Fargo may order changes in the work, and the contract sum should be adjusted accordingly. All such orders and adjustments plus claims by the Contractor for extra compensation must be made and approved in writing before executing the work involved.

B. All changes in the work, notifications and contractor’s request for information (RFI) shall conform to the contract general condition requirements.

1.8 CORRECTION OF WORK

A. The Contractor, at their own cost, shall re-execute any work that fails to conform to the requirements of the contract and shall remedy defects due to faulty materials or workmanship upon written notice from the City of West Fargo, at the soonest as possible time that can be coordinated with other work and seasonal weather demands**.**

1.9 DEFINITIONS

All terms in this specification shall be as defined in the “Glossary of Arboricultural Terms” or as modified below.

A. Container plant: Plants that are grown in and/or are currently in a container.

B. Defective plant: Any plant that fails to meet the plant quality requirement of this

specification.

C. End of Warranty Final Acceptance: The date when the City of West Fargo accepts that the plants and work in this section meet all the requirements of the warranty.

D. Healthy: Plants that are growing in a condition that expresses leaf size, crown density, color; and with annual growth rates typical of the species and cultivar's horticultural description, adjusted for the planting site soil, drainage and weather conditions.

E. Maintenance: Actions that preserve the health of plants after installation and as defined in this specification.

F. Maintenance period: The time period, as defined in this specification, which the Contractor is to provide maintenance.

G. Normal: the prevailing protocol of industry standard(s).

H. City of West Fargo: The person appointed by the City to represent their interest in the review and approval of the work and to serve as the contracting authority with the Contractor. The City of West Fargo may appoint other persons to review and approve any aspects of the work.

I. Reasonable and reasonably: When used in this specification relative to plant quality, it is intended to mean that the conditions cited will not affect the establishment or long term stability, health or growth of the plant. This specification recognizes that it is not possible to produce plants free of all defects, but that some accepted industry protocols and standards result in plants unacceptable to this project.

   This specification recognizes that some decisions cannot be totally based on measured findings and that professional judgment is required. In cases of differing opinion, the City of West Fargo's forester shall determine when conditions are judged as reasonable.

J. Root ball: The mass of roots including any soil or substrate that is shipped with the tree within the root ball package.

K. Root ball package. The material that surrounds the root ball during shipping. The root package may include the material in which the plant was grown, or new packaging placed around the root ball for shipping.

L. Root collar (root crown, root flare, trunk flare, flare): The region at the base of the trunk where the majority of the structural roots join the plant stem, usually at or near ground level.

M. Spade harvested and transplanted: Field grown trees that are mechanically harvested and immediately transplanted to the final growing site without being removed from the digging machine.

N. Stem: The trunk of the tree.

O. Substantial Completion Acceptance: The date at the end of the Planting installation where the City of West Fargo accepts that all work in these sections is complete and the Warranty period has begun. This date may be different than the date of substantial completion for the other sections of the project.

P. Stem girdling root: Any root more than ¼ inch diameter currently touching the trunk, or with the potential to touch the trunk, above the root collar approximately tangent to the trunk circumference or circling the trunk. Roots shall be considered as Stem Girdling that have, or are likely to have in the future, root to trunk bark contact.

Q. Structural root: One of the largest roots emerging from the root collar.

R. Tree: a woody perennial plant, typically having a single stem or trunk growing to a considerable height and bearing lateral branches at some distance from the ground.

S. Topsoil: Topsoil is the upper, outermost layer of soil, usually the top 5-10 inches. Topsoil is composed of mineral particles, organic matter, water and air. Topsoil shall be free of construction materials such as bedding rock, concrete, or any other materials found in common practice to be deleterious to proper growth of plantings.

1.10 SUBMITTALS

A. See contract general conditions for policy and procedure related to submittals.

B. Plant sources: Submit sources of all plants as required by Article – "Selection of Plants" to the City of West Fargo for approval.

C. Close out submittals: Submit to the City of West Fargo for approval.

1. Plant maintenance data and requirements.

1.11 OBSERVATION OF THE WORK

A. The City of West Fargo may observe the work at any time. They may remove samples of materials for conformity to specifications. Rejected materials shall be immediately removed from the site and replaced at the Contractor's expense. The cost of testing materials not meeting specifications shall be paid by the Contractor.

B. The City of West Fargo shall be informed of the progress of the work so the work may be observed at the following key times in the construction process. The City of West Fargo shall be afforded sufficient time to schedule visit to the site. Failure of the City of West Fargo to make field observations shall not relieve the Contractor from meeting all the requirements of this specification.

1. SITE CONDITIONS PRIOR TO THE START OF PLANTING: review the soil and drainage conditions.

2. COMPLETION OF THE PLANT LAYOUT STAKING: Review of the plant layout.

3. PLANT QUALITY: Review of plant quality at the time of delivery and prior to installation. Review tree quality prior to unloading where possible, but in all cases prior to planting.

4. COMPLETION OF THE PLANTING: Review the completed planting.

1.12 PRE-CONSTRUCTION CONFERENCE

A. Schedule a pre-construction meeting with the City of West Fargo at least seven (7) days before beginning work to review any questions the Contractor may have regarding the work, administrative procedures during construction and project work schedule.

1.13 QUALITY ASSURANCE

A. Substantial Completion Acceptance - Acceptance of the work prior to the start of the warranty period:

1. Once the Contractor completes the installation of all items in this section, the City of

West Fargo will observe all work for Substantial Completion Acceptance.

2. Substantial Completion Acceptance by the City of West Fargo shall be for general conformance to specified size, character and quality and not relieve the Contractor of responsibility for full conformance to the contract documents, including correct species.

3. Any plants that are deemed defective as defined under the provisions below shall not be accepted.

B. The City of West Fargo will provide the Contractor with written acknowledgment of the date of Substantial Completion Acceptance and the beginning of the warranty period and plant maintenance period.

C. Contractor's Quality Assurance Responsibilities: The Contractor is solely responsible for quality control of the work.

D. Installer Qualifications: The installer shall be a firm having at least 3 years of successful experience of a scope similar to that required for the work, including the handling and planting of large specimen trees in urban areas. The same firm shall install plant material.

1. The bidders list for work under this section shall be approved by the City of West Fargo.

2. Installer Field Supervision: When any planting work is in progress, installer shall maintain, on site, a full-time supervisor.

3. Installer's field supervisor shall have a minimum of three years' experience as a field supervisor installing plants and trees of the quality and scale of the proposed project.

4. The installer's crew shall have a minimum of 3 years experienced in the installation of plantings, planting plans and maintenance plans.

5. Submit references of past projects, employee training certifications that support that the Contractors meets all of the above installer qualifications and applicable licensures.

1.14 PLANT WARRANTY

A. Plant Warranty:

1. The Contractor agrees to replace defective work and defective plants. The City of West Fargo shall make the final determination if plants meet these specifications or that plants are defective.

   Plants warranty shall begin on the date of Substantial Completion Acceptance and continue for the following periods, classed by plant type:
   a. Trees – 2 Year(s).

2. When the work is accepted in parts, the warranty periods shall extend from each of the partial Substantial Completion Acceptances to the terminal date of the last warranty period. Thus, all warranty periods for each class of plant warranty, shall terminate at one time.

3. All plants shall be warrantied to meet all the requirements for plant quality at installation in this specification. Defective plants shall be defined as plants not meeting these requirements. The City of West Fargo shall make the final determination that plants are defective.

4. Plants determined to be defective shall be removed immediately upon notification by the City of West Fargo and replaced without cost to the Owner, as soon as weather

conditions permit and within the specified planting period.

5. Any work required by this specification or the City of West Fargo during the progress of the work, to correct plant defects including the removal of roots or branches, or planting plants that have been bare rooted during installation to observe for or correct root defects shall not be considered as grounds to void any conditions of the warranty. In the event that the Contractor decides that such remediation work may compromise the future health of the plant, the plant or plants in question shall be rejected and replaced with plants that do not contain defects that require remediation or correction.
6. The Contractor is exempt from replacing plants, after Substantial Completion Acceptance and during the warranty period, that are removed by others, lost or damaged due to occupancy of project, lost or damaged by a third party, vandalism, or any natural disaster.
7. Replacements shall closely match adjacent specimens of the same species. Replacements shall be subject to all requirements stated in this specification. Make all necessary repairs due to plant replacements. Such repairs shall be done at no extra cost to the City of West Fargo.

B. End of Warranty Final Acceptance - Acceptance of plants at the end of the warranty period.

1. At the end of the warranty period, the City of West Fargo shall observe all warranted work, upon written request of the Contractor.
2. End of Warranty Final Acceptance will be given only when all the requirements of the work under this specification and in specification sections Planting Soil and Irrigation have been met.

1.15 SELECTION AND OBSERVATION OF PLANTS

A. All boulevard trees within City rights of ways to meet the current Boulevard Tree List as provided on the City of West Fargo Forestry Department website.

B. The City of West Fargo may review all plants subject to approval of size, health, quality, character, etc. Review or approval of any plant during the process of selection, delivery, installation and establishment period shall not prevent that plant from later rejection in the event that the plant quality changes or previously existing defects become apparent that were not observed.

C. Plant Selection: The City of West Fargo reserves the right to reject plants that do not meet specifications as set forth in this specification. If a particular defect or substandard element can be corrected, the agreed upon remedy may be applied by the Contractor provided that the correction allows the plant to meet the requirements set forth in this specification. Any work to correct plant defects shall be at the contractor’s expense.
   1. The City of West Fargo may make invasive observation of the plant’s root system in the area of the root collar and the top of the root ball in general in order to determine that the plant meets the quality requirements for depth of the root collar and presence of roots above the root collar. Such observations will not harm the plant.

D. The Contractor shall bear all cost related to plant corrections.

E. All plants that are rejected shall be immediately removed from the site and acceptable replacement plants provided at no cost to the Owner.

1.16 PLANT SUBSTITUTIONS FOR PLANTS NOT AVAILABLE

A. Submit all requests for substitutions of plant species, or size to the City of West Fargo, for approval, prior to purchasing the proposed substitution. Requests shall also include sources of plants found that may be of a smaller or larger size, or a different shape or habit than specified, or plants of the same genus and species but different cultivar origin, or which may otherwise not meet the requirements of the specifications, but which may be available for substitution.

1.17 SITE CONDITIONS

A. It is the responsibility of the Contractor to be aware of all surface and sub-surface conditions, and to notify the City of West Fargo, in writing, of any circumstances that would negatively impact the health of plantings. Do not proceed with work until unsatisfactory conditions have been corrected.

1. Should subsurface drainage or soil conditions be encountered which would be detrimental to growth or survival of plant material, the Contractor shall notify the City of West Fargo in writing, stating the conditions and submit a proposal covering cost of corrections. If the Contractor fails to notify the City of West Fargo of such conditions, he/she shall remain responsible for plant material under the warranty clause of the specifications.

B. It is the responsibility of the Contractor to be familiar with the local growing conditions, and if any specified plants will be in conflict with these conditions. Report any potential conflicts, in writing, to the City of West Fargo.

Actual planting shall be performed during those periods when weather and soil conditions are suitable in accordance with locally accepted horticultural practices.

1. Do not install plants into saturated or frozen soils. Do not install plants during inclement weather, such as rain or snow or during extremely hot, cold or windy conditions.

1.18 PLANTING AROUND UTILITIES

A. Contractor shall carefully examine the civil, record, and survey drawings to become familiar with the existing underground conditions before digging.

B. Determine location of underground utilities and perform work in a manner that will avoid possible damage. Hand excavate, as required.

C. Notification of ND OneCall, *811*, is required for all planting areas: The Contractor is responsible for knowing the location and avoiding utilities that are not covered by ND OneCall.

PART 2 – PRODUCTS

2.1 PLANTS: GENERAL

A. Standards and measurement: Provide plants of quantity, size, genus, species, and variety or cultivars as shown and scheduled in contract documents.

1. All plants including the root ball dimensions or container size to trunk caliper ratio shall conform to ANSI Z60.1 “American Standard for Nursery Stock” latest edition, unless modified by provisions in this specification. When there is a conflict between this specification and ANSI Z60.1, this specification section shall be considered correct.
2. Plants larger than specified may be used if acceptable to the City of West Fargo. Use of such plants shall not increase the contract price. If larger plants are accepted the root ball size shall be in accordance with ANSI Z-60.1. Larger plants may not be acceptable if the resulting root ball cannot be fit into the required planting space.
3. If a range of size is given, no plant shall be less than the minimum size and not less than 50 percent of the plants shall be as large as the maximum size specified. The measurements specified are the minimum and maximum size acceptable and are the measurements after pruning, where pruning is required.

B. Proper Identification: All trees shall be true to name as ordered or shown on planting plans and shall be labeled individually or in groups by genus, species, variety and cultivar.

C. Compliance: All trees shall comply with federal and state laws and regulations requiring observation for plant disease, pests, and weeds. Observation certificates required by law shall accompany each shipment of plants.

D. Plant Quality:

1. General: Provide healthy stock, grown in a nursery and reasonably free of die-back, disease, insects, eggs, bores, and larvae. At the time of planting all plants shall have a root system, stem, and branch form that will not restrict normal growth, stability and health for the expected life of the plant
2. Plant quality above the soil line:

    a. Plants shall be healthy with the color, shape, size and distribution of trunk, stems, branches, buds and leaves normal to the plant type specified. Tree quality above the soil line shall comply with the following:
        1.) Crown: The form and density of the crown shall be typical for a young specimen of the species or cultivar pruned to a central and dominant leader.
            a.) Crown specifications do not apply to plants that have been specifically trained in the nursery as topiary, espalier, multi-stem, clump, or unique selections such as contorted or weeping cultivars.
        2.) Leaves: The size, color, and appearance of leaves shall be typical for the time of year and stage of growth of the species or cultivar. Trees shall not show signs of prolonged moisture stress or over watering as indicated by wilted, shriveled, or dead leaves.
        3.) Branches: Shoot growth (length and diameter) throughout the crown should be appropriate for the age and size of the species or cultivar. Trees shall not have dead, diseased, broken, distorted, or otherwise injured branches.
            a.) Main branches shall be distributed along the central leader not clustered together. They shall form a balanced crown appropriate for the cultivar/species.
            b.) The attachment of the largest branches (scaffold branches) shall be free of included bark.
        4.) Trunk: The tree trunk shall be relatively straight, vertical, and free of wounds that penetrate to the wood (properly made pruning cuts, closed or not, are acceptable

and are not considered wounds), sunburned areas, conks (fungal fruiting bodies), wood cracks, sap leakage, signs of boring insects, galls, cankers, girdling ties, or lesions (mechanical injury).

b. Trees shall have one central leader. If the leader was headed, a new leader (with a live terminal bud) at least one-half the diameter of the pruning cut shall be present.
   1.) All trees are assumed to have one central leader trees unless a different form is specified in the plant list or drawings.
c. All graft unions, where applicable, shall be completely closed without visible sign of graft rejection. All grafts shall be visible above the soil line.
d. Trunk caliper and taper shall be sufficient so that the lower five feet of the trunk remains vertical without a stake. Auxiliary stake may be used to maintain a straight leader in the upper half of the tree.

3. Plant quality at or below the soil line:
   a. Plant roots shall be normal to the plant type specified. Root observations shall take place without impacting tree health. Root quality at or below the soil line shall comply with the project and the following:

      1.) The roots shall be reasonably free of scrapes, broken or split wood.
      2.) The root system shall be reasonably free of injury from biotic (e.g., insects and pathogens) and abiotic (e.g., herbicide toxicity and salt injury) agents. Wounds resulting from root pruning used to produce a high quality root system are not considered injuries.
      3.) The root collar shall be within the upper 2 inches of the substrate/soil. Two structural roots shall reach the side of the root ball near the top surface of the root ball. The grower may request a modification to this requirement for species with roots that rapidly descend, provided that the grower removes all stem girdling roots above the structural roots across the top of the root ball.
      4.) The root system shall be reasonably free of stem girdling roots over the root collar or kinked roots from nursery production practices.
      5.) At time of observations and delivery, the root ball shall be moist throughout. Roots shall not show signs of excess soil moisture conditions as indicated by stunted, discolored, distorted, or dead roots.

2.2 ROOT BALL PACKAGE OPTIONS: The following root ball packages are permitted. Specific root ball packages shall be required where indicated on the plant list or in this specification. Any type of root ball packages that is not specifically defined in this specification shall not be permitted.

A. BALLED AND BURLAPPED PLANTS

1. All Balled and Burlapped Plants shall be field grown, and the root ball packaged in a burlap and twine and/or burlap and wire basket package.

2. Plants shall be harvested with the following modifications to standard nursery practices.

a. Prior to digging any tree that fails to meet the requirement for maximum soil and roots above the root collar, carefully removed the soil from the top of the root ball of each plant, using hand tools, water or an air spade, to locate the root collar and attain the soil depth over the structural roots requirements. Remove all stem girdling roots above the root collar. Care must be exercised not to damage the surface of the root collar and the top of the structural roots.

b. Twine and burlap used for wrapping the root ball package shall be natural, biodegradable material. If the burlap decomposes after digging the tree then the root ball shall be re-wrapped prior to shipping if roots have not yet grown to keep root ball intact during shipping.

B. CONTAINER (INCLUDING ABOVE-GROUND FABRIC CONTAINERS AND BOXES) PLANTS

1. Container plants may be permitted only when indicated on the drawing, in this specification, or approved by the City of West Fargo.

2. Provide plants shall be established and well rooted in removable containers.

3. Container class size shall conform to ANSI Z60.1 for container plants for each size and type of plant.

2.3 PLANTING SOIL

A. Planting Soil as used in this specification means the soil at the planting site, or imported as modified. If there is no Planting Soil specification, the term Planting Soil shall mean the soil at the planting site within the planting hole.

2.4 MULCH

A. Mulch shall be coarse, ground from tree and woody brush or bark sources. Mulch shall be fairly uniform in size, quality and appearance. Mulch shall be free of weeds and invasive plant parts or seeds. Mulch shall be free of other debris/materials.

2.5 TREE STAKING AND GUYING MATERIAL

A. Trees shall be tied off to stakes with the minimum of #10 Non-corrosive wire. The wire shall be attached to the tree by soft fabric tree straps, minimum of 8” length and 1” width, with eye holes.

B. Stakes shall be steel T-posts and of diameters and lengths appropriate to the size of plant as required to adequately support the plant. Each tree shall contain 3 T-posts, spaced 120° apart.

2.6 TREE BARK PROTECTOR

A. Tree Bark Protectors shall be included with all trees.

2.7 WATERING BAGS

A. Plastic tree watering bags holding a minimum of 20 gallons of water and with a slow drip hole(s) water release system, specifically designed to water establishing trees. Water should release over a several hour period, not within a few minutes

B. Watering bags shall be:
   1. Treegator Irrigation Bags sized to the appropriate model for the requirements of the plant.
   2. Or approved equal.

PART 3 – EXECUTION

3.1 SITE EXAMINATION

A. Examine the surface grades and soil conditions to confirm that the requirements of the Specification Section. Notify the City of West Fargo in writing of any unsatisfactory conditions.

3.2 DELIVERY, STORAGE AND HANDLING

A. Protect materials from deterioration during delivery and storage. Adequately protect plants from drying out, exposure of roots to sun, wind or extremes of heat and cold temperatures. If planting is delayed more than 24 hours after delivery, set plants in a location protected from sun and wind. Provide adequate water to the root ball package during the shipping and storage period.

B. Do not deliver more plants to the site than there is space with adequate storage conditions. Provide a suitable remote staging area for plants and other supplies.
   1. The City of West Fargo or Contractor shall approve the duration, method and location of storage of plants.

3.3 PLANTING SEASON

A. Planting shall only be performed when weather and soil conditions are suitable for planting the materials specified in accordance with locally accepted practice. Install plants during the planting time as described below unless otherwise approved in writing by the City of West Fargo. In the event that the Contractor request planting outside the dates of the planting season, approval of the request does not change the requirements of the warranty.
   1. Spring Planting -
   2. Fall Planting -

3.4 ADVERSE WEATHER CONDITIONS

A. No planting shall take place during extremely hot, dry, windy or freezing weather.

3.5 COORDINATION WITH PROJECT WORK

A. The Contractor shall coordinate with all other work that may impact the completion of the work.

3.6 LAYOUT AND PLANTING SEQUENCE

A. Relative positions of all plants and trees are subject to approval of the City of West Fargo.

B. Notify the City of West Fargo, one (1) week prior to planting. City of West Fargo will layout all individual tree locations. Secure the City of West Fargo’s approval before digging and start of planting work.

C. It is understood that plants are not precise objects and that minor adjustments in the layout will be required as the planting plan is constructed. These adjustments may not be apparent

until some or all of the plants are installed. Make adjustments as required by the City of West Fargo including relocating previously installed plants.

3.7 SOIL PROTECTION DURING PLANT DELIVERY AND INSTALLATION

A. Protect soil from compaction during the delivery of plants to the planting locations, digging of planting holes and installing plants.

1. Where possible, restrict the driving lanes to one area instead of driving over and compacting a large area of soil.

3.8 SOIL MOISTURE

A. The Contractor shall confirm the soil moisture levels are adequate for planting. If the moisture is too high, suspend planting operations until the soil moisture drains.

3.9 INSTALLATION OF PLANTS: GENERAL

A. Observe each plant after delivery and prior to installation for damage of other characteristics that may cause rejection of the plant. Notify the City of West Fargo of any condition observed.

B. The root system of each plant, regardless of root ball package type, shall be observed by the Contractor, at the time of planting. The Contractor shall undertake at the time of planting, all modifications to the root system required by the City of West Fargo.

1. Modifications, at the time of planting, to meet the specifications for the depth of the root collar and removal of stem girdling roots and circling roots may make the plant unstable or stress the plant to the point that the City of West Fargo may choose to reject the plant rather than permitting the modification.

2. The resulting root ball may need additional staking and water after planting. The City of West Fargo may reject the plant if the root modification process makes the tree unstable or if the tree is not healthy at the end of the warranty period. Such plants shall still be covered under the warranty

C. Container and Boxed Root Ball Shaving: The outer surfaces of ALL plants in containers and boxes, including the top, sides and bottom of the root ball shall be shaved to remove all circling, descending, and matted roots. Shaving shall be performed using saws, knives, sharp shovels or other suitable equipment that is capable of making clean cuts on the roots. Shaving shall remove a minimum of one inch of root mat or up to 2 inches as required to remove all root segments that are not growing reasonably radial to the trunk.

D. Excavation of the Planting Space: Using hand tools, excavate the planting hole to the depth of the root ball measured after any root ball modification to correct root problems, and wide enough for working room around the root ball or to the size indicated on the drawing or as noted below.

1. The soil around the root ball shall be loosened as defined below or as indicated on the drawings.
    a. The area of loosening shall be a minimum of 2 times the diameter of the root ball at the surface.
    b. Loosening is defined as digging into the soil and turning the soil to reduce the compaction. The soil does not have to be removed from the hole, just dug, lifted and turned. Lifting and turning may be accomplished with hand shovels.

2. The measuring point for root ball depth shall be the average height of the outer edge of

the root ball after any required root ball modification.

E. Set top outer edge of the root ball at the average elevation of the proposed finish. Set the plant plumb and upright in the center of the planting hole. The tree graft, if applicable, shall be visible above the grade. Do not place soil on top of the root ball.

F. The City of West Fargo may request that plants orientation be rotated when planted based on the form of the plant.

G. Backfill the space around the root ball with the same planting soil or existing soil that was excavated for the planting space.

H. Place additional Planting Soil around base and sides of ball in six-inch (6") lifts. Lightly tamp each lift using foot pressure or hand tools to settle backfill, support the tree and eliminate voids. DO NOT over compact the backfill or use mechanical or pneumatic tamping equipment.

1. When the planting hole has been backfilled to three quarters of its depth, water shall be poured around the root ball and allowed to soak into the soil to settle the soil. Do not flood the planting space. If the soil is above field capacity, allow the soil to drain to below field capacity before finishing the planting. Air pockets shall be eliminated and backfill continued until the planting soil is brought to grade level.

I. Thoroughly water the Planting Soil and root ball immediately after planting.

J. Remove all nursery plant identification tags and ribbons as per City of West Fargo instructions.

K. Remove corrugated cardboard trunk protection after planting.

L. Follow additional requirements for the permitted root ball packages.

3.10 PERMITTED ROOT BALL PACKAGES AND SPECIAL PLANTING REQUIREMENTS

A. The following are permitted root ball packages and special planting requirements that shall be followed during the planting process in addition to the above General planting requirements.

B. BALLED AND BURLAPPED PLANTS

1. After the root ball has been backfilled, remove all twine and burlap from the top of the root ball. Cut the burlap away; do not fold down onto the Planting Soil.

2. If the plant is shipped with a wire basket that does not meet the requirements of a “Low Rise” basket, remove the top 6 - 8 inches of the basket wires just before the final backfilling of the tree.

3. Earth root balls shall be kept intact except for any modifications required by the City of West Fargo to make root package.

C. CONTAINER (INCLUDES BOXED AND ABOVE-GROUND FABRIC CONTAINERS) PLANTS

1. This specification assumes that most container plants have significant stem girdling and circling roots, and that the root collar is too low in the root ball.

2. Remove the container.

3. Perform root ball shaving as defined in Installation of Plants: General above.

4. Remove all roots and substrate above the root collar and the main structural roots

according to root correction details so root system conforms to root observations detail.

5. Remove all substrate at the bottom of the root ball that does not contain roots.

3.11 STAKING AND GUYING

A. Do not stake or guy trees unless specifically required by the Contract Documents, or in the event that the Contractor feels that staking is the only alternative way to keep particular trees plumb.

1. The City of West Fargo shall have the authority to require that trees are staked.

2. Trees that required heavily modified root balls may become unstable. The City of West Fargo may choose to reject these trees rather than utilize staking to temporarily support the tree.

B. Trees that are guyed shall have their guys and stakes removed after two full growing season or at other times as required by the City of West Fargo.

C. Tree guying shall utilize the tree staking and guying materials specified. Refer to manufacturer's recommendations and the planting detail for installation.
1. Plants shall stand plumb after staking or guying.
2. Stakes shall be driven to sufficient depth to hold the tree rigid.

3.12 TREE BARK PROTECTION

A. For all trees in areas where indicted on the drawings, apply a Tree Bark Protector to each tree.

3.13 STRAIGHTENING PLANTS

A. Maintain all plants in a plumb position throughout the warranty period. Straighten all trees that move out of plumb including those not staked.

B. Do not straighten plants by pulling the trunk with guys.

3.14 INSTALLATION OF FERTILIZER AND OTHER CHEMICAL ADDITIVES

A. Do not apply any soluble fertilizer to plantings during the first year after transplanting unless soil test determines that fertilizer or other chemical additives is required. Apply chemical additives only upon the approval of the City of West Fargo.

3.15 PRUNING OF TREES AND SHRUBS

A. Prune plants as directed by the City of West Fargo. Pruning trees shall be limited to addressing structural defects as shown in details; follow recommendations in "Structural Pruning: A Guide for the Green Industry" published by Urban Tree Foundation, Visalia CA.

B. All pruning shall be performed by a person experienced in structural tree pruning.

C. Except for plants specified as multi-stemmed or as otherwise instructed by the City of West Fargo, preserve or create a central leader.

D. Pruning of large trees shall be done using pole pruners or if needed, from a ladder or hydraulic lift to gain access to the top of the tree. Small trees can be structurally pruned by laying them over before planting. Pruning may also be performed at the nursery prior to shipping.

E. Remove and replace excessively pruned or malformed stock resulting from improper pruning

that occurred in the nursery or after.

F. Pruning shall be done with clean, sharp tools.

G. No tree paint or sealants shall be used.

3.16 MULCHING OF PLANTS

A. Apply 4 inches of mulch before settlement, covering the entire root ball area.

B. For trees planted in lawn areas the mulch shall extend to a 2 foot radius around the tree or to the extent indicated on the plans.

C. Lift all leaves, low hanging stems and other green portions of small plants out of the mulch if covered.

3.17 WATERING

A. The Contractor shall be fully responsible to ensure that adequate water is provided to all plants from the point of installation until the date of Substantial Completion Acceptance.

B. Hand water root balls of all plants to assure that the root balls have moisture above wilt point and below field capacity.

C. The Contractor shall install 20 gallon watering bag for each tree to be maintained and used for tree watering during the warranty period.

1. The watering bags shall remain the property of the Owner at the completion of the work.

3.18 CLEAN-UP

A. During installation, keep the site free of trash, pavements reasonably clean and work area in an orderly condition at the end of each day. Remove trash and debris in containers from the site no less than once a week.
1. Immediately clean up any spilled or tracked soil, fuel, oil, trash or debris deposited by the Contractor from all surfaces within the project or on public right of ways and neighboring property.

B. Once installation is complete, wash all soil from pavements and other structures.

C. Make all repairs to grades, ruts, and damage by the plant installer to the work or other work at the site.

D. Remove and dispose of all excess planting soil, subsoil, mulch, plants, packaging, and other material brought to the site by the Contractor.

3.19 PROTECTION DURING CONSTRUCTION

A. The Contractor shall protect planting and related work and other site work from damage due to planting operations, operations by other Contractors or trespassers. Maintain protection during installation until Substantial Completion Acceptance. Treat, repair or replace damaged work immediately.

B. Damage done by the Contractor, or any of their sub-contractors to existing or installed plants, or any other parts of the work or existing features to remain, including roots, trunk or branches of large existing trees, soil, paving, utilities, lighting, irrigation, other finished work and surfaces including those on adjacent property, shall be cleaned, repaired or replaced by the Contractor at no expense to the Owner. The City of West Fargo shall determine when such cleaning, replacement or repair is satisfactory.

3.20 PLANT MAINTENANCE PRIOR TO SUBSTANTIAL COMPLETION ACCEPTANCE

A. During the project work period and prior to Substantial Completion Acceptance, the Contractor shall maintain all plants.

B. Maintenance during the period prior to Substantial Completion Acceptance shall consist of pruning, watering, cultivating, weeding, mulching, removal of dead material, repairing and replacing of tree stakes, tightening and repairing of guys, repairing and replacing of damaged tree wrap material, resetting plants to proper grades and upright position. Mulch areas shall be kept reasonably free of weeds, grass.

3.21 SUBSTANTIAL COMPLETION ACCEPTANCE

A. Upon written notice from the Contractor, the Owners Representative shall review the work and make a determination if the work is substantially complete.
   1. Notification shall be at least 7 days prior to the date the contractor is requesting the review.

B. The date of substantial completion of the planting shall be the date when the City of West Fargo accepts that all work in planting installation section is complete.

C. The Plant Warranty period begins at date of written notification of substantial completion from the City of West Fargo. The date of substantial completion may be different than the date of substantial completion for the other sections of the project.

3.22 MAINTENANCE DURING THE WARRANTY PERIOD BY THE PLANT INSTALLER

A. During the warranty period, provide all maintenance for all plantings to keep the plants in a healthy state and the planting areas clean and neat.

B. General requirements:
   1. All work shall be undertaken by trained planting crews under the supervision of a foreman with a minimum of 3 years of experience supervising commercial plant maintenance crews.
   2. All chemical and fertilizer applications shall be made by licensed applicators for the type of chemicals to be used. All work and chemical use shall comply with all applicable local, provincial and federal requirements.
   3. Assure that hoses and watering equipment and other maintenance equipment does not block paths or be placed in a manner that may create tripping hazards. Use standard safety warning barriers and other procedures to maintain the site in a safe manner for visitors at all times.
   4. All workers shall wear required safety equipment and apparel appropriate for the tasks being undertaken.
   5. The Contractor shall not store maintenance equipment at the site at times when they are not in use unless authorized in writing by the City of West Fargo.
   6. Maintenance vehicles shall not park on the site including walks and lawn areas at any time without the City of West Fargo’s written permission.
   7. Maintain a detailed log of all maintenance activities including types of tasks, date of task, types and quantities of materials and products used, watering times and amounts, and number of each crew. Periodically review the logs with the City of West Fargo, and submit a copy of the logs at the end of each year of the maintenance agreement.

8. Meet with the City of West Fargo a minimum of three times a year to review the progress and discuss any changes that are needed in the maintenance program. At the end of the warranty period attend a hand over meeting to formally transfer the responsibilities of maintenance to the City of West Fargo. Provide all information on past maintenance activities and provide a list of critical tasks that will be needed over the next 12 months. Provide all maintenance logs. Make the Contractor's supervisor available for a minimum of one year after the end of the warranty period to answer questions about past maintenance.

C. Provide the following maintenance tasks:
   1. Watering; Provide all water required to keep soil within and around the root balls at optimum moisture content for plant growth.
      a. Maintain all watering systems and equipment and keep them operational.
      b. Monitor soil moisture to provide sufficient water. Check soil moisture and root ball moisture on a regular basis and record moisture levels. Do not over water.
   2. Plant pruning: Remove cross over branching, shorten or remove developing co dominant leaders, dead wood and winter-damaged branches. Unless directed by the City of West Fargo, do not shear plants or make heading cuts.
   3. Restore plants: Reset any plants that have settled or are leaning as soon as the condition is noticed.
   4. Guying and staking: Maintain plant guys in a taught position. Remove tree guys and staking after the second full growing season unless directed by City of West Fargo.
   5. Weed control: Keep all mulch areas free of weeds. Hand-remove all weeds and any plants that do not appear on the planting plan. Chemical weed control is permitted only with the approval of the City of West Fargo. Schedule weeding as needed.
   6. Trash removal: Remove all trash and debris from all planting areas and maintain the areas in a neat and tidy appearance.
   7. Plant pest control: Maintain disease, insects and other pests at manageable levels. Manageable levels shall be defined as damage to plants that may be noticeable to a professional but not to the average person. Use least invasive methods to control plant disease and insect outbreaks.
      a. The City of West Fargo must approve in advance the use of all chemical pesticide applications.
   8. Plant replacement: Replace all plants that are defective as defined in the warranty provisions, as soon as the plant decline is obvious and in suitable weather and season for planting as outlined in above sections. Plants that become defective during the maintenance period shall be covered and replaced under the warranty provisions.
   9. Mulch: Maintain complete coverage but do not over mulch. At no time shall the overall mulch thickness be greater than 4 inches. Do not apply mulch within several inches of the trunks or stems of any plants. Replacement mulch shall meet the requirements of the original approved material. Mulch shall be no more than one inch on top of the root ball surface.
   10. Damage from site use: Repair of damage by site visitors and events, beyond normal wear, are not part of this maintenance. The City of West Fargo may request that the Contractor repair plantings for an additional cost. All additional work shall be approved in advance by the City of West Fargo.

3.23 END OF WARRANTY FINAL ACCEPTANCE / MAINTENANCE OBSERVATION

A. At the end of the Warranty and Maintenance period the City of West Fargo shall observe the work and establish that all provisions of the contract are complete and the work is

satisfactory.

1. If the work is satisfactory, the maintenance period will end on the date of the final observation.
2. If the work is deemed unsatisfactory, the maintenance period will continue at no additional expense to the Owner until the work has been completed, observed, and approved by the City of West Fargo.

B. FAILURE TO PASS OBSERVATION: If the work fails to pass final observation, any subsequent observations must be rescheduled as per above. The cost to the Owner for additional observations will be charged to the Contractor at the prevailing hourly rate of the Owners Representative.

END OF SECTION 329300.00

33 – UTILITIES

SECTION 330110.58 - DISINFECTION OF WATER UTILITY PIPING SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Disinfection of potable water distribution system.
2. Testing and reporting of results.

B. Related Requirements:

1. Section 331413 - Public Water Utility Distribution Piping: Product and execution requirements for installation and testing of site domestic water distribution piping.
2. Section 331417 - Site Water Service Utility Laterals: Pipe materials and fittings.

1.2 REFERENCE STANDARDS

A. American Water Works Association:

1. AWWA B300 - Hypochlorites.
2. AWWA B302 - Ammonium Sulfate.
3. AWWA B303 - Sodium Chlorite.
4. AWWA C651 - Disinfecting Water Mains.

1.3 SUBMITTALS

A. Section 013300 - Submittal Procedures: Requirements for submittals.

B. Disinfection Procedure:

1. Submit description of procedure, including type of disinfectant and calculations indicating quantities of disinfectants required to produce specified chlorine concentration.

C. Product Data: Submit manufacturer information for proposed chemicals and treatment doses.

D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

E. Certify that final water complies with disinfectant quality standards of the North Dakota Department of Environmental Quality.

F. Test and Evaluation Reports: Indicate testing results comparative to specified requirements.

G. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.

H. Qualifications Statements:

1. Submit qualifications for manufacturer and applicator.

1.4 CLOSEOUT SUBMITTALS

A. Section 017000 - Execution and Closeout Requirements: Requirements for submittals.

B. Disinfection Report:

1. Type and form of disinfectant used.
2. Date and time of disinfectant injection start and completion.
3. Test locations.
4. Name of person collecting samples.
5. Initial and 24-hour disinfectant residuals in treated water in ppm for each outlet tested.
6. Date and time of flushing start and completion.
7. Disinfectant residual after flushing in ppm for each outlet tested.

C. Bacteriological Report:

1. Date issued, project name, and testing laboratory name, address, and telephone number.
2. Time and date of water sample collection.
3. Name of person collecting samples.
4. Test locations.
5. Initial and 24-hour disinfectant residuals in ppm for each outlet tested.
6. Coliform bacteria test results for each outlet tested.
7. Submit bacteriologist's signature and authority associated with testing.

1.5 QUALITY ASSURANCE

A. Perform Work according to AWWA C651.

B. Perform Work according to North Dakota Department of Environmental Quality standards.

C. Testing Laboratory
Fargo Cass Public Health
435 14th Avenue S
Fargo, ND 58103
701-298-6986

1.6 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years' documented experience.

PART 2 - PRODUCTS

2.1 DISINFECTION CHEMICALS

A. All products that may come into contact with water intended for use in a public water system shall meet American National Standards Institute (ANSI)/National Sanitation Foundation International (NSF) Standards 60 and 61. A product will be considered as meeting these standards if so certified by NSF, the Underwriters Laboratories, or other organization accredited by ANSI to test and certify such products.

B. Chemicals:

1. Hypochlorite: Comply with AWWA B300.
2. Ammonium Sulfate: Comply with AWWA B302.
3. Sodium Chlorite: Comply with AWWA B303.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for installation examination.

B. Verify that piping system has been cleaned, inspected, and pressure tested.

C. Perform scheduling and disinfecting activity with startup, water pressure testing, adjusting and balancing, and demonstration procedures, including coordination with related systems.

3.2 INSTALLATION

A. Provide required equipment to perform Work of this Section.

B. Introduce treatment into piping system.

C. Maintain disinfectant in system for 24 hours.

D. Flush, circulate, and clean until required disinfectant quality standard has been achieved using municipal domestic water.

E. Replace permanent system devices that were removed for disinfection.

3.3 FIELD QUALITY CONTROL

A. Section 014000 - Quality Requirements: Requirements for inspecting and testing.

B. Disinfection, Flushing, and Sampling:

1. Disinfect pipeline installation according to AWWA C651.
2. Use of liquid chlorine is not permitted.
3. Upon completion of retention period required for disinfection, flush pipeline until chlorine concentration in water leaving pipeline is no higher than that generally prevailing in existing system or is acceptable for domestic use.
4. Disposal:
    a. Legally dispose of chlorinated water.
    b. If chlorinated discharge may cause damage to environment, apply neutralizing chemical to chlorinated water to neutralize chlorine residual remaining in water.
5. After final flushing and before pipeline is connected to existing system or placed in service, certify that disinfectant level meets quality standards of the North Dakota Department of Environmental Quality.
6. Provide sampling in accordance with the latest AWWA C651 standard with the frequency of one of the following options:
    a. Option A: Take an initial sample and then resample again after a minimum of 16 hours per 1,200 feet of new water main, plus one set from the end of the line and at least one set from each branch greater than one pipe length. All sets of samples must pass for the main to be approved for release.
    b. Options B: Let the water main site for a minimum of 16 hours without any water use. Collect two sets of samples a minimum of 15 minutes apart while the sampling taps are left running and without flushing the main. Sets of samples shall be collected every 1,200 feet of the new water main plus one set from the end of the line and at least one set from each branch greater than one pipe length. All sets of samples must pass for the main to be approved for release.

END OF SECTION 330110.58

SECTION 330130.11 - TELEVISION INSPECTION OF SEWERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Pipeline flushing and cleaning.
2. Television inspection of sewer pipelines.
3. Audio-video recording of pipeline interior.

B. Related Requirements:

1. Section 015000 - Temporary Facilities and Controls: Safety requirements when bypassing sewage flow.
2. Section 333111 - Public Sanitary Sewerage Gravity Piping: Pipe materials, manholes, and accessories normally encountered with gravity sewerage piping.

1.2 DEFINITIONS

A. DVD: An optical disc storage format, offering higher storage capacity than compact discs (CDs) while having the same dimensions.

1.3 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Section 012000 - Price and Payment Procedures: Contract Sum/Price modification procedures.

B. Television Inspection of Sewer Mains:

1. Basis of Measurement: By linear foot.
2. Basis of Payment: Includes pipeline flushing and cleaning, flow control, bypass pumping, television inspection, and audio-video recording of pipeline.

C. Television Inspection of Sewer Services:

1. Basis of Measurement: By each.
2. Basis of Payment: Includes pipeline flushing and cleaning, television inspection, and audio-video recording of pipeline.

1.4 COORDINATION

A. Section 013000 - Administrative Requirements: Requirements for coordination.

B. Coordinate Work of this Section with Owner.

1.5 SUBMITTALS

A. Section 013300 - Submittal Procedures: Requirements for submittals.

B. USB Flash Drives:

1. Submit three copies of completed narrated color USB Flash Drives identified by Project name, street name, right-of-way property name, and manhole numbers.
2. Flash Drives become property of Owner.
3. Downloadable videos may be substituted for Flash Drives

C. Inspection Logs:

1. Submit cleaning and television inspection logs for each section of sewer line to be rehabilitated.
2. Include following minimum information:

a. Stationing and location of lateral services, wyes, or tees.
b. Date and clock time references.
c. Pipe joints.
d. Flow direction.
e. Footage readings in feet.
f. Screenshots of all defects (thumbnails).
g. Infiltration/inflow defects.
h. Cracks.
i. Leaks.
j. Offset joints.
k. Other information to access condition of sewer.

D. Submit specific detailed description of proposed bypass pumping system, including written description of plan addressing schedule, quantity, capacity, and location of pumping equipment.

E. Submit spill plan to address any spills that might occur.

1.6 QUALITY ASSURANCE

A. Perform Work according to NASSCO standards.

PART 2 - PRODUCTS

2.1 USB Flash Drivess

A. Description: Digital video formatted solid state drives (SSD)

B. Audio track containing simultaneously recorded narrative commentary and evaluations of videographer, describing in detail condition of pipeline interior.

PART 3 - EXECUION

3.1 EXAMINATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for application examination.

B. Verify location of sewer pipelines to be inspected.

3.2 PREPARATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for application preparation.

B. Cleaning:

1. Notify the Owner if the Contractor believes that the integrity of the existing pipe is not adequate for the cleaning operation to take place.
2. Flush and clean pipeline to remove sludge, dirt, sand, stone, grease, and other materials to ensure clear view of interior condition.

C. Obstruction:

1. Complete a reverse setup and perform inspection of the pipeline from the other end if an obstruction is encountered that impedes inspection of the pipeline.
2. Notify the Engineer immediately for resolution if additional obstruction is encountered after the reserve setup.

D. Roots:

1. Remove roots as necessary to complete inspection and televising of pipeline. Roots shall not be a reason for reverse set-up.

E. Protruding Tap Connection:

1. Notify Engineer of protruding tap connections that impede inspection and televising of the pipe.
2. Record shall be taken of protruding taps to be removed both before and after removal.
3. Remove protruding tap to within one-half inch of the mainline pipe wall.
4. Notify the Engineer if the Contractor believes that the integrity of the existing pipe is not adequate to complete removal of the protruding tap.

F. Debris:

1. Intercept flushed debris at next downstream manhole using weir or screening device.
2. Remove and dispose of debris off site.

G. Bypassing:

1. Furnish temporary bypass pumping system around Work area for time required to complete television inspection.
2. Provide standby pump of equal or greater capacity at bypass location.
3. Provide safety precautions, including barricades, lights, and flaggers..

H. Flow Control:
1. Provide temporary flow control as needed during televising operation.

3.3 APPLICATION

A. Closed-Circuit Television (CCTV) Camera System:

1. Use cameras specifically designed and constructed for closed-circuit sewer line inspection.
2. Use camera equipment with pan-and-tilt capability to view each lateral connection at multiple angles.
3. Produce a clear, in-focus picture of the entire periphery of the inside of the pipe for a minimum distance of six feet.
4. Use camera capable of moving both upstream and downstream with minimum 1,000 feet horizontal distance within one setup and using direct-reading cable position meter.
5. Use cameral with “lateral launch” capabilities for televising services

3.4 FIELD QUALITY CONTROL

A. Section 014000 - Quality Requirements: Requirements for inspecting and testing.

B. Pipeline Inspection:

1. Audio-video record sections of sewer pipeline between designated manholes.
2. Tilt camera up to view interior of manholes at the beginning and end of each segment televised.
3. Maintain accurate footage counter which shall display on the monitor at all times.
4. Begin footage measurements in at the interior face of the manhole wall.
5. Center camera inside pipe keeping it above the flow as reasonably possible.
6. Identify and record locations of flat grades, dips, deflected joints, open joints, broken pipe, protrusions into pipeline, and points of infiltration.
7. Locate and record service connections.
8. Record locations of pipeline defects, connection horizontal distance in feet, and direction from manholes.
9. Video record with pipe section plugged, as to view 100 percent of inside pipe diameter; use flow-control methods as specified for bypass pumping system to eliminate surcharging and reduce flow.
10. Notify the Engineer of the time and date of proposed work if nighttime work is necessary.
11. Use flow-control methods as specified for bypass pumping system to eliminate surcharging and to reduce flow.
12. Re-televise the sewer and provide a new recording of good quality, if recording are of such poor quality that the Engineer is unable to evaluate the condition of the sewer, locate sewer service connections, or verify cleaning.

C. Site Cleaning:

1. Clean and restore the work areas prior to leaving the site.

D. Retrieval of Materials and Equipment:

1. Remove materials and equipment that may have become lodged in the sewer from the cleaning and televising operation.

END OF SECTION 330130.11

SECTION 330130.72 - CURED-IN-PLACE PIPE LINING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Cleaning and flushing of existing sanitary sewers.
2. Taking video of existing sewers and analyzing their condition.
3. Installing an inverted, resin-impregnated tube pipe liner.
4. Reestablishing service connections.

B. Related Requirements:

1. Section 036000 - Grouting: Grout as required by this Section.
2. Section 312316 - Excavation: Excavating for utilities.
3. Section 330130.11 - Television Inspection of Sewers: TV inspection of pipeline and preparatory activities.
4. Section 330505.33 - Infiltration and Exfiltration Testing: Testing of deformed pipe liner.
5. Section 330505.41 - Air Testing: Testing of deformed pipe liner.
6. Section 330505.43 - Mandrel Testing: Testing of deformed pipe liner.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Section 012000 - Price and Payment Procedures: Contract Sum/Price modification procedures.

B. Relining Sewers:

1. Basis of Measurement: By linear foot, measured center of manhole to center of manhole.
2. Basis of Payment: Includes pipe cleaning and flushing, TV inspection and videography, bypass pumping, liner installation, end seals, and reestablishment of service connections.

1.3 REFERENCE STANDARDS

A. ASTM International:

1. ASTM D5260 - Standard Classification for Chemical Resistance of Poly(Vinyl Chloride) (PVC) Homopolymer and Copolymer Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds.
2. ASTM D5813 - Standard Specification for Cured-In-Place Thermosetting Resin Sewer Piping Systems.
3. ASTM F1216 - Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing of a Resin-Impregnated Tube.
4. ASTM F1743 - Standard Practice for Rehabilitation of Existing Pipelines and Conduits by Pulled-in-Place Installation of Cured-in-Place Thermosetting Resin Pipe (CIPP).

5. ASTM F2019 - Standard Practice for Rehabilitation of Existing Pipelines and Conduits by the Pulled in Place Installation of Glass Reinforced Plastic (GRP) Cured-in-Place Thermosetting Resin Pipe (CIPP).

1.4 COORDINATION

A. Section 013000 - Administrative Requirements: Requirements for coordination.

B. Coordinate Work of this Section with users connected to system.

C. Notify home owners and businesses at least 48 hours in advance of expected disruption of sanitary service. Describe the work schedule, effects of disruption, and phone number for contacts.

D. Limit disruption of service to individual properties to one-time occurrence for maximum of eight hours.

E. Do not disrupt customer service between hours of 5:00 PM and 8:00 AM.

F. Provide and maintain temporary facilities, including piping and pumps, to meet requirements.

1.5 SUBMITTALS

A. Section 013300 - Submittal Procedures: Requirements for submittals.

B. Product Data:

1. Submit manufacturer information regarding liner material, curing chemicals, and lubricants.
2. Submit complete description of proposed wet-out procedures.

C. Shop Drawings: Indicate liner dimensions for each pipe size to be relined.

D. Samples: Submit two samples of liner material in both uncured and cured state.

E. Flash Drive:

1. Submit video recordings of piping sections as follows:
   a. Show condition of existing pipe and pipe joints and location of existing service connections after cleaning and prior to relining.
   b. Show cured liner and reestablished service connections after relining Work has been completed.

F. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

G. Delegated Design Submittals: Submit signed and sealed Shop Drawings with design calculations and assumptions for liner thickness.

H. Test and Evaluation Reports: Submit reports certifying that liner material meets ASTM testing standards as specified in this Section.

I. Manufacturer Instructions:

1. Submit detailed description of liner placement and curing procedures for piping.
2. Include description of procedures for sealing liner material at manholes and reestablishing service connections.
3. Submit manufacturer's requirements for receiving, handling, and storage of materials.
4. Submit liner pipe thickness design in accordance with Appendix XI of ASTM 1216 with the following specifications:
   a. Existing pipe structural support: 0% (fully deteriorated)
   b. Minimum ovality of host pipe: 5%
   c. Height of groundwater: 100% of pipe depth
   d. Enhancement factor (K): ≤ 7.0
   e. Safety Factor: 2
   f. Flexural Modulus of elasticity reduction: 50%
   g. Final thickness: Post curing

J. Source Quality-Control Submittals: Indicate results of factory tests and inspections.

K. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.

L. Qualifications Statements:

1. Submit qualifications for manufacturer, installer, licensed professional, pipeline assessor, and inspector.
2. Submit manufacturer's approval of installer.
3. Company installing product must include references from at least 3 Cities as part of the qualification process.

1.6 CLOSEOUT SUBMITTALS

A. Section 017000 - Execution and Closeout Requirements: Requirements for submittals.

B. Project Record Documents: Record actual locations of each service connection.

1.7 QUALITY ASSURANCE

A. Perform Work according to ASTM F1216 and NASSCO standards.

1.8 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years' documented experience and 2,000,000 feet installed product.

B. Installer: Company specializing in performing Work of this Section with minimum three years' documented experience in installation of liner materials and1,000,000 feet installed product and licensed or certified by manufacturer.

C. Licensed Professional: Professional engineer experienced in design of specified Work and licensed at Project location.

D. Pipeline Assessor:

1. Person specializing in assessing condition of sewer pipelines prior to and following relining.
2. Currently certified in Pipeline Assessment and Certification Program (PACP) of the National Association of Sewer Service Companies (NASSCO).

E. Inspector:

1. Person specializing in inspection of sewer pipeline rehabilitation.
2. Currently certified in Inspector Training and Certification Program (ITCP) of NASSCO.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Section 016000 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.

B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.

C. Store materials according to manufacturer instructions.

D. Protection:

1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
2. Provide additional protection according to manufacturer instructions.

1.10 EXISTING CONDITIONS

A. Field Measurements:

1. Verify field measurements prior to fabrication.
2. Indicate field measurements on Shop Drawings.

PART 2 - PRODUCTS

2.1 PERFORMANCE AND DESIGN CRITERIA

A. Design lining material to have sufficient structural strength to support dead loads, live loads, and groundwater load imposed, assuming existing pipe cannot share loading or contribute to structural integrity of liner.

B. Design liner to least-possible thickness to minimize decreasing interior pipe diameter.

C. Design liner material to provide jointless, continuous, and structurally sound construction able to withstand imposed static, dynamic, and hydrostatic loads on a long-term basis.

D. Identify design provisions for shrinkage control to prevent future misalignment of service reconnections.

2.2 INVERTED, RESIN-IMPREGNATED TUBE PIPE LINER

A. Manufacturers:

1. Insituform Technologies USA, Inc.
   1177 Birch Lake Blvd N
   White Bear Lake, MN 55110
2. LMK Technologies
   1779 Chessie Lane
   Ottawa, IL 61350
3. National Liner, LLC
   375 Williamstowne, Suite 102
   Delafield, WI 53018
4. CIPP Corporation
   515 - 5th St
   Hudson, IA 50643
5. Liner Products
   1468 West Hospital Road
   Paoli, IA

B. Furnish materials according to ASTM F1216 and in accordance with the National Association of Sewer Service Companies (NASSCO).

C. Description:

1. Fabric Tube:
   a. One or more layers of absorbent, non-woven felt fabric, felt/fiberglass, or fiberglass.
   b. Comply with ASTM D5813, and F1216.
   c. Capable of absorbing and carrying resins.
2. Resin:
   a. Corrosion-resistant polyester or vinyl ester resin and catalyst system.
   b. Comply with ASTM F1216.
3. Wet-Out Fabric Tube:
   a. Furnish uniform thickness and excess resin distribution that, when compressed at installation pressure, will meet or exceed design thickness after cure.

2.3 ACCESSORIES

A. Hydrophilic End Seal Sleeves:

1. For CIPP liner connections to manholes.
2. Hydrophilic rubber
3. Insignia End Seal or approved equal.

2.4 MIXES

A. Grout: Per manufacturer’s recommendations.

2.5 SOURCE QUALITY CONTROL

A. Section 014000 - Quality Requirements: Requirements for testing, inspection, and analysis.

B. Inspection and Testing:

1. Provide shop inspection and testing of completed assembly.
2. Chemical and Physical Testing: Test cured samples according to ASTM D5260.

C. Certificate of Compliance:

1. If manufacturer is approved by authorities having jurisdiction, submit certificate of compliance indicating Work performed at manufacturer's facility conforms to Contract Documents.
2. Specified shop tests are not required for Work performed by approved manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for installation examination.

B. Verify location of piping to be relined.

3.2 PREPARATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for installation preparation.

B. Cleaning: Clean existing sewer pipes of debris, sedimentation, corrosion and mineral deposits with high-velocity cleaner, bucket and scraper, root saws, rolling or balling units, or other appropriate means.

C. Initial Video Inspection and Repair:

1. Conduct closed-circuit video inspection as specified in Section 330130.11 - Television Inspection of Sewers.
2. Determine condition of existing piping, degree of offset of joints, and locations of crushed walls and obstructions.
3. Determine sizes and locations of service entrances and connections.
4. Evaluation of pipe conditions, performed by pipeline assessor.
5. Inspection of Work, performed by an ITCP-certified inspector.

6. Clear obstructions, service piping protrusions, and other materials from bottom of existing pipe to ensure that inserted pipe liner directly contacts existing pipe wall.

D. Bypassing Sewage:

1. Set up bypassing pump system to isolate each section of piping for relining.
2. Maintain bypass pumping until lining is totally formed and service connections have been reestablished.

3.3 INSTALLATION

A. Excavate for point repairs as indicated on the Drawings and as permitted by Engineer.

B. Perform relining and reestablish service connections without need for excavation while minimizing disruptions to adjacent occupied buildings and traffic.

C. Inverted, Resin-Impregnated Tube Pipe Liner:

1. Coat inside layer of fabric tube (before inversion or pull-in, as applicable) with an impermeable, flexible membrane that will contain resin and facilitate, if applicable, vacuum impregnation and monitoring of resin saturation during resin impregnation (wet-out) procedure.
2. Prior to installation, and as recommended by manufacturer, place remote temperature gages or sensors inside host pipe to monitor temperature during cure cycle.
3. Positioning:
   a. Position wet-out tube in pipeline using method specified by manufacturer.
   b. Do not damage tube during installation.
4. Cure installed liner by using appropriate medium according to manufacturer's recommended cure schedule.
5. Allow installed pipe liner to cool according to manufacturer instructions.
6. Annular Spaces:
   a. Verify that no gap or annular space exists between finished liner and existing pipe.
   b. Grout annular space, if present, to prevent damage to or collapse of liner or service connections.
   c. Install watertight seals to host pipe at beginning and end of installed liner.

D. Service Connections:

1. Verify active services prior to relining. Use of dye may be necessary.
2. Reestablish existing sewer service connections through use of closed-circuit television camera and remote-controlled cutting device.
3. Match invert of reestablished service with previously existing invert.
4. Maintain minimum of 95 percent to maximum of 100 percent of original service connection opening.
5. Repair overcut service reinstalments greater than 100% of original opening.
6. Reestablish sewer service connection with uniform cuts free of burrs and sharp edges.
7. After reestablishing service connection, flush piping clean.

3.4 FIELD QUALITY CONTROL

A. Section 014000 - Quality Requirements: Requirements for inspecting and testing.

B. Manufacturer Services: Furnish services of manufacturer's representative experienced in installation of products furnished under this Section for not less than 2 days on Site for installation, inspection, and field testing.

C. Liner Acceptance:

1. Adjust, repair, modify, or replace components failing to perform as specified and rerun tests.
2. If liner fails to form, remove failed liner and install new liner.
3. Conduct closed-circuit video inspection of completed relining Work, indicating no visual defects, including foreign inclusions, dry spots, pinholes, cracks, or delamination.
4. Confirm that service connections are complete and unobstructed.
5. No infiltration of groundwater is permitted.
6. Make final adjustments to liner under direction of manufacturer's representative.

D. Furnish installation certificate from manufacturer's representative attesting that liner has been properly installed and is ready for startup and testing.

END OF SECTION 330130.72

SECTION 330130.81 - MANHOLE REHABILITATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes rehabilitation of sewer utility structures:

1. Manhole Rehabilitation.

2. Manhole Scanning

B. Related Sections:

a. Section 33 01 30.62 – Manhole Grout Sealing.

1.2 MEASUREMENT AND PAYMENT

A. Sanitary Sewer Manhole – Rehabilitate

a. Basis of Measurement: By vertical foot (VF).
b. Basis of Payment: Includes cleaning and preparation of walls and bottom of manhole, sealing active leaks, application of restorative cement based liner, application of epoxy coating, performance testing and other necessary items necessary to complete the work.

B. Manhole Scanning:
a. Basis of Measurement: By each (EA).
b. Basis of Payment: Includes post-installation video inspection and 3D measurement of manhole.

C. Sanitary Sewer Manhole Invert – Rehabilitate

1. Basis of Measurement: By each (EA).
2. Basis of Payment: Includes cleaning and preparation of manhole inverts and bench, applying cement based material to rehabilitate and repair all inverts and manhole bench prior to relining process, installation of interior drop connection and piping as necessary, temporary flow restriction and other necessary items to complete the work.

1.3 REFERENCES

A. American Concrete Institute:

a. ACI318 - Building Code Requirements for Structural Concrete.
b. ACI 211.1 - Standard Practice for Selecting Proportions for Normal, Heavyweight and Mass Concrete.

c. ACI 211.2 - Standard Practice for Selecting Proportions for Structural Lightweight Concrete.

B. ASTM International:

a. ASTM A36 - Standard Specification for Carbon Structural Steel.
b. ASTM A48 - Standard Specification for Gray Iron Castings.
c. ASTM A82 - Standard Specification for Steel Wire, Plain, for Concrete Reinforcement.
d. ASTM A123 - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
e. ASTM A185 - Standard Specification for Steel Welded Wire Fabric, Plain, for Concrete Reinforcement.
f. ASTM A496 - Standard Specification for Steel Wire, Deformed, for Concrete Reinforcement.
g. ASTM A497 - Standard Specification for Steel Welded Wire Fabric, Deformed, for Concrete Reinforcement.
h. ASTM A615 - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
i. ASTM A706 - Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement.
j. ASTM A767 - Standard Specification for Zinc-Coated (Galvanized) Steel Bars for Concrete Reinforcement.
k. ASTM A775 - Standard Specification for Epoxy-Coated Steel Reinforcing Bars.
l. ASTM A884 - Standard Specification for Epoxy-Coated Steel Wire and Welded Wire Reinforcement.
m. ASTM A996 - Standard Specification for Rail-Steel and Axle-Steel Deformed Bars for Concrete Reinforcement.
n. ASTM C31 - Standard Practice for Making and Curing Concrete Test Specimens in the Field.
o. ASTM C33 - Standard Specification for Concrete Aggregates.
p. ASTM C39 - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens.
q. ASTM C138 - Standard Test Method for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete.
r. ASTM C143 - Standard Test Method for Slump of Hydraulic Cement Concrete.
s. ASTM C150 - Standard Specification for Portland Cement.
t. ASTM C173 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method.
u. ASTM C192 - Standard Practice for Making and Curing Concrete Test Specimens in the Laboratory.
v. ASTM C231 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.
w. ASTM C260 - Standard Specification for Air-Entraining Admixtures for Concrete.
x. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
y. ASTM C330 - Standard Specification for Lightweight Aggregates for Structural Concrete.
z. ASTM C443 - Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets.

aa. ASTM C494 - Standard Specification for Chemical Admixtures for Concrete.
bb. ASTM C618 - Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete.
cc. ASTM C857 - Standard Practice for Minimum Structural Design Loading for Underground Precast Concrete Utility Structures.
dd. ASTM C890 - Standard Practice for Minimum Structural Design Loading for Monolithic or Section Precast Concrete Water and Wastewater Structures.
ee. ASTM C891 - Standard Practice for Installation of Underground Precast Concrete Utility Structures.
ff. ASTM C913 - Standard Specification for Precast Concrete Water and Wastewater Structures.
gg. ASTM C923 - Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes and Laterals.
hh. ASTM C989 - Standard Specification for Ground Granulated Blast-Furnace Slag for Use in Concrete and Mortars.
ii. ASTM C990 - Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants.
jj. ASTM C1107 - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink).
kk. ASTM C1244 - Standard Test Method for Concrete Sewer Manholes by the Negative Air Pressure (Vacuum) Test prior to Backfill.
ll. ASTM C1315 - Standard Specification for Liquid Membrane-Forming Compounds Having Special Properties for Curing and Sealing Concrete.
mm. ASTM C1433 - Standard Specification for Precast Reinforced Concrete Box Sections for Culverts, Storm Drains, and Sewers.
nn. ASTM C1504 - Standard Specification for Manufacture of Precast Reinforced Concrete Three-Sided Structures for Culverts, Storm Drains, and Sewers.

C. National Precast Concrete Association:

a. NPCA Quality Control Manual for Precast Plants.
b. NPCA Plant Certification Program.

D. SSPC: The Society for Protective Coatings:

1.4 SUBMITTALS

A. Section 013300 - Submittal Procedures: Requirements for submittals.

B. Shop Drawings:

a. Submit shop drawings as necessary.
b. Indicate product data for rehabilitating the manholes.

C. Product Data:

a. Submit product data for all proposed restorative liner materials for rehabilitating manholes**.**

D. Design Data:

a. Submit specifications, physical properties of restorative liner materials, concrete mix designs for each different mix.

E. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.

F. Installation Logs:
a. For each structure, provide log containing the following information.
a. Visual inspection report indicating CSP, confirmation that leaks have been stopped, and that substrate is ready to receive liner materials per Manufacturer’s instructions.
b. Date of installation of each coating application including start time and finish time.
c. Ambient weather data including temperature, sky condition, wind, relative humidity, and precipitation.
d. Environmental parameters inside structure including temperature and relative humidity. Measurements to be taken at least 10 feet down in structure.
b. For each structure prior to installation of liner, submit picture of concrete substrate with CSP chip corresponding to Manufacturer’s required CSP in frame. Label picture with structure name.

1.5 QUALITY ASSURANCE

A. Perform all work in accordance with industry standards, in accordance with these specifications, and in accordance with Manufacturer’s installation instructions.

1.6 QUALIFICATIONS

A. Installer: Company specializing in performing work of this Section with minimum three years’ experience in installation of restorative liner materials.

B. Installers shall provide a list of previous projects completed in the last three years of equivalent nature and scope. The list shall include the owner’s name, phone number and address, date of the work and approximate quantity. Include qualification and experience of key personnel.

1.7 WARRANTY

A. Contractor, Installer, and Supplier warrant and guarantee to Owner that all wastewater coatings installed will be free of defects for a period of 5 years. Said warranty shall include, but is not limited to, defects related to materials, workmanship, improper or unfavorable environmental and site conditions, and premature coating failure.

B. Contractor, Installer, and Supplier agree and acknowledge that any coating defects identified during the warranty period are to be promptly repaired and may require implementation of temporary sewage handling measures, and other related work.

C. Contractor, Installer, and Supplier accept all risk and responsibility to fulfill this extended warranty at no additional cost to Owner or Owners employees, agents, and consultants.

1.8 DELIVERY, STORAGE AND HANDLING

A. Section 016000 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.

PART 2 - PRODUCTS

2.1 INFILTRATION CONTROL

A. Furnish industry accepted quick-setting material, designed to be applied directly to active leaks under hydrostatic pressure in structures.

B. Consists of rapid setting cements, siliceous gypsum, hydrophobic polyurethane, or metallic particles.

2.2 INVERT REPAIR AND PATCHING

A. Furnish material designed to fill large voids in structure walls and to repair or reconstruct inverts where no hydrostatic pressure exists.

B. Consists of rapid setting cements, NSG aggregates, and various accelerating agents without chlorides, gypsum, or metallic particles.

C. Type I, II modified cement.

2.3 RESTORATIVE LINER MATERIAL FOR STRUCTURE WALLS AND BENCHES

A. Designed for the rehabilitation of waste water related structures.

B. Mix with water per the manufacturer’s written specifications and applied using equipment specifically designed for either low pressure spray or centrifugal spin casting application of cement mortars.

C. Capable of a placement thickness of ½” – 2” in a monolithic application.

D. Transport mortars to the construction site in the original manufacturer’s bags (not less than 50 lbs. each).

E. Approved manufacturers:

a. Approved manufacturers are required to provide a 5-year warranty on structure coatings.

a. Mainstay ML-72 Sprayable Microsilica Restorative Mortar by Madewell
b. Strong-Seal MS2A Mortar

F. Cement based, and contain microsilica, thermoplastic fibers, densifiers, polymer admixtures and other modifiers that produce a high strength, low shrinkage, and low permeability mortar without calcium aluminate cements or aggregates.

G. Physical Properties:

a. Conform to the following 28-day minimum physical properties:
a. Compressive Strength (ASTM C109): 6000 psi
b. Tensile Strength (ASTM C109): 575 psi
c. Flexural Strength (ASTM C78): 985 psi
d. Shrinkage (ASTM C157): 0.04%
e. Uniaxial Tensile Bond Strength (ACE 503R, Appendix A): Greater than 500 psi over high strength concrete (5,000 psi compression strength concrete – bond strength governed by substrate tensile strength). Minimum acceptable bond = 150 psi.

2.4 EPOXY COATING FOR STRUCTURE WALLS AND BENCHES

A. Designed specifically for the rehabilitation of manholes and other related waste water structures.

B. Designed to be applied to newly placed mortar immediately following the placement, by low pressure spray or centrifugal spin casting, and troweling of the mortar.

C. Approved Manufacturers (5-year warranty required):

a. Mainstay DS-5 High Build Epoxy
b. Raven 405 High Build Epoxy
c. Epoxytec Series 456
d. Zebron

D. Requirements:

a. 100% solids, 2 component, modified epoxy coating with a gloss finish.

b. Capable of application to restorative liner material immediately after the liner has been sprayed, troweled, and sponge finished, while the restorative liner is in a soft, uncured state.

E. Physical Properties:

a. Off-white capable of being applied in one or two coats.
b. Applied at a minimum uniform thickness of 50 mils.
c. Place the rotating applicator head at the level, when additional epoxy is required at any level, and commence application until that area is thickened.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 013000 - Administrative Requirements: Verification of existing conditions before starting work.

3.2 PREPARATION

A. Cleaning and Preparation:

a. Thoroughly clean and make free of all foreign materials including dirt, grit, roots, grease, sludge and all debris or material that may be attached to the floor and walls of the structure with high pressure water blasting with a minimum pressure of 4500 psi.
b. Prepare all surfaces to be coated in accordance with SSPC-SP13/NACE No. 6.
c. Prepare surface to coating manufacturer's specified ICRI Concrete Surface Profile (CSP). If not otherwise specified by manufacturer, a minimum CSP of 5 is required.
d. Remove all materials resulting from the cleaning and preparation of the structure prior to application of the restorative liner.
e. Remove all loose or defective brick, grout, ledges, steps, and protruding ledges to provide an even surface prior to application of coating.
f. Sealing Active Leaks:
Apply a quick-setting material designed to instantly stop running water or seepage in all types of concrete and masonry structures. Apply material in accordance with manufacturer's recommendations.

B. Invert Repair:
a. Hand mix and apply a rapid setting, non-shrink patching material to fill all large voids and repair inverts prior to lining of the structure. Temporarily restrict flow by inflatable or mechanical plugs prior to cleaning.
b. Clean area and free it of all debris per Section 3.2.A of this specification.
c. Prepare patching material per Manufacturer's written instructions.
d. Apply materials once mixed to proper consistency to the invert or void areas by hand or trowel. Take care to not apply excessive material in the channel, which could restrict flow. Smooth materials either by hand or trowel in order to facilitate flow.

3.3 INSTALLATION

A. Application of Restorative Structure Liner:

a. Spray apply and/or centrifugally spin cast a cement based liner to the inside of the existing structure. Apply the cement based liner materials as approved by the material manufacturer with the necessary equipment and application methods.
b. Mix material with water in accordance with the manufacturer's specifications. Once mixed to a proper consistency, pump the materials via a rotor-stator style progressive cavity pump through a hose for delivery to appropriate and/or selected application device.
c. Spray application of the cement based material:

a. Utilize a low-velocity spray application nozzle. Commence pumping of the material and atomize the mortar by the introduction of air at the nozzle, creating a low-velocity spray pattern for material application.
b. Spray starting at the structure invert and progressing up the wall to the corbel and exit area.
c. Apply material to a specified uniform minimum thickness no less than 1/2". Apply material to a bench area, with care to provide a 3 to 1 slope to prevent ponding.
d. Use low velocity spray application only to prepare severely damaged areas within the structure for application by centrifugal spin cast. Do not use low velocity spray applicator for the entire liner. Use centrifugal spin casing to provide the required density.

d. Centrifugal spin cast application of the restorative liner material:
a. Utilize a high speed rotating applicator device. Position rotating applicator within the center of the structure at either the top of the structure chimney or the lowest elevation at the junction of the structure bench and walls.
b. Start the high speed rotating applicator and pump material. Raise and/or lower the rotating applicator head at a controlled retrieval speed to provide a uniform material thickness on the structure walls.
c. Make controlled multiple passes until the specified minimum thickness is achieved. Stop the applicator head if the procedure is interrupted and until flows are restored.
d. Verify material thickness if no less than 1"at any point with a depth gauge. Place applicator head at any noncompliant level and commence application until that area achieves the specified thickness.

e. Apply material only when structure is in a damp state with no visible water dripping or running over the structure walls.
f. Use low-velocity spray nozzle and the centrifugal spin casting head in conjunction to facilitate uniform application of the mortar material to irregularities in the contour of the structure walls and bench areas.
g. Begin troweling and sponge finishing immediately following the spray application of the mortar.

B. Application of the Epoxy Coating:

a. Application to take place within Manufacturer's specified window to apply top coat materials to restorative liner substrate.
b. Provide epoxy thickness of no less than a uniform 50 mils, or as indicated by Manufacturer.
c. Cure coating according to Manufacturer's installation instructions.

3.4 FIELD QUALITY CONTROL

A. Maintain quality and performance of the material by the following measures to be determined and specified by the Engineer.

a. Performance Testing:
a. Visual inspection and observation by the Engineer and/or representative.

b. Post installation scan:
    a. Scan each manhole after installation or rehabilitation with IBAK Panoramo SI 4K or equal. Deliver copies of manhole scans to Engineer for review.

END OF SECTION 330130.81

SECTION 330130.86 - MANHOLE RIM ADJUSTMENT

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Raising manhole frames and covers.
2. Replacing manhole frames and covers.

B. Related Requirements:

1. Section 333111 - Public Sanitary Sewerage Gravity Piping: Execution requirements for sewerage piping as required by this Section.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Section 012000 - Price and Payment Procedures: Contract Sum/Price modification procedures.

B. Adjust Manhole Cover:

1. Basis of Measurement: By each.
2. Basis of Payment: Includes installing adjustment ring insert and sealant.

C. Adjust Manhole Casting:

1. Basis of Measurement: By each.
2. Basis of Payment: Includes removal of existing frame and cover, reinstalling existing frame and cover, adding or removing manhole riser rings, chimney seal, and joint sealant.

D. Replace Manhole Casting:

1. Basis of Measurement: By each.
2. Basis of Payment: Includes removal of existing frame and cover, installing new frame and cover, manhole riser rings, chimney seal, and joint sealant.

1.3 REFERENCE STANDARDS

A. American Association of State Highway and Transportation Officials:

1. AASHTO M306 - Standard Specification for Drainage, Sewer, Utility, and Related Castings.

B. ASTM International:

1. ASTM A48/A48M - Standard Specification for Gray Iron Castings.

2. ASTM C32 - Standard Specification for Sewer and Manhole Brick (Made from Clay or Shale).
3. ASTM C478 - Standard Specification for Circular Precast Reinforced Concrete Manhole Sections.
4. ASTM C877 - Standard Specification for External Sealing Bands for Concrete Pipe, Manholes, and Precast Box Sections.
5. ASTM C990 - Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants.
6. ASTM F593 - Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs.
7. ASTM F1554 - Standard Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength.

1.4 SUBMITTALS

A. Section 013300 - Submittal Procedures: Requirements for submittals.

B. Product Data: Submit manufacturer information for manhole covers and riser rings construction, features, configuration, and dimensions.

C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

D. Manufacturer Instructions: Submit detailed instructions on installation requirements, including storage and handling procedures.

1.5 CLOSEOUT SUBMITTALS

A. Section 017000 - Execution and Closeout Requirements: Requirements for submittals.

B. Project Record Documents: Record actual grade-adjusted elevation of manholes.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Section 016000 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.

B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.

C. Store materials according to manufacturer instructions.

D. Protection:

1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
2. Provide additional protection according to manufacturer instructions.

1.7 EXISTING CONDITIONS

A. Field Measurements:

1. Verify field measurements prior to fabrication.
2. Indicate field measurements on Shop Drawings.

PART 2 - PRODUCTS

2.1 FRAMES AND COVERS

A. In accordance with Section 330561 – Precast Concrete Structures

2.2 CHIMNEY SEAL SYSTEM

A. In accordance with Section 330561 – Precast Concrete Structures

2.3 COVER ADJUSTMENT RINGS

A. In accordance with Section 330561 – Precast Concrete Structures

2.4 SOURCE QUALITY CONTROL

A. Section 014000 - Quality Requirements: Requirements for testing, inspection, and analysis.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for installation examination.

B. Verify and locate manholes requiring grade adjustment.

3.2 EXISTING WORK

A. Saw cut existing paving.

B. Excavate.

C. Clean manholes.

D. Remove existing manhole frames and covers.

E. Repair waterproofing.

3.3 INSTALLATION

A. Adjust Manhole Cover.

1. Locate and raise manhole covers to grade as indicated on Drawings.
2. Use cover adjustment rings to achieve elevation indicated for cover.
    a. Minimum elevation 3/8 inch below final pavement/ground elevation.
    b. Maximum elevation 0 inch above final pavement/ground elevation.
3. Do not adjust cover elevation more than 3 inches with cover adjustment rings.
4. In asphalt paving areas provide 1” ring under cover as part of total adjustment. Adjustment over 1” will require multiple rings. Not required when floating castings are installed.
5. Seal joints between manhole top and cover adjustment ring with sealant.
6. Reinstall removed manhole cover.

B. Adjust Manhole Casting.

1. Locate and raise manhole castings to grade as indicated on Drawings.
2. Remove existing manhole frame and cover.
3. Add or remove riser rings.
4. Reset existing manhole frame and cover.
5. Use riser rings to achieve elevation indicated for cover.
    a. Minimum elevation 3/8 inch below final pavement/ground elevation.
    b. Maximum elevation 0 inch above final pavement/ground elevation.
6. Do not adjust cover elevation more than 3 inches with cover adjustment rings.
7. In asphalt paving areas provide 1” ring under cover as part of total adjustment.
8. Seal joints between manhole top and cover adjustment ring with sealant.
9. Reinstall removed manhole cover.

C. Replace Manhole Casting:

1. Locate manholes for replacement of frames and covers as indicated on Drawings.
2. Remove existing manhole frames and covers to enable reuse.
3. Deliver removed manhole frames and covers to Owner as maintenance materials as specified in Section 017000 - Execution and Closeout Requirements.
4. Install new frames and covers for manholes as indicated on Drawings.
5. Adjust new frames and covers to match finished grade as indicated on Drawings.
6. Seal joints between manholes and manhole frames.

END OF SECTION 330130.86

SECTION 330505.31 - HYDROSTATIC TESTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Hydrostatic testing of pressure piping.

B. Related Requirements:

1. Section 331413 - Public Water Utility Distribution Piping: Pipe materials and accessories normally encountered with pressurized water distribution systems.

1.2 REFERENCE STANDARDS

A. American Water Works Association:

1. AWWA C600 - Installation of Ductile-Iron Water Mains and Their Appurtenances.

1.3 SUBMITTALS

A. Section 013300 - Submittal Procedures: Requirements for submittals.

B. Submit following items prior to start of testing:

1. Testing procedures.
2. List of test equipment.
3. Testing sequence schedule.
4. Provisions for disposal of flushing and test water.
5. Certification of test gage calibration.

C. Test and Evaluation Reports: Indicate results of piping tests.

1.4 QUALITY ASSURANCE

A. Perform Work according to North Dakota Department of Environmental Quality standards.

PART 2 - PRODUCTS

2.1 HYDROSTATIC TESTING

A. Equipment:

1. Pressure pump.
2. Pressure hose.
3. Water meter.
4. Test connections.
5. Pressure relief valve.
6. Pressure Gage: Calibrated to 0.1 psi.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for installation examination.

B. Verify that piping is ready for testing.

C. Verify that trenches are backfilled.

D. Verify that pressure piping thrust restraints have been installed.

3.2 FIELD QUALITY CONTROL

A. Section 014000 - Quality Requirements: Requirements for inspecting and testing.

B. Testing of Pressure Piping:

1. Test system according to AWWA C600 and following:
    a. Hydrostatically test each portion of pressure pipe, including valved section, at not less than 150 psi. Do not test at a pressure that exceeds the design pressure of the pipe however.
    b. Conduct hydrostatic testing for at least two hours.
    c. Slowly fill with water portion of piping to be tested, expelling air from piping at high points.
    d. Install corporation cocks at high points.
    e. Close air vents and corporation cocks after air is expelled.
    f. Raise pressure to specified test pressure.
    g. Observe joints, fittings, and valves undergoing testing.
    h. Remove and renew cracked pipes, joints, fittings, and valves that show visible leakage.
    i. Retest.
    j. Correct visible deficiencies and continue testing at same test pressure for additional two hours to determine leakage rate.
    k. Maintain pressure within plus or minus 5.0 psi of test pressure.
    l. Leakage is defined as quantity of water supplied to piping necessary to maintain test pressure during period of testing.
    m. Compute maximum allowable leakage using following formula:
        1) L = [SD x sqrt(P)]/C.
        2) L = testing allowance, gph.

3) S = length of pipe tested, feet.
4) D = nominal diameter of pipe, inches.
5) P = average test pressure during hydrostatic testing, psig.
6) C = 148,000.
7) If pipe undergoing testing contains sections of various diameters, calculate allowable leakage from sum of computed leakage for each pipe size.

2. If testing of piping indicates leakage greater than that allowed, locate source of leakage, make corrections, and retest until leakage is within acceptable limits.
3. Correct visible leaks regardless of quantity of leakage.

END OF SECTION 330505.31

SECTION 330505.41 - AIR TESTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Low-pressure air testing of gravity sewer piping.

B. Related Requirements:

1. Section 333111 - Public Sanitary Sewerage Gravity Piping: Pipe materials, manholes, and accessories normally encountered with gravity sewerage piping.

1.2 SUBMITTALS

A. Section 013300 - Submittal Procedures: Requirements for submittals.

B. Submit following items prior to start of testing:

1. Testing procedures.
2. List of test equipment.
3. Testing sequence schedule.
4. Provisions for disposal of flushing and test water.
5. Certification of test gage calibration.

C. Test and Evaluation Reports: Indicate results of piping tests.

1.3 QUALITY ASSURANCE

A. Perform Work according to North Dakota Department of Environmental Quality standards.

PART 2 - PRODUCTS

2.1 AIR TESTING

A. Equipment:

1. Air compressor.
2. Air supply line.
3. Shutoff valves.
4. Pressure regulator.
5. Pressure relief valve.
6. Stopwatch.
7. Plugs.

8. Pressure Gage: Calibrated to 0.1 psi.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for installation examination.

B. Verify that piping is ready for testing.

C. Verify that trenches are backfilled.

3.2 PREPARATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for preparation.

B. Lamping:

1. Lamp gravity piping after flushing and cleaning.
2. Perform lamping operation by shining light at one end of each pipe section between manholes.
3. Observe light at other end.
4. Pipe not installed with uniform line and grade will be rejected.
5. Remove and reinstall rejected pipe sections.
6. Clean and lamp until pipe section is installed to uniform line and grade.

C. Plugs:

1. Plug outlets, wye branches, and laterals.
2. Brace plugs to resist test pressures.

3.3 FIELD QUALITY CONTROL

A. Section 014000 - Quality Requirements: Requirements for inspecting and testing.

B. Low-Pressure Air Testing:

1. Test each reach of gravity sewer piping between manholes.
2. Introduce air pressure slowly to approximately 4 psig.
3. Determine ground water elevation above spring line of piping.
4. For every foot of ground water above spring line of piping, increase starting air test pressure by 0.43 psi.
5. Do not increase pressure above 10 psig.
6. Allow pressure to stabilize for at least five minutes.
7. Adjust pressure to 3.5 psig or to increased test pressure as determined above when ground water is present.

8. Do not make allowance for laterals.
9. Minimum Testing Duration:

Pipe Diameter, in.	Minimum time, min:s	Length for Minimum Time, ft	Time for Longer Length,s	Specification time for Length (L) shown, min:s							
				100 ft	150 ft	200 ft	250 ft	300 ft	350 ft	400 ft	450 ft
4	3:46	597	0.380 L	3:46	3:46	3:46	3:46	3:46	3:46	3:46	3:46
6	5:40	398	0.854 L	5:40	5:40	5:40	5:40	5:40	5:40	5:42	6:24
8	7:34	298	1.520 L	7:34	7:34	7:34	7:34	7:36	8:52	10:08	11:24
10	9:26	239	2.374 L	9:26	9:26	9:26	9:53	11:52	13:51	15:59	17:48
12	11:20	199	3.418 L	11:20	11:20	11:24	14:15	17:05	19:56	22:47	25:38
15	14:10	159	5.342 L	14:10	14:10	17:48	22:15	26:42	31:09	35:36	40:04
18	17:00	133	7.692 L	17:00	19:13	25:38	32:03	38:27	44:52	51:16	57:41
21	19:50	114	10.470 L	19:50	26:10	34:54	43:37	52:21	61:00	69:48	78:31
24	22:40	99	13.674 L	22:47	34:11	45:34	56:58	68:22	79:46	91:10	102:33
27	25:30	88	17.306 L	28:51	43:16	57:41	72:07	86:32	100:57	115:22	129:48
30	28:20	80	21.366 L	35:37	53:25	71:13	89:02	106:50	124:38	142:26	160:15
33	31:10	72	25.852 L	43:05	64:38	86:10	107:43	129:16	150:43	172:21	193:53
36	34:00	66	30.768 L	51:17	76:55	102:34	128:12	153:50	179:29	205:07	230:46
42	39:48	57	41.883 L	69:48	104:42	139:37	174:30	209:24	244:19	279:13	314:07
48	45:34	50	54.705 L	91:10	136:45	182:21	227:55	273:31	319:06	364:42	410:17
54	51:02	44	69.236 L	115:24	173:05	230:47	288:29	346:11	403:53	461:34	519:16
60	56:40	40	85.476 L	142:28	213:41	284:55	356:09	427:23	498:37	569:50	641:04

10. Record drop in pressure during testing period.
11. If air pressure drops more than 1.0 psi during testing period, piping has failed.
12. If 1.0-psi air pressure drop has not occurred during testing period, piping is acceptable; discontinue testing.
13. If piping fails, test reach of piping in incremental stages until leaks are isolated, repair leaks, and retest entire reach between manholes.
14. If unsatisfactory testing results are achieved, make necessary repairs and retest until result meets criteria.
15. Repair visible leaks regardless of quantity of leakage.

END OF SECTION 330505.41

SECTION 330505.43 - MANDREL TESTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Deflection testing of plastic sewer piping.

B. Related Requirements:

1. Section 333111 - Public Sanitary Sewerage Gravity Piping: Pipe materials, manholes, and accessories normally encountered with gravity sewerage piping.

1.2 REFERENCE STANDARDS

A. ASTM International:

1. ASTM D2122 - Standard Test Method for Determining Dimensions of Thermoplastic Pipe and Fittings.

1.3 SUBMITTALS

A. Section 013300 - Submittal Procedures: Requirements for submittals.

B. Submit following items prior to start of testing:

1. Testing procedures.
2. List of test equipment.
3. Testing sequence schedule.
4. Provisions for disposal of flushing and test water.
5. Certification of test gage calibration.
6. Deflection mandrel drawings and calculations.

C. Test and Evaluation Reports: Indicate results of piping tests.

PART 2 - PRODUCTS

2.1 DEFLECTION TESTING

A. Equipment:

1. Properly sized rigid ball or "go, no go" mandrel.
2. Pull/retrieval ropes.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for installation examination.

B. Verify that piping is ready for testing.

C. Verify that trenches are backfilled.

3.2 PREPARATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for preparation.

B. Lamping:

1. Lamp gravity piping after flushing and cleaning.
2. Perform lamping operation by shining light at one end of each pipe section between manholes.
3. Observe light at other end.
4. Pipe not installed with uniform line and grade will be rejected.
5. Remove and reinstall rejected pipe sections.
6. Clean and lamp until pipe section is installed to uniform line and grade.

C. Plugs:

1. Plug outlets, wye branches, and laterals.
2. Brace plugs to resist test pressures.

3.3 FIELD QUALITY CONTROL

A. Section 014000 - Quality Requirements: Requirements for inspecting and testing.

B. If visual inspection specified in Section 330130.11 – Television Inspection of Sewers shows pipe deflection as determined by the Engineer, Contractor will perform deflection testing as specified in this section.

C. Deflection Testing of Plastic Sewer Piping:

1. Perform vertical ring deflection testing on PVC sewer piping prior to installation of roadway components such as but not limited to, geotextiles or geogrids, drain tile, gravels, and concrete or hot bituminous surfacing. This testing should be considered in addition to any requirements of the North Dakota State Plumbing Code or Ten State Standards.
2. Allowable maximum deflection for installed plastic sewer pipe is no greater than five percent of original vertical internal diameter.
3. Perform deflection testing using properly sized rigid ball or "go, no go" mandrel.

4. Rigid Ball or Mandrel Diameter:

    a. Not less than 95 percent of base or average ID of pipe.
    b. Pipe Diameter: Comply with ASTM D2122.

5. Perform testing without mechanical pulling devices.
6. Locate, excavate, replace, and retest piping that exceeds allowable deflection.
7. Perform test with Engineer’s representative present.

END OF SECTION 330505.43

SECTION 330507 - TRENCHLESS INSTALLATION OF UTILITY PIPING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Casing and jacking pipe.
2. Carrier pipe.
3. Excavation for approach trenches and pits.

B. Related Requirements:

1. Section 310516 - Aggregates for Earthwork: Masonry and concrete requirements.
2. Section 312316.13 - Trenching: Dewatering measures and excavation supports.
3. Section 331413 - Public Water Utility Distribution Piping: Piping and carrier pipe requirements.
4. Section 333111 - Public Sanitary Sewerage Gravity Piping: Piping and carrier pipe requirements.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Section 012000 - Price and Payment Procedures: Contract Sum/Price modification procedures.

B. Jacked Pipe:

1. Basis of Measurement: By linear foot, measured on invert of casing pipe from face of casing pipe.
2. Basis of Payment: Includes excavation, jacked casing pipe, installation of carrier pipe, grout (when specified), accessories, tests, and backfill.

1.3 REFERENCE STANDARDS

A. American Association of State Highway and Transportation Officials:

1. AASHTO HB-17 - Standard Specifications for Highway Bridges.

B. American Railway Engineering and Maintenance-of-Way Association:

1. AREMA - Manual for Railway Engineering.

C. American Welding Society:

1. AWS D1.1/.

D. ASTM International:

1. ASTM A36/A.
2. ASTM A53/.
3. ASTM C361 - Standard Specification for Reinforced Concrete Low-Head Pressure Pipe.
4. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12 400 ft-lbf/ft3 (600 kN-m/m3).
5. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3 (2,700 kN-m/m3).
6. ASTM D6938 - Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

E. National Utility Contractors Association:

1. NUCA - Guide to Pipe Jacking and Microtunneling Design.

1.4 COORDINATION

A. Section 013000 - Administrative Requirements: Requirements for coordination.

B. Coordinate Work of this Section with West Fargo Public Works and utilities within construction area.

1.5 SUBMITTALS

A. Section 013300 - Submittal Procedures: Requirements for submittals.

B. Product Data:

1. Submit manufacturer information regarding tunnel liner plate, showing sizes, shapes, methods of attachment, connection details, and details of grout holes.
2. Submit manufacturer information for all accessories.

C. Shop Drawings:

1. Indicate details of casing, jacking head, sheeting, and other falsework for trenches and pits, and support for facility, field sketches, and other details to complete Work.
2. Submit description of proposed construction plan, dewatering plan, and plan to establish and maintain vertical and horizontal alignments.

D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

E. Welder Certificates: Certify welders and welding procedures employed on Work, verifying AWS qualification within previous 12 months.

F. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.

G. Qualifications Statements:

1. Submit qualifications for installer and licensed professional.
2. Welders: Qualify procedures and personnel according to AWS D1.1/D1.1M.

1.6 CLOSEOUT SUBMITTALS

A. Section 017000 - Execution and Closeout Requirements: Requirements for submittals.

B. Project Record Documents: Record actual locations of casing or tunnel liner, carrier pipe, and invert elevations.

C. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

1.7 QUALITY ASSURANCE

A. Perform Work according to AREMA and NUCA guidelines.

B. Obtain occupancy permit when boring, jacking, or tunneling under or within rights-of-way of state and municipal highways and railroads.

1.8 QUALIFICATIONS

A. Installer: Company specializing in performing Work of this Section with minimum three years' documented experience.

B. Welders: AWS qualified within previous 12 months for employed weld types.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Section 016000 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.

B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.

C. Handling: Support casing and carrier pipes with nylon slings during handling.

D. Storage:

1. Store products according to manufacturer instructions.
2. Use wooden shipping braces between layers of stacked pipe.
3. Stack piping lengths no more than three layers high.
4. Store field joint materials in original shipping containers.

E. Protection:

1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
2. Provide temporary end caps and closures on piping and fittings and maintain in place until installation.
3. Protect piping from entry of foreign materials and water by installing temporary covers, completing sections of Work, and isolating parts of completed system.
4. Provide additional protection according to manufacturer instructions.

1.10 EXISTING CONDITIONS

A. Field Measurements:

1. Verify field measurements prior to fabrication.
2. Indicate field measurements on Shop Drawings.

PART 2 - PRODUCTS

2.1 CASING AND JACKING PIPE

A. Steel Casing Pipe:

1. Comply with ASTM A53/A53M.
2. Minimum Yield Strength: 35,000 psi.
3. Minimum Wall Thickness
   a. Road crossings: comply with standard steel pipe sizing per ANSI.
   b. Railroad crossings comply with the following table:

Nominal Diameter (Inches)	Min Thickness for Coated (Inches)	Min Thickness for Non Coated (Inches)
14 and Under	0.188	0.188
16	0.219	0.281
18	0.250	0.312
20 and 22	0.281	0.344
24	0.312	0.375
26	0.344	0.406
28	0.375	0.438
30	0.406	0.469
32	0.438	0.500
34 and 36	0.469	0.531
38, 40 and 42	0.500	0.563
44 and 46	0.531	0.594
48	0.563	0.625
50	0.594	0.656
52	0.625	0.688
54	0.656	0.719
56 and 58	0.688	0.750

60	0.719	0.781
62	0.750	0.813
64	0.718	0.844
66 and 68	0.813	0.875
70	0.844	0.906
72	0.875	0.938

4. Welded Joints:
   a. Comply with AWS D1.1/D1.1M.
   b. Full circumference.

B. Performance and Design Criteria:

1. Casing Pipe: Leakproof.
2. Loading:
   a. Highways:
      1) Earth cover.
      2) H-20 live loading, according to AASHTO HB-17.
      3) Impact loading according to AASHTO HB-17 plus 50 percent.
   b. Railways:
      1) Earth cover.
      2) E80 loading comply with AREMA - Manual for Railway Engineering.
      3) Impact loading according to AREMA guidelines plus 50 percent.

3. Bracing, Backstops, and Jacks: Of sufficient rating for continuous jacking without stopping except to add pipe sections, and to minimize tendency of ground material to freeze around casing pipe.

2.2 CARRIER PIPE

A. Water Distribution Piping: As specified in Section 331413 - Public Water Utility Distribution System Piping.

B. Sanitary Sewage System Piping: As specified in Section 333100 - Sanitary Sewerage Piping.

C. Pressure Piping with Fused Joints: where indicated on the plans.

1. PVC Piping:
   a. Pipe: Comply with AWWA C900, Class 165 minimum, or as required for pull-in force.
   b. Pipe Size: as noted on plans.
   c. Materials:
      1) Comply with ASTM D1784.
      2) Cell Classification: 12454.
   d. Joints:
      1) Fused joint comply with ASTM D638 and ASTM D1599.
2. Polyethylene (PE) Piping:
   a. Pipe: Comply with AWWA C906, ASTM D3035, DR 11 for 200-psig pressure rating minimum, or as required for pull-in force.

b. Pipe Size: as noted on plans with DIPS sizing.
c. Materials:
    1) Comply with ASTM D3350.
    2) Cell Classification: 445574-C.
d. Fittings:
    1) Comply with AWWA C906, ASTM D2657, and ASTM D3350.
    2) Style: Molded.
e. Joints:
    1) Fused
    2) End Connections: MJ Adapter

2.3 MATERIALS

A. Soil Backfill for Trench Approaches and Pits to Finish Grade:

1. Soil Type S2, as specified in Section 310513 – Soils for Earthwork.

B. Grout: For filling the annular space between the casing and earth:

1. Cellular concrete mixture, proportioned according to the mix recommendations of the manufacturer of the foam admixture.
2. Wet Density: 40 to 70 pounds per cubic feet.
3. 28-Day Compressive Strength: At least 200 pounds per square inch.

C. Flowable Fill: For filling the annular space between the casing and carrier pipe where indicated on the plans:

1. Description:

    a. Self-leveling and self-compacting, non-shrink, flowable, cementitious, controlled, low-strength material (CLSM).
    b. CLSM shall be proportioned by the ready mixed concrete supplier on the basis of field experience and/or laboratory trial mixtures to produce a cohesive and non-segregating mixture meeting the specified properties.

2. Flowability: 6 to 8 inches in accordance with ASTM D6103.
3. One-Year Compressive Strength: 150 to 300 pounds per square inch.

2.4 ACCESSORIES

A. Steel and Plastic Supports and Insulators:

1. Bands: 14-gage stainless steel or Polyethylene casing insulator band, Model CI by Advance Products & Systems, Inc. or equivalent
2. Flange Bolts: 5/16-inch stainless steel.
3. Liner: Heavy-duty PVC.
4. Polyethylene casing insulator band (Model CI)
5. Skids: Polyethylene or phenolic.

B. Steel Strapping: Comply with ASTM A36/A36M.

C. Seals: Pull-On End Seals (Model AC) by Advance Products & Systems, Inc. or equivalent

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for installation examination.

B. Verify that connection, sizes, locations, and invert elevations are as indicated on Drawings.

3.2 PREPARATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for installation preparation.

B. Identify required lines, levels, contours, and datum locations.

C. Existing Utilities:

1. Locate and identify utilities indicated to remain and protect from damage.
2. Notify utility company to remove and relocate utilities.
3. Establish minimum separation from other services according North Dakota Department of Environmental Quality Standards.

D. Maintain access to existing facilities and other active installations requiring access.

3.3 INSTALLATION

A. Dewatering:

1. Intercept and divert surface drainage precipitation and ground water away from excavation through use of dikes, curb walls, ditches, pipes, sumps, or other methods.
2. Develop substantially dry subgrade for subsequent operations.
3. Comply with requirements of local and state authorities for dewatering to any watercourse, prevention of stream degradation, and erosion and sediment control.

B. Pits or Approach Trenches:

1. Excavate approach trenches or pits as indicated in Section 312316.13 – Trenching, on Shop Drawings, and as Site conditions require.
2. Ensure that casing entrance faces as near perpendicular in alignment as conditions permit.
3. Establish vertical entrance face at least 1 foot above top of casing.
4. Install excavation supports as specified in Section 312316.13 - Trenching.

C. Casing Pipe:

1. Boring:
   a. Push pipe into ground with boring auger rotating within pipe to remove soil.
   b. Do not advance cutting head ahead of casing pipe, except for distance necessary to permit cutting teeth to maintain clearance for pipe.
   c. Arrange machine bore and cutting head to be removable from within pipe.
   d. Arrange face of cutting head to provide barrier to free flow of soft material.
   e. If unstable soil is encountered during boring, retract cutting head into casing to permit balance between pushing pressure and ratio of pipe advancement to quantity of soil.
   f. Grout to fill voids between casing pipe and surrounding earth.
   g. If boring is obstructed, relocate jack or tunnel as directed by Engineer.
2. Jacking:
   a. Construct adequate thrust wall normal to proposed line of thrust.
   b. Impart thrust load to pipe through suitable thrust ring sufficiently rigid to ensure uniform distribution of thrust load on full pipe circumference.
3. Drilling and Jacking:
   a. Use oil-field-type rock roller bit or plate bit made up of individual roller cutter units solidly welded to pipe.
   b. Turned and push pipe for its entire length by drilling machine to give bit necessary cutting action.
   c. Inject high-density slurry (oil field drilling mud) to head as cutter lubricant.
   d. Inject slurry at rear of cutter units to prevent jetting action ahead of pipe.
4. Mining and Jacking: Use manual hand-mining excavation from within casing pipe as casing is advanced with jacks, allowing minimum ground standup time ahead of casing pipe.

D. Carrier Pipe:

1. Clean, inspect, and handle pipe as specified in Section 331413 – Public Water Utility Distribution Piping or 333111 – Public Sanitary Sewerage Gravity Piping.
2. Placement:
   a. Place carrier pipe as specified in Section 331413 – Public Water Utility Distribution Piping, or 333111 – Public Sanitary Sewerage Gravity Piping.
   b. Prevent damage to pipe joints as carrier pipe is placed in casing.
3. Supports:
   a. Support pipeline within casing such that no external loads are transmitted to carrier pipe.
   b. Attach supports to barrel of carrier pipe; do not rest carrier pipe on bells.
4. Install casing seals.
5. If indicated on the drawings, fill annular space between carrier pipe and casing pipe with flowable fill.

3.4 TOLERANCES

A. Section 014000 - Quality Requirements: Requirements for tolerances.

B. Excavation: Do not overcut excavation by more than 1 inch greater than OD of casing pipe.

C. Casing Pipe Vertical and Horizontal Alignment: Plus or minus 3 inches prior to installation of carrier pipe.

D. Pipe Bells: Minimum 1/2-inch clearance to casing.

3.5 FIELD QUALITY CONTROL

A. Section 014000 - Quality Requirements: Requirements for inspecting and testing.

B. Compaction Testing:

1. Comply with ASTM D698 and ASTM D6938.
2. If tests indicate Work does not meet specified requirements, remove Work, replace, and retest.
3. Testing Frequency: 2 per bore pit.

3.6 CLEANING

A. Section 017000 - Execution and Closeout Requirements: Requirements for cleaning.

B. Remove temporary facilities for installation and operations as specified in Section 015000 - Temporary Facilities and Controls.

3.7 PROTECTION

A. Section 017000 - Execution and Closeout Requirements: Requirements for protecting finished Work.

B. Protect plant life, lawns, rock outcroppings, and other features of final landscaping.

C. Protect bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

END OF SECTION 330507

SECTION 330507.13 - UTILITY DIRECTIONAL DRILLING

1.1 SUMMARY

A. Section Includes:

1. Excavation for approach trenches and pits.
2. Horizontal directional drilling.
3. Pipe.
4. Drilling fluid system.

B. Related Requirements:

1. Section 312316.13 - Trenching: Trenching as required by this Section.
2. Section 330505.31 - Hydrostatic Testing: Sanitary sewer pipe testing.
3. Section 330597 - Identification and Signage for Utilities: Underground pipe markers.
4. Section 331413 - Public Water Utility Distribution Piping: Potable-water pipe testing.
5. Section 331416 - Site Water Utility Distribution Piping: Potable-water pipe testing.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Section 012000 - Price and Payment Procedures: Contract Sum/Price modification procedures.

B. Horizontal Directional Drilling:

1. Basis of Measurement: By linear foot.
2. Basis of Payment: Includes excavation, dewatering, drilling, pipe, accessories, tests, and backfill.

1.3 REFERENCE STANDARDS

A. American Water Works Association:

1. AWWA C111 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
2. AWWA C900 - Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 In. Through 60 In. (100 mm Through 1,500 mm), for Water Transmission and Distribution.
3. AWWA C906 - Polyethylene (PE) Pressure Pipe and Fittings, 4 In. (100 mm) Through 63 In. (1,600 mm), for Water Distribution and Transmission.

B. ASTM International:

1. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort 12 400 ft-lbf/ft3.
2. ASTM D1784 - Standard Specification for Rigid Poly(Vinyl Chloride) (PVC) Compounds and Chlorinated Poly(Vinyl Chloride) (CPVC) Compounds.

3. ASTM D1785 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120.
4. ASTM D2241 - Standard Specification for Poly(Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series).
5. ASTM D2683 - Standard Specification for Socket-Type Polyethylene Fittings for Outside Diameter-Controlled Polyethylene Pipe and Tubing.
6. ASTM D2837 - Standard Test Method for Obtaining Hydrostatic Design Basis for Thermoplastic Pipe Materials or Pressure Design Basis for Thermoplastic Pipe Products.
7. ASTM D3035 - Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter.
8. ASTM D3139 - Standard Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals.
9. ASTM D3261 - Standard Specification for Butt Heat Fusion Polyethylene (PE) Plastic Fittings for Polyethylene (PE) Plastic Pipe and Tubing.
10. ASTM D3350 - Standard Specification for Polyethylene Plastics Pipe and Fittings Materials.
11. ASTM D6938 - Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).
12. ASTM F714 - Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Outside Diameter.
13. ASTM F1056 - Standard Specification for Socket Fusion Tools for Use in Socket Fusion Joining Polyethylene Pipe or Tubing and Fittings.
14. ASTM F1962 - Standard Guide for Use of Maxi-Horizontal Directional Drilling for Placement of Polyethylene Pipe or Conduit Under Obstacles, Including River Crossings.

C. North American Society for Trenchless Technology:

1. NASTT - Horizontal Directional Drilling Good Practices Guidelines.

D. Plastics Pipe Institute:

1. PPI TR-46 - Guidelines for Use of Mini-Horizontal Directional Drilling for Placement of High Density Polyethylene Pipe.

1.4 COORDINATION

A. Section 013000 - Administrative Requirements: Requirements for coordination.

B. Coordinate Work of this Section with Municipality of West Fargo Public Works and utilities within construction area.

1.5 SUBMITTALS

A. Section 013300 - Submittal Procedures: Requirements for submittals.

B. Product Data:

1. Identify source of water used for drilling.

2. Submit copy of approvals and permits for use of water source.

C. Shop Drawings:

1. Submit technical data for equipment, method of installation, and proposed sequence of construction.
2. Include information pertaining to pits, dewatering, method of spoils removal, and equipment size, capacity, and capabilities, including installing pipe on radius, type of drill bit, drilling fluid, method of monitoring line and grade, detection of surface movement, name plate data for drilling equipment, and mobile spoils removal unit.

D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

E. Qualifications Statement:

1. Submit qualifications for driller.

1.6 CLOSEOUT SUBMITTALS

A. Section 017000 - Execution and Closeout Requirements: Requirements for submittals.

B. Project Record Documents: Record actual locations of pipe and invert elevations.

C. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

D. Record actual depth of pipe at 25-foot intervals.

E. Record actual horizontal location of installed pipe.

F. Show depth and location of abandoned bores.

G. Record depth and location of drill bits and drill stems not removed from bore.

1.7 QUALITY ASSURANCE

A. Perform Work according to following:

1. NASTT - Horizontal Directional Drilling Good Practices Guidelines.
2. ASTM F1962.
3. PPI TR-46.

B. Perform Work according to City of West Fargo standards.

1.8 QUALIFICATIONS

A. Driller: Company specializing in performing Work of this Section with minimum three years' documented experience.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Section 016000 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.

B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.

C. Handling:

1. Use shipping braces between layers of stacked pipe.
2. Support pipes with nylon slings during handling.

D. Storage:

1. According to manufacturer instructions.
2. Stack piping lengths no more than three layers high.
3. Store field joint materials in original shipping containers in dry area indoors.

E. Protection:

1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
2. Protect pipe from entry of foreign materials and water by installing temporary covers, completing sections of Work, and isolating parts of completed system.
3. Provide additional protection according to manufacturer instructions.

1.10 AMBIENT CONDITIONS

A. Section 015000 - Temporary Facilities and Controls: Requirements for ambient condition control facilities for product storage and installation.

B. Maintain storage temperature of 60 to 85 degrees F.

1.11 EXISTING CONDITIONS

A. Field Measurements:

1. Verify field measurements prior to fabrication.
2. Indicate field measurements on Shop Drawings.

PART 2 - PRODUCTS

2.1 HORIZONTAL DIRECTIONAL DRILLING

A. Performance and Design Criteria:

1. Drilling Steering System: Remote with continuous electronic monitoring of boring depth and location.
2. Directional Change Capability: 90 degrees with 35-foot radius curve.
3. Minimum distance for single bores and between boring pits:
    a. 300’ or as shown on plans.
4. Ratio of Reaming Diameter to Pipe OD:
    a. Submit recommended ratio and reaming procedures for review by Engineer.

B. Water Source:

1. Potable.
2. Obtained from West Fargo Public Works.

C. Underground Pipe Markers: As specified in Section 330597 - Identification and Signage for Utilities.

D. Materials:

1. Drilling Fluid: Liquid bentonite clay slurry; totally inert with no environmental risk.

E. PVC Piping:

1. Pipe: Comply with AWWA C900, Class 165 minimum, or as required for pull-in force.
2. Pipe Size: as noted on plans.
3. Materials:
    a. Comply with ASTM D1784.
    b. Cell Classification: 12454.
4. Joints:
    a. Fused joint comply with ASTM D638 and ASTM D1599.

F. Polyethylene (PE) Piping:

1. Pipe: Comply with AWWA C906, ASTM D3035, DR 11 for 200-psig pressure rating minimum, or as required for pull-in force.
2. Pipe Size: as noted on plans with DIPS sizing.
3. Materials:
    a. Comply with ASTM D3350.
    b. Cell Classification: 445574-C.
4. Fittings:
    a. Comply with AWWA C906, ASTM D2657, and ASTM D3350.
    b. Style: Molded.
5. Joints:
    a. Fused
    b. End Connections: MJ Adapter

G. Subsoil Fill: Type S2, excavated and reused soil with no rocks more than 6 inches in diameter, frozen earth, or foreign matter.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for installation examination.

B. Verify that connections to piping system, locations, and invert elevations are according to Drawings.

3.2 PREPARATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for installation preparation.

B. Local Utility:

1. Call local utility line information service at North Dakota One Call at 1-800-795-0555 or 811 not less than two working days before performing Work.
2. Request underground utilities to be located and marked within and surrounding construction areas.

C. Maintain access to existing facilities; modify pipe installation to maintain access to existing facilities.

D. Locate and identify utilities indicated to remain and protect from damage.

E. Identify required lines, levels, contours, and data locations.

F. Protect plant life, lawns, and other features remaining as portion of final landscaping.

G. Protect benchmarks and survey control points from excavating equipment and vehicular traffic.

3.3 INSTALLATION

A. Dewatering:

1. Intercept and divert surface drainage, precipitation, and ground water away from excavation using dikes, curb walls, ditches, pipes, sumps, or other approved means.
2. Develop and maintain substantially dry subgrade during drilling and pipe installation.
3. Comply with City of West Fargo and North Dakota Department of Environmental Quality requirements for discharging water to watercourse, preventing stream degradation, and controlling erosion and sediment. Comply with NPDES General Permit.

B. Excavation:

1. Excavate subsoil as specified in Section 312316.13 - Trenching.
2. Excavate approach trenches and pits as Site conditions require; minimize number of access pits.
3. Provide sump areas to contain drilling fluids.
4. Install excavation supports as specified in Section 312316.13 – Trenching.
5. Restore areas after completion of drilling and carrier pipe installation.

C. Drilling:

1. Drill pilot bore with vertical and horizontal alignment as indicated on Drawings.
2. Surveying:
   a. Survey entire drill path and mark entry and exit locations with stakes.
   b. If a magnetic guidance system is used, survey drill path for surface geomagnetic variations or anomalies.
3. Guiding:
   a. Guide drill remotely from ground surface to maintain alignment by monitoring signals transmitted from drill bit.
   b. Monitor depth, pitch, and position.
   c. Adjust drill head orientation to maintain correct alignment.
4. Drilling Fluid:
   a. Inject drilling fluid into bore to stabilize hole, remove cuttings, and lubricate drill bit and pipe.
   b. Continuously monitor drilling fluid pumping rate, pressure, viscosity, and density while drilling pilot bore, back reaming, and installing pipe to ensure adequate removal of soil cuttings and stabilization of bore.
   c. Provide relief holes when required to relieve excess pressure.
   d. Minimize heaving during pullback.
5. Verification of Accuracy:
   a. Calibrate and verify electronic monitor accuracy during first 50 feet of bore in presence of Engineer before proceeding with other drilling.
   b. Excavate minimum of four test pits spaced along first 50 feet of bore to verify required accuracy, if requested by the Engineer.
   c. If required accuracy is not met, adjust equipment or provide new equipment capable of meeting required accuracy.
6. After completing pilot bore, remove drill bit.

D. Drilling Obstructions:

1. If obstructions are encountered during drilling, notify Engineer immediately.
2. Do not proceed around obstruction without approval of Engineer.
3. For conditions requiring more than 3 feet of deviation in horizontal alignment, submit revised Shop Drawings to Engineer for approval before resuming Work.
4. Maintain adjusted bore alignment within easement or right-of-way.

E. Piping:

1. Install reamer and pipe pulling head; select reamer with minimum bore diameter required for pipe installation.

2. Attach pipe to pipe pulling head and pull reamer and pipe to entry pit along pilot bore.
3. Inject drilling fluid through reamer to stabilize bore and lubricate pipe.
4. Install piping with horizontal and vertical alignment as shown on Drawings.
5. Protect and support pipe being pulled into bore such that pipe moves freely and is not damaged during installation.
6. Do not exceed pipe manufacturer's recommended pullback forces.
7. Trace Wire:
    a. Install trace wire continuous with each bore.
    b. Splice trace wire only at intermediate bore pits.
    c. Tape or insulate trace wire to prevent corrosion and maintain integrity of pipe detection.
    d. Terminate trace wire for each pipe run at structures along pipe system.
    e. Provide extra length of trace wire at each structure such that trace wire can be pulled 3 feet out top of structure for connection to detection equipment.
    f. Test trace wire for continuity for each bore before acceptance.
8. Provide sufficient length of pipe to extend past termination point to allow connection to open cut pipe sections.
9. Allow minimum of 24 hours for stabilization after installing pipe before making connections to pipe.
10. Mark location and depth of bore with spray paint on paved surfaces and on wooden stakes on non-paved surfaces at 25-foot intervals.

F. Slurry Removal and Disposal:

1. Contain excess drilling fluids at entry and exit points until recycled or removed from Site; provide recovery system to remove drilling spoils from access pits.
2. Drilling Spoils:
    a. Remove, transport, and legally dispose of drilling spoils.
    b. Do not discharge drilling spoils in sanitary sewers, storm sewers, or other drainage systems.
    c. When drilling in suspected contaminated soil, test drilling fluid for contamination before disposal.
3. If drilling fluid leaks to surface, immediately contain leak and barricade area from vehicular and pedestrian travel before resuming drilling operations.
4. Complete cleanup of drilling fluid at end of each working day.

G. Backfilling:

1. Install backfill as specified in Section 312316.13 – Trenching.
2. Backfill approach trenches and pits with subsoil fill to contours and elevations of surrounding existing grade.
3. Compact subsoil fill as specified in Section 312316.13 – Trenching to minimum 95 percent of maximum dry density.

3.4 TOLERANCES

A. Section 014000 - Quality Requirements: Requirements for tolerances.

B. Maximum Variation from Horizontal Position: 12 inches.

C. Maximum Variation from Vertical Elevation: 6 inches.

D. Minimum Horizontal and Vertical Clearance from Other Utilities: 12 inches.

E. Deviation:

1. If pipe installation deviates beyond specified tolerances, abandon bore, remove installed pipe, rebore, and reinstall pipe in correct alignment.
2. Fill abandoned bores greater than 3 inches in diameter with grout or flowable fill material.

3.5 FIELD QUALITY CONTROL

A. Section 014000 - Quality Requirements: Requirements for inspecting and testing.

B. Upon completion of pipe installation, test pipe according to following:

1. Sanitary Sewer Pipe Testing: As specified in Section 330505.31 - Hydrostatic Testing.
2. If tests indicate Work does not meet specified requirements, remove Work, replace, and retest.

C. Compaction Testing:

1. Comply with ASTM D698, Standard Proctor.
2. If tests indicate Work does not meet specified requirements, remove Work, replace, and retest.
3. Testing Frequency: Two per bore pit.

D. Certify that equipment for drilling has been properly set up and is ready for drilling.

3.6 CLEANING

A. Section 017000 - Execution and Closeout Requirements: Requirements for cleaning.

B. Upon completion of drilling and pipe installation, remove drilling spoils, debris, and unacceptable material from approach trenches and pits.

C. Clean up excess slurry from ground.

D. Restore approach trenches and pits to original condition.

E. Remove temporary facilities for drilling operations as specified in Section 015000 - Temporary Facilities and Controls.

END OF SECTION 330507.13

SECTION 330509.33 - THRUST RESTRAINT FOR UTILITY PIPING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Concrete Thrust Blocking.
2. Mechanical Joint Restraint.

B. Related Requirements:
1. Section 312316.13 - Trenching: Trenching and backfilling requirements for Site utilities.
2. Section 331413 - Public Water Utility Distribution Piping: Requirements for piping Work as required by this Section.

1.2 REFERENCE STANDARDS

A. American Water Works Association:

1. AWWA C110
2. AWWA C600 - Installation of Ductile-Iron Water Mains and Their Appurtenances.

B. ASME International:

1. ASME B1.1 - Unified Inch Screw Threads, UN and UNR Thread Form.

C. ASTM International:
1. ASTM A36/A36M - Standard Specification for Carbon Structural Steel.
2. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
3. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
4. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength.
5. ASTM A325 - Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.
6. ASTM A536 – Standard Specification for Ductile Iron Castings.
7. ASTM A563 - Standard Specification for Carbon and Alloy Steel Nuts.
8. ASTM A588/A588M - Standard Specification for High-Strength Low-Alloy Structural Steel, up to 50 ksi Minimum Yield Point, with Atmospheric Corrosion Resistance.
9. ASTM B633 - Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel.
10. ASTM E8 – Tension Testing of Metallic Materials.
11. ASTM F436 - Standard Specification for Hardened Steel Washers.

1.3 COORDINATION

A. Section 013000 - Administrative Requirements: Requirements for coordination.

B. Coordinate Work of this Section with installation of fittings and joints that require restraint.

1.4 SUBMITTALS

A. Section 013300 - Submittal Procedures: Requirements for submittals.

B. Product Data: Submit manufacturer catalog information for restrained joint details and installation instructions.

C. Shop Drawings:

1. Indicate restrained joint details and materials being used.
2. Submit layout drawings showing piece numbers and locations.
3. Indicate restrained joint locations.

D. Manufacturer Instructions: Submit detailed instructions on installation requirements, including storage and handling procedures.

1.5 CLOSEOUT SUBMITTALS

A. Section 017000 - Execution and Closeout Requirements: Requirements for submittals.

B. Project Record Documents: Record actual locations of joint restraints.

1.6 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years' documented experience.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Section 016000 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.

B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.

C. Store materials according to manufacturer instructions.

D. Protection:

1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
2. Provide additional protection according to manufacturer instructions.

1.8 EXISTING CONDITIONS

A. Field Measurements:

1. Verify field measurements prior to fabrication.
2. Indicate field measurements on Shop Drawings.

PART 2 - PRODUCTS

2.1 PERFORMANCE AND DESIGN CRITERIA

A. Provide concrete thrust blocking as indicated on the Drawings.

B. When indicated on the Drawings, provide restraint devices for mechanical joint restraints and appurtenances in addition to concrete thrust blocking.

2.2 MECHANICAL JOINT RESTRAINTS

A. Manufacturer:

1. Megalug by EBAA Iron, Inc.
2. One-Lok SLCE with CORRSAFE coating by Sigma Corporation.
3. or approved equal.

B. Design:

1. Consist of multiple gripping wedges incorporated into a follower gland meeting the applicable requirements of ASNI/AWWA C110/A21.10 for nominal pipe sizes 3 inch through 36 inch.
2. Include a minimum safety factor of 2:1 in all sizes for rating for water pressure.

C. Material:

1. Cast from grades 65-45-12 ductile iron material in accordance with ASTM A536 for gland body, wedges and wedge actuating components.

D. Coating:

1. Consist of a minimum of two coats of liquid thermoset epoxy coating with heat cure to follow each coat.
2. Surface pretreated with a phosphate wash, rinse and sealer before drying.
3. Electrostatically applied and heat cured.
4. Polyester based power to provide corrosion, impact and UV resistance.

E. Approvals:

1. Listed by Underwriters Laboratories in the 4 inch through 12 inch sizes.

2. Factory Mutual Approved in the 4 inch through 12 inch sizes.
3. Meet or exceed the requirements of ASTM F1674 of the latest revision for Mechanical Joint Restraints, 4 inch through 24 inch.

2.3 MATERIALS

A. Steel:

1. High-Strength Low-Alloy Steel: Comply with ASTM A588/A588M, heat treated.
2. High-Strength Low-Alloy Steel: Comply with ASTM A588/A588M.
3. Carbon Steel: Comply with ASTM A36/A36M.

2.4 FINISHES

A. Zinc Plating:

1. Factory applied.
2. Comply with ASTM B633.

B. Galvanizing:

1. Factory applied.
2. Comply with ASTM A153/A153M.

2.5 CONCRETE

1. Compressive Strength 4000 psi at 28 days.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for installation examination.

B. Verify that pipe and fittings are ready to receive Work.

C. Field measure and verify conditions for installation of Work.

3.2 PREPARATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for installation preparation.

3.3 INSTALLATION

A. According to AWWA C600.

B. Install joint restraint system such that joints are mechanically locked together to prevent joint separation.

C. Install concrete thrust blocks according to the Drawings.

D. Install mechanical joint restraint by conventional tools and installation procedures per AWWA C600, while retaining full mechanical joint deflection during assembly. Ensure proper actuation of the gripping wedges with torque limiting twist off nuts.

3.4 TOLERANCES

A. Section 014000 - Quality Requirements: Requirements for tolerances.

END OF SECTION 330509.33

SECTION 330561 – PRECAST CONCRETE STRUCTURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Manholes for sanitary sewer and storm sewer collection systems.
   2. Inlets for storm sewer collection systems
   3. Modular precast concrete and polymer concrete manholes and structures with tongue-and-groove joints and masonry transition to cover frame, covers, anchorage, and accessories.
   4. Bedding and cover materials.
   5. Vertical adjustment of existing manholes and structures.

B. Related Requirements:
   1. Section 310513 - Soils for Earthwork: Soils for backfill in trenches.
   2. Section 310516 - Aggregates for Earthwork: Aggregate for backfill in trenches.
   3. Section 330130.86 - Manhole Rim Adjustment: Resetting existing castings and grates.
   4. Section 333111 - Public Sanitary Sewerage Gravity Piping: Piping connections to manholes.

1.2 DEFINITIONS

A. Bedding: Specialized material placed under manhole prior to installation and subsequent backfill operations.

1.3 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Section 012000 - Price and Payment Procedures: Contract Sum/Price modification procedures.

B. Sanitary Manholes:

   1. Basis of Measurement: By each.
   2. Basis of Payment: Includes excavating, monolithic concrete base, concrete structure sections, frame and cover, adjusting rings, chimney seal, internal drop (if required), to indicated depth, and forming and sealing of pipe inlets and outlets.

C. Storm Manholes and Inlets:

   1. Basis of Measurement: By each.
   2. Basis of Payment: Includes excavating, concrete base, concrete structure sections, frame and cover/grate, adjusting rings, chimney seal (manhole), grouting, to indicated depth, and forming of pipe inlets and outlets.

D. Adjust Manhole:

1. Basis of Measurement: By each.
2. Basis of Payment: Includes excavating, adding/removing concrete structure sections or cutting/extending concrete structure section, removal of existing frame and cover, reinstalling existing frame and cover, riser rings, chimney seal, and joint sealant.

1.4 REFERENCE STANDARDS

A. American Association of State Highway Transportation Officials:
1. AASHTO M306 - Standard Specification for Drainage, Sewer, Utility, and Related Castings.

B. ASTM International:
1. ASTM A48/A48M - Standard Specification for Gray Iron Castings.
2. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
3. ASTM C361 - Standard Specification for Reinforced Concrete Low-Head Pressure Pipe.
4. ASTM C478 - Standard Specification for Circular Precast Reinforced Concrete Manhole Sections.
5. ASTM C497 - Standard Test Methods for Concrete Pipe, Manhole Sections, or Tile.
6. ASTM C579 – StandardTest Methods for Compressive Strength of Chemical-Resistant Mortars, Grouts, Monolithic Surfacing, and Polymer Concretes.
7. ASTM C580 – Standard Test Method for Flexural Strength and Modulus of Chemical-Resistant Mortars, Grouts, Monolithic Surfacing, and Polymer Concretes.
8. ASTM D648 – Test Method for Deflection Temperature of Plastics Under Flexural Load in Edgewise Position.
9. ASTM D6783 – Standard Specification for Polymer Concrete Pipe.
10. ASTM D2584 – Test Method for Ignition Loss of Cured Reinforced Resins.
11. ASTM C877 - Standard Specification for External Sealing Bands for Concrete Pipe, Manholes, and Precast Box Sections.
12. ASTM C913 - Standard Specification for Precast Concrete Water and Wastewater Structures.
13. ASTM C923 - Standard Specification for Resilient Connectors between Reinforced Concrete Manhole Structures, Pipes, and Laterals.
14. ASTM C990 - Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants.
15. ASTM F593 - Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs.
16. ASTM F1554 - Standard Specification for Anchor Bolts, Steel, 36, 55, and 105-ksi Yield Strength.

1.5 COORDINATION

A. Section 013000 - Administrative Requirements: Requirements for coordination.

B. Coordinate Work of this Section with connection to municipal sewer utility service and trenching.

1.6 SUBMITTALS

A. Section 013300 - Submittal Procedures: Requirements for submittals.

B. Product Data: Submit manufacturer information for manhole covers, component construction, features, configuration, and dimensions.

C. Shop Drawings:

1. Indicate structure locations and elevations.
2. Indicate sizes and elevations of piping, and penetrations.

D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

E. Manufacturer Instructions: Submit detailed instructions on installation requirements, including storage and handling procedures.

1.7 CLOSEOUT SUBMITTALS

A. Section 017000 - Execution and Closeout Requirements: Requirements for submittals.

B. Project Record Documents: Record actual locations of manholes and connections, and record invert elevations.

1.8 QUALITY ASSURANCE

A. Perform Work according to North Dakota Department of Environmental Quality standards.

1.9 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three documented experience.

1.10 DELIVERY, STORAGE, AND HANDLING

A. Section 016000 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.

B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.

C. Handling: Comply with precast concrete manufacturer instructions and ASTM C913 for unloading and moving precast manholes and drainage structures.

D. Storage:

1. Store materials according to manufacturer instructions.

2. Store precast concrete manholes and drainage structures to prevent damage to Owner's property or other public or private property.
3. Repair property damaged from materials storage.

PART 2 - PRODUCTS

2.1 CONCRETE MANHOLES

A. Manufacturers:

1. Rinker Materials
   19500 State Highway 249, Suite 540
   Houston, TX 77070
2. Hancock Concrete Products Company, Inc. (Oldcastle Infrastructure)
   17 Atlantic Avenue
   Hancock, MN 562444
3. Substitutions: As specified in Section 016000 - Product Requirements
4. or equal.

B. Manhole and Inlet Sections:

1. Materials:

   a. Reinforced Precast Concrete: Comply with ASTM C478.
   b. Gaskets: Comply with ASTM C923.

2. Joints:

   a. Comply with ASTM C913.
   b. Maximum Leakage: 0.025 gal. per hour per foot of joint at 3 feet of head.

3. Top Section:

   a. Sanitary: Eccentric Cone or as indicated on the Drawings.
   b. Storm: Eccentric Cone, Flat Top or as indicated on the Drawings.

4. Base:
   a. Sanitary: Monolithic precast with shaped flow channels and bench.
   b. Storm: Precast base with cast-in-place inverts.

5. Shape: Cylindrical, rectangular, or as shown on the Drawings.

6. Dimensions: As indicated on the Drawings.

C. Structure Joint Gaskets:

1. Comply with ASTM C361.
2. Material: Rubber.

2.2 POLYMER CONCRETE MANHOLES

A. Manufacturers:

1. Armorock,
   PO Box 60006
   Boulder City, NV 89006
2. Substitutions: As specified in Section 016000 - Product Requirements
3. or equal.

B. Manhole Sections:

1. Materials:

   a. Polymer Concrete: Comply with ASTM C478 and ASTM C857, revised as follows:
      1) Mix design to consist of thermosetting resin, sand, and aggregate. No Portland cement shall be allowed as part of the mix design matrix. All sand and aggregate shall be inert in an acidic environment.
      2) Reinforcement shall consist of acid resistant reinforcement (FRP Bar) in accordance with ACI 440.1R-06 as applicable for polymer concrete design.
      3) Thermosetting resin shall have a minimum deflection temperature of 158° F when tested at 264 psi following Test Method D648. The resin content shall not be less than 7% of the weight of the sample as determined by Test Method D2584. Resin selection shall be suitable for applications in the corrosive conditions to which the polymer concrete manhole structures will be exposed.
   b. Gaskets: Comply with ASTM C923.

2. Joints:

   a. Comply with ASTM C990.
   b. Maximum Leakage: 0.025 gal. per hour per foot of joint at 3 feet of head.

3. Top Section:

   a. Eccentric Cone or as indicated on the Drawings.

4. Base: monolithic precast with shaped flow channels and bench.

5. Shape: Cylindrical

6. Dimensions: As indicated on the Drawings.

C. Structure Joint Gaskets:

1. Comply with ASTM C361.
2. Material: Rubber.

2.3 MANHOLE FRAMES AND COVERS

A. Manufacturers:

1. Neenah Foundry
   2121 Brooks Avenue
   Neenah, WI 54956
2. EJ (East Jordan Iron Works)
   301 Sprint St
   East Jordan, MI 49727
3. or equal.

B. Description:

1. Material:

   a. Cast iron.
   b. Comply with ASTM A48/A48M, Class 30B.

2. Lid:

   a. Bearing Surface: Machined flat.
   b. Configuration: Removable.
   c. Solid with closed pickholes.
   d. Self-sealing gasket.
   e. Marked “Sanitary Sewer” or “Storm Sewer”.
   f. Security: None, unless notes on plans.

3. Frame:
   a. In asphalt pavement or non-paved areas.
      1) Neenah R-1733
      2) EJ 1205Z2 or SELFLEVEL
   b. In concrete pavement: Self leveling
      1) Neenah R-1955-1
      2) EJ 3025

2.4 INLET FRAMES AND GRATES

A. Grass or outside pavement:
1. Convex grate:
   a. Neenah R-2577 with convex casting grate.
   b. East Jordan Iron Works 1205-M2 with convex casting grate.
   c. Approved Equal.
2. Flat Grate:
   a. Neenah R-17333 Type C.
   b. East Jordan Iron Works 1205 Type M.
   c. Approved Equal.
3. Stool:
   a. Neenah R-4342.

b. Approved Equal.

B. Curb & Gutter
1. Highback:
a. Neenah R-3067-C with 2” radius open curb box
b. East Jordan Iron Works 7030-M2 with T1 back
c. Approved Equal
2. Mountable:
a. Neenah R-3067-C-C
b. East Jordan Iron Works 7030-M2
c. Approved Equal
3. Knockdown:
a. Neenah R-3067-C-Q
b. Approved Equal

2.5 COVER ADJUSTMENT RINGS

A. Manufacturers:

1. Neenah Foundry
2121 Brooks Avenue
Neenah, WI 54956
2. Ess Brothers & Sons, Inc.
9350 County Road 19
Loretto, MN 55357
3. or equal.

B. Solid gray or ductile iron. Steel is not allowed.

C. Locking or non-locking to match existing frame and cover.

D. Assorted thicknesses (1/2” to 1”) as necessary to achieve final grade.

E. Apply EBS Super Glue adhesive, per manufacturer’s recommendations. No traffic for a minimum of 8 hours after glue application.

2.6 MATERIALS

A. Cover and Bedding:

1. Bedding: Fill Type A6 as specified in Section 310516 - Aggregates for Earthwork.
2. Cover: Fill Type A5, as specified in Section 310516 - Aggregates for Earthwork.

B. Fill at Pipe Ends (Storm):

1. Concrete mortar 4,000 PSI Concrete Class AE per Section 802 of the North Dakota Department of Transportation Standard Specifications for Road and Bridge Construction, or approved equal.

2.7 ACCESSORIES

A. Flexible Pipe Boot For Manhole Pipe Entrances

1. Manufacturers:
   a. Press-Seal Gasket Corporation
      2424 W State Blvd.
      Fort Wayne, IN 46808
   b. Substitutions: Section 016000 - Product Requirements
   c. or Equal.

2. Flexible Pipe Boot: ASTM C923, Series 300 stainless steel clamp and Series 304 stainless steel hardware.

B. Strap Anchors:

1. Shape: Bent steel.
2. Finish: Stainless

C. Joint Sealant:
1. Internal: Comply with ASTM C361 or C443.
2. External required on joints deeper than 20’: Infi-Shield Gator Wrap

D. Fasteners: Stainless steel; ASTM F593

2.8 CHIMNEY SEAL SYSTEM

A. Type 1.
1. Concrete adjusting rings.
2. Strike Products I& I barrier.
3. TCC Materials Underground Utility Mortar.
4. High-Impact Plastic Shims.
5.

B. Type 2.
1. Concrete adjusting rings
2. TCC Materials Underground Utility Mortar.
3. Infi-Shield Gator Wrap or Uni-band.

C. Approved Equal System.

D. Soil Backfill from above pipe to finish grade.

1. Soil Type S2, as specified in Section 310513 - Soils for Earthwork.
2. Subsoil: No frozen earth, or foreign matter, or rocks more than 6 inches in diameter.

2.9 FINISHES

A. Interior Manhole Coating (Sanitary):

1. Two coats Bitumastic Tnemec 141 or equal.
2. Substitutions: As specified in Section 016000 - Product Requirements
3. Not required for Polymer Concrete manholes.

2.10 SOURCE QUALITY CONTROL

A. Section 014000 - Quality Requirements: Requirements for testing, inspection, and analysis.

B. Provide shop inspection and testing of completed assembly.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for installation examination.

B. Verify that items provided by other Sections of Work are properly sized and located.

C. Verify that built-in items are in proper location and are ready for roughing into Work.

D. Verify that excavation base is ready to receive Work and excavations and that dimensions and elevations are as indicated on Drawings.

3.2 PREPARATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for installation preparation.

B. Prepare and implement temporary bypass pumping plan on work involving live sewers. Plan shall be approved by Engineer.

C. Mark each precast structure by indentation or waterproof paint showing date of manufacture, manufacturer, and identifying symbols and numbers as indicated on Drawings to indicate its intended use.

D. Coordinate placement of inlet and outlet pipe or duct sleeves as required by other Sections.

E. Do not install manholes and structures where Site conditions induce loads exceeding structural capacity of manholes or structures.

F. Inspect precast concrete manholes and structures immediately prior to placement in excavation to verify that they are internally clean and free from damage; remove and replace damaged units.

3.3 INSTALLATION

A. Conduct operations not to interfere with, interrupt, damage, destroy, or endanger integrity of surface structures or utilities in immediate or adjacent areas.

B. Correct over-excavation under structures with Coarse Aggregate Type A6.

C. Remove large stones or other hard matter impeding consistent backfilling or compaction.

D. Protect manhole from damage or displacement while backfilling operation is in progress.

E. Excavating:

1. As specified in Section 312316.13 - Tenching and in indicated locations and depths.
2. Provide clearance around sidewalls of manhole or structure for construction operations.
3. If ground water is encountered, prevent accumulation of water in excavations; place manhole or structure in dry trench.
4. Where possibility exists of watertight manhole or structure becoming buoyant in flooded excavation, anchor manhole or structure to avoid flotation as approved by Engineer.

F. Precast Concrete and Polymer Concrete Structures:

1. Lift precast components at lifting points designated by manufacturer. Upon Installation, lift holes shall be sealed in a manner that provides a watertight seal.
2. When lowering manholes into excavations and joining pipe to units, take precautions to ensure that interior of pipeline and structure remains clean.
3. Assembly:

    a. Assemble multisection manholes and structures by lowering each section into excavation.
    b. Install rubber gasket joints between precast sections according to manufacturer recommendations.
    c. Lower, set level, and firmly position base section before placing additional sections.

4. Remove foreign materials from joint surfaces and verify that sealing materials are placed properly.
5. Maintain alignment between sections by using guide devices affixed to lower section.
6. Joint sealing materials may be installed on Site or at manufacturer's plant.
7. Verify that installed structures meet required alignment and grade.
8. Cut pipe flush with interior of structure.
9. Pipe connections that are concreted shall be allowed to cure for a minimum of 8 hours prior to backfilling, unless approved by the Engineer. At no time shall backfilling occur before concrete has fully set. Grouted connections that show evidence of backfilling prior to concrete grout setting shall be reset.
10. Grout manhole step holes (storm and sanitary).

G. Castings and Rings:

1. Set frames using mortar and masonry.
2. Install Chimney Seal System per manufacturer's instructions. Systems using the Strike Products I & I Barrier installed on structures that do utilize an eccentric cone top shall have the bottom lip of the barrier removed prior to installation, or grout a ring prior to installing the barrier so that it is properly seated.
3. If paving will not take place as part of project, install casting only and stockpile rings and chimney seal at location determined by Engineer.

H. Riser Rings

1. Install 1" riser ring below cover on all new manholes and structures in asphalt paving areas.
2. Clean riser ring mounting area with wire brush.
3. Install ¼" bead of adhesive at 360°.
4. Do not allow traffic on riser rings for a minimum of 8 hours after adhesive application.
5. Riser rings are not required when floating castings are used.

I. Installation Standards: Install Work according to North Dakota Department of Environmental Quality standards.

3.4 FIELD QUALITY CONTROL

A. Section 014000 - Quality Requirements: Requirements for inspecting and testing.

B. Equipment Acceptance: Adjust, repair, modify, or replace components failing to perform as specified and rerun tests.

C. Testing:

1. Compaction Testing:
   a. Comply with ASTM D698 and ASTM D6938.
   b. Testing Frequency: two tests per structure at ⅓ and ⅔ depth.
   c. If tests indicate Work does not meet specified requirements, remove Work, replace, and retest.

3.5 ADJUSTING

A. Section 017000 - Execution and Closeout Requirements: Requirements for starting and adjusting.

B. Vertical Adjustment of Existing Manholes and Structures:

1. As specified in Section 330130.86 - Manhole Rim Adjustment.
2. If required, adjust top elevation of existing manholes and structures to finished grades as indicated on Drawings.
3. Frames, Grates, and Covers:
   a. Remove frames, grates, and covers cleaned of mortar fragments.

b. Reset to required elevation according to requirements specified for installation of castings.

4. Manhole Sections:
   a. Remove and/or add precast concrete manhole sections to reach the desired grade.
   b. If cutting existing structure is required:
      1) Reinforcing Bars:
         a) Remove concrete without damaging existing vertical reinforcing bars if removal of existing concrete wall is required.
         b) Clean vertical bars of concrete and bend into new concrete top slab or splice to required vertical reinforcement as indicated on Drawings.
      2) Clean and apply sand-cement bonding compound on existing concrete surfaces to receive cast-in-place concrete.

END OF SECTION 330561

SECTION 330597 - IDENTIFICATION AND SIGNAGE FOR UTILITIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Trace wire for placement above direct-buried utility.

B. Related Requirements:

1. Section 312316.13 - Trenching: Backfilling considerations for installation of trace wire.
2. Section 331413 - Public Water Utility Distribution Piping: Piping, valves, and appurtenances requiring identification marking.
3. Section 333111 - Public Sanitary Sewerage Gravity Piping: Piping, valves, and appurtenances requiring identification marking.
4. Section 333123 - Sanitary Sewerage Force Main Piping: Pipe, valves, and appurtenances requiring identification marking.

1.2 REFERENCES

A. ASTM International:

1. ASTM B910 / B910M: Standard Specifications for Annealed Copper-Clad Steel Wire.

1.3 SUBMITTALS

A. Section 013300 - Submittal Procedures: Requirements for submittals.

B. Product Data: Submit manufacturer catalog information for each specified product.

C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

D. Qualifications Statement:

1. Submit qualifications for manufacturer.

E. Documentation in writing that one person per installation crew has received manufacturer specific training on the proper installation of the proposed system.

1.4 CLOSEOUT SUBMITTALS

A. Section 017000 - Execution and Closeout Requirements: Requirements for submittals.

B. Project Record Documents: Record actual locations of products installed.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Section 017000 - Execution and Closeout Requirements: Requirements for maintenance materials.

1.6 QUALITY ASSURANCE

A. A.Perform Work according to City of West Fargo standards.

B. Trace Wire:
1. Verify all installed trace wire is operational.

1.7 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years' documented experience.

B. Installer: All crews must have at least one person onsite at all times when work is being performed that has received documented manufacture specific training on proper installation of the proposed system. Crews without a qualified person will be considered unqualified for installation of Public Utilities and removed from this work.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Section 016000 – Product Requirements: Requirements for transporting, handling, storing, and protecting products.

B. Accept materials on site in undamaged, unopened container, bearing manufacturer’s original labels. Inspect for damage.

C. Protect materials from damage by storing in a secure location.

1.9 COORDINATION

A. Section 013000 – Administrative Requirements: Requirements for coordination

B. Furnish testing schedule for products requiring owner testing.

PART 2 - PRODUCTS

2.1 TRACE WIRE

A. Manufacturers:

1. Copperhead Industries, LLC
PO Box 1081
Monticello, MN 55362

2. KrisTech
80 Otis Street
Rome, NY 13441

3. Approved Equal.

B. Trace wire for direct bury applications:

1. High-strength copper clad steel (CCS) wire.
2. 450-lb minimum rated break strength.
3. 30 mil HDPE or LLDPE insulation.

C. Trace wire for directional drilling applications:

1. Extra high-strength copper clad steel (CCS) wire.
2. 1150-lb minimum rated break strength.
3. 45 mil HDPE insulation.

D. Trace wire for pipe bursting:

1. 3/16” high-strength stranded copper clad steel (CCS) wire.
2. 4700-lb minimum rated break strength.
3. 50 mil HDPE insulation.

E. Insulation color coded to marked utility according to the American Public Works Association (APWA) uniform color standards.

2.2 SPLICE CONNECTORS

A. Manufacturers:

1. Copperhead Industries, LLC
PO Box 1081
Monticello, MN 55362

2. KrisTech
80 Otis Street
Rome, NY 13441

3. Approved Equal.

B. Trace wire splices shall be made using a locking, sealant-filled, waterproof splice connector designed for direct bury installation. Twist on wire nut style connectors are not approved for use.

2.3 TERMINAL BOXES

A. Manufacturers:

1. Copperhead Industries, LLC (Boabox & Cobra T2)
   PO Box 1081
   Monticello, MN 55362
2. Kris-Tech Wire (KT Test Station, 2-Terminal KT Hydrant Flange)
   80 Otis Street
   Rome, NY 13441
3. Rhino Marking & Protection Systems
   10740 Lyndale Avenue South, Suite 16W
   Bloomington, MN 55420
4. Approved Equal.

B. Flush mount terminal boxes:

1. Minimum 12” long, 2-1/2” diameter ABS shaft.
2. Flared shaft bottom.
3. Encapsulated magnet or made of ferrous material.
4. Variable size wire terminal blocks beneath lid.
5. Integral direct connection terminal to allow connection of locator without removing the lid.
6. 2 terminals with jumper.
7. Locking cover with pentagonal nut.
8. Lid stamped with utility type and color coded to marked utility according to the American Public Works Association (APWA) uniform color standards.

C. Above grade terminal boxes:

1. PVC terminal box with 1” diameter conduit connection.
   a. Glue conduit to terminal box.
2. 2 terminals with removable jumper.
3. 48” rigid, grey, liquid-tight, UV resistant, electrical conduit Color coded to marked utility according to the American Public Works Association (APWA) uniform color standards.

D. Above grade terminal boxes for pipelines:

1. Triangular shaped thermoplastic UV stabilized terminal box.
2. 2 to 4 internal terminals with removable jumper depending on how many wires are present.
3. 72” length with 24” bury depth.
4. Warning decal describing marked utility.
5. Color coded to marked utility according to the American Public Works Association (APWA) uniform color standards.

2.4 GROUND ROD

A. Manufacturers:

1. Copperhead Industries, LLC
PO Box 1081
Monticello, MN 55362

2. Kristech
80 Otis Street
Rome, NY 13441

3. Approved Equal.

B. Drive-in type magnesium anode grounding rod.

1. Minimum 1.5-lb magnesium.
2. Minimum 20’ of factory installed copper clad steel wire.

2.5 UTILITY MARKERS

A. Permanent

1. Manufacturer
   a. Carsonite: CRM Utility Marker
   b. Kris-Tech Wire
   c. Approved equal.
2. Color:
   a. Conforming to the American Public Works Association (APWA) uniform color standards.

B. Temporary

1. 2”x2” pine wood, 36” above grade.
2. Painted:
   a. Conforming to the American Public Works Association (APWA) uniform color standards.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Trace Wire:

1. Install trace wire in such a manner that allows proper access for connection of line tracing equipment, and successful signal reception of 512Hz frequency without distortion or loss of signal.

2. Install trace wire system as a continuous single wire.
3. Attach trace wire to utility pipes and services at 10’ intervals using tape or plastic zip ties installed all the way around the utility pipe. Allow for 1 to 3 inches of slack between the pipe and trace wire at connections to branch lines and service lines.
4. Install mainline pipe trace wire continuously on the south or east side of utility pipes below the spring line, running around or through valves, manholes, or other structures as shown on the details.
5. Make all connections between individual trace wires with approved waterproof splice connectors only.
6. Repair immediately any damage occurring during installation of the trace wire using an approved waterproof method.
7. Connect the new and existing trace wires using approved splice connectors where existing trace wire is encountered on an existing utility to be tied into or extended.
8. Leave a 3’ pigtail of trace wire lay horizontally beyond the pipe where trace wire is to be terminated at a mainline dead end/stub. Terminate the line by installing an approved splice connector with magnesium ground rod.
9. Install branching mainline, service line, or hydrant lead trace wire as a single continuous wire between the mainline wire and a terminal box as shown in the details. Connect to the mainline wire with an approved waterproof splice connector without cutting the mainline trace wire.
10. Install trace wire for boring, directional drilling, and pipe bursting applications as one single continuous wire.
11. Install ground rod whenever the line is terminated.
12. Install ground rod vertically and penetrating undisturbed soil, lower than any other portion of the adjacent utility system. Ground rods not driven into undisturbed soil will be considered defective work.
13. At dead ends, connect the ground rod leader wire to the trace wire and trim the ground rod leader wire to length.
14. At terminal boxes, connect the ground rod leader wire directly to one of the terminals. Do not connect the ground rod leader wire directly to the trace wire.

B. Flush-mount terminal boxes:

1. Install flush-mount terminal boxes at finished ground elevations as shown in the drawings and details, or as directed by the Engineer.
2. Provide 3’ of extra trace wire in the flush mount terminal box to allow for connection of line tracing equipment.
3. Connect trace wire to flush-mount terminal box cap according to manufacturer’s instructions.

C. Above grade terminal boxes:

1. Install above grade terminal boxes as shown in the drawings and details, or as directed by the Engineer.
2. Provide 12” of extra trace wire in the terminal box to allow for connection of line tracing equipment.
3. Connect trace wire to the terminal post according to manufacturer’s instructions.

3.2 FIELD QUALITY CONTROL

A. Section 014000 – Quality Requirements.

B. Prohibited products and methods:

1. Uninsulated trace wire or insulated trace wire using any insulation other than HDPE or HMWPE.
2. Twist on wire nuts or other unapproved connectors.
3. Tape or spray on waterproofing.
4. Any installation involving multiple instances of wire twisted together or in close proximity to one another.
5. Connecting the trace wire to any conductive utilities.
6. Looping, coiling, or kinking the trace wire.
7. Using any other jacket color than specified by the American Public Works Association (APWA) uniform color standards.
8. Leaving excess trace wire in the trench.
9. Use of connectors in boring, directional drilling, and pipe bursting applications.

C. Post-installation test:

1. Locate all new trace wire installations using line tracing equipment at 512Hz frequency, witnessed by the contractor, Engineer, or Engineer's Representative, and facility owner as applicable, prior to acceptance of ownership.
2. Perform this verification upon completion of rough grading and again prior to final acceptance of the project.
3. Continuity testing in lieu of line tracing shall not be accepted.

3.3 TRACE WIRE SCHEDULE

A. Public water infrastructure as shown on the plans:
1. Mains.
2. Hydrant leads.

B. Public sanitary sewer infrastructure as shown on the plans:
1. Force Mains.

C. Public storm sewer infrastructure as shown on the plans:
1. Force Mains.

D. Public power and network infrastructure as shown on the plans:
1. Streetlight conduit.
2. Traffic signal conduit.
3. Communications conduit.

END OF SECTION 330597

SECTION 331413 - PUBLIC WATER UTILITY DISTRIBUTION PIPING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Pipe and fittings for public line.
2. Tapping sleeves and valves.
3. Bedding and cover materials.

B. Related Requirements:

1. Section 310513 - Soils for Earthwork: Soils for backfill in trenches.
2. Section 310516 - Aggregates for Earthwork: Aggregate for backfill in trenches.
3. Section 312316.13 - Trenching: Excavation and backfill as required by this Section.
4. Section 330110.58 - Disinfection of Water Utility Piping Systems: Disinfection of water mains and appurtenances.
5. Section 330509.33 - Thrust Restraint for Utility Piping: Tied joint restraint system to anchor and resist forces developed in underground closed pipeline systems.
6. Section 330597 - Identification and Signage for Utilities: Pipe markers.
7. Section 331417 - Site Water Service Utility Laterals: Water main service connections.
8. Section 331419 - Valves and Hydrants for Water Utility Service: Fire hydrants, valves, and valve boxes for fire hydrant and water main installations.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Section 012000 - Price and Payment Procedures: Contract Sum/Price modification procedures.

B. Pipe :

1. Basis of Measurement: By linear foot.
2. Basis of Payment: Includes excavation and backfill; pipe, fittings, and appurtenances, disinfection, couplings, trace wire system, insulation, bedding and backfill.

C. Taps:

1. Basis of Measurement: By each.
2. Basis of Payment: Includes tapping sleeve, tapping valves, and accessories.

1.3 REFERENCE STANDARDS

A. American Society of Mechanical Engineers:

1. ASME B16.1 - Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125, and 250.

B. ASTM International:

1. ASTM A36/A36M - Standard Specification for Carbon Structural Steel.
2. ASTM A123.
3. ASTM A307 - Standard Specification for Carbon Steel Bolts, Studs, and Threaded Rod 60 000 PSI Tensile Strength.
4. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12 400 ft-lbf/ft3 (600 kN-m/m3).
5. ASTM D1785 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120.
6. ASTM D2241 - Standard Specification for Poly(Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series).
7. ASTM D3035 - Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Controlled Outside Diameter.
8. ASTM D3139 - Standard Specification for Joints for Plastic Pressure Pipes Using Flexible Elastomeric Seals.
9. ASTM D6938 - Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).
10. ASTM F477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.

C. American Water Works Association:

1. AWWA C104 - Cement-Mortar Lining for Ductile-Iron Pipe and Fittings.
2. AWWA C105 - Polyethylene Encasement for Ductile-Iron Pipe Systems.
3. AWWA C110 - Ductile-Iron and Gray-Iron Fittings.
4. AWWA C111 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
5. AWWA C115 - Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges.
6. AWWA C151 - Ductile-Iron Pipe, Centrifugally Cast.
7. AWWA C153 - Ductile-Iron Compact Fittings.
8. AWWA C605 - Underground Installation of Polyvinyl Chloride (PVC) and Molecularly Oriented Polyvinyl Chloride (PVCO) Pressure Pipe and Fittings.
9. AWWA C600 – Installation of Ductile-Iron Pipe and Their Appurtenances.
10. AWWA C606 - Grooved and Shouldered Joints.
11. AWWA C900 - Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 In. Through 60 In. (100 mm Through 1,500 mm), for Water Transmission and Distribution.

D. Manufacturers Standardization Society of the Valve and Fittings Industry:

1. MSS SP-60 - Connecting Flange Joints between Tapping Sleeves and Tapping Valves.

E. National Fire Protection Association:

1. NFPA 24 - Standard for the Installation of Private Fire Service Mains and Their Appurtenances.

F. NSF International:

1. NSF 61 - Drinking Water System Components - Health Effects.
2. NSF 372 - Drinking Water System Components - Lead Content.

1.4 COORDINATION

A. Section 013000 - Administrative Requirements: Requirements for coordination.

B. Coordinate Work of this Section with termination of water main connection at Site boundary, connection to municipal water utility service and trenching.

1.5 SUBMITTALS

A. Section 013300 - Submittal Procedures: Requirements for submittals.

B. Product Data: Submit manufacturer information regarding pipe materials and pipe fittings.

C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

1.6 CLOSEOUT SUBMITTALS

A. Section 017000 - Execution and Closeout Requirements: Requirements for submittals.

1.7 QUALITY ASSURANCE

A. Materials in Contact with Potable Water: Certified according to NSF 60 and 61 and NSF 372. A product will be considered as meeting these standards if so certified by NSF, the Underwriters Laboratories, or other organization accredited by ANSI to test and certify such products.

B. Perform Work according to North Dakota Department of Environmental Quality standards.

1.8 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years' documented experience.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Section 016000 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.

B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.

C. Storage:

1. Store materials according to manufacturer instructions.

2. Block individual and stockpiled pipe lengths to prevent moving.
3. Do not place pipe or pipe materials on private property or in areas obstructing pedestrian or vehicle traffic.
4. Store PE and PVC materials out of sunlight.

D. Protection:

1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
2. Provide additional protection according to manufacturer instructions.

1.10 WARRANTY

A. Section 017000 - Execution and Closeout Requirements: Requirements for warranties.

PART 2 - PRODUCTS

2.1 WATER PIPING

A. Ductile-Iron Pipe:

1. Comply with AWWA C151.
2. Bituminous Outside Coating: Comply with AWWA C151.
3. Pipe Mortar Lining:
    a. Comply with AWWA C104.
    b. Thickness: Double.
4. PE Encasement: Comply with AWWA C105.
5. Pipe Class:
    a. Comply with AWWA C151.
    b. Class 53.
6. Fittings:
    a. Material: Ductile iron; comply with AWWA C110.
    b. Compact Fittings: Comply with AWWA C153.
    c. Coating and Lining:
        1) Bituminous Coating: Comply with AWWA C110.
        2) Cement-Mortar Lining: Comply with AWWA C104; double thickness.
    d. All pipe sizes.
7. Joints:
    a. Mechanical Type Joints: Comply with AWWA C111.
    b. Restrained Joints: Boltless, push-on type, joint restraint independent of joint seal, when indicated on the drawings.
8. Jackets: PE; comply with AWWA C105.

B. PVC:

1. Comply with AWWA C900, Class 235
2. Fittings (4” to 8” pipe):

a. Comply with AWWA C900 and C907
b. Blue in color.
c. Pipe Sizes: 4” to 8”
d. Manufacturer by IPEX USA or approved equal.

3. Fittings (all sizes):
   a. Material Ductile iron; comply with AWWA C110.
   b. Compact Fittings: comply with AWWA C153.
   c. Coating and Lining:
      1) Bituminous Coating: Comply with AWWA C110.
      2) Cement-Mortar Lining: Comply with AWWA C1O4; double thickness.
   d. Joints:
      1) Comply With AWWA C111.
         a) Mechanical Type Joint
      2) Restrained Joints: Per Section 330509.33 - Thrust Restraint for Utility Piping, when indicated on the drawings.
   e. Jackets: PE; comply with AWWA C105.
4. Joints:
   a. Comply with ASTM D3139 and F477.
   b. Seals: PVC flexible elastomeric.
   c. Solvent-cement couplings are not permitted.

2.2 TAPPING SLEEVES AND VALVES

A. Tapping Sleeves:

1. Manufacturers:
   a. Romac Industries, Inc.
   b. Powerseal.
   c. Ford
   d. or equal.
   e. Substitutions: As specified in Section 016000 - Product Requirements.
2. Description:
   a. Material: Stainless Steel.

B. Tapping Valves:

1. Manufacturers:
   a. As listed in Section 331419 – Valves & Hydrants for Utility Service.
   b. Substitutions: As specified in Section 016000 - Product Requirements
2. Description:
   a. AWWA C509. Resilient-seated gate vales with non-rising stem.
   b. Inlet flanges, conforming to ANSI B16.1, Class 125 and MSS Sp-60.
   c. Mechanical joint outlets conforming to AWWA C111.
   d. Mark manufacturer’s name and pressure rating on valve body.

2.3 COUPLINGS

1. Products:

a. Macro by Romac Industries, Inc.
   1) 4” to 12”
b. Hymax2 by Krausz USA
   1) 4“ to 12”
c. Hymax HLD by Krausz USA
   1) Greater than 12”
d. or equal.
e. Substitutions: As specified in Section 016000 - Product Requirements.

2. Description:
   a. Two (2) bolt wide range coupling.

2.4 VALVES AND FIRE HYDRANTS

A. As specified in Section 331419 - Valves and Hydrants for Water Utility Service.

2.5 MATERIALS

A. Bedding and Cover:

1. Bedding: Fill Type A5 as specified in Section 310516 - Aggregates for Earthwork.
2. Cover: Fill Type A5 as specified in Section 310516 - Aggregates for Earthwork.
3. Soil Backfill from above Pipe to Finish Grade:
   a. Soil Type S2 as specified in Section 310513 - Soils for Earthwork.
   b. Subsoil with no rocks greater than 6 inches in diameter, frozen earth, or foreign matter.

2.6 FINISHES

A. Steel: Hot-dip galvanized after fabrication, according to ASTM A123/A123M.

2.7 ACCESSORIES

A. Thrust Restraints: As specified in Section 330509.33 - Thrust Restraint for Utility Piping.

B. Tracer Wire: As specified in Section 330597 - Identification and Signage for Utilities.

C. Steel Rods, Bolt, Lugs, Nuts, and Brackets:

1. 304 Stainless Steel.

D. Protective Coating:

1. Bituminous coating.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for installation examination.

B. Verify that existing utility water main size, location, and invert are as indicated on Drawings.

3.2 PREPARATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for installation preparation.

B. Pipe Cutting:

1. Cut pipe ends square, ream pipe and tube ends to full pipe diameter, and remove burrs.
2. Use only equipment specifically designed for pipe cutting; use of chisels or hand saws is not permitted.
3. Grind edges smooth with beveled end for push-on connections.

C. Remove scale and dirt on inside and outside before assembly.

D. Prepare pipe connections to equipment with flanges or unions.

3.3 INSTALLATION

A. Bedding:

1. Excavation:
   a. As specified in Section 312316.13 - Trenching.
   b. Hand trim for accurate placement of pipe to elevations as indicated on Drawings.
2. Dewater excavations to maintain dry conditions and to preserve final grades at bottom of excavation.
3. Place bedding material at trench bottom, level fill materials in one continuous layer not exceeding 6 inches of compacted depth, and compact to 90 percent of maximum density.

B. Piping:

1. Comply with AWWA C605.
2. Handle and assemble pipe according to manufacturer instructions and as indicated on Drawings.
3. Steel Rods, Bolts, Lugs, and Brackets: Coat buried steel before backfilling.
4. Ductile-Iron Piping and Fittings: Comply with AWWA C600.
5. Field Welding Materials: Comply with AWWA C206.
6. Flanged Joints: Do not use in underground installations except within structures.
7. Route pipe in straight line, and re-lay pipe that is out of alignment or grade.

8. High Points:
    a. Install pipe with no high points.
    b. If unforeseen field conditions arise that necessitate high points, install air-release valves as directed by Engineer.
9. Bearing:
    a. Maintain bearing along entire length of pipe.
    b. Excavate bell holes to permit proper joint installation.
    c. Do not lay pipe in wet or frozen trench.
10. Prevent foreign material from entering pipe during placement.
11. Allow for expansion and contraction without stressing pipe or joints.
12. Close pipe openings with watertight plugs during Work stoppages.
13. Install access fittings to permit disinfection of water system performed under Section 330110.58 - Disinfection of Water Utility Piping Systems.
14. Cover:
    a. Establish elevations of buried piping with not less than 7.5 feet of cover.
    b. Measure depth of cover from final surface grade to top of pipe barrel.
15. Tracer Wire: As specified in Section 330597 - Identification and Signage for Utilities.

C. Fittings:
1. Not all fittings required for a complete installation may be shown on the plans. Provide all required fittings.
2. Install fitting in accordance with AWWA C600.
3. Verify bolts are tightened in accordance with manufacturers instructions with a torque wrench.

D. Separation Distances from Contamination Sources:

1. For maximum protection of municipal water systems where water mains and sewers cross, the following methods of construction for various conditions are recommended.
2. Parallel Installation:
    a. Water mains shall be laid at least 10 feet horizontally from any existing or proposed gravity sanitary or storm sewer, sanitary forcemain, septic tank, or subsoil treatment system. The distance shall be measured edge to edge.
3. Crossings:
    a. Water mains crossing sewers shall be laid to provide a minimum vertical distance of 18 inches between the outside of the water main and the outside of the sewer. This shall be the case where the water main is either above or below the sewer with preference to the water main located above the sewer.
    b. At crossings, one full length of water pipe shall be located so both joints will be as far from the sewer as possible. Special structural support for the water and sewer pipes may be required. Where water main crosses over an existing sewer.
4. Sewer Manholes
    a. No water pipe shall pass through or come in contact with any part of a sewer manhole. Water main should be located at least 10 feet from sewer manholes.

E. Valves and Hydrants: As specified in Section 331419 - Valves and Hydrants for Water Utility Service.

F. Tapping Sleeves and Valves: As indicated on Shop Drawings and according to manufacturer instructions.

G. PE Encasement:

1. Encase piping in PE as indicated on Drawings to prevent contact with surrounding backfill material.
2. Comply with AWWA C105.
3. Terminate encasement 3 to 6 inches above ground where pipe is exposed.

H. Thrust Restraints: As specified in Section 330509.33 - Thrust Restraint for Utility Piping.

I. Service Connections: As specified in Section 331417 - Site Water Service Utility Laterals.

J. Backfilling:

1. Backfill around sides and to top of pipe with cover fill in lifts of minimum 6 inches, maximum 12 inches, tamp in place, and compact to 90 percent of Standard Proctor (ASTM 698) maximum dry density.
2. Place and compact material immediately adjacent to pipes to avoid damage to pipe and prevent pipe misalignment.
3. Maintain moisture content of bedding material to attain required relative compaction.
4. Backfilling: Backfill above pipe as specified in Section 312316.13 - Trenching.

K. Disinfection of Potable Water Piping Systems: As specified in Section 330110.58 - Disinfection of Water Utility Piping Systems.

L. Installation Standards: Install Work according to North Dakota Department of Environmental Quality standards.

3.4 TOLERANCES

A. Section 014000 - Quality Requirements: Requirements for tolerances.

B. Install pipe to indicated elevation within tolerance of 5/8 inch.

3.5 FIELD QUALITY CONTROL

A. Section 014000 - Quality Requirements: Requirements for inspecting and testing.

B. Testing:

1. Pressure Testing: As specified in Section 330505.31 – Hydrostatic Testing.
2. Compaction Testing:
   a. Comply with ASTM D698 and ASTM D6938.
   b. Testing Frequency: one test along utility trenches at maximum 500 foot intervals per 2 feet of vertical lift.
   c. If tests indicate Work does not meet specified requirements, remove Work, replace, and retest.

END OF SECTION 331413

SECTION 331417 - SITE WATER SERVICE UTILITY LATERALS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Pipe and fittings for water service connections to buildings.
2. Corporation stop assemblies.
3. Curb stop assemblies.
4. Trenching, bedding, and cover.

B. Related Requirements:

1. Section 310513 - Soils for Earthwork: Backfill-soil type.
2. Section 310516 - Aggregates for Earthwork: Bedding- and cover-material type.
3. Section 312316.13 - Trenching: Excavation of pipe trench.
4. Section 330110.58 - Disinfection of Water Utility Piping Systems: Flushing and disinfecting of water system.
5. Section 330509.33 - Thrust Restraint for Utility Piping: Thrust restraints as required by this Section.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Section 012000 - Price and Payment Procedures: Contract Sum/Price modification procedures.

B. Water Service Line:

1. Basis of Measurement: By linear foot.
2. Basis of Payment: Includes hand-trimming excavation, pipe and fittings, bedding, thrust restraints, connection to service piping, tracer wire, disinfection, and municipal utility water source.

C. Water Service Connection

1. Basis of Measurement: By each unit.
2. Basis of Payment: Includes service saddle, corporation stop, curb stop, curb box and cover, connection to existing service line (if applicable), fittings, and accessories.

1.3 REFERENCE STANDARDS

A. American Society of Mechanical Engineers:

1. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings.

2. ASME B16.22 - Wrought Copper and Copper Alloy Solder Joint Pressure Fittings.

B. ASTM International:

1. ASTM B62 - Standard Specification for Composition Bronze or Ounce Metal Castings. Brass components not in contact with potable water, UNS C83600, 85-5-5-5 (latest version).
2. ASTM B584 - Standard Specification for Copper Alloy Sand Castings for General Applications. Brass components in contact with potable water, UNS C89833 (latest revision), identified with "NL".
3. ASTM B88 - Standard Specification for Seamless Copper Water Tube.
4. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3).
5. ASTM D6938 - Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

C. American Welding Society:

1. AWS A5.8/A5.8M - Specification for Filler Metals for Brazing and Braze Welding.

D. American Water Works Association:

1. AWWA C105 – Polyethylene Encasement for Ductile-Iron Pipe Systems

2. AWWA C509 - Resilient-Seated Gate Valves for Water Supply Service.
3. AWWA C600 - Installation of Ductile-Iron Mains and Their Appurtenances.
4. AWWA C800 - Underground Service Line Valves and Fittings (latest version).
5. AWWA C904 – Cross-Linked Polyethylene (PEX) Pressure Pipe, ½ In. (12mm) Through 3 In. (76mm), for Water Service.

E. NSF International:

1. NSF 61 - Drinking Water System Components - Health Effects.
2. NSF 372 - Drinking Water System Components - Lead Content.

1.4 SUBMITTALS

A. Section 013300 - Submittal Procedures: Requirements for submittals.

B. Product Data: Submit manufacturer information regarding pipe materials, pipe fittings, corporation stop assemblies, curb stop assemblies, meters, meter setting equipment, service saddles, backflow preventers, and accessories.

C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

D. Manufacturer Instructions: Submit detailed instructions on installation requirements, including storage and handling procedures.

1.5 CLOSEOUT SUBMITTALS

A. Section 017000 - Execution and Closeout Requirements: Requirements for submittals.

B. Project Record Documents: Record actual locations of piping mains, curb stops, connections, thrust restraints, pressure-pipe centerline elevations, and gravity-pipe invert elevations.

C. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

1.6 QUALITY ASSURANCE

A. Materials in Contact with Potable Water: Certified according to NSF 61 and NSF 372. A product will be considered as meeting these standards if so certified by NSF, the Underwriters Laboratories, or other organization accredited by ANSI to test and certify such products.

B. Perform Work according to North Dakota Department of Environmental Quality standards.

1.7 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years' documented experience.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Section 016000 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.

B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.

C. Store materials according to manufacturer instructions.

D. Protection:

1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
2. Provide additional protection according to manufacturer instructions.

PART 2 - PRODUCTS

2.1 WATER PIPING AND FITTINGS

A. Copper Tubing:

1. Comply with ASTM B88.
2. Type: K, annealed.

3. Fittings: Cast copper; ASME B16.18 or wrought copper; ASME B16.22.
4. Joints: Compression connection.

B. PEXa Pipe:
1. Comply with AWWA C904, ASTM F876, SDR 9, and CSA B137.5.
   a. Certified to NSF/ANSI Standards 14 and 61 (NSF-pw-g) for potable water applications.
   b. Certified to PPI TR-3 Category 3306 for long-term hydrostatic strength, chlorine and UV resistance.
   c. Co-extruded UV Shield made from UV-resistant high-density polyethylene, color Blue.
   d. Minimum recommended UV exposure time of one (1) year when tested in accordance with ASTM F2657.
   e. Pressure-rated for continuous use at 200 psi @ 73.4 °F based on a 0.63 design factor.
   f. Approved by manufacturer for use with manual plastic pipe squeeze-off tools for temporary stoppage of flow.
2. Fittings:
   a. Type: Molded.
   b. Comply with AWWA C904, and be recommended for use by the fitting manufacturer for CTS SDR 9 PEXa pipe.
3. Joints: Compression.
   a. Compression fittings shall be used for all water services 2 inches in diameter or smaller (copper and PEX). Compression fittings shall be Mueller 110 Compression, Ford Quick Joint, A.Y. McDonald McQuik, or approved equal.
   b. Underground fittings and insert-stiffeners used with PEX pipe must comply with the material and performance requirements of ANSI/AWWA C800 and must be recommended for use by the fitting manufacturer for CTS SDR9 PEX pipe per the ANSI/AWWA C904 standard. Insert-stiffeners shall be stainless steel.

C. Pipe sizes
1. 1”, 1 ½” and 2”
2. Larger than 2” see Section 331413.00 – Public Water Utility Distribution Piping.

2.2 CORPORATION STOP ASSEMBLIES

A. Manufacturers:

1. A.Y. McDonald Mfg. Co.
   PO Box 508
   Dubuque IA 52004
2. Ford Meter Box Company, Inc.
   775 Manchester Avenue
   Wabash, Indiana 46992
3. Substitutions: As specified in Section 016000 - Product Requirements
4. or approved equal.

B. Corporation Stops:

1. Comply with ASTM B62, ASTM B584, NSF/ANSI 61 and NSF/ANSI 372.
2. Body: Brass or red brass alloy.
3. Inlet End: Threaded for tapping according to AWWA C800.

4. Outlet End: Suitable for service pipe specified.
5. Corporation Stops for copper services shall be ball corporation style, flared or compression, McDonald 74704B and 74704BQ Series or Ford FB700 and FB1100-x-Q-NL series or Equal.
6. Corporation Stops for PEXa pipe shall be ball style Mueller B-250008N, Ford FB1000-Q-NL, McDonald 74701BQ, or approved equal.
7. Use of the proper size of insert stiffeners is required for compression corporations for cross-linked polyethylene.

C. Service Saddles:

1. Type: Double strap. Stainless steel, gasketed, full width sleeve with integral tapped outlet.
2. Ford FS303, PowerSeal 3412AS, AY McDonald 435 or Romac 306.
3. or Equal

2.3 CURB STOP ASSEMBLIES

A. Manufacturers:

1. A.Y. McDonald Mfg. Co.
   PO Box 508
   Dubuque IA 52004
2. Ford Meter Box Company, Inc.
   775 Manchester Avenue
   Wabash, Indiana 46992
3. Substitutions: As specified in Section 016000 - Product Requirements.
4. or approved equal.

B. Curb Stops:

1. Body: Brass or red brass alloy.
2. Comply with ASTM B62, ASTM B584, NSF/ANSI 61 and NSF/ANSI 372.
3. Valve Type: Ball.
4. Sealing: Positive pressure.
5. Curb stops shall be Mueller, Ford or McDonald or an approved equal with a copper tube size inlet and outlet. They shall be of the Minneapolis pattern type.
6. The arrow shall be placed in the direction of water flow.
7. Use of proper size of insert stiffeners is required for compression joints for cross-linked polyethylene.

C. Curb Boxes and Covers:

1. McDonald 5622 or approved equal.
2. Body:
   a. Lid and base made of cast iron per ASTM A48, Class 25.
   b. 8’ total height
   c. 1 ½” riser
3. Type: Extension.
4. Base: Minneapolis.

5. Lid:
    a. Inscription: WATER.
    b. Plug: Pentagonal.
6. Stationary Rod: none

2.4 MATERIALS

A. Bedding and Cover:

B. Bedding: Fill Type A5 as specified in Section 310516 - Aggregates for Earthwork.

C. Cover: Fill Type A5 as specified in Section 310516 - Aggregates for Earthwork.

D. Soil Backfill from Above Pipe to Finish Grade:

1. Soil Type S2 as specified in Section 310513 - Soils for Earthwork.
2. Subsoil: No rocks greater than 6 inches in diameter, frozen earth, or foreign matter.

2.5 ACCESSORIES

A. Tracer Wire: As specified in Section 330597 - Identification and Signage for Utilities.

B. Thrust Restraints: As specified in Section 330509.33 - Thrust Restraint for Utility Piping.

C. Polyethylene Encasement: According to AWWA C105.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for installation examination.

3.2 PREPARATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for installation preparation.

B. Cut pipe ends square, ream pipe and tube ends to full pipe diameter, and remove burrs.

C. Remove scale and dirt from inside and outside of piping before assembly.

D. Prepare pipe connections to equipment with flanges or unions.

3.3 INSTALLATION

A. Corporation Stop Assemblies:

1. Make connection for each different kind of water main, using suitable materials, equipment, and methods as approved by Engineer.
2. Provide service clamps for mains constructed of materials other than cast iron or ductile iron.
3. Location:
    a. Screw corporation stops directly into tapped and threaded iron main at 10- and 2-o'clock positions along main's circumference.
    b. Locate and stagger corporation stops at least 12 inches apart longitudinally.
4. Plastic Pipe Mains:
    a. Provide full support for service clamp for full circumference of pipe, with minimum 2-inch width of bearing area.
    b. Exercise care against crushing or causing other damage to mains at time of tapping or installation of service clamp or corporation stop.
5. Use seals or other devices such that no leaks are present in mains at points of tapping.
6. Do not backfill and cover service connections until installation has been approved by Engineer.

B. Bedding:

1. Excavate pipe trench as specified in Section 312316.13 - Trenching.
2. Placement:
    a. Place bedding material as indicated on Drawings.
    b. Level fill materials in one continuous layer not exceeding 6 inches of compacted depth.
    c. Compact to 90 percent maximum density.
3. Backfill around sides and to top of pipe with cover fill, tamp in place, and compact to 90 percent maximum density.

C. Pipe and Fittings:

1. Water mains shall be laid at least 10 feet horizontally from any existing or proposed gravity sanitary or storm sewer, septic tank, or subsoil treatment system. The distance shall be measured outside edge to outside edge.
2. Install pipe to allow for expansion and contraction without stressing pipe or joints.
3. Install access fittings to permit disinfection of water system.
4. Thrust Restraints: Form and place concrete for thrust restraints at each elbow or change of direction of pipe.
5. Establish elevations of buried piping with not less than 7.5 feet of cover.
6. Tracer Wire: As specified in Section 330597 - Identification and Signage for Utilities.
7. Water service lines

D. Water Service Connections:

1. Water service lines shall be laid in a wavy line in the trench and shall be of length of at least two feet longer than the distance from the corporation to the curb stop.

2. Water service pipes shall be installed as one continuous piece from the tap to the stop box, and one continuous piece from the stop box to the plug.
3. At connections and fittings, a plastic pipe cutter shall be used on PEXa pipe to ensure square and clean cuts.

E. Backfilling:

1. Backfill around sides and to top of pipe with cover fill in minimum lifts of 6 inches and maximum lifts of 12 inches, tamp in place, and compact to 90 percent of Standard Proctor (ASTM 698) maximum dry density.
2. Place and compact material immediately adjacent to pipes to avoid damage to pipe and prevent pipe misalignment.
3. Maintain moisture content of bedding material to attain required relative compaction.
4. Backfilling: Backfill above pipe as specified in Section 312316.13 - Trenching.

F. Curb Stop Assemblies:

1. Set curb stops on solid bearing.
2. Boxes:
   a. Center and plumb curb boxes over curb stops.
   b. Set box cover flush with finished grade.
   c. Wrap in poly according to AWWA C105

G. Disinfection of Water Piping System: Flush and disinfect system as specified in Section 330110.58 - Disinfection of Water Utility Piping Systems.

3.4 TOLERANCES

A. Install pipe to indicated elevation to within tolerance of 5/8 inch.

3.5 FIELD QUALITY CONTROL

A. Section 014000 - Quality Requirements: Requirements for inspecting and testing.

B. Testing:

1. Pressure Testing: As specified in Section 330505.31 – Hydrostatic Testing

C. Compaction Testing:

1. Comply with ASTM D698 and ASTM D6938.
2. Testing Frequency: one test per service trench.
3. If tests indicate Work does not meet specified requirements, remove Work, replace, and retest.

END OF SECTION 331417

SECTION 331419 - VALVES AND HYDRANTS FOR WATER UTILITY SERVICE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Valves.
2. Valve boxes.
3. Fire hydrants.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Section 012000 - Price and Payment Procedures: Contract Sum/Price modification procedures.

B. Valves:

1. Basis of Measurement: By each.
2. Basis of Payment: Includes excavation, valve, valve box, accessories, bedding, and backfill.

C. Adjustment of Existing Valves:

1. Basis of Measurement: By each.
2. Basis of Payment: Includes excavation, labor, equipment, and materials to properly adjust valve box to finished grade.

D. Fire Hydrants:

1. Basis of Measurement: By each.
2. Basis of Payment: Includes excavation, hydrant, top extension (where required), accessories, foundation bedding, and backfill.

E. Hydrant Barrel Extension:

1. Basis of Measurement: Each.
2. Basis of Payment: Includes removal of hydrant, installation of barrel extension, re-installation of hydrant and tracer wires, accessories, testing and backfill.

1.3 REFERENCE STANDARDS

A. American Water Works Association:

1. AWWA C500 - Metal-Seated Gate Valves for Water Supply Service.

2. AWWA C502 - Dry-Barrel Fire Hydrants.
3. AWWA C503 - Wet-Barrel Fire Hydrants.
4. AWWA C515 - Resilient-Seated Gate Valves for Water Supply Service.
5. AWWA C550 - Protective Interior Coatings for Valves and Hydrants.

B. National Fire Protection Association:

1. NFPA 291 - Recommended Practice for Fire Flow Testing and Marking of Hydrants.

C. NSF International:

1. NSF 61 - Drinking Water System Components - Health Effects.
2. NSF 372 - Drinking Water System Components - Lead Content.

1.4 COORDINATION

A. Section 013000 - Administrative Requirements: Requirements for coordination.

B. Coordinate Work of this Section with installation of water mains.

1.5 SUBMITTALS

A. Section 013300 - Submittal Procedures: Requirements for submittals.

B. Product Data: Submit manufacturer information regarding component materials, fittings, assembly and parts diagram, and accessories.

C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

D. Manufacturer Instructions: Submit detailed instructions on installation requirements, including storage and handling procedures.

E. Qualifications Statements:

1. Submit qualifications for manufacturer and installer.
2. Submit manufacturer's approval of installer.

1.6 CLOSEOUT SUBMITTALS

A. Section 017000 - Execution and Closeout Requirements: Requirements for submittals.

1.7 MAINTENANCE MATERIAL SUBMITTALS

A. Section 017000 - Execution and Closeout Requirements: Requirements for maintenance materials.

1.8 QUALITY ASSURANCE

A. Materials in Contact with Potable Water: Certified according to NSF 61 and NSF 372.

B. Cast manufacturer's name, pressure rating, and year of fabrication into valve body.

C. Perform Work according to North Dakota Department of Environmental Quality standards.

1.9 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years' documented experience.

1.10 DELIVERY, STORAGE, AND HANDLING

A. Section 016000 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.

B. Delivery:

1. Seal valve and hydrant ends to prevent entry of foreign matter.
2. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.

C. Store materials according to manufacturer instructions.

D. Protection:

1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
2. Provide additional protection according to manufacturer instructions.

PART 2 - PRODUCTS

2.1 VALVES

A. Resilient-Wedge Gate Valves:

1. Manufacturers:
   a. American Cast Iron Pipe Company (American Flow Control & Waterous)
      1501 31st Ave. North
      Birmingham, AL 35202
   b. Clow Valve Company
      902 South Second St.
      Oskaloosa IA 52577

c. Mueller Co.
633 Chestnut Street
Suite 1200
Chattanooga TN 37450
d. Substitutions: As specified in Section 016000 - Product Requirements.
e. Approved equal.

2. Description:
a. Comply with AWWA C515.
b. Body: Ductile iron.
c. Seats: Resilient.
d. Stem:
1) Type: Non-rising.
2) Material: Bronze.
e. Operation:
1) Square operating nut.
2) Opening Direction: Counterclockwise.

3. End Connections:
a. Unless specifically noted in plans, must utilize a mechanical type joint. Push on ends are not approved for use.

4. Coatings:
a. Comply with AWWA C550.
b. Interior and exterior.

5. Pressure Rating:
a. 12-inch Diameter and Smaller: 200 psig.
b. 16-inch Diameter and Larger: 150 psig.

6. Exterior Bolts and Nuts: 304 Stainless Steel.

2.2 FIRE HYDRANTS

A. Manufacturers:

1. American Cast Iron Pipe Company (American Flow Control & Waterous)
1501 31st Ave. North
Birmingham, AL 35202

B. Models:

1. Waterous Pacer, WB-67.

C. Dry-Barrel, Breakaway Type:

1. Comply with AWWA C502.
2. Body: Cast iron or ductile iron.
3. Valve: Compression type.
4. Burial Depth: As indicated on Drawings.
5. Inlet Connection Size: 6 inches.
6. Valve Opening: 5-1/4 inches in diameter.
7. End Connections:

a. Unless specifically noted in plans, must utilize a mechanical type joint. Push on ends are not approved for use.

8. Bolts and Nuts: 304 Stainless steel.
9. Interior Coating: Comply with AWWA C550.
10. Opening Direction: Counterclockwise unless otherwise indicated.

D. Hose Connections:

1. One pumper, National Standard Thread 40524.
2. Two hose nozzles, National Standard Thread 7532.
3. Attach nozzle caps by separate chains.

E. Maintenance and other features:

1. Valve seat, and all operating parts, shall be removable as a single unit through the barrel, without digging.
2. Main valve shall close with the water pressure, leaving no pressure on lower joint and flange when shut off.
3. Stuffing box shall be of conventional "O" ring type, should be fully accessible and sealed from water, moisture and foreign matter.
4. Valve rod or operating nut shall be brass or brass bushed where it passes through packing.
5. The drain should be positively actuated by the valve rod when opening or closing. Drain should not depend upon gravity when opening and closing.
6. Drain weep holes shall be plugged with brass screws if the water table is above the bottom of the hydrant.
7. Hydrant design shall allow for installation of a barrel top extension.
8. Utilize stainless steel bolts on bottom flange.
9. Wrap all portions of hydrant below finished grade with 8 mil polyethylene plastic.
10. EZ Guide Products, EZ-Fold Fiberglass marker or equal, as shown on the Drawings.

F. Finishes:

1. Primer and two coats of enamel as recommended by manufacturer.
2. Color: Red.

2.3 VALVE BOXES

A. Manufacturers:

1. Tyler Union
   11910 CR 492
   Tyler, TX 75706
2. Substitutions: As specified in Section 016000 - Product Requirements.
3. Approved equal.

B. Description:

1. 12-inch Diameter Valves and Smaller:
   a. Material: Cast iron.

b. Type: Two piece; screw.
c. Model: Tyler Union 6850 Series

2. Valves Larger than 12-inch Diameter:
a. Material: Cast iron.
b. Type: Three piece; screw.
c. Base: Round.
d. Model: Tyler Union 6860 Series

3. Lid Inscription: WATER.

2.4 ACCESSORIES

A. Thrust Restraints: As specified in Section 330509.33 - Thrust Restraint for Utility Piping.

B. Valve Box Aligner: High-strength plastic device designed to automatically center valve box base and to prevent it from shifting off center during backfilling.

1. Manufacturers:
a. Adaptor Inc.
2151 S. 54th Street
West Allis, WI 53219
b. Approved equal.

C. Fire Hydrant Drainage Gravel: As specified in Section 310516 - Aggregates for Earthwork.

D. Exterior Bolts and Nuts: 304 Stainless Steel.

E. Barrel Extension: Standpipe and road extension kit manufactured or approved by the hydrant manufacturer. Length as shown on the Drawings or as directed by the Engineer.

2.5 SOURCE QUALITY CONTROL

A. Provide shop inspection and testing of completed assembly.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for installation examination.

B. Determine exact location and size of valves from Drawings.

C. Identify required lines, levels, contours, and datum locations.

D. Verify that elevations of existing facilities prior to excavation and installation of valves and hydrants are as indicated on Drawings.

3.2 PREPARATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for installation preparation.

B. Locate, identify, and protect from damage utilities to remain.

C. Do not interrupt existing utilities without permission and without making arrangements to provide temporary utility services.

1. Notify Engineer not less than 48 hours in advance of proposed utility interruption.
2. Do not proceed without written permission from Engineer.

3.3 INSTALLATION

A. Perform trench excavation, backfilling, and compaction as specified in Section 331413 - Public Water Utility Distribution Piping.

B. Install valves and hydrants in conjunction with pipe laying.

C. Provide buried valves with valve boxes installed flush with finished grade.

D. Provide support blocking and drainage gravel while installing fire hydrants; do not block drain hole.

E. Orientation:

1. Set valves and hydrants plumb.
2. Set fire hydrants with pumper nozzle facing roadway.
3. Set fire hydrants with centerline of pumper nozzle 24 inches above finished grade and with safety flange not more than 6 inches nor less than 2 inches above grade.

F. After main-line pressure testing, flush fire hydrants and check for proper drainage.

G. Disinfection of Water Piping System: Flush and disinfect valves and hydrants with water mains as specified in Section 330110.58 - Disinfection of Water Utility Piping Systems.

3.4 ADJUSTMENTS OF EXISTING VALVE BOXES

A. Adjustments of existing valve box shall involve raising or lowering the lid of the valve box to the new finished surface.

B. It shall involve some or all of the following:

1. Spin/twist/rotate the box up or down.
2. Install riser ring.

3.5 RISER RINGS

A. Install riser ring below lid in asphalt paving areas:

1. On all new valve boxes.
2. On all existing valve boxes being adjusted.

B. Clean riser ring mounting area with wire brush.

C. Install ¼” bead of adhesive at 360 degrees.

D. Do not allow traffic on riser rings for a minimum of 8 hours after adhesive application.

3.6 FIELD QUALITY CONTROL

A. Section 014000 - Quality Requirements: Requirements for inspecting and testing.

B. Testing: Pressure test valves and hydrants with water mains as specified in Section 330505.31 – Hydrostatic Testing.

END OF SECTION 331419

SECTION 333111 - PUBLIC SANITARY SEWERAGE GRAVITY PIPING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Sanitary sewerage piping.
2. Connection to existing manholes.
3. Wye branches and tees.
4. Sanitary laterals.
5. Bedding and cover materials.

B. Related Requirements:

1. Section 310513 - Soils for Earthwork: Soils for backfill in trenches.
2. Section 310516 - Aggregates for Earthwork: Aggregate for backfill in trenches.
3. Section 312316.13 - Trenching: Execution requirements for trenching required by this Section.
4. Section 330130.11-Television Inspection of Sewers
5. Section 330505.41 - Air Testing: Low Pressure air testing of gravity sewer piping.
6. Section 330505.43 - Mandrel Testing: Deflection testing of plastic sewerage piping.
7. Section 330561 - Precast Concrete Structures: Manholes for sanitary sewerage piping.
8. Section 330597 - Identification and Signage for Utilities: Trace Wire.

1.2 DEFINITIONS

A. Bedding: Fill placed under, beside, and directly over pipe, prior to subsequent backfill operations.

1.3 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Section 012000 - Price and Payment Procedures: Contract Sum/Price modification procedures.

B. Pipe and Fittings:

1. Basis of Measurement: By linear foot.
2. Basis of Payment: Includes hand trimming, excavation, bedding, pipe and fittings, bypass pumping (if required), and to indicated depth.

C. Cleanout:

1. Basis of Measurements: By each.
2. Basis of Payment: Includes hand trimming, excavating, reinforced concrete pad, casting, unit installation with accessories, connection to sewer piping and backfilling.

D. Sanitary Sewer Service Connection:

1. Basis of Measurements: By each.
2. Basis of Payment: Includes labor, excavation, backfilling, materials, and equipment necessary for furnishing and installing one (1) in-line sanitary sewer service connection as shown in the plans. Pipe shall be measured as indicated above.

1.4 REFERENCE STANDARDS

A. ASTM International:
1. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3).
2. ASTM D1785 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120.
3. ASTM D2321 - Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications.
4. ASTM D2466 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40.
5. ASTM D2729 - Standard Specification for Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
6. ASTM D3034 - Standard Specification for Type PSM Poly(Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
7. ASTM D6938 - Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).
8. ASTM F477 - Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.

1.5 COORDINATION

A. Section 013000 - Administrative Requirements: Requirements for coordination.

B. Coordinate Work of this Section with Owner.

1.6 SUBMITTALS

A. Section 013300 - Submittal Procedures: Requirements for submittals.

B. Product Data: Submit manufacturer catalog cuts and other information indicating proposed materials, accessories, details, and construction information.

C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

D. Source Quality-Control Submittals: Indicate results of factory tests and inspections.

E. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.

1.7 CLOSEOUT SUBMITTALS

A. Section 017000 - Execution and Closeout Requirements: Requirements for submittals.

1.8 QUALITY ASSURANCE

A. Perform Work according to North Dakota Department of Environmental Quality standards.

1.9 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years' documented experience.

1.10 DELIVERY, STORAGE, AND HANDLING

A. Section 016000 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.

B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.

C. Storage:

1. Store materials according to manufacturer instructions.
2. Store valves in shipping containers with labeling in place.

D. Protection:

1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
2. Block individual and stockpiled pipe lengths to prevent moving.
3. Provide additional protection according to manufacturer instructions.

1.11 EXISTING CONDITIONS

A. Field Measurements:

1. Verify field measurements prior to fabrication.
2. Indicate field measurements on Shop Drawings.

PART 2 - PRODUCTS

2.1 SANITARY SEWERAGE PIPING

A. Plastic Pipe:

1. Material: PVC.
2. Comply with ASTM D3034:
    a. Mains: SDR-35 or SDR-26
    b. Service Lines: SDR-26
3. Inside Nominal Diameter:
    a. Mains: as notes on plans
    b. Service Lines: 6 inch.
4. End Connections: Bell-and-spigot style, with rubber-ring-sealed gasket joint.
5. Fittings and caps: PVC.
6. Joints:
    a. Elastomeric gaskets.
    b. Comply with ASTM F477.

2.2 MANHOLES

A. As specified in Section 330561 - Concrete Manholes.

2.3 FLEXIBLE COUPLINGS

A. Manufacturers:

1. Reinforced Flexible Coupling: Strong Back RC Series by Fernco.
2. Substitutions: As specified in Section 016000 - Product Requirements
3. or equal.

2.4 MATERIALS

A. Bedding and Cover:

1. Bedding and Cover: Fill Type A5, as specified in Section 310516 - Aggregates for Earthwork.
2. Soil Backfill from Above Pipe to Finish Grade:
    a. Soil Type S2, as specified in Section 310513 - Soils for Earthwork.
    b. Subsoil with no rocks more than 6 inches in diameter, frozen earth, or foreign matter.

2.5 ACCESSORIES

A. Trace Wire: As specified in Section 330597 - Identification and Signage for Utilities.

B. Cleanout Lids: Neenah R-1973 and labeled for sewer.

2.6 SOURCE QUALITY CONTROL

A. Section 014000 - Quality Requirements: Requirements for testing, inspection, and analysis.

B. Provide shop inspection and testing of pipe.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for installation examination.

B. Verify that trench cut is ready to receive Work of this Section.

C. Verify that excavations, dimensions, and elevations are as indicated on Drawings.

3.2 PREPARATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for installation preparation.

B. Prepare and implement temporary bypass pumping plan on work involving live sewers. Plan shall be approved by Engineer.

C. Correct over-excavation with Coarse Aggregate Type A5.

D. Remove large stones or other hard materials that could damage pipe or impede consistent backfilling or compaction.

E. Protect and support existing sewer lines, utilities, and appurtenances.

F. Utilities:

1. Maintain profiles of utilities.
2. Coordinate with other utilities to eliminate interference.
3. Notify Engineer if crossing conflicts occur.

3.3 INSTALLATION

A. Bedding:

1. Excavate pipe trench as specified in Section 312316.13 - Trenching.
2. Excavate to lines and grades as indicated on Drawings.
3. Dewater excavations to maintain dry conditions and to preserve final grades at bottom of excavation.
4. Provide sheeting and shoring as specified in Section 312316.13 - Trenching.
5. Placement:

    a. Place bedding material at trench bottom.

b. Level materials in continuous layer not exceeding 6-inch compacted depth.
c. Compact to 90 percent of Standard Proctor (ASTM 698) maximum dry density.

B. Piping:

1. Install pipe, fittings, and accessories according to ASTM D2321, and seal joints watertight.
2. Lay pipe to slope gradients as indicated on Drawings.
3. Begin at downstream end of system and progress upstream.
4. Bedding: As indicated on Drawings.
5. Lay bell-and-spigot pipe with bells upstream.
6. Backfill and compact as specified in Section 312316.13 - Trenching.
7. Do not displace or damage pipe when compacting.
8. Connect pipe to existing sewer system with solid sleeve coupling.
9. Trace Wire: As specified in Section 330597 - Identification and Signage for Utilities.
10. Installation Standards: Install Work according North Dakota Department of Environmental Quality standards.
11. Sewers shall be laid at least 10 feet horizontally from any existing or proposed water main. The distance shall be measured edge to edge.
12. Crossings:
    a. Sewers crossing water mains shall be laid to provide a minimum vertical distance of 18 inches between the outside of the water main and the outside of the sewer. This shall be the case where the water main is either above or below the sewer. The crossing shall be arranged so that the sewer joints will be equidistant and as far as possible from the water main joints. Where a water main crosses under a sewer, adequate structural support shall be provided for the sewer to maintain line and grade.

C. Manholes: As specified in Section 330561 - Concrete Manholes.

D. Connections to Existing Manholes:

1. Drilling:
    a. Core drill existing manhole to clean opening.
    b. Use of pneumatic hammers, chipping guns, and sledge hammers are not permitted.
2. Install watertight neoprene gasket and seal with nonshrink concrete grout.
    a. Use epoxy binder between new and existing concrete.

3. Prevent construction debris from entering existing sewer line when making connection.

E. Wye Branches and Tees:

1. Concurrent with pipe-laying operations, install wye branches and pipe tees at locations indicated on Drawings.
2. Use standard fittings of same material and joint type as sewer main.
3. Maintain minimum 5 foot separation distance between wye connection and manhole.
4. Use saddle wye or tee with stainless-steel clamps for taps into existing piping.
5. Mount saddles with gasket and secure with metal bands.
6. Lay out holes with template, and cut holes with mechanical cutter.

F. Sanitary Laterals:

1. Construct laterals from wye branch to terminal point as shown on the Drawings.
2. Where depth of main pipeline warrants, construct riser-type laterals from wye branch.
3. Minimum Depth of Cover over Piping: 8 feet.
4. Minimum Separation Distance between Laterals: 5 feet.
5. Install televising riser if shown on the Drawings. All caps to be solvent welded.

G. Backfilling:
1. Backfill around sides and top of pipe with cover fill in lifts of minimum 6 inches, maximum 12 inches, tamp in place, and compact to 90 percent of Standard Proctor (ASTM 698) maximum dry density.
2. Place and compact material immediately adjacent to pipes to avoid damage to pipe and prevent pipe misalignment. Maintain moisture content of bedding material to attain required relative compaction.
3. Finish backfilling above pipe as specified in section 312316.13 - Trenching.

3.4 TOLERANCES

A. Section 014000 - Quality Requirements: Requirements for tolerances.

B. Maximum Variation from Indicated Slope: 1/8 inch in 10 feet.

3.5 FIELD QUALITY CONTROL

A. Section 014000 - Quality Requirements: Requirements for inspecting and testing.

B. Request inspection by Engineer prior to and immediately after placing bedding.

C. Testing:

1. If tests indicate that Work does not meet specified requirements, remove Work, replace, and retest.
2. Pipe Testing:
   a. Pressure Testing: As specified in Section 330505.41 - Air Testing.
   b. Deflection Testing: As specified in Section 330505.43 - Mandrel Testing.

3. Compaction Testing:
   a. Comply with ASTM D698 and ASTM D6938.
   b. Testing Frequency: one test along utility trenches at maximum 500 foot intervals per 2 feet of vertical lift.
   c. If tests indicate Work does not meet specified requirements, remove Work, replace, and retest.

D. Television Inspection:

1. As specified in Section 330130.11 – Television Inspection of Sewers.
2. Shall be completed on new mains and services prior to street construction.
3. Televise services utilizing lateral launch method.
   a. Identify service lot and block number on video.

4. Engineer shall review television inspection recordings and reports within 7 days of receipt.
5. Deficiencies shall be repaired by the contractor prior to street construction.

3.6 PROTECTION

A. Section 017000 - Execution and Closeout Requirements: Requirements for protecting finished Work.

B. Protect pipe and aggregate cover from damage or displacement until backfilling operation is in progress.

C. Cap open ends of piping during periods of Work stoppage.

END OF SECTION 333111

SECTION 333123 - SANITARY SEWERAGE FORCE MAIN PIPING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Force mains.
2. Bedding and cover materials.

B. Related Requirements:

1. Section 033000 - Cast-in-Place Concrete: Concrete material requirements.
2. Section 310513 - Soils for Earthwork: Soil backfill from above pipe to finish grade.
3. Section 310516 - Aggregates for Earthwork: Aggregate for pipe bedding and cover.
4. Section 312316.13 - Trenching: Excavation, backfilling, compacting, and fill over underground pipe markers.
5. Section 330505.31 - Hydrostatic Testing: Pressure testing of completed force mains.
6. Section 330509.33 - Thrust Restraint for Utility Piping: Thrust restraints as required by this Section.
7. Section 330561 – Precast Concrete Structures: Connection to drainage and sanitary sewerage system.
8. Section 330597 - Identification and Signage for Utilities: Tracer Wire.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Section 012000 - Price and Payment Procedures: Contract Sum/Price modification procedures.

B. Pipe and Fittings:

1. Basis of Measurement: By linear foot.
2. Basis of Payment: Includes excavation, hand trimming, backfill, bedding, thrust restraints, pipe and fittings, and trace wire.

C. Valves:

1. Basis of Measurement: By each.
2. Basis of Payment: Includes excavation, valve, valve box, permanent utility marker, installation, labor, accessories, tests, backfill, and final adjustment of valve box.

D. Tapping Sleeve and Valve:

1. Basis of Measurement: By the each.
2. Basis of Payment: Includes tapping sleeve, tapping valves, and accessories.

1.3 REFERENCE STANDARDS

A. American Association of State Highway and Transportation Officials:

1. AASHTO T 180 - Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.

B. American Water Works Association:

1. AWWA C104 - Cement-Mortar Lining for Ductile-Iron Pipe and Fittings.
2. AWWA C110 - Ductile-Iron and Gray-Iron Fittings.
3. AWWA C111 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.
4. AWWA C151 - Ductile-Iron Pipe, Centrifugally Cast.
5. AWWA C900 - Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4 In. Through 12 In. (100 mm Through 300 mm), for Water Transmission and Distribution.
6. AWWA C906 – Polyethylene (PE) Pressure Pipe and Fittings, 4 In. Through 63 In., For Water Distribution and Transmission.

C. ASTM International:

1. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3).
2. ASTM D1785 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120.
3. ASTM D2241 - Standard Specification for Poly(Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series).
4. ASTM D2466 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40.
5. ASTM D2467 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80.
6. ASTM D6938 - Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

1.4 COORDINATION

A. Section 013000 - Administrative Requirements: Requirements for coordination.

B. Coordinate Work of this Section with connection to existing municipal sewer utility service.

1.5 SUBMITTALS

A. Section 013300 - Submittal Procedures: Requirements for submittals.

B. Product Data: Submit manufacturer information indicating pipe material used, pipe accessories, valves, restrained joint details and materials.

C. Shop Drawings:

1. Indicate piping piece numbers and locations.

2. Indicate restrained joint locations.

D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

E. Delegated Design Submittals: Submit signed and sealed Shop Drawings with design calculations and assumptions for restrained joints, including establishing lengths of restrained joint piping required.

F. Manufacturer Instructions: Submit special procedures required to install specified products.

G. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.

H. Qualifications Statement:

1. Submit qualifications for manufacturer, installer, and licensed professional.

1.6 CLOSEOUT SUBMITTALS

A. Section 017000 - Execution and Closeout Requirements: Requirements for submittals.

B. Project Record Documents: Record top of pipe elevations and actual locations of pipe runs and connections.

C. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

1.7 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years' documented experience.

B. Installer: Company specializing in performing Work of this Section with minimum three years' documented experience.

C. Licensed Professional: Professional engineer experienced in design of specified Work and licensed at Project location.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Section 016000 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.

B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.

C. Storage:

1. Store materials according to manufacturer instructions.
2. Do not place materials on private property without written permission of property owner.

3. Do not stack pipe higher than recommended by pipe manufacturer.

D. Protection:

1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
2. Store gaskets for mechanical and push-on joints in cool and dry location, out of direct sunlight, and not in contact with petroleum products.
3. Provide additional protection according to manufacturer instructions.

1.9 EXISTING CONDITIONS

A. Field Measurements:

1. Verify field measurements prior to fabrication.
2. Indicate field measurements on Shop Drawings.

PART 2 - PRODUCTS

2.1 FORCE MAIN

A. Ductile-Iron Fittings:

1. Comply with AWWA C153.
2. Pressure Rating: 350psig.
3. Ceramic Epoxy lined, Protecto 401TM, application as specified by manufacturer, and outside coated.

B. Joints:

1. Comply with AWWA C111.
2. Type: Mechanical.

C. Rubber Gaskets, Lubricants, Glands, Bolts, and Nuts: Comply with AWWA C111.

D. Bolts and Nuts: Type 304 Stainless Steel.

E. Jackets: AWWA C105 polyethylene jacket.

2.2 PVC PIPE

A. PVC Pressure Sewer Pipe:

1. Comply with AWWA C900.
2. DR-25, Class 165.
3. Joints: Gasketed.

2.3 RESILIENT-WEDGE GATE VALVES

A. Manufacturers:
1. American Cast Iron Pipe Company (American Flow Control & Waterous)
   1501 31st Ave. North
   Birmingham, AL 35202
2. Clow Valve Company
   902 South Second St.
   Oskaloosa IA 52577
3. Mueller Co.
   633 Chestnut Street
   Suite 1200
   Chattanooga TN 37450
4. Substitutions: As specified in Section 016000 - Product Requirements.
5. or equal.

B. Description:
1. Comply with AWWA C515.
2. Body: Ductile iron.
3. Seats: Resilient.
4. Stem:
   a. Type: Non-rising.
   b. Material: Bronze.
5. Operation:
   a. Square operating nut.
   b. Opening Direction: Counterclockwise.

C. End Connections: mechanical joint.

D. Coatings:
1. Comply with AWWA C550.
2. Interior and exterior.

E. Pressure Rating:
1. 12-inch Diameter and Smaller: 200 psig.
2. 16-inch Diameter and Larger: 150 psig.

F. Exterior Bolts and Nuts: 304 Stainless Steel.

2.4 VALVE BOXES

A. Manufacturers:
1. Tyler Union
   11910 CR 492
   Tyler, TX 75706

B. Models:
1. 12-inch Diameter Valves and Smaller:
   a. Material: Cast iron.
   b. Type: Two-piece, screw type.

c. Model: Tyler Union 6850 Series.

2. Valves Larger than 12-inch Diameter:
   a. Material: Cast iron.
   b. Type: Three-piece, screw.
   c. Base: Round.
   d. Model: Tyler Union 6860 Series.
3. Lid: Shall be labeled SEWER.

2.5 TAPPING SLEEVES AND VALVES

A. Tapping Sleeve and Valve:
   1. Manufacturers: Romac Industries, Inc., Powerseal, or Ford.
      a. SST Stainless Steel Tapping Sleeve.
      b. 662 Stainless Steel Tapping Sleeve.
   2. Description: AWWA C509, resilient-seated gate valves with non-rising stem. Inlet flanges conforming to ANSI B16.1, Class 125 and MSS SP-60. Mechanical joint outlets conforming to AWWA C111.
   3. Mark manufacturer's name and pressure rating on valve body.

2.6 MATERIALS

A. Bedding and Cover:

   1. Bedding: Fill Type A5, as specified in Section 310516 - Aggregates for Earthwork.
   2. Cover: Fill Type A5, as specified in Section 310516 - Aggregates for Earthwork.
   3. Soil Backfill from above Pipe to Finish Grade: Soil Type S2, as specified in Section 310513 - Soils for Earthwork.
   4. Subsoil: No rocks more than 6 inches in diameter, frozen earth, or foreign matter.

2.7 CONNECTIONS TO EXISTING MAINS

A. For 12” and smaller, connect to existing pipes with Macro coupling by Romac or Hymax Coupling by Krausz USA .

B. For larger than 12”, connect to existing pipes with Hymax Coupling by Krausz USA.

2.8 ACCESSORIES

A. Tracer Wire: As specified in Section 330597 - Identification and Signage for Utilities.

B. All exterior bolts and nuts shall be 304 stainless steel.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for installation examination.

B. Verify that excavation base is ready to receive Work.

C. Verify that excavations, dimensions, and elevations are as indicated on Drawings.

3.2 PREPARATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for installation preparation.

B. Correct over-excavation as directed by the Engineer.

C. Remove large stones or other hard matter capable of damaging pipe or of impeding consistent backfilling or compaction.

3.3 INSTALLATION

A. Bedding:

1. Excavate pipe trench as specified in Section 312316.13 - Trenching.
2. Place bedding material at trench bottom.
3. Level materials in continuous layers not exceeding 6 inches in depth.
4. Maintain optimum moisture content of bedding material to attain required compaction density.

B. Piping:

1. Install pipe, fittings, and accessories as indicated on Drawings.
2. Route piping in straight line.
3. Install bedding at sides and over top of pipe to minimum compacted thickness of 6 inches.
4. Backfilling and Compacting:
    a. As specified in Section 312316.13 - Trenching.
    b. Do not displace or damage pipe while compacting.
5. Connect to municipal sewer system.
6. Tracer Wire: As specified in Section 330597 - Identification and Signage for Utilities.
7. Installation Standards: Install Work according to 10 States Standards.

C. Thrust Restraints:

1. Provide pressure pipeline with restrained joints and concrete thrust blocking at bends, tees, and changes in direction.
2. As specified in Section 330509.33 - Thrust Restraint for Utility Piping.

D. Tapping Sleeves and Valves:

1. Install tapping sleeves and valves as indicated on Drawings and according to manufacturer's instructions.

E. Connections To Existing Main:

1. Connecting new sanitary force main to existing force main shall involve removing the existing plug and installing a Hymax coupling by Krausz USA.
2. Coordination with City:
   a. City contact for all coordination issues.

F. Cradles and Encasements: Provide concrete cradles and encasements for pipelines where indicated on Drawings.

G. Encase piping in polyethylene on all ductile iron pipe and fittings to prevent contact with surrounding backfill material.

1. Install according to AWWA C105.
2. Terminate encasement 3 to 6 inches aboveground where pipe is exposed.

H. Crossings:

1. For maximum protection of municipal water systems where water mains and sewers cross, the following methods of construction for various conditions are recommended.
2. Maintain 10 feet horizontal separation of water main from sanitary sewer piping.
3. Water and sewer:
   a. Water mains crossing sewers shall be laid to provide minimum vertical distance of 18 inches between the outside of the water main and the outside of the sewer. This shall be the case where the water main is either above or below the sewer with preference to the water main located above the sewer.
   b. Locate one full length of water pipe so both joints will be as far from the sewer as possible. Special structural support for the water and sewer pipes may be required.
4. Where water main crosses over an existing sewer.
   a. No additional protection needed if water main is at least three (3) feet above the sewer. (Intervening soil must be left undisturbed).
   b. If crossing is within three (3) feet above the sewer, a full length of water main must be centered over the sewer main.
5. Where water main crosses under the sewer.
   a. In all cases, additional protection shall be provided by centering a full length of water main under the sewer main. All sewer joints located within ten (10) feet of the crossing shall be able to withstand 25 psi internal pressure.

3.4 FIELD QUALITY CONTROL

A. Section 014000 - Quality Requirements: Requirements for inspecting and testing.

B. Inspections: Request inspection by Engineer prior to and immediately after placing bedding.

C. Pressure Testing: As specified in Section 330505.31 - Hydrostatic Testing.

D. Compaction Testing: As specified in Section 312316.13 – Trenching.

3.5 PROTECTION

A. Section 017000 - Execution and Closeout Requirements: Requirements for protecting finished Work.

B. Protect pipe and aggregate cover from damage or displacement until backfilling operation is in progress.

END OF SECTION 333123

SECTION 334213.13 - PUBLIC STORM SEWER GRAVITY PIPING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Pipe culverts and accessories.
2. Drainage structures.
3. Bedding and cover materials.

B. Related Requirements:

1. Section 310516 - Aggregates for Earthwork: Aggregate for backfill in trenches.
2. Section 312316.13 - Trenching: Excavating for culvert piping.
3. Section 312317 - Trenching: Backfilling over piping.
4. Section 330561 – Precast Concrete Structures: Material requirements for drainage and sanitary structures.

1.2 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Section 012000 - Price and Payment Procedures: Contract Sum/Price modification procedures.

B. Storm Sewer Pipe:

1. Basis of Measurement: By linear foot measured from center of structure to center of structure.
2. Basis of Payment: Includes hand trimming, excavating, removing soft subsoil, bedding fill, compacting, backfilling, pipe including assembled fittings and accessories.

C. Flared-End Section

1. Basis of Measurement: By each.
2. Basis of Payment: Includes hand trimming, excavation, bedding, backfilling, trach rack, tie bolts, fasteners, accessories, construction, furnishing, and installing structure. Length of structure not included in pipe quantity.

D. Edgedrain

1. Basis of Measurement: By linear foot.
2. Basis of Payment: Includes hand trimming, excavation, drainage aggregate, pipe, separation geosynthetic, accessories, construction, furnishing, and any other incidentals.

E. Check Valve

1. Basis of Measurement: By each.

2. Basis of Payment: Includes tie bolts, fasteners, accessories, construction, furnishing, and installing check valve.

1.3 REFERENCE STANDARDS

A. American Association of State Highway and Transportation Officials:
1. AASHTO M198 – Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants.
2. AASHTO M294 - Standard Specification for Corrugated Polyethylene Pipe, 300- to 1500-mm (12- to 60-in.) Diameter.
3. AASHTO M330 – Standard Specification for Polypropylene Pipe, 300 to 1500 mm (12 to 60 in.) Diamenter

B. ASTM International:
1. ASTM C76 - Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe.
2. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort.
3. ASTM D2444 – Standard Practice for Determination of the impact resistance of Thermoplastic Pipe and Fittings by Means of a Tup (Falling Weight).
4. ASTM D3350 – Standard Specification for Polyethylene Plastic Pipe and Fittings Materials.
5. ASTM D 4976 – Standard Specification for Polyethylene Plastics Molding and extrusion Materials.
6. ASTM D6938 – Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).
7. ASTM F477 – Standard Specification for Elastomeric Seals (Gaskets) for joining Pipe.
8. ASTM F2306 – Standard Specification for 12 to 60 in. Annular Corrugated Profile-Wall Polyethylene (PE) Pipe and Fittings for Gravity-Flow Storm Sewer and Subsurface Drainage Applications.
9. ASTM F2881 – Standard Specification for 12 to 60in. [300 to 1500 mm] Polypropylene (PP) Dual Wall Pipe and Fittings for Non-Pressure Storm Sewer Applications.

1.4 COORDINATION

A. Section 013000 - Administrative Requirements: Requirements for coordination.

1.5 SUBMITTALS

A. Section 013300 - Submittal Procedures: Requirements for submittals.

B. Product Data: Submit manufacturer information regarding pipe, fittings, and accessories.

C. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

D. Shop Drawings:
1. Indicate structure locations and elevations.

2. Indicate sizes and elevations of piping and penetrations.

1.6 CLOSEOUT SUBMITTALS

A. Section 017000 - Execution and Closeout Requirements: Requirements for submittals.

B. Identify and describe unexpected variations to subsoil conditions or discovery of uncharted utilities.

1.7 QUALITY ASSURANCE

A. Perform Work according to Section 714 and 722 of the North Dakota Department of Transportation Standard Specifications for Road and Bridge Construction.

1.8 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years' documented experience.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Section 016000 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.

B. Inspection: Accept materials on Site in manufacturer's original packaging and inspect for damage.

C. Storage:

1. Do not place pipe or pipe materials on private property or in areas obstructing pedestrian or vehicle traffic.
2. Store UV-sensitive materials out of direct sunlight.

D. Protection:

1. Protect materials from moisture and dust by storing in clean, dry location remote from construction operations areas.
2. Block individual and stockpiled pipe lengths to prevent moving.
3. Cradle pipe to prevent point stress.
4. Provide additional protection according to manufacturer instructions.

1.10 EXISTING CONDITIONS

A. Field Measurements:

1. Verify field measurements prior to fabrication.

2. Indicate field measurements on Shop Drawings.

PART 2 - PRODUCTS

2.1 PIPE CULVERT

A. Reinforced Concrete Pipe (RCP):

1. Comply with ASTM C76 Latest addition
   a. Sizes 12” – 18” Class V
   b. Sizes 21” – 36” Class III
   c. Sizes 42” and larger Class II
2. Furnish pipe in four to eight foot lengths.
3. Reinforcement: Mesh.
4. End Joints: Tongue and Groove.
   a. Supply weather butyl rubber gaskets in flexible rope form meeting or exceeding the requirements of Federal Specification SS-S-210 A and AASHTO M198.

B. Polypropylene (PP) Pipe.

1. Material:
   a. Pipe material comply with the following for their respective diameters
      1) ASTM F2881, Section 5
      2) AASHTO MP-21-11, Section 6.1
      3) AASHTO M330
2. Manufacture:
   a. Pipe 12-60 inches in diameter
      1) Smooth interior
      2) Annular exterior corrugations
      3) Meet or exceed ASTM F2881 and AASHTO M330
3. Joints:
   a. Gasketed integral bell and spigot joint meeting the requirements of AASHTO M330 and ASTM F2881 for respective diameters.
   b. Watertight according to ASTM D3212
   c. Ensure gasket complies with ASTM F477

C. Perforated Polyvinyl Chloride Pipe

1. Material:
   a. Comply with ASTM D1784
2. Manufacture:
   a. Pipe size 4 inch.
   b. Comply with ASTM D3034 SDR 35
   c. Perforations:
      1) ¼” in diameter
      2) Arranged in rows parallel to the axis of the pipe.
      3) Spaced 3” center to center
   d. Rows of Perforations: 4

e. Perforations per row: 48 (for 12.5’ laying lengths)

3. Joints:
   a. Solvent welded

2.2 MATERIALS

A. Bedding and Cover:

1. Bedding: Fill Type A5, as specified in Section 310516 - Aggregates for Earthwork.
2. Cover: Fill Type A5, as specified in Section 310516 - Aggregates for Earthwork.

B. Drainage Aggregate:

1. Type A4, as specified in Section 310516 - Aggregates for Earthwork.

2.3 ACCESSORIES

A. Duckbill Check Valve

1. Metal Pipe.
   a. Tideflex TF-1 series manufactured of neoprene or HPDM materials.
2. Concrete Pipe.
   a. Tideflex 35-1or flanged Tideflx TF-1 series manufactured of neoprene or HPDM materials with retaining ring.
   b. ¾ inch diameter stainless steel Hilti Kwik Bolt 3 expansion Anchors.
3. Concrete Wall.
   a. Tideflex 35-1or flanged Tideflx TF-1 series manufactured of neoprene or HPDM materials with retaining ring.
   b. ¾ inch diameter stainless steel Hilti Kwik Bolt 3 expansion Anchors.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for installation examination.

B. Verify that trench cut is ready to receive Work.

C. Verify that excavations, dimensions, and elevations are as indicated on Drawings.

3.2 PREPARATION

A. Section 017000 - Execution and Closeout Requirements: Requirements for installation preparation.

B. Correct over-excavation with fine aggregate.

C. Remove large stones and other hard matter that could damage piping or impede consistent backfilling or compaction.

3.3 INSTALLATION

A. Excavation and Bedding:

1. Excavate culvert trench as specified in Section 312316.13 - Trenching.
2. Hand trim excavation for accurate placement of piping to indicated elevations.
3. Place bedding material at trench bottom.
4. Level fill materials in continuous layers not exceeding 6 inches in depth and compact to 95 percent maximum density.

B. Pipe:

1. Flexible pipe:
   a. Unless approved by the City Engineer or their designee, or unless otherwise stated in plans approved by the City Commission, flexible pipe shall only be allowed on backyard inlet lead runs where pipe is located outside the future street section.
   b. Wipe both ends clean and place sufficient lubricant on gasket and spigot end before the pipe is fully pushed into the bell.
   c. Bevel field cut spigot ends when required.
   d. Lay pipe upgrade with the spigot end pointing in the direction of flow.
   e. Ensure that pipe remains in correct position and to required slope.
   f. Ensure spigot is properly seated within bell end.

2. Rigid pipe:
   a. Handle and lay pipe in accordance with ASTM C1479.
   b. If using butyl gaskets, install per manufacturer’s instructions.
   c. Use Popits to fill pick holes when applicable.
   d. Place the pipe in contact with the shaped bedding throughout its full length.
   e. Place bell or groove ends of rigid pipe upstream

C. Connection to Manholes, and Inlets.

1. For flexible pipe connect to structure utilizing a rubber boot.
2. For rigid pipe connect pipe by cutting the opening and grouting in the connecting pipe.
3. Correct over excavation of pipe with 4,000 psi concrete during concrete grouting operations. All concrete and concrete grout shall be allowed to fully set prior to backfilling. Connections that display evidence of concrete or grout having not fully set prior to backfilling shall be reset.

D. Backfilling and Compaction:

1. As specified in Section 312316.13 – Trenching
2. Level fill materials in continuous layers not exceeding 6 inches in compacted depth.

3. Do not displace or damage pipe while compacting.
4. Maintain optimum moisture content of bedding material to attain required compaction density.

E. Edgedrain

1. Excavate trench in accordance with detail in the drawings.
2. Install pipe on bed of drainage aggregate with penetrations facing down.
3. Encase pipe within geotextile sock and drainage aggregate.
4. Place geosynthetics around drainage material and geogrids on drainage aggregate per detail or as noted in plans.

3.4 TOLERANCES

A. Section 014000 - Quality Requirements: Requirements for tolerances.

B. Maximum Variation from Indicated Slope: 1/8 inch in 10 feet.

C. Maximum Variation from Intended Elevation of Culvert Invert: 1/2 inch.

D. Maximum Offset of Pipe from Indicated Alignment: 1inch.

E. Maximum Variation in Profile of Structure from Intended Position: 1.0 percent.

F. Pipe bedding and cover compacted to 95% ASTM D1557.

G. Fill compacted to 95% ASTM D698
1. Moisture content no less than 1.0 percentage point below optimum and no more than 5.0 percentage points above optimum.

3.5 FIELD QUALITY CONTROL

A. Section 014000 - Quality Requirements: Requirements for inspecting and testing.

B. Request inspection from Engineer prior to and immediately after placing aggregate cover over pipe.

C. Compaction Testing:

1. Comply with ASTM D698 and ASTM D6938.
2. Testing Frequency:
   a. One test along utility trench at maximum 500 foot intervals per 2 feet of vertical lift.
   b. One test at manhole structures 2/3 depth.
   c. One test per inlet run ½ depth.
3. If tests indicate that Work does not meet specified requirements, remove Work, replace, and retest.

D. Deflection Testing:

1. As specified in Section 330505.43 – Mandrel Testing
2. Test all flexible pipe 8 inches in diameter or larger.
3. Perform test a minimum of 30 days after the pipe has been fully backfilled, and prior to paving operations.
4. Correct any over deflected pipe at no additional cost.

E. Television Inspection:

1. As specified in Section 330130.11 – Television Inspection of Sewers.
2. Test all flexible pipe storm sewer mains and laterals.
3. Engineer will review inspection recordings and reports within 7 days of receipt.
4. Deficiencies will be repaired by the contractor prior to street construction.

3.6 PROTECTION

A. Section 017000 - Execution and Closeout Requirements: Requirements for protecting installed construction.

B. Protect pipe and bedding from damage or displacement until backfilling operation is in progress.

END OF SECTION 334213.13

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

UTILITY COORDINATION

PROJECT – TMA-SU-FXP-8-992(045)
PCN 23537

DESCRIPTION

This work consists of coordinating the construction schedule with third party utility companies owning facilities within the project limits, verifying the location of those facilities during construction, and resolving issues with those utilities.

The requirements in this Special Provision replace the requirements of Section 105.03, “Cooperation With Utility Owners”.

ATTACHMENTS

Appendix A – Utility Coordination Table
Appendix B – Utility Exhibits
Appendix C – Utility Pothole Report

DEFINITIONS

Abandon Utility (AU): Utility Encounter that was originally a Conflict, but relocated before bidding. The line is still represented in the Exhibits to make the Contractor aware of its location. See the Utility Coordination Table for final details.

Conflict: A utility in need of relocation or adjustment for the construction to proceed in that area.

Protect in Place (PIP): A utility that does not need relocation, but needs precautions to protect the utility during construction activities.

Proposed Resolution (PR): A proposed location of a future Utility Encounter. The Utility Owner is in the process of moving the Utility to this Proposed location. PIP activities may still be required in the proposed location.

Utility Encounter (UE): A Conflict or Protect in Place situation involving an existing third party owned utility.

UTILITY COMPANY CONTACTS

UTILITY COMPANY	CONTACT NAME	PHONE NUMBER	EMAIL
BNSF Railway Company	Alex Fiorini	612-391-9572	alexander.fiorini@bnsf.com
AT&T Corp/Sprint	Brian Matson	507-920-7319	b.matson@finleyusa.com
Cass County Electric Co-op	Brent Hodgson	701-356-4462	bhodgson@kwh.com
Cenex Pipeline-ND	Nathan Washek	701-240-6493	nathan.washek@chsinc.com
Lumen	Trevor Christensen	701-951-9704	trevor.a.christensen@lumen.com
Consolidated Communications	Brock Hosman	701-866-2687	brock.hosman@consolidated.com
Midcontinent Cable	Christopher Brorby	701-515-8623	christopher.brorby@midco.com
Xcel Energy Gas	Thomas Burseth	701-640-1406	thomas.m.burseth@xcelenergy.com
Xcel Energy Electrical	Alec Welch	701-241-8634	alec.j.welch@xcelenergy.com
702 Communications	Kirt Liedahl	218-329-2126	kliedahl@702communications.com
Magellan Midstream Partners LP	Cynthia Pierce	918-344-7472	cynthia.pierce@oneok.com
Dakota Carrier Network	Ross Branstner	701-306-9734	rbranstner@dakotacarrier.com

CONTRACTOR RESPONSIBILITIES

A. Responsibilities.

The responsibilities for utility coordination include the following:

- Conduct the preconstruction utility coordination meeting;
- Main point of contact for all utility companies;
- Maintain a schedule for utility activities;
- Hold weekly utility meetings in addition to the weekly planning and reporting meeting and report on the utility meetings at the weekly planning and reporting meeting;
- Follow up with any utility companies that do not show up to construction meetings;
- Coordinate work efforts of the utility companies, revise work schedules and traffic control as necessary to ensure adequate cooperation between UE and construction work;
- Develop and update the utility coordination plan;
- Provide a weekly written summary for contacts and meetings to the Engineer; and
- Coordinate with all of the other parties to update the project schedule specified in Section 108.03, “Progress Schedule”.

B. Utility Coordination Plan.
Develop a utility coordination plan with each utility company that includes the phasing and scheduling requirements for UE.

C. Record of Utility Outage Notifications.
Request a copy of notifications that utility companies provide to customers for service outages. Maintain copies of all notifications until the Contractor signs the final estimate.

D. Utility Coordination Schedule.
Create and maintain a construction schedule that includes timelines for the phasing of utility coordination work. Include information contained in the contract documents and information obtained during coordination discussions with utility owners. Written agreements between the Contractor and a utility company will govern over information contained in contract documents; however, the agreements must be signed by the NDDOT, Contractor and Utility Company to be effective. Written agreements are considered contract revisions, however they are not eligible for additional compensation or additional time unless agreed to separately by the Engineer.

The Utility Coordination Table contains information related to the utility coordination requirements at each area designated as a UE. The timelines included on the Table may be longer than shown if the Contractor requests multiple resolutions simultaneously. Adjust work schedules as required to accommodate utility resolutions.

Revisions to the construction schedule due to a utility company or companies non-conformance with agreed upon schedules or failure to reasonably coordinate work efforts with the Contractor will be considered excusable, non-compensable delays as specified in Section 108.06, “Determination of and Extensions to the Contract Time”.

Failure by the Contractor to reasonably coordinate schedules with a utility company or companies for UE identified in the contract, or failure to document coordination efforts will be considered non-excusable delays as specified in Section 108.06, “Determination of and Extensions to the Contract Time”.

CONSTRUCTION REQUIREMENTS

A. General.
The vertical and horizontal utility locations shown in the plans are approximate. Plan locations should not be interpreted as exact for bidding or construction purposes. The locations of utility lines are available at the specific locations included in the Utility Pothole Report.

Utility facilities shown on the plans, if any, are for reference purposes only and may not constitute an exhaustive representation of all utility facilities within the project. Notify the North Dakota One Call System (811) before starting the work, so they may locate and mark all utility facilities within the project. Receive utility locates for Department-owned, publicly-owned, and privately-owned utility facilities, whether on or off the One Call System.

Comply with Chapter 49-23 of the NDCC in determining the location of underground utilities.

B. Utilities Identified in Plans.

Coordinate UE work with the affected utility owners. Maintain continuous communication with the Engineer, affected subcontractors, and affected utility owners until UE will no longer affect or be affected by the Contractor.

Cooperate with utility owners in relocating and adjusting utility facilities to minimize interruption to service and duplication of work by utility owners.

The Contract documents show all known UE for the project.

If a UE identified as a Protect in Place is determined to be a Conflict during construction, the Engineer will make necessary revisions to the Contract as specified in Section 104.02, "Contract Revisions". These types of changes will be considered excusable, compensable delays as specified in Section 108.06, "Determination of and Extensions to the Contract Time".

C. Utilities Encountered During Work.

1. General.

Neither of the cases discussed in this subsection relieve the Contractor of liability that may arise under provisions of the NDCC.

2. Unidentified Utility Encounters.

The Department will bear costs associated with revisions to the work as specified in Section 104.02 B, "Differing Site Conditions" only if the Engineer determines that all of the following conditions exist:

- a UE exists that was not designated in the plans; and
- the UE is in a location that affects the prosecution of the work to construct the project as designed.

3. Utility Encounters Created Due to Actions Performed by the Contractor.

If a new UE is created due to actions performed by the Contractor for the Contractor's convenience; the Contractor shall account for and protect the affected facilities. Before performing these actions, the Contractor shall coordinate with the utility owner. The Department will not make additional payments to the Contractor nor the utility owner for UE created in this manner and will not provide additional time to the Contractor for completing the work.

If utility companies incur costs, the Department will not participate in those costs and will not make payment to the Contractor for those costs.

D. Utility Coordination Meetings.

1. Preconstruction Utility Meeting.

Arrange the meeting with the utility owners, the Contractor and affected subcontractors, local agency representatives, and the Engineer to occur no later than two weeks after the preconstruction meeting. At the meeting, provide an agenda and a tentative construction schedule for planning UE work; after the meeting, publish minutes and distribute a copy to all meeting attendees within 48 hours of the conclusion of the meeting.

2. Weekly Utility Coordination Meeting.
Organize a weekly meeting to discuss utility coordination efforts with utility companies and affected subcontractors, local authorities, the Engineer and others who may have an interest in utility coordination efforts. Hold the weekly utility coordination meeting immediately before the weekly planning and reporting meeting. Publish minutes and distribute copies to all meeting attendees within 48 hours of the conclusion of the meeting.

The intent of this meeting is to disseminate information regarding ongoing and upcoming UE work and to ensure that all affected parties are collaborating and sharing information related to that work.

Provide a summary of the discussion at the weekly planning and reporting meeting.

E. Fire Hydrants.
Before starting work that affects a fire hydrant, coordinate with the local fire authority to determine if provisions need to be in place before starting the work. If provisions are necessary, obtain the approval of the local fire authority before beginning the work affecting the fire hydrant.

F. Damage and Interruptions.
If the Contractor causes damage to utility facilities, the Contractor is responsible for the costs of restoring or repairing the damaged utility facility to a condition equal to or better than the condition existing before the damage occurred. Immediately notify the utility owner of the damage or, if the owner is unknown, the One Call System. Do not conceal, attempt to conceal, or make repairs to the utility facilities until approved by the utility owner. If this damage causes interruption to utility service, continuously coordinate with the utility owner until the service is fully restored.

The Department will not pay the Contractor for the cost to restore utility facilities or repair damage to utility facilities and will consider any delays resulting from this damage to be non-excusable in accordance with Section 108.06, “Determination of and Extensions to the Contract Time.”

G. Utility Criteria.
The Utility Coordination Table and Utility Exhibits contain specific information related to each UE location.

Rev. 2024-05-08

Appendix A – Utility Coordination Table

Utility Coordination Table Appendix A of SP 631(24)

TMA--SU-FXP-8-992(045) PCN 23537

UE ID# UR ID# PR ID#	Utility Coordination Exhibits	Beginning Point			to	Ending Point			LT/RT or Crossing or Point Location	Roadway (Alignment/Chain)	Approx. Qty	Unit	Max Excavation Cut (-) / Fill (+) Feet	Encounter Level	Comments	Utility Company	Type of Facility	After Notification - Time For Utility to Mobilize (D = Working Day, W = Week)	Estimated Time to Complete Relocation (D = Working Day, W = Week, H = Hours)	UTILITY ENCOUNTER TYPE (UE)	
		Sta.	Offset (FT)	RT/LT		Sta.	Offset (FT)	RT/LT												Protect in Place	Conflict
MIDCO-1	Exhibit 60-1 to 60-3	103+52	-	-	to	114+06	-	-	LT	Pr_9thSt	1054.0	FT	-3/+3	Level 4	Construction Activities Include: Paving, grading and storm sewer installation. Once pavement is removed, Contractor shall notify Midco so they can mobilize and begin relocation. Contractor shall coordinate adjustment timeframe with Midco.	Mid-Continent Cable	0	Pending	Pending		
MIDCO-PR1.1	Exhibit 60-1 to 60-3	103+52				114+06	-	-	LT	Pr_9thSt	1054.0	FT	-3/+3	Proposed Level 1	Proposed relocation path from MIDCO-1 to be determined	Mid-Continent Cable					
XCEENE-1	Exhibit 60-1 to 60-3	103+75	-	-	to	108+50	-	-	LT	Pr_9thSt	475.0	FT	-3/+2	Level 2	Construction Activities Include: Grading Utility elevation located below proposed excavation, protect in place.	Xcel Energy	0	-	-	X	
CENLIN-1	Exhibit 60-1	103+89	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-2	Level 3	Construction Activities Include: Grading and paving Once pavement is removed, Contractor shall notify Century Link/Lumen so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Century Link/Lumen.	Century Link	0	Pending	Pending		X
CENLIN-PR1.1	Exhibit 60-1 to 60-3	103+52				114+06	-	-	LT	Pr_9thSt	1054.0	FT	-3/+3	Proposed Level 1	Proposed relocated line from CENLIN-1	Century Link					
QUEST-1	Exhibit 60-1	104+78	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-2/+1	Level 3	Construction Activities Include: Grading and paving Once pavement is removed, Contractor shall notify Century Link/Lumen so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Century Link/Lumen.	Qwest Communications	0	Pending	Pending		X
QUEST-PR1.1	Exhibit 60-1	104+78	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-2/+1	Proposed Level 1	Proposed relocated line from QUEST-1	Qwest Communications	0	-	-	X	
CENLIN-2	Exhibit 60-2	108+13	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-3/+4	Level 3	Construction Activities Include: Grading, paving and storm sewer installation Upon storm sewer installation, Contractor shall notify Century Link/Lumen so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Century Link/Lumen.	Century Link	0	Pending	Pending		X
CENLIN-PR2.1	Exhibit 60-2	108+13	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-3/+4	Proposed Level 1	Proposed relocated line from CENLIN-2	Century Link	0	-	-	X	
CENLIN-3	Exhibit 60-2	108+18	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-3/+4	Level 3	Construction Activities Include: Grading and paving Once pavement is removed, Contractor shall notify Century Link/Lumen so they can mobilize and begin vertical utility adjustment Contractor shall coordinate adjustment timeframe with Century Link/Lumen.	Century Link	0	Pending	Pending		X
CENLIN-PR3.1	Exhibit 60-2	108+18	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-3/+4	Proposed Level 1	Proposed relocated line from CENLIN-3	Century Link	0	-	-	X	
XCEENE-2	Exhibit 60-4	119+85	-	-	to	123+32	-	-	LT	Pr_9thSt	347.0	FT	0	Level 4	Construction Activities Include: Grading, paving and storm sewer installation Upon storm sewer installation, the contractor will coordinate a timeframe with Xcel Energy to relocate gas line.	Xcel Energy	0	Pending	Pending		
XCEENE-PR2.1	Exhibit 60-4	119+85	-	-	to	123+32	-	-	LT	Pr_9thSt	347.0	FT	0	Proposed Level 1	Proposed relocated line from XCEENE-2 to be determined	Xcel Energy	0	-	-	X	
CENLIN-4	Ehibit 60-2 to 60-3	113+25	-	-	to	116+31	-	-	LT	Pr_9thSt	306.0	FT	-1/+2	Level 4	Construction Activities Include: Grading, paving and storm sewer installation Upon storm sewer installation, the contractor will coordinate a timeframe with Century Link/Lumen to relocate fiber optic line.	Century Link	0	Pending	Pending		
CENLIN-PR4.1	Ehibit 60-2 to 60-3	113+25	-	-	to	116+31	-	-	LT	Pr_9thSt	306.0	FT	-1/+2	Proposed Level 1	Proposed relocated line from CENLIN-4 to be determined	Century Link	0	-	-	X	
XCEENE-3	Exhibit 60-3	115+49	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	0	Level 4	Construction Activities Include: Grading, footing installation, paving and storm sewer installation Xcel Energy to remove overhead power and install underground cable. If not relocated prior to construction, Contractor will coordinate overhead power removal with Xcel Energy. Timeframe includes additional conflicts XCEENE-8,9,10	Xcel Energy	0	5D	5D		

Utility Coordination Table Appendix A of SP 631(24)

TMA--SU-FXP-8-992(045) PCN 23537

UE ID# UR ID# PR ID#	Utility Coordination Exhibits	Beginning Point			to	Ending Point			LT/RT or Crossing or Point Location	Roadway (Alignment/Chain)	Approx. Qty	Unit	Max Excavation Cut (-) / Fill (+) Feet	Encounter Level	Comments	Utility Company	Type of Facility	After Notification - Time For Utility to Mobilize (D = Working Day, W = Week)	Estimated Time to Complete Relocation (D = Working Day, W = Week, H = Hours)	UTILITY ENCOUNTER TYPE (UE)	
		Sta.	Offset (FT)	RT/LT		Sta.	Offset (FT)	RT/LT												Protect in Place	Conflict
XCEENE-PR3.1	Exhibit 60-3	115+49	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	0	Proposed Level 1	Proposed relocated line from XCEENE-3 to be determined	Xcel Energy	0	-	-	X	
XCEENE-4	Exhibit 60-3	115+56	-	-	to	-	-	-	LT	Pr_9thSt	1.0	EA	+3	Level 3	Construction Activities Include: Grading Xcel Energy to remove overhead power and install underground cable. If not relocated prior to construction, Contractor will coordinate overhead power removal with Xcel Energy.	Xcel Energy	0	Pending	Pending		X
CENLIN-5	Exhibit 60-3	116+31	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-1/+5	Level 2	Construction Activities Include: Grading Utility elevation located below proposed excavation, protect in place.	Century Link	0	-	-	X	
XCEENE-5	Exhibit 60-2	108+50	-	-	to	111+80	-	-	LT	Pr_9thSt	330.0	FT	-3/+2	Level 4	Construction Activities Include: Paving, grading and storm sewer installation. Upon storm sewer installation the contractor will coordinate a timeframe with Xcel Energy to relocate gas line.	Xcel Energy	0	Pending	Pending		
XCEENE-PR5.1	Exhibit 60-2	108+50	-	-	to	111+80	-	-	LT	Pr_9thSt	330.0	FT	-3/+2	Proposed Level 1	Proposed relocated line from XCEENE-5 to be determined	Xcel Energy	0	-	-	X	
MIDCO-4	Exhibit 60-3 to 60-4	120+42	-	-	to	125+00	-	-	LT	Pr_9thSt	458.0	FT	-1/+5	Level 2	Construction Activities Include: Grading Utility elevation located below proposed excavation, protect in place.	Mid-Continent Cable	0	-	-	X	
XCEENE-6	Exhibit 60-2 to 60-3	111+80	-	-	to	119+85	-	-	LT	Pr_9thSt	805.0	FT	-3/+2	Level 2	Construction Activities Include: Grading Utility elevation located below proposed excavation, protect in place.	Xcel Energy	0	-	-	X	
XCEENE-8	Exhibit 60-3	117+95	-	-	to	-	-	-	LT	Pr_9thSt	1.0	EA	0	Level 4	Construction Activities Include: Grading Xcel Energy to remove overhead power and install underground cable. If not relocated prior to construction, Contractor will coordinate overhead power removal with Xcel Energy.	Xcel Energy	0	5D	5D		
TMOBIL-1	Exhibit 60-3	118+24	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-2/+7	Level 2	Construction Activities Include: Grading Utility elevation located below proposed excavation, protect in place.	Tmobil	0	-	-	X	
SPRINT-1	Exhibit 60-3	118+34	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-2/+7	Level 2	Construction Activities Include: Grading Utility elevation located below proposed excavation, protect in place.	Sprint	0	-	-	X	
AT&T-1	Exhibit 60-3	118+35	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-2/+7	Level 2	Construction Activities Include: Grading Utility elevation located below proposed excavation, protect in place.	AT&T Corporation	0	-	-	X	
XCEENE-9	Exhibit 60-3	118+41	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	0	Level 4	Construction Activities Include: Grading, footing installation, paving and storm sewer installation Xcel Energy to remove overhead power and install underground cable. If overhead power is not removed prior to construction, Contractor will coordinate overhead power removal with Xcel Energy.	Xcel Energy	0	5D	5D		
XCEENE-10	Exhibit 60-3	118+54	-	-	to	-	-	-	LT	Pr_9thSt	1.0	EA	+6	Level 4	Construction Activities Include: Grading Xcel Energy to remove overhead power and install underground cable. If not relocated prior to construction, Contractor will coordinate overhead power removal with Xcel Energy.	Xcel Energy	0	5D	5D		
MIDCO-5	Exhibit 60-4	124+56	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-3/+3	Level 3	Construction Activities Include: Grading, paving and storm sewer installation Once pavement is removed, Contractor shall notify Midco so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Midco.	Mid-Continent Cable	0	Pending	Pending		X
MIDCO-PR5.1	Exhibit 60-4	124+56	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-3/+3	Proposed Level 1	Proposed relocated line from MIDCO-5	Mid-Continent Cable	0	-	-	X	
MIDCO-6	Exhibit 60-4	124+59	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-3/+3	Level 3	Construction Activities Include: Grading, paving and storm sewer installation Once pavement is removed, Contractor shall notify Midco so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Midco.	Mid-Continent Cable	0	Pending	Pending		X

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UE ID# UR ID# PR ID#	Utility Coordination Exhibits	Beginning Point			to	Ending Point			LT/RT or Crossing or Point Location	Roadway (Alignment/Chain)	Approx. Qty	Unit	Max Excavation Cut (-) / Fill (+) Feet	Encounter Level	Comments	Utility Company	Type of Facility	After Notification - Time For Utility to Mobilize (D = Working Day, W = Week)	Estimated Time to Complete Relocation (D = Working Day, W = Week, H = Hours)	UTILITY ENCOUNTER TYPE (UE)	
		Sta.	Offset (FT)	RT/LT		Sta.	Offset (FT)	RT/LT												Protect in Place	Conflict
MIDCO-PR6.1	Exhibit 60-4	124+59	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-3/+3	Proposed Level 1	Proposed relocated line from MIDCO-6	Mid-Continent Cable	0	-	-	X	
MIDCO-7	Exhibit 60-4	124+62	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-3/+3	Level 3	Construction Activities Include: Grading, paving and storm sewer installation Once pavement is removed, Contractor shall notify Midco so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Midco.	Mid-Continent Cable	0	Pending	Pending		X
MIDCO-PR7.1	Exhibit 60-4	124+62	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-3/+3	Proposed Level 1	Proposed relocated line from MIDCO-7	Mid-Continent Cable	0	-	-	X	
MIDCO-8	Exhibit 60-4	124+64	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-3/+3	Level 3	Construction Activities Include: Grading, paving and storm sewer installation Once pavement is removed, Contractor shall notify Midco so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Midco.	Mid-Continent Cable	0	Pending	Pending		X
MIDCO-PR8.1	Exhibit 60-4	124+64	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-3/+3	Proposed Level 1	Proposed relocated line from MIDCO-8	Mid-Continent Cable	0	-	-	X	
MIDCO-9	Exhibit 60-4	125+00	-	-	to	127+88	-	-	LT	Pr_9thSt	288.0	FT	-2/+1	Level 3	Construction Activities Include: Grading While constructing the ditch, Contractor shall notify Midco so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Midco.	Mid-Continent Cable	0	Pending	Pending		X
MIDCO-PR9.1	Exhibit 60-4	125+00	-	-	to	127+88	-	-	LT	Pr_9thSt	288.0	FT	-2/+1	Proposed Level 1	Proposed relocated line from MIDCO-9	Mid-Continent Cable	0	-	-	X	
XCEENE-11	Exhibit 60-4	127+83	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-2/+2	Level 2	Construction Activities Include: Grading Utility elevation located below proposed excavation, protect in place.	Xcel Energy	0	-	-	X	
MIDCO-10	Exhibit 60-4 to 60-5	127+88	-	-	to	129+53	-	-	LT	Pr_9thSt	165.0	FT	-1/+2	Level 3	Construction Activities Include: Grading, paving and storm sewer installation Once pavement is removed, Contractor shall notify Midco so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Midco.	Mid-Continent Cable	0	Pending	Pending		X
MIDCO-PR10.1	Exhibit 60-4 to 60-5	127+88	-	-	to	129+53	-	-	LT	Pr_9thSt	165.0	FT	-1/+2	Proposed Level 1	Proposed relocated line from MIDCO-10	Mid-Continent Cable	0	-	-	X	
MINPOW-1	Exhibit 60-5	128+18	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-2/+5	Level 2	Construction Activities Include: Grading Utility elevation located above proposed pavement, protect in place.	Minnkota Power	0	-	-	X	
CACOEC-1	Exhibit 60-5	128+42	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	+2	Level 4	Construction Activities Include: Paving Cass County Electric to remove overhead power at 7th Ave intersection. If overhead power is not removed prior to construction, Contractor will coordinate overhead power removal with Cass County Electric.	Cass County Electric Cooperative	0	Pending	Pending		
MIDCO-11	Exhibit 60-5	128+43	-	-	to	129+53	-	-	RT	Pr_9thSt	110.0	FT	-1/+1	Level 3	Construction Activities Include: Paving and storm sewer installation Once pavement is removed, Contractor shall notify Midco so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Midco.	Mid-Continent Cable	0	Pending	Pending		X
MIDCO-PR11.1	Exhibit 60-5	128+43	-	-	to	129+53	-	-	RT	Pr_9thSt	110.0	FT	-1/+1	Proposed Level 1	Proposed relocated line from MIDCO-11	Mid-Continent Cable	0	-	-	X	
MINPOW-2	Exhibit 60-5	128+45	-	-	to	129+58	-	-	RT	Pr_9thSt	113.0	FT	-1/+4	Level 2	Construction Activities Include: Grading Utility elevation located above proposed pavement, protect in place.	Minnkota Power	0	-	-	X	
MIDCO-12	Exhibit 60-5	128+50	-	-	to	129+46	-	-	RT	Pr_9thSt	96.0	FT	-1/+4	Level 3	Construction Activities Include: Paving and storm sewer installation Once pavement is removed, Contractor shall notify Midco so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Midco.	Mid-Continent Cable	0	Pending	Pending		X

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		Sta.	Offset (FT)	RT/LT		Sta.	Offset (FT)	RT/LT												Protect in Place	Conflict
MIDCO-PR12.1	Exhibit 60-5	128+50	-	-	to	129+46	-	-	RT	Pr_9thSt	96.0	FT	-1/+4	Proposed Level 1	Proposed relocated line from MIDCO-12	Mid-Continent Cable	0	-	-	X	
CENLIN-6	Exhibit 60-5 & 60-6	128+51	-	-	to	136+94	-	-	RT	Pr_9thSt	843.0	FT	-1/+4	Level 4	Construction Activities Include: Paving, storm sewer installation, sanitary sewer installation, watermain installation and grading. Once pavement is removed, Contractor shall notify Century Link/Lumen so they can mobilize and begin relocation. Contractor shall coordinate relocation timeframe with Century Link/Lumen.	Century Link	0	Pending	Pending		
CENLIN-PR6.1	Exhibit 60-5 & 60-6	128+51	-	-	to	137+07	-	-	RT	Pr_9thSt	856.0	FT	-1/+4	Proposed Level 2	Proposed relocated line from CENLIN-6, 7, 8, 9 to be determined	Century Link	0	-	-	X	
MIDCO-13	Exhibit 60-5	128+55	-	-	to	129+53	-	-	LT	Pr_9thSt	98.0	FT	-1	Level 3	Construction Activities Include: Paving and storm sewer installation Once pavement is removed, Contractor shall notify Midco so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Midco.	Mid-Continent Cable	0	Pending	Pending		X
MIDCO-PR13.1	Exhibit 60-5	128+55	-	-	to	129+53	-	-	LT	Pr_9thSt	98.0	FT	-1	Proposed Level 1	Proposed relocated line from MIDCO-13	Mid-Continent Cable	0	-	-	X	
MINPOW-3	Exhibit 60-5	128+77	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-1	Level 2	Construction Activities Include: Grading Utility elevation located above proposed pavement, protect in place.	Minnkota Power	0	-	-	X	
CACOEC-2	Exhibit 60-5	129+58	-	-	to	-	-	-	LT	Pr_9thSt	1.0	EA	+1	Level 4	Construction Activities Include: Paving Cass County Electric to remove overhead power at 7th Ave intersection. If overhead power is not removed prior to construction, Contractor will coordinate overhead power removal with Cass County Electric.	Cass County Electric Cooperative	0	Pending	Pending		
MIDCO-14	Exhibit 60-5	129+50	-	-	to	131+25	-	-	LT	Pr_9thSt	175.0	FT	-2/+1	Level 3	Construction Activities Include: Paving and feedpoint installation Once pavement is removed, Contractor shall notify Midco so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Midco.	Mid-Continent Cable	0	Pending	Pending		X
MIDCO-PR14.1	Exhibit 60-5	129+50	-	-	to	131+25	-	-	LT	Pr_9thSt	175.0	FT	-2/+1	Proposed Level 1	Proposed relocated line from MIDCO-14	Mid-Continent Cable	0	-	-	X	
MIDCO-15	Exhibit 60-5	132+56	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	0	Level 2	Construction Activities Include: Sanitary sewer installation Excavate around and take supportive measures to protect underground cable in place while installing sanitary sewer.	Mid-Continent Cable	0	-	-	X	
XCEENE-12	Exhibit 60-5	132+56	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	0	Level 2	Construction Activities Include: Sanitary sewer installation Excavate around and take supportive measures to protect underground gas line in place while installing sanitary sewer.	Xcel Energy	0	-	-	X	
MIDCO-16	Exhibit 60-14	235+65	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	+3	Level 4	Construction Activities Include: Storm sewer installation Upon storm sewer installation, contractor shall notify Midco so they can mobilize and begin relocation. Contractor shall coordinate relocation timeframe with Midco .	Mid-Continent Cable	0	Pending	Pending		
MIDCO-PR16.1	Exhibit 60-14	235+65	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	+3	Proposed Level 1	Proposed relocated line from MIDCO-16 to be determined	Mid-Continent Cable	0	-	-	X	
MIDCO-17	Exhibit 60-5 to 60-7	133+26	-	-	to	136+25	-	-	LT	Pr_9thSt	299.0	FT	-1/+2	Level 2	Construction Activities Include: Grading Utility elevation located below proposed excavation, protect in place.	Mid-Continent Cable	0	-	-	X	
CENLIN-7	Exhibit 60-5	133+53	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-1/+1	Level 4	Construction Activities Include: Sanitary sewer installation Once pavement is removed, Contractor shall notify Century Link/Lumen so they can mobilize and begin relocation. Contractor shall coordinate relocation timeframe with Century Link/Lumen.	Century Link	0	Pending	Pending		
CENLIN-8	Exhibit 60-5	133+64	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-1/+1	Level 4	Construction Activities Include: Storm sewer installation Once pavement is removed, Contractor shall notify Century Link/Lumen so they can mobilize and begin relocation. Contractor shall coordinate relocation timeframe with Century Link/Lumen.	Century Link	0	Pending	Pending		

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		Sta.	Offset (FT)	RT/LT		Sta.	Offset (FT)	RT/LT												Protect in Place	Conflict
XCEENE-14	Exhibit 60-5 to 60-6	133+72	-	-	to	136+25	-	-	LT	Pr_9thSt	253.0	FT	-1/+1	Level 2	Construction Activities Include: Grading Utility elevation located below proposed excavation, protect in place.	Xcel Energy	0	-	-	X	
MIDCO-18	Exhibit 60-5 to 60-6	133+98	-	-	to	135+77	-	-	RT	Pr_9thSt	179.0	FT	-3/+2	Level 3	Construction Activities Include: Paving Once pavement is removed, Contractor shall notify Midco so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Midco.	Mid-Continent Cable	0	Pending	Pending		X
MIDCO-PR18.1	Exhibit 60-5 to 60-6	133+98	-	-	to	135+77	-	-	RT	Pr_9thSt	179.0	FT	-3/+2	Proposed Level 1	Proposed relocated line from MIDCO-18	Mid-Continent Cable	0	-	-	X	
MIDCO-19	Exhibit 60-5	134+00	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-5/+2	Level 3	Construction Activities Include: Paving, Watermain installation Once pavement is removed, Contractor shall notify Midco so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Midco.	Mid-Continent Cable	0	Pending	Pending		X
MIDCO-PR19.1	Exhibit 60-5	134+00	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-5/+2	Proposed Level 1	Proposed relocated line from MIDCO-19	Mid-Continent Cable	0	-	-	X	
CACOEC-3	Exhibit 60-5	134+05	-	-	to	-	-	-	LT	Pr_9thSt	1.0	EA	+1	Level 2	Construction Activities Include: Grading Utility located within grading limits, protect in place.	Cass County Electric Cooperative	0	-	-	X	
MIDCO-20	Exhibit 60-6	135+79	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-2/+4	Level 3	Construction Activities Include: Paving, Storm sewer installation Once pavement is removed, Contractor shall notify Midco so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Midco.	Mid-Continent Cable	0	Pending	Pending		X
MIDCO-PR20.1	Exhibit 60-6	135+79	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-2/+4	Proposed Level 1	Proposed relocated line from MIDCO-20	Mid-Continent Cable	0	-	-	X	
MIDCO-21	Exhibit 60-6	135+79	-	-	to	137+10	-	-	LT	Pr_9thSt	131.0	FT	-1/+1	Level 2	Construction Activities Include: Grading Utility elevation located below proposed excavation, protect in place.	Mid-Continent Cable	0	-	-	X	
XCEENE-15	Exhibit 60-6	136+38	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-2/+4	Level 3	Construction Activities Include: Paving, Storm sewer installation Once pavement is removed, Contractor shall notify Xcel Energy so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Xcel Energy.	Xcel Energy	0	Pending	Pending		X
XCEENE-PR15.1	Exhibit 60-6	136+38	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-2/+4	Proposed Level 1	Proposed relocated line from XCEENE-15	Xcel Energy	0	-	-	X	
CACOEC-4	Exhibit 60-6	136+44	-	-	to	-	-	-	LT	Pr_9thSt	1.0	EA	+1	Level 2	Construction Activities Include: Grading Utility located within grading limits, protect in place.	Cass County Electric Cooperative	0	-	-	X	
CENLIN-9	Exhibit 60-6	136+66	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-2/+2	Level 4	Construction Activities Include: Storm sewer installation Once pavement is removed, Contractor shall notify Century Link/Lumen so they can mobilize and begin relocation. Contractor shall coordinate relocation timeframe with Century Link/Lumen.	Century Link	0	Pending	Pending		
CENLIN-10	Exhibit 60-6	137+00	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-2/+2	Level 2	Construction Activities Include: Sanitary sewer installation Once fiber optic line is relocated, it may still cross proposed sanitary sewer service line. Protect in place.	Century Link	0	-	-	X	
CENLIN-11	Exhibit 60-6	137+07	-	-	to	139+79	-	-	RT	Pr_9thSt	272.0	FT	-3/+3	Level 4	Construction Activities Include: Paving, storm sewer installation, sanitary sewer installation, watermain installation and grading Fiber optic line crosses multiple proposed utility services. Contractor will coordinate a timeframe with Century Link/Lumen to relocate fiber optic line once pavement is removed.	Century Link	0	Pending	Pending		
CENLIN-PR11.1	Exhibit 60-6	137+07	-	-	to	139+79	-	-	RT	Pr_9thSt	272.0	FT	-3/+3	Proposed Level 2	Proposed relocated line from CENLIN-11, 14, 15, 16, 17, 18, 31 to be determined	Century Link	0	-	-	X	

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		Sta.	Offset (FT)	RT/LT		Sta.	Offset (FT)	RT/LT												Protect in Place	Conflict
MIDCO-22	Exhibit 60-6	137+10	-	-	to	138+13	-	-	LT	Pr_9thSt	103.0	FT	-2	Level 3	Construction Activities Include: Paving Once pavement is removed, Contractor shall notify Midco so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Midco.	Mid-Continent Cable	0	Pending	Pending		X
MIDCO-PR22.1	Exhibit 60-6	137+10	-	-	to	138+13	-	-	LT	Pr_9thSt	103.0	FT	-2	Proposed Level 1	Proposed relocated line from MIDCO-22	Mid-Continent Cable	0	-	-	X	
CENLIN-12	Exhibit 60-6	139+79	-	-	to	142+39	-	-	RT	Pr_9thSt	260.0	FT	-1/+2	Level 4	Construction Activities Include: Paving, storm sewer installation, sanitary sewer installation, watermain installation and grading Fiber optic line crosses multiple proposed utility services. Contractor will coordinate a timeframe with Century Link/Lumen to relocate fiber optic line once pavement is removed.	Century Link	0	Pending	Pending		
CENLIN-PR12.1	Exhibit 60-6	139+79	-	-	to	142+39	-	-	RT	Pr_9thSt	260.0	FT	-1/+2	Proposed Level 1	Proposed relocated line from CENLIN-12, 19, 20, 21, 22, 23, 24 to be determined	Century Link	0	-	-	X	
XCEENE-16	Exhibit 60-6	136+25	-	-	to	138+08	-	-	LT	Pr_9thSt	183.0	FT	-2	Level 3	Construction Activities Include: Paving Once pavement is removed, Contractor shall notify Xcel Energy so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Xcel Energy.	Xcel Energy	0	Pending	Pending		X
XCEENE-PR16.1	Exhibit 60-6	136+25	-	-	to	138+08	-	-	LT	Pr_9thSt	183.0	FT	-2	Proposed Level 1	Proposed relocated line from XCEENE-16	Xcel Energy	0	-	-	X	
CACOEC-5	Exhibit 60-6	137+20	-	-	to	138+08	-	-	LT	Pr_9thSt	88.0	FT	-2	Level 2	Construction Activities Include: Paving Utility located above proposed pavement, protect in place.	Cass County Electric Cooperative	0	-	-	X	
CENLIN-13	Exhibit 60-6	137+32	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-2/+4	Level 3	Construction Activities Include: Paving Once pavement is removed, Contractor shall notify Century Link/Lumen so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Century Link/Lumen.	Century Link	0	Pending	Pending		X
CENLIN-PR13.1	Exhibit 60-6	137+32	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-2/+4	Proposed Level 1	Proposed relocated line from CENLIN-13	Century Link	0	-	-	X	
XCEENE-17	Exhibit 60-6 to 60-7	138+08	-	-	to	143+04	-	-	LT	Pr_9thSt	496.0	FT	-1/+1	Level 2	Construction Activities Include: Grading Utility located within grading limits, protect in place.	Xcel Energy	0	-	-	X	
CACOEC-6	Exhibit 60-6	138+83	-	-	to	-	-	-	LT	Pr_9thSt	1.0	EA	+1	Level 2	Construction Activities Include: Grading Utility located within grading limits, protect in place.	Cass County Electric Cooperative	0	-	-	X	
CENLIN-14	Exhibit 60-6	138+87	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-2	Level 4	Construction Activities Include: Sanitary sewer installation Once pavement is removed, Contractor shall notify Century Link/Lumen so they can mobilize and begin vertical adjustment. Contractor shall coordinate relocation timeframe with Century Link/Lumen.	Century Link	0	Pending	Pending		
CENLIN-15	Exhibit 60-6	138+93	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-2	Level 4	Construction Activities Include: Storm sewer installation Once pavement is removed, Contractor shall notify Century Link/Lumen so they can mobilize and begin vertical adjustment. Contractor shall coordinate relocation timeframe with Century Link/Lumen.	Century Link	0	Pending	Pending		
CENLIN-16	Exhibit 60-6	138+99	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-2	Level 4	Construction Activities Include: Watermain installation Once pavement is removed, Contractor shall notify Century Link/Lumen so they can mobilize and begin vertical adjustment. Contractor shall coordinate relocation timeframe with Century Link/Lumen.	Century Link	0	Pending	Pending		
XCEENE-18	Exhibit 60-6	139+20	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-4/+3	Level 2	Construction Activities Include: Paving, Storm sewer installation Once pavement is removed, Contractor shall notify Xcel Energy so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Xcel Energy.	Xcel Energy	0	-	-	X	
CENLIN-17	Exhibit 60-6	139+48	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-2	Level 4	Construction Activities Include: Sanitary sewer installation Once pavement is removed, Contractor shall notify Century Link/Lumen so they can mobilize and begin relocation. Contractor shall coordinate relocation timeframe with Century Link/Lumen.	Century Link	0	Pending	Pending		

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UE ID# UR ID# PR ID#	Utility Coordination Exhibits	Beginning Point			to	Ending Point			LT/RT or Crossing or Point Location	Roadway (Alignment/Chain)	Approx. Qty	Unit	Max Excavation Cut (-) / Fill (+) Feet	Encounter Level	Comments	Utility Company	Type of Facility	After Notification - Time For Utility to Mobilize (D = Working Day, W = Week)	Estimated Time to Complete Relocation (D = Working Day, W = Week, H = Hours)	UTILITY ENCOUNTER TYPE (UE)	
		Sta.	Offset (FT)	RT/LT		Sta.	Offset (FT)	RT/LT												Protect in Place	Conflict
CENLIN-18	Exhibit 60-6	139+53	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-2	Level 4	Construction Activities Include: Watermain installation Once pavement is removed, Contractor shall notify Century Link/Lumen so they can mobilize and begin relocation. Contractor shall coordinate relocation timeframe with Century Link/Lumen.	Century Link	0	Pending	Pending		
CENLIN-19	Exhibit 60-6	140+06	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	+2	Level 4	Construction Activities Include: Storm sewer installation Once pavement is removed, Contractor shall notify Century Link/Lumen so they can mobilize and begin relocation. Contractor shall coordinate relocation timeframe with Century Link/Lumen.	Century Link	0	Pending	Pending		
CENLIN-20	Exhibit 60-6	141+00	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-2	Level 4	Construction Activities Include: Watermain installation Once pavement is removed, Contractor shall notify Century Link/Lumen so they can mobilize and begin relocation. Contractor shall coordinate relocation timeframe with Century Link/Lumen.	Century Link	0	Pending	Pending		
CENLIN-21	Exhibit 60-6	141+05	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-2	Level 4	Construction Activities Include: Sanitary sewer installation Once pavement is removed, Contractor shall notify Century Link/Lumen so they can mobilize and begin relocation. Contractor shall coordinate relocation timeframe with Century Link/Lumen.	Century Link	0	Pending	Pending		
CACOEC-7	Exhibit 60-6	141+23	-	-	to	-	-	-	LT	Pr_9thSt	1.0	EA	-1	Level 2	Construction Activities Include: Grading Utility located within grading limits, protect in place.	Cass County Electric Cooperative	0	-	-	X	
XCEENE-19	Exhibit 60-6	141+50	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	+1	Level 3	Construction Activities Include: Storm sewer installation Upon storm sewer installation, Contractor shall notify Xcel Energy so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Xcel Energy .	Xcel Energy	0	Pending	Pending		X
XCEENE-PR19.1	Exhibit 60-6	141+50	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	+1	Proposed Level 1	Proposed relocated line from XCEENE-19	Xcel Energy	0	-	-	X	
MIDCO-23	Exhibit 60-6	141+50	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	+1	Level 4	Construction Activities Include: Storm sewer installation Once pavement is removed, Contractor shall notify Midco so they can mobilize and begin relocation. Contractor shall coordinate relocation timeframe with Midco.	Mid-Continent Cable	0	Pending	Pending		
CENLIN-22	Exhibit 60-6	141+99	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-1	Level 4	Construction Activities Include: Watermain installation Once pavement is removed, Contractor shall notify Midco so they can mobilize and begin relocation. Contractor shall coordinate relocation timeframe with Midco.	Century Link	0	Pending	Pending		
CENLIN-23	Exhibit 60-6	142+04	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-1	Level 4	Construction Activities Include: Sanitary sewer installation Once pavement is removed, Contractor shall notify Midco so they can mobilize and begin relocation. Contractor shall coordinate relocation timeframe with Midco.	Century Link	0	Pending	Pending		
CENLIN-24	Exhibit 60-6	142+11	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-1	Level 4	Construction Activities Include: Storm sewer installation Once pavement is removed, Contractor shall notify Midco so they can mobilize and begin relocation. Contractor shall coordinate relocation timeframe with Midco.	Century Link	0	Pending	Pending		
CENLIN-25	Exhibit 60-7	142+39	-	-	to	146+75	-	-	RT	Pr_9thSt	436.0	FT	-2	Level 3	Construction Activities Include: Paving, storm sewer installation, sanitary sewer installation, watermain installation Once pavement is removed, Contractor shall notify Century Link/Lumen so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Century Link/Lumen.	Century Link	0	Pending	Pending		X
CENLIN-PR25.1	Exhibit 60-7	142+39	-	-	to	146+75	-	-	RT	Pr_9thSt	436.0	FT	-2	Proposed Level 1	Proposed relocated line from CENLIN-25, 26,27, 28, 29 to be determined	Century Link	0	-	-	X	
XCEENE-20	Exhibit 60-7	142+89	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-2	Level 3	Construction Activities Include: Paving. storm sewer installation Once pavement is removed, Contractor shall notify Xcel Gas so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Xcel Gas.	Xcel Energy	0	Pending	Pending		X
XCEENE-PR20.1	Exhibit 60-7	142+89	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-2	Proposed Level 1	Proposed relocated line from XCEENE-20	Xcel Energy	0	-	-	X	
CENLIN-26	Exhibit 60-7	142+98	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-2	Level 3	Construction Activities Include: Watermain installation Once pavement is removed, Contractor shall notify Century Link/Lumen so they can mobilize and begin relocation. Contractor shall coordinate relocation timeframe with Century Link/Lumen.	Century Link	0	Pending	Pending		X

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		Sta.	Offset (FT)	RT/LT		Sta.	Offset (FT)	RT/LT												Protect in Place	Conflict
CENLIN-27	Exhibit 60-7	143+10	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-2	Level 3	Construction Activities Include: Sanitary sewer installation Once pavement is removed, Contractor shall notify Century Link/Lumen so they can mobilize and begin relocation. Contractor shall coordinate relocation timeframe with Century Link/Lumen.	Century Link	0	Pending	Pending		X
CENLIN-28	Exhibit 60-7	143+24	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-2	Level 3	Construction Activities Include: Storm sewer installation Once pavement is removed, Contractor shall notify Century Link/Lumen so they can mobilize and begin relocation. Contractor shall coordinate relocation timeframe with Century Link/Lumen.	Century Link	0	Pending	Pending		X
CACOEC-8	Exhibit 60-7	143+62	-	-	to	-	-	-	LT	Pr_9thSt	1.0	EA	+1	Level 2	Construction Activities Include: Grading Utility located within grading limits, protect in place.	Cass County Electric Cooperative	0	-	-	X	
CENLIN-29	Exhibit 60-7	143+66	-	-	to	146+82	-	-	RT	Pr_9thSt	316.0	FT	-2	Level 3	Construction Activities Include: Storm sewer installation Once pavement is removed, Contractor shall notify Century Link/Lumen so they can mobilize and begin relocation. Contractor shall coordinate relocation timeframe with Century Link/Lumen.	Century Link	0	Pending	Pending		X
CENLIN-30	Exhibit 60-7	145+30	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-4/+1	Level 3	Construction Activities Include: Paving. storm sewer installation Once pavement is removed, Contractor shall notify Century Link/Lumen so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Century Link/Lumen.	Century Link	0	Pending	Pending		X
CENLIN-PR30.1	Exhibit 60-7	145+30	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-4/+1	Proposed Level 1	Proposed relocated line from CENLIN-30	Century Link	0	-	-	X	
CACOEC-9	Exhibit 60-7	145+33	-	-	to	146+07	-	-	LT	Pr_9thSt	74.0	FT	-2	Level 2	Construction Activities Include: Paving Utility located above proposed pavement, protect in place.	Cass County Electric Cooperative	0	-	-	X	
MIDCO-24	Exhibit 60-7	146+80	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-1	Level 4	Construction Activities Include: Storm sewer installation Once pavement is removed, Contractor shall notify Midco so they can mobilize and begin relocation. Contractor shall coordinate relocation timeframe with Midco.	Mid-Continent Cable	0	Pending	Pending		
MIDCO-25	Exhibit 60-8	149+89	-	-	to	150+45	-	-	LT	Pr_9thSt	56.0	FT	-2/+1	Level 3	Construction Activities Include: Paving. storm sewer installation Once pavement is removed, Contractor shall notify Midco so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Midco.	Mid-Continent Cable	0	Pending	Pending		X
MIDCO-PR25.1	Exhibit 60-8	149+89	-	-	to	150+45	-	-	LT	Pr_9thSt	56.0	FT	-2/+1	Proposed Level 1	Proposed relocated line from MIDCO-25	Mid-Continent Cable	0	-	-	X	
CACOEC-10	Exhibit 60-8	149+89	-	-	to	150+45	-	-	LT	Pr_9thSt	56.0	FT	-2/+1	Level 2	Construction Activities Include: Paving Utility located above proposed pavement, protect in place.	Cass County Electric Cooperative	0	-	-	X	
DACANE-1	Exhibit 60-8	152+80	-	-	to	153+50	-	-	RT	Pr_9thSt	70.0	FT	-1	Abandoned	Construction Activities Include: Storm sewer installation, grading Utility to be abandoned in place.	Dakota Carrier Network	0	Pending	Pending		X
DACANE-2	Exhibit 60-8	152+31	-	-	to	153+98	-	-	LT	Pr_9thSt	167.0	FT	-1	Level 2	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	Dakota Carrier Network	0	-	-	X	
DACANE-4	Exhibit 60-8	152+86	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-1	Abandoned	Construction Activities Include: Paving, storm sewer installation, grading Utility to be abandoned in place.	Dakota Carrier Network	0	Pending	Pending		X
DACANE-5	Exhibit 60-8	152+86	-	-	to	-	-	-	LT	Pr_9thSt	1.0	EA	-1	Level 3	Construction Activities Include: Grading Utlity to be moved to edge of grading limits prior to construction. Utility at new location to be protected in place.	Dakota Carrier Network	0	Pending	Pending		X
DACANE-PR5.1	Exhibit 60-8	152+86	-	-	to	-	-	-	LT	Pr_9thSt	1.0	EA	-1	Proposed Level 1	Proposed relocated line from DACANE-5	Dakota Carrier Network	0	-	-	X	

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		Sta.	Offset (FT)	RT/LT		Sta.	Offset (FT)	RT/LT												Protect in Place	Conflict
DACANE-6	Exhibit 60-8	152+86	-	-	to	-	-	-	RT	Pr_9thSt	1.0	EA	-1	Abandoned	Construction Activities Include: Storm sewer installation, grading Utility to be abandoned in place.	Dakota Carrier Network	0	Pending	Pending		X
DACANE-7	Exhibit 60-8	152+86	-	-	to	153+78	-	-	LT	Pr_9thSt	92.0	FT	-1	Level 2	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	Dakota Carrier Network	0	-	-	X	
DACANE-8	Exhibit 60-8	153+78	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-1	Abandoned	Construction Activities Include: Storm sewer installation, grading Utility to be abandoned in place.	Dakota Carrier Network	0	Pending	Pending		X
CENLIN-31	Exhibit 60-6	139+75	-	-	to	-	-	-	RT	Pr_9thSt	1.0	EA	-1	Level 4	Construction Activities Include: Watermain installation Once pavement is removed, Contractor shall notify Century Link/Lumen so they can mobilize and begin relocation. Contractor shall coordinate relocation timeframe with Century Link/Lumen.	Century Link	0	Pending	Pending		
CENLIN-32	Exhibit 60-4	124+80	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-3/+3	Level 3	Construction Activities Include: Grading, paving and storm sewer installation Once pavement is removed, Contractor shall notify Century Link/Lumen so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Century Link/Lumen.	Century Link	0	Pending	Pending		X
CENLIN-PR32.1	Exhibit 60-4	124+80	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-3/+3	Proposed Level 1	Proposed relocated line from CENLIN-32	Century Link	0	-	-	X	
MIDCO-26	Exhibit 60-8	152+79	-	-	to	153+43	-	-	LT	Pr_9thSt	64.0	FT	-1/+3	Level 2	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	Mid-Continent Cable	0	-	-	X	
CONCOM-1	Exhibit 60-8	153+03	-	-	to	153+65	-	-	LT	Pr_9thSt	62.0	FT	-1/+3	Level 2	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	Consolidated Communications	0	-	-	X	
MINPOW-4	Exhibit 60-8	153+30	-	-	to	155+85	-	-	Crossing	Pr_9thSt	0.0	FT	+2	Level 2	Construction Activities Include: Paving Utility located above proposed pavement, protect in place.	Minnkota Power	0	-	-	X	
CACOEC-11	Exhibit 60-8	153+33	-	-	to	-	-	-	LT	Pr_9thSt	1.0	EA	+2	Level 2	Construction Activities Include: Grading Utility located within grading limits, protect in place.	Cass County Electric Cooperative	0	-	-	X	
CACOEC-12	Exhibit 60-8	153+33	-	-	to	155+18	-	-	LT	Pr_9thSt	185.0	FT	+2	Level 2	Construction Activities Include: Paving Utility located above proposed pavement, protect in place.	Cass County Electric Cooperative	0	-	-	X	
CONCOM-2	Exhibit 60-8	153+65	-	-	to	154+90	-	-	LT	Pr_9thSt	125.0	FT	-2/+2	Level 2	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	Consolidated Communications	0	-	-	X	
CONCOM-3	Exhibit 60-8	154+88	-	-	to	155+22	-	-	LT	Pr_9thSt	34.0	FT	-2/+2	Level 2	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	Consolidated Communications	0	-	-	X	
CONCOM-4	Exhibit 60-8	154+92	-	-	to	-	-	-	LT	Pr_9thSt	1.0	EA	-2	Level 2	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	Consolidated Communications	0	-	-	X	
CONCOM-5	Exhibit 60-8	154+95	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-3/+1	Level 3	Construction Activities Include: Paving. storm sewer installation Once pavement is removed, Contractor shall notify Consolidated Communications so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Consolidated Communications .	Consolidated Communications	0	Pending	Pending		X
CONCOM-PR5.1	Exhibit 60-8	154+95	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-3/+1	Proposed Level 1	Proposed relocated line from CONCOM-5	Consolidated Communications	0	-	-	X	

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		Sta.	Offset (FT)	RT/LT		Sta.	Offset (FT)	RT/LT												Protect in Place	Conflict
CACOEC-13	Exhibit 60-8	155+18	-	-	to	-	-	-	LT	Pr_9thSt	1.0	EA	+1	Level 2	Construction Activities Include: Grading Utility located within grading limits, protect in place.	Cass County Electric Cooperative	0	-	-	X	
CENLIN-33	Exhibit 60-10	206+76	-	-	to	208+20	-	-	LT	Pr_7thAve	144.0	FT	-1/+3	Level 3	Construction Activities Include: Grading. storm sewer installation Upon storm sewer installation, contractor shall notify Century Link/Lumen so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Century Link/Lumen .	Century Link	0	Pending	Pending		X
CENLIN-PR33.1	Exhibit 60-10	206+76	-	-	to	208+20	-	-	LT	Pr_7thAve	144.0	FT	-1/+3	Proposed Level 1	Proposed relocated line from CENLIN-33, 34, 35, 41	Century Link	0	-	-	X	
CENLIN-34	Exhibit 60-10	207+68	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-2	Level 3	Construction Activities Include: Storm sewer installation Upon storm sewer installation, contractor shall notify Century Link/Lumen so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Century Link/Lumen .	Century Link	0	Pending	Pending		X
MIDCO-27	Exhibit 60-10	208+08	-	-	to	209+35	-	-	LT	Pr_7thAve	127.0	FT	-1/+1	Level 2	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	Mid-Continent Cable	0	-	-	X	
CENLIN-35	Exhibit 60-10	208+20	-	-	to	214+25	-	-	LT	Pr_7thAve	605.0	FT	-1/+3	Level 3	Construction Activities Include: Paving. storm sewer installation Once pavement is removed, Contractor shall notify Century Link/Lumen so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Century Link/Lumen.	Century Link	0	Pending	Pending		X
MIDCO-28	Exhibit 60-10	208+24	-	-	to	208+52	-	-	LT	Pr_7thAve	28.0	FT	-1/+1	Level 2	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	Mid-Continent Cable	0	-	-	X	
CENLIN-36	Exhibit 60-10	208+45	-	-	to	208+72	-	-	RT	Pr_7thAve	27.0	FT	-1/+2	Level 2	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	Century Link	0	-	-	X	
MIDCO-29	Exhibit 60-10	208+51	-	-	to	210+87	-	-	LT	Pr_7thAve	236.0	FT	-1/+2	Level 3	Construction Activities Include: Paving. storm sewer installation Once pavement is removed, Contractor shall notify Midco so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Midco.	Mid-Continent Cable	0	Pending	Pending		X
MIDCO-PR29.1	Exhibit 60-10	208+51	-	-	to	214+26	-	-	LT	Pr_7thAve	575.0	FT	-1/+2	Proposed Level 1	Proposed relocated line from MIDCO-29, 32, 33, 35	Mid-Continent Cable	0	-	-	X	
MIDCO-30	Exhibit 60-10	209+33	-	-	to	210+74	-	-	LT	Pr_7thAve	141.0	FT	-1/+2	Level 3	Construction Activities Include: Paving. storm sewer installation Once pavement is removed, Contractor shall notify Midco so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Midco.	Mid-Continent Cable	0	Pending	Pending		X
MIDCO-30.1	Exhibit 60-10	209+33	-	-	to	210+74	-	-	LT	Pr_7thAve	141.0	FT	-1/+2	Proposed Level 1	Proposed relocated line from MIDCO-30	Mid-Continent Cable	0	Pending	Pending	X	
702COM-1	Exhibit 60-10	208+53	-	-	to	208+97	-	-	RT	Pr_7thAve	44.0	FT	-1/+2	Level 2	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	702 Communications	0	-	-	X	
CENLIN-37	Exhibit 60-10	208+72	-	-	to	210+91	-	-	RT	Pr_7thAve	219.0	FT	-1/+4	Level 3	Construction Activities Include: Paving. storm sewer installation Once pavement is removed, Contractor shall notify Century Link/Lumen so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Century Link/Lumen.	Century Link	0	Pending	Pending		X
CENLIN-PR37.1	Exhibit 60-10	208+72	-	-	to	210+91	-	-	RT	Pr_7thAve	219.0	FT	-1/+4	Proposed Level 1	Proposed relocated line from CENLIN-37	Century Link	0	-	-	X	
702COM-2	Exhibit 60-10	208+97	-	-	to	210+87	-	-	RT	Pr_7thAve	190.0	FT	-1/+4	Level 3	Construction Activities Include: Paving. storm sewer installation Once pavement is removed, Contractor shall notify 702 Communications so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with 702 Communications .	702 Communications	0	Pending	Pending		X

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		Sta.	Offset (FT)	RT/LT		Sta.	Offset (FT)	RT/LT												Protect in Place	Conflict
702COM-PR2.1	Exhibit 60-10	208+97	-	-	to	210+87	-	-	RT	Pr_7thAve	190.0	FT	-1/+4	Proposed Level 1	Proposed relocated line from 702COM-2	702 Communications	0	-	-	X	
XCEENE-22	Exhibit 60-10	208+51	-	-	to	210+73	-	-	RT	Pr_7thAve	222.0	FT	-1/+4	Level 3	Construction Activities Include: Paving. storm sewer installation Once pavement is removed, Contractor shall notify Xcel Energy so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Xcel Energy.	Xcel Energy	0	Pending	Pending		X
XCEENE-PR22.1	Exhibit 60-10	208+51	-	-	to	210+73	-	-	RT	Pr_7thAve	222.0	FT	-1/+4	Proposed Level 1	Proposed relocated line from XCEENE-22, 24, 25	Xcel Energy	0	-	-	X	
XCEENE-23	Exhibit 60-10	209+29	-	-	to	210+73	-	-	RT	Pr_7thAve	144.0	FT	-1/+4	Level 3	Construction Activities Include: Paving. storm sewer installation Once pavement is removed, Contractor shall notify Xcel Energy so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Xcel Energy.	Xcel Energy	0	Pending	Pending		X
XCEENE-PR23.1	Exhibit 60-10	209+29	-	-	to	210+73	-	-	RT	Pr_7thAve	144.0	FT	-1/+4	Proposed Level 1	Proposed relocated line from XCEENE-23	Xcel Energy	0	-	-	X	
CENLIN-38	Exhibit 60-10	210+67	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-1/5	Level 2	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	Century Link	0	-	-	X	
XCEENE-24	Exhibit 60-10 to 60-11	210+73	-	-	to	214+39	-	-	RT	Pr_7thAve	366.0	FT	+4	Level 3	Construction Activities Include: Grading, storm sewer installation Upon storm sewer installation, contractor shall notify Xcel Energy so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Xcel Energy .	Xcel Energy	0	Pending	Pending		X
MIDCO-31	Exhibit 60-10 to 60-11	210+81	-	-	to	214+00	-	-	RT	Pr_7thAve	319.0	FT	-1	Level 3	Construction Activities Include: Grading, storm sewer installation Upon storm sewer installation, contractor shall notify Midco so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Midco .	Mid-Continent Cable	0	Pending	Pending		X
MIDCO-PR31.1	Exhibit 60-10 to 60-11	210+81	-	-	to	214+00	-	-	RT	Pr_7thAve	319.0	FT	-1	Proposed Level 1	Proposed relocated line from MIDCO-31, 34	Mid-Continent Cable	0	-	-	X	
MIDCO-32	Exhibit 60-10 to 60-11	210+87	-	-	to	214+26	-	-	LT	Pr_7thAve	339.0	FT	-2/+3	Level 3	Construction Activities Include: Grading, storm sewer installation Upon storm sewer installation, contractor shall notify Midco so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Midco .	Mid-Continent Cable	0	Pending	Pending		X
CENLIN-39	Exhibit 60-10 to 60-11	210+92	-	-	to	211+66	-	-	RT	Pr_7thAve	74.0	FT	-1	Level 2	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	Century Link	0	-	-	X	
CENLIN-41	Exhibit 60-11	211+29	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-1/+1	Level 3	Construction Activities Include: Storm sewer installation Upon storm sewer installation, contractor shall notify Century Link/Lumen so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Century Link/Lumen .	Century Link	0	Pending	Pending		X
MIDCO-33	Exhibit 60-11	211+30	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-1/+1	Level 3	Construction Activities Include: Storm sewer installation Upon storm sewer installation, contractor shall notify Midco so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Midco .	Mid-Continent Cable	0	Pending	Pending		X
XCEENE-25	Exhibit 60-11	211+93	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-1/+1	Level 3	Construction Activities Include: Storm sewer installation Upon storm sewer installation, contractor shall notify Xcel Energy so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Xcel Energy .	Xcel Energy	0	Pending	Pending		X
MIDCO-34	Exhibit 60-11	211+95	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-1/+1	Level 3	Construction Activities Include: Storm sewer installation Upon storm sewer installation, contractor shall notify Midco so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Midco .	Mid-Continent Cable	0	Pending	Pending		X
CENLIN-42	Exhibit 60-11 to 60-12	214+25	-	-	to	221+96	-	-	LT	Pr_7thAve	771.0	FT	-1/+1	Level 4	Construction Activities Include: Storm sewer installation and watermain installation Fiber optic line crosses multiple proposed utility services. Upon storm sewer installation, Contractor will coordinate a timeframe with Century Link/Lumen to relocate fiber optic line once pavement is removed.	Century Link	0	Pending	Pending		

Utility Coordination Table Appendix A of SP 631(24)

TMA--SU-FXP-8-992(045) PCN 23537

UE ID# UR ID# PR ID#	Utility Coordination Exhibits	Beginning Point			to	Ending Point			LT/RT or Crossing or Point Location	Roadway (Alignment/Chain)	Approx. Qty	Unit	Max Excavation Cut (-) / Fill (+) Feet	Encounter Level	Comments	Utility Company	Type of Facility	After Notification - Time For Utility to Mobilize (D = Working Day, W = Week)	Estimated Time to Complete Relocation (D = Working Day, W = Week, H = Hours)	UTILITY ENCOUNTER TYPE (UE)	
		Sta.	Offset (FT)	RT/LT		Sta.	Offset (FT)	RT/LT												Protect in Place	Conflict
CENLIN-PR42.1	Exhibit 60-11 to 60-12	214+25	-	-	to	221+96	-	-	LT	Pr_7thAve	771.0	FT	-1/+1	Proposed Level 1	Proposed relocated line from CENLIN-42, 48, 51, 52	Century Link	0	-	-	X	
702COM-3	Exhibit 60-11	212+53	-	-	to	213+45	-	-	RT	Pr_7thAve	92.0	FT	-1	Level 3	Construction Activities Include: Storm sewer installation Upon storm sewer installation, contractor shall notify 702 Communications so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with 702 Communications .	702 Communications	0	Pending	Pending		X
702COM-PR3.1	Exhibit 60-11	212+53	-	-	to	213+45	-	-	RT	Pr_7thAve	92.0	FT	-1	Proposed Level 1	Proposed relocated line from 702COM-3	702 Communications	0	-	-	X	
CENLIN-43	Exhibit 60-11	213+77	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-1	Level 2	Construction Activities Include: Watermain installation Utility crosses proposed watermain, protect in place.	Century Link	0	-	-	X	
MIDCO-35	Exhibit 60-11	213+77	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-1	Level 2	Construction Activities Include: Watermain installation Utility crosses proposed watermain, protect in place.	Mid-Continent Cable	0	-	-	X	
CENLIN-45	Exhibit 60-11	213+97	-	-	to	214+39	-	-	RT	Pr_7thAve	42.0	FT	+1	Level 2	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	Century Link	0	-	-	X	
MIDCO-36	Exhibit 60-11	214+26	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-1/+1	Level 3	Construction Activities Include: Paving. storm sewer installation Once pavement is removed, Contractor shall notify Midco so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Midco.	Mid-Continent Cable	0	Pending	Pending		X
MIDCO-PR36.1	Exhibit 60-11	214+26	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-1/+1	Proposed Level 1	Proposed relocated line from MIDCO-36	Mid-Continent Cable	0	-	-	X	
XCEENE-26	Exhibit 60-11	214+39	-	-	to	214+99	-	-	RT	Pr_7thAve	60.0	FT	-2/+1	Level 2	Construction Activities Include: Paving Utility located below proposed pavement. Protect in place.	Xcel Energy	0	-	-	X	
CENLIN-46	Exhibit 60-11	214+39	-	-	to	214+98	-	-	RT	Pr_7thAve	59.0	FT	-2/+1	Level 2	Construction Activities Include: Paving Utility located below proposed pavement. Protect in place.	Century Link	0	-	-	X	
702COM-4	Exhibit 60-11	214+43	-	-	to	214+94	-	-	RT	Pr_7thAve	51.0	FT	-2	Level 2	Construction Activities Include: Paving Utility located below proposed pavement. Protect in place.	702 Communications	0	-	-	X	
XCEENE-27	Exhibit 60-11	214+45	-	-	to	214+92	-	-	RT	Pr_7thAve	47.0	FT	-2	Level 2	Construction Activities Include: Paving Utility located below proposed pavement. Protect in place.	Xcel Energy	0	-	-	X	
MIDCO-37	Exhibit 60-11	214+45	-	-	to	214+92	-	-	RT	Pr_7thAve	47.0	FT	-2	Level 2	Construction Activities Include: Paving Utility located below proposed pavement. Protect in place.	Mid-Continent Cable	0	-	-	X	
MIDCO-38	Exhibit 60-11	214+36	-	-	to	214+95	-	-	RT	Pr_7thAve	59.0	FT	-2	Level 2	Construction Activities Include: Paving Utility located below proposed pavement. Protect in place.	Mid-Continent Cable	0	-	-	X	
CENLIN-47	Exhibit 60-11 to 60-12	214+98	-	-	to	223+04	-	-	RT	Pr_7thAve	806.0	FT	-1/+3	Level 3	Construction Activities Include: Grading, storm sewer installation Once pavement is removed, Contractor shall notify Century Link/Lumen so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Century Link/Lumen.	Century Link	0	Pending	Pending		X
CENLIN-PR47.1	Exhibit 60-11 to 60-12	214+98	-	-	to	223+04	-	-	RT	Pr_7thAve	806.0	FT	-1/+3	Proposed Level 1	Proposed relocated line from CENLIN-47, 49, 50	Century Link	0	-	-	X	

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		Sta.	Offset (FT)	RT/LT		Sta.	Offset (FT)	RT/LT												Protect in Place	Conflict
XCEENE-28	Exhibit 60-11 to 60-12	214+99	-	-	to	220+34	-	-	RT	Pr_7thAve	535.0	FT	-1/+2	Level 3	Construction Activities Include: Grading, storm sewer installation Upon storm sewer installation, contractor shall notify Xcel Energy so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Xcel Energy .	Xcel Energy	0	Pending	Pending		X
XCEENE-PR28.1	Exhibit 60-11 to 60-12	214+99	-	-	to	220+34	-	-	RT	Pr_7thAve	535.0	FT	-1/+2	Proposed Level 1	Proposed relocated line from XCEENE-28, 29	Xcel Energy	0	-	-	X	
MAPICO-1	Exhibit 60-11	215+08	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-1/+2	Level 2	Construction Activities Include: Paving, storm sewer installation Excavate around and take supportive measures to protect underground gas line in place while installing pavement and storm sewer.	Magellan Pipeline Company	0	-	-	X	
CENLIN-48	Exhibit 60-11	217+00	-	-	to	217+00	-	-	LT	Pr_7thAve	0.0	FT	-1/+2	Level 4	Construction Activities Include: Storm sewer installation Once pavement is removed, Contractor shall notify Century Link/Lumen so they can mobilize and begin relocation. Contractor shall coordinate relocation timeframe with Century Link/Lumen.	Century Link	0	Pending	Pending		
CENLIN-49	Exhibit 60-11	217+00	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-2	Level 3	Construction Activities Include: Storm sewer installation Upon storm sewer installation, contractor shall notify Century Link/Lumen so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Century Link/Lumen .	Century Link	0	Pending	Pending		X
CENLIN-50	Exhibit 60-11	217+00	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-2	Level 3	Construction Activities Include: Street lighting installation Upon storm sewer installation, contractor shall notify Century Link/Lumen so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Century Link/Lumen .	Century Link	0	Pending	Pending		X
XCEENE-29	Exhibit 60-11	217+00	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-2	Level 3	Construction Activities Include: Storm sewer installation Upon storm sewer installation, contractor shall notify Xcel Energy so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Xcel Energy .	Xcel Energy	0	Pending	Pending		X
702COM-5	Exhibit 60-11 to 60-12	217+45	-	-	to	221+83	-	-	RT	Pr_7thAve	438.0	FT	-2	Level 2	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	702 Communications	0	-	-	X	
XCEENE-30	Exhibit 60-12	220+35	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-2/+3	Level 3	Construction Activities Include: Paving, storm sewer installation Once pavement is removed, Contractor shall notify Xcel Energy so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Xcel Energy.	Xcel Energy	0	Pending	Pending		X
XCEENE-PR30.1	Exhibit 60-12	220+35	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-2/+3	Proposed Level 1	Proposed relocated line from XCEENE-30	Xcel Energy	0	-	-	X	
XCEENE-31	Exhibit 60-12 to 60-14	220+37	-	-	to	234+31	-	-	LT	Pr_7thAve	1394.0	FT	-2/+3	Level 3	Construction Activities Include: Paving, storm sewer installation, watermain installation Gas line crosses multiple proposed utility services. Upon storm sewer installation, Contractor will coordinate a timeframe with Xcel Energy to vertically adjust gas line.	Xcel Energy	0	Pending	Pending		X
XCEENE-PR31.1	Exhibit 60-12 to 60-14	220+37	-	-	to	236+50	-	-	LT	Pr_7thAve	1613.0	FT	-2/+3	Proposed Level 1	Proposed relocated line from XCEENE-31, 32, 33, 35, 36, 37, 39, 41, 45, 46	Xcel Energy	0	-	-	X	
XCEENE-32	Exhibit 60-12	221+00	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-2/+3	Level 3	Construction Activities Include: Storm sewer installation Gas line crosses multiple proposed utility services in addition to the proposed storm sewer at this location. Upon storm sewer installation, Contractor will coordinate a timeframe with Xcel Energy to vertically adjust gas line.	Xcel Energy	0	Pending	Pending		X
CENLIN-51	Exhibit 60-12	221+00	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-2/+3	Level 4	Construction Activities Include: Storm sewer installation Once pavement is removed, Contractor shall notify Century Link/Lumen so they can mobilize and begin relocation. Contractor shall coordinate relocation timeframe with Century Link/Lumen.	Century Link	0	Pending	Pending		
XCEENE-33	Exhibit 60-12	221+34	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-2/+3	Level 3	Construction Activities Include: Watermain installation Once pavement is removed, Contractor shall notify Century Link/Lumen so they can mobilize and begin vertical adjustment. Contractor shall coordinate vertical adjustment timeframe with Century Link/Lumen.	Xcel Energy	0	Pending	Pending		X
CENLIN-52	Exhibit 60-12	221+34	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-2/+3	Level 4	Construction Activities Include: Watermain installation Once pavement is removed, Contractor shall notify Century Link/Lumen so they can mobilize and begin relocation. Contractor shall coordinate relocation timeframe with Century Link/Lumen.	Century Link	0	Pending	Pending		

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		Sta.	Offset (FT)	RT/LT		Sta.	Offset (FT)	RT/LT												Protect in Place	Conflict
CENLIN-53	Exhibit 60-12	223+04	-	-	to	223+62	-	-	RT	Pr_7thAve	58.0	FT	-2/+1	Level 2	Construction Activities Include: Paving Utility located below proposed pavement, protect in place.	Century Link	0	-	-	X	
XCEENE-34	Exhibit 60-12	223+06	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-2/+1	Level 3	Construction Activities Include: Paving and storm sewer installation Once pavement is removed, Contractor shall notify Xcel Energy so they can mobilize and begin relocationt. Contractor shall coordinate relocation timeframe with Xcel Energy.	Xcel Energy	0	Pending	Pending		X
XCEENE-PR34.1	Exhibit 60-12	223+06	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-2/+1	Proposed Level 1	Proposed relocated line from XCEENE-34	Xcel Energy	0	-	-	X	
MIDCO-39	Exhibit 60-12	223+09	-	-	to	223+57	-	-	RT	Pr_7thAve	48.0	FT	-2/+1	Level 2	Construction Activities Include: Paving Utility located below proposed pavement, protect in place.	Mid-Continent Cable	0	-	-	X	
702COM-6	Exhibit 60-12	223+11	-	-	to	223+56	-	-	RT	Pr_7thAve	45.0	FT	-2/+1	Level 2	Construction Activities Include: Paving Utility located below proposed pavement, protect in place.	702 Communications	0	-	-	X	
MIDCO-40	Exhibit 60-12	223+16	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-3/+1	Level 3	Construction Activities Include: Paving and storm sewer installation Once pavement is removed, Contractor shall notify Midco so they can mobilize and begin relocationt. Contractor shall coordinate relocation timeframe with Midco.	Mid-Continent Cable	0	Pending	Pending		X
MIDCO-PR40.1	Exhibit 60-12	223+16	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-3/+1	Proposed Level 1	Proposed relocated line from MIDCO-40	Mid-Continent Cable	0	-	-	X	
CENLIN-54	Exhibit 60-12 to 60-13	223+62	-	-	to	231+99	-	-	RT	Pr_7thAve	837.0	FT	-1/+2	Level 3	Construction Activities Include: Grading, storm sewer installation Upon storm sewer installation, contractor shall notify Century Link/Lumen so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Century Link/Lumen .	Century Link	0	Pending	Pending		X
CENLIN-PR54.1	Exhibit 60-12 to 60-13	223+62	-	-	to	236+25	-	-	RT	Pr_7thAve	1263.0	FT	-1/+2	Proposed Level 1	Proposed relocated line from CENLIN-54, 55, 63, 64, 65, 69	Century Link	0	-	-	X	
CENLIN-55	Exhibit 60-12	224+20	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-3/+1	Level 3	Construction Activities Include: Storm sewer installation Once pavement is removed, Contractor shall notify Century Link/Lumen so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Century Link/Lumen.	Century Link	0	Pending	Pending		X
XCEENE-35	Exhibit 60-12	224+20	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-3/+1	Level 3	Construction Activities Include: Storm sewer installation Once pavement is removed, Contractor shall notify Xcel Energy so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Xcel Energy.	Xcel Energy	0	Pending	Pending		X
CENLIN-56	Exhibit 60-12	224+54	-	-	to	224+84	-	-	LT	Pr_7thAve	30.0	FT	-1	Level 2	Construction Activities Include: Paving Utility located below proposed pavement, protect in place.	Century Link	0	-	-	X	
XCEENE-36	Exhibit 60-12	225+06	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-3/+2	Level 3	Construction Activities Include: Watermain installation Once pavement is removed, Contractor shall notify Xcel Energy so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Xcel Energy.	Xcel Energy	0	Pending	Pending		X
CENLIN-57	Exhibit 60-12	225+06	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-3/+2	Level 2	Construction Activities Include: Watermain installation Utility crosses proposed watermain, protect in place.	Century Link	0	-	-	X	
XCEENE-37	Exhibit 60-12	225+50	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-3/+2	Level 3	Constructio Activities Include: Storm sewer installation Upon storm sewer installation, contractor shall notify Xcel Energy so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Xcel Energy .	Xcel Energy	0	Pending	Pending		X
CENLIN-58	Exhibit 60-13	225+50	-	-	to	228+21	-	-	LT	Pr_7thAve	271.0	FT	-1	Level 2	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	Century Link	0	-	-	X	

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		Sta.	Offset (FT)	RT/LT		Sta.	Offset (FT)	RT/LT												Protect in Place	Conflict
XCEENE-39	Exhibit 60-13	226+96	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-2/+2	Level 3	Construction Activities Include: Watermain installation Once pavement is removed, Contractor shall notify Xcel Energy so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Xcel Energy.	Xcel Energy	0	Pending	Pending		X
MIDCO-44	Exhibit 60-13	226+96	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-2/+2	Level 2	Construction Activities Include: Watermain installation Utility crosses proposed watermain, protect in place.	Mid-Continent Cable	0	-	-	X	
CENLIN-59	Exhibit 60-13	226+96	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-2/+2	Level 2	Construction Activities Include: Watermain installation Utility crosses proposed watermain, protect in place.	Century Link	0	-	-	X	
MIDCO-45	Exhibit 60-13	228+10	-	-	to	229+06	-	-	LT	Pr_7thAve	96.0	FT	-1/+1	Level 2	Construction Activities Include: Paving Utility located below proposed pavement, protect in place.	Mid-Continent Cable	0	-	-	X	
CENLIN-60	Exhibit 60-13	228+21	-	-	to	228+96	-	-	LT	Pr_7thAve	75.0	FT	-1/+1	Level 2	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	Century Link	0	-	-	X	
XCEENE-40	Exhibit 60-13	228+94	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-3/+2	Level 3	Construction Activities Include: Paving, storm sewer installation Once pavement is removed, Contractor shall notify Xcel Energy so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Xcel Energy.	Xcel Energy	0	Pending	Pending		X
XCEENE-PR40.1	Exhibit 60-13	228+94	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-3/+2	Proposed Level 1	Proposed relocated line from XCEENE-40	Xcel Energy	0	-	-	X	
XCEENE-41	Exhibit 60-13	229+41	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-3/+2	Level 3	Constructio Activities Include: Storm sewer installation Upon storm sewer installation, contractor shall notify Xcel Energy so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Xcel Energy .	Xcel Energy	0	Pending	Pending		X
CENLIN-61	Exhibit 60-13 to 60-14	228+96	-	-	to	233+63	-	-	LT	Pr_7thAve	467.0	FT	-1/+2	Level 2	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	Century Link	0	-	-	X	
CENLIN-62	Exhibit 60-13	229+32	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-3/+2	Level 3	Constructio Activities Include: Storm sewer installation Upon storm sewer installation, contractor shall notify Century Link/Lumen so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Century Link/Lumen.	Century Link	0	Pending	Pending		X
CENLIN-PR62.1	Exhibit 60-13	229+32	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-3/+2	Proposed Level 1	Proposed relocated line from CENLIN-62	Century Link	0	-	-	X	
CENLIN-63	Exhibit 60-13	229+32	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-3/+2	Level 3	Construction Activities Include: Storm sewer installation Upon storm sewer installation, contractor shall notify Century Link/Lumen so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Century Link/Lumen .	Century Link	0	Pending	Pending		X
MIDCO-46	Exhibit 60-13 to 60-14	231+92	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-2/+1	Level 3	Construction Activities Include: Paving, storm sewer installation Once pavement is removed, Contractor shall notify Midco so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Midco.	Mid-Continent Cable	0	Pending	Pending		X
MIDCO-PR46.1	Exhibit 60-13 to 60-14	231+92	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-2/+1	Proposed Level 1	Proposed relocated line from MIDCO-46	Mid-Continent Cable	0	-	-	X	
CENLIN-64	Exhibit 60-13 to 60-14	231+99	-	-	to	232+67	-	-	RT	Pr_7thAve	68.0	FT	-2/+1	Level 3	Construction Activities Include: Paving Once pavement is removed, Contractor shall notify Century Link/Lumen so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Century Link/Lumen.	Century Link	0	Pending	Pending		X
702COM-7	Exhibit 60-13 to 60-14	232+08	-	-	to	232+58	-	-	RT	Pr_7thAve	50.0	FT	-2/+1	Level 3	Construction Activities Include: Paving Once pavement is removed, Contractor shall notify 702 Communications so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with 702 Communications.	702 Communications	0	Pending	Pending		X

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		Sta.	Offset (FT)	RT/LT		Sta.	Offset (FT)	RT/LT												Protect in Place	Conflict
702COM-PR7.1	Exhibit 60-13 to 60-14	232+08	-	-	to	232+58	-	-	RT	Pr_7thAve	50.0	FT	-2/+1	**Proposed Level 1**	Proposed relocated line from 702COM-7	702 Communications	0	-	-	X	
MIDCO-47	Exhibit 60-13 to 60-14	232+09	-	-	to	232+58	-	-	RT	Pr_7thAve	49.0	FT	-2/+1	**Level 3**	Construction Activities Include: Paving Once pavement is removed, Contractor shall notify Midco so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Midco.	Mid-Continent Cable	0	Pending	Pending		X
MIDCO-PR47.1	Exhibit 60-13 to 60-14	232+09	-	-	to	232+58	-	-	RT	Pr_7thAve	49.0	FT	-2/+1	**Proposed Level 1**	Proposed relocated line from MIDCO-47	Mid-Continent Cable	0	-	-	X	
XCEENE-42	Exhibit 60-13 to 60-14	232+13	-	-	to	232+54	-	-	RT	Pr_7thAve	41.0	FT	-2/+1	**Level 3**	Construction Activities Include: Paving Once pavement is removed, Contractor shall notify Xcel Energy so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Xcel Energy.	Xcel Energy	0	Pending	Pending		X
XCEENE-PR42.1	Exhibit 60-13 to 60-14	232+13	-	-	to	232+54	-	-	RT	Pr_7thAve	41.0	FT	-2/+1	**Proposed Level 1**	Proposed relocated line from XCEENE-42	Xcel Energy	0	-	-	X	
XCEENE-43	Exhibit 60-14	232+67	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-2/+1	**Level 3**	Construction Activities Include: Paving, storm sewer installation Once pavement is removed, Contractor shall notify Xcel Energy so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Xcel Energy.	Xcel Energy	0	Pending	Pending		X
XCEENE-PR43.1	Exhibit 60-14	232+67	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-2/+1	**Proposed Level 1**	Proposed relocated line from XCEENE-43	Xcel Energy	0	-	-	X	
CENLIN-65	Exhibit 60-14	232+67	-	-	to	236+21	-	-	RT	Pr_7thAve	354.0	FT	+4	**Level 3**	Construction Activities Include: Grading, storm sewer installation Upon storm sewer installation, contractor shall notify Century Link/Lumen so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Century Link/Lumen .	Century Link	0	Pending	Pending		X
702COM-8	Exhibit 60-14	233+63	-	-	to	236+21	-	-	RT	Pr_7thAve	258.0	FT	-1/+2	**Level 2**	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	702 Communications	0	-	-	X	
CENLIN-66	Exhibit 60-14	233+63	-	-	to	234+26	-	-	LT	Pr_7thAve	63.0	FT	-2/+1	**Level 3**	Construction Activities Include: Paving Once pavement is removed, Contractor shall notify Century Link/Lumen so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Century Link/Lumen.	Century Link	0	Pending	Pending		X
CENLIN-PR66.1	Exhibit 60-14	233+63	-	-	to	236+54	-	-	LT	Pr_7thAve	291.0	FT	-2/+1	**Proposed Level 1**	Proposed relocated line from CENLIN-66, 67, 68	Century Link	0	-	-	X	
CABONE-1	Exhibit 60-14	233+66	-	-	to	235+69	-	-	RT	Pr_7thAve	203.0	FT	-1	**Level 2**	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	Cable One	0	-	-	X	
CENLIN-67	Exhibit 60-14	234+26	-	-	to	236+54	-	-	LT	Pr_7thAve	228.0	FT	+2	**Level 3**	Construction Activities Include: Grading, storm sewer installation Upon storm sewer installation, contractor shall notify Century Link/Lumen so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Century Link/Lumen .	Century Link	0	Pending	Pending		X
XCEENE-44	Exhibit 60-14	233+66	-	-	to	234+26	-	-	LT	Pr_7thAve	60.0	FT	+2	**Level 3**	Construction Activities Include: Paving Once pavement is removed, Contractor shall notify Xcel Energy so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Xcel Energy.	Xcel Energy	0	Pending	Pending		X
XCEENE-45	Exhibit 60-14	234+31	-	-	to	236+51	-	-	LT	Pr_7thAve	220.0	FT	+2	**Level 3**	Construction Activities Include: Paving, storm sewer installation Once pavement is removed, Contractor shall notify Xcel Energy so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Xcel Energy.	Xcel Energy	0	Pending	Pending		X
CENLIN-68	Exhibit 60-14	235+67	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-1/+3	**Level 3**	Construction Activities Include: Storm sewer installation Upon storm sewer installation, contractor shall notify Century Link/Lumen so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Century Link/Lumen .	Century Link	0	Pending	Pending		X

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		Sta.	Offset (FT)	RT/LT		Sta.	Offset (FT)	RT/LT												Protect in Place	Conflict
XCEENE-46	Exhibit 60-14 to 60-15	234+33	-	-	to	245+45	-	-	LT	Pr_7thAve	1112.0	FT	-2/+5	Level 3	Construction Activities Include: Storm sewer installation Upon storm sewer installation, contractor shall notify Xcel Energy so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Xcel Energy .	Xcel Energy	0	Pending	Pending		X
XCEENE-47	Exhibit 60-14 to 60-15	235+69	-	-	to	245+45	-	-	Crossing	Pr_7thAve	0.0	FT	+2	Level 3	Construction Activities Include: Storm sewer installation Upon storm sewer installation, contractor shall notify Xcel Energy so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Xcel Energy .	Xcel Energy	0	Pending	Pending		X
XCEENE-PR47.1	Exhibit 60-14 to 60-15	235+69	-	-	to	245+45	-	-	Crossing	Pr_7thAve	0.0	FT	+2	Proposed Level 1	Proposed relocated line from XCEENE-47, 49, 50	Xcel Energy	0	-	-	X	
XCEENE-48	Exhibit 60-14	234+40	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	+2	Level 3	Construction Activities Include: Storm sewer installation Upon storm sewer installation, contractor shall notify Xcel Energy so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Xcel Energy .	Xcel Energy	0	Pending	Pending		X
CABONE-2	Exhibit 60-14	235+69	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-1/+5	Level 3	Construction Activities Include: Paving, storm sewer installation Once pavement is removed, Contractor shall notify Cable One/Sparklight so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Cable One/Sparklight.	Cable One	0	Pending	Pending		X
CABONE-PR2.1	Exhibit 60-14	235+69	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-1/+5	Proposed Level 1	Proposed relocated line from CABONE-2	Cable One	0	-	-	X	
CACOEC-14	Exhibit 60-14	235+71	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-1/+1	Level 2	Construction Activities Include: Storm sewer installation Upon storm sewer installation, contractor shall notify Century Link/Lumen so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Century Link/Lumen .	Cass County Electric Cooperative	0	-	-	X	
CENLIN-69	Exhibit 60-14	235+81	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-1	Level 3		Century Link	0	Pending	Pending		X

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		Sta.	Offset (FT)	RT/LT		Sta.	Offset (FT)	RT/LT												Protect in Place	Conflict
702COM-9	Exhibit 60-14	235+88	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-1	Level 3	Construction Activities Include: Storm sewr installation, grading Upon storm sewer installation, contractor shall notify 702 Communications so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with 702 Communications.	702 Communications	0	Pending	Pending		X
702COM-PR9.1	Exhibit 60-14	235+88	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-1	Proposed Level 1	Proposed relocated line from 702COM-9	702 Communications	0	-	-	X	
CACOEC-15	Exhibit 60-14	236+01	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-1/+1	Level 2	Construction Activities Include: Paving Utility located below proposed pavement, protect in place.	Cass County Electric Cooperative	0	-	-	X	
702COM-10	Exhibit 60-14	236+47	-	-	to	237+04	-	-	RT	Pr_7thAve	57.0	FT	+2	Level 2	Construction Activities Include: Paving Utility located below proposed pavement, protect in place.	702 Communications	0	-	-	X	
CENLIN-70	Exhibit 60-14	236+54	-	-	to	236+82	-	-	LT	Pr_7thAve	28.0	FT	-1/+1	Level 2	Construction Activities Include: Paving Utility located below proposed pavement, protect in place.	Century Link	0	-	-	X	
CENLIN-71	Exhibit 60-14	236+54	-	-	to	237+01	-	-	RT	Pr_7thAve	47.0	FT	+2	Level 2	Construction Activities Include: Paving Utility located below proposed pavement, protect in place.	Century Link	0	-	-	X	
PRIELE-2	Exhibit 60-14	236+62	-	-	to	237+11	-	-	RT	Pr_7thAve	49.0	FT	+2	Level 2	Construction Activities Include: Paving Utility located below proposed pavement, protect in place.	Private Electric	0	-	-	X	
MIDCO-48	Exhibit 60-14	235+75	-	-	to	-	-	-	LT	Pr_7thAve	1.0	EA	+2	Level 3	Construction Activities Include: Storm sewr installation, grading Upon storm sewer installation, contractor shall notify 702 Communications so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with 702 Communications.	Mid-Continent Cable	0	Pending	Pending		X
MIDCO-PR48.1	Exhibit 60-14	235+75	-	-	to	-	-	-	LT	Pr_7thAve	1.0	EA	+2	Proposed Level 1	Proposed relocated line from MIDCO-48,62	Mid-Continent Cable	0	-	-	X	
MIDCO-49	Exhibit 60-14	236+67	-	-	to	237+03	-	-	RT	Pr_7thAve	36.0	FT	+2	Level 2	Construction Activities Include: Pavement Utility located below proposed pavement, protect in place.	Mid-Continent Cable	0	-	-	X	
CENLIN-72	Exhibit 60-14 to 60-15	236+82	-	-	to	245+44	-	-	LT	Pr_7thAve	862.0	FT	+4	Level 2	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	Century Link	0	-	-	X	
CENLIN-73	Exhibit 60-14 to 60-16	237+01	-	-	to	251+74	-	-	RT	Pr_7thAve	1473.0	FT	+5	Level 4	Construction Activities Include: Grading, storm sewer installation Upon storm sewer installation, contractor shall notify Xcel Energy so they can mobilize and begin relocation. Contractor shall coordinate relocation timeframe with Xcel Energy .	Century Link	0	Pending	Pending		
702COM-11	Exhibit 60-14 to 60-16	237+04	-	-	to	251+42	-	-	RT	Pr_7thAve	1438.0	FT	-1/+4	Level 3	Construction Activities Include: Grading, storm sewer installation Upon storm sewer installation, contractor shall notify 702 Communications so they can mobilize and begin vertical adjustment. Contractor shall coordinate vertical adjustment timeframe with 702 Communications .	702 Communications	0	Pending	Pending		X
702COM-PR11.1	Exhibit 60-14 to 60-16	237+04	-	-	to	251+42	-	-	RT	Pr_7thAve	1438.0	FT	-1/+4	Proposed Level 1	Proposed relocated line from 702COM-11, 12	702 Communications	0	-	-	X	
CACOEC-16	Exhibit 60-14	237+43	-	-	to	-	-	-	RT	Pr_7thAve	1.0	EA	+1	Level 2	Construction Activities Include: Grading Utility located within grading limits, protect in place.	Cass County Electric Cooperative	0	-	-	X	
PRIELE-4	Exhibit 60-14 to 60-16	237+61	-	-	to	249+78	-	-	LT	Pr_7thAve	1217.0	FT	-2/+3	Level 3	Construction Activities Include: Storm sewer installation, grading Underground electric line crosses multiple proposed utility services. Upon storm sewer installation, contractor shall notify the private electric company so they can mobilize and begin vertical relocation. Contractor shall coordinate relocation timeframe with the private electric company .	Private Electric	0	Pending	Pending		X

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		Sta.	Offset (FT)	RT/LT		Sta.	Offset (FT)	RT/LT												Protect in Place	Conflict
PRIELE-PR4.1	Exhibit 60-14 to 60-16	237+61	-	-	to	249+78	-	-	LT	Pr_7thAve	1217.0	FT	-2/+3	Proposed Level 1	Proposed relocated line from PRIELE-4,5,7, 8	Private Electric	0	-	-	X	
CACOEC-17	Exhibit 60-14	237+66	-	-	to	-	-	-	RT	Pr_7thAve	1.0	EA	+1	Level 2	Construction Activities Include: Grading Utility located within grading limits, protect in place.	Cass County Electric Cooperative	0	-	-	X	
PRIELE-5	Exhibit 60-14	237+77	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	+1	Level 3	Construction Activities Include: Storm sewer installation Upon storm sewer installation, contractor shall notify the private electric company so they can mobilize and begin vertical relocation. Contractor shall coordinate relocation timeframe with the private electric company .	Private Electric	0	Pending	Pending		X
XCEENE-49	Exhibit 60-14	237+77	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	+1	Level 3	Construction Activities Include: Storm sewer installation Upon storm sewer installation, contractor shall notify the Xcel Energy so they can mobilize and begin vertical relocation. Contractor shall coordinate relocation timeframe with the Xcel Energy .	Xcel Energy	0	Pending	Pending		X
702COM-12	Exhibit 60-14	237+77	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	+1	Level 3	Construction Activities Include: Storm sewer installation Upon storm sewer installation, contractor shall notify the 702 Communications so they can mobilize and begin vertical relocation. Contractor shall coordinate relocation timeframe with the 702 Communications .	702 Communications	0	Pending	Pending		X
CENLIN-74	Exhibit 60-14	237+77	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	+1	Level 4	Construction Activities Include: Storm sewer installation Upon storm sewer installation, contractor shall notify Century Link/Lumen so they can mobilize and begin vertical relocation. Contractor shall coordinate relocation timeframe with Century Link/Lumen .	Century Link	0	Pending	Pending		
CENLIN-75	Exhibit 60-14	238+56	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	+2	Level 2	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	Century Link	0	-	-	X	
CACOEC-18	Exhibit 60-15	240+23	-	-	to	-	-	-	RT	Pr_7thAve	1.0	EA	-1	Level 2	Construction Activities Include: Grading Utility located within grading limits, protect in place.	Cass County Electric Cooperative	0	-	-	X	
CENLIN-76	Exhibit 60-15	242+25	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-1	Level 4	Construction Activities Include: Storm sewer installation Upon storm sewer installation, contractor shall notify Century Link/Lumen so they can mobilize and begin vertical relocation. Contractor shall coordinate relocation timeframe with Century Link/Lumen .	Century Link	0	Pending	Pending		
CENLIN-77	Exhibit 60-15	242+25	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-1	Level 3	Construction Activities Include: Storm sewer installation Upon storm sewer installation, contractor shall notify Century Link/Lumen so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Century Link/Lumen .	Century Link	0	Pending	Pending		X
PRIELE-7	Exhibit 60-15	242+25	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-1	Level 3	Construction Activities Include: Storm sewer installation Upon storm sewer installation, contractor shall notify the private electric company so they can mobilize and begin vertical relocation. Contractor shall coordinate relocation timeframe with the private electric company .	Private Electric	0	Pending	Pending		X
XCEENE-50	Exhibit 60-15	242+25	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-1	Level 3	Construction Activities Include: Storm sewer installation Upon storm sewer installation, contractor shall notify the Xcel Energy so they can mobilize and begin vertical adjustment. Contractor shall coordinate vertical adjustment timeframe with the Xcel Energy .	Xcel Energy	0	Pending	Pending		X
CACOEC-19	Exhibit 60-15	242+76	-	-	to	-	-	-	RT	Pr_7thAve	1.0	EA	-1	Level 2	Construction Activities Include: Grading Utility located within grading limits, protect in place.	Cass County Electric Cooperative	0	-	-	X	
MIDCO-50	Exhibit 60-15 to 60-16	243+49	-	-	to	248+36	-	-	RT	Pr_7thAve	487.0	FT	-2	Level 2	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	Mid-Continent Cable	0	-	-	X	
CACOEC-20	Exhibit 60-15	245+25	-	-	to	-	-	-	RT	Pr_7thAve	1.0	EA	-1	Level 2	Construction Activities Include: Grading Utility located within grading limits, protect in place.	Cass County Electric Cooperative	0	-	-	X	
CENLIN-79	Exhibit 60-15	245+44	-	-	to	245+67	-	-	LT	Pr_7thAve	23.0	FT	+1	Level 2	Construction Activities Include: Paving Utility located below proposed pavement, protect in place.	Century Link	0	-	-	X	

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		Sta.	Offset (FT)	RT/LT		Sta.	Offset (FT)	RT/LT												Protect in Place	Conflict
CENLIN-80	Exhibit 60-15 to 60-16	245+67	-	-	to	249+78	-	-	LT	Pr_7thAve	411.0	FT	-1/+3	Level 2	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	Century Link	0	-	-	X	
XCEENE-51	Exhibit 60-15 to 60-16	245+69	-	-	to	249+67	-	-	LT	Pr_7thAve	398.0	FT	-2	Level 2	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	Xcel Energy	0	-	-	X	
XCEENE-52	Exhibit 60-16	247+11	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-2/+3	Level 3	Construction Activities Include: Paving, storm sewer installation Upon storm sewer installation, contractor shall notify the Xcel Energy so they can mobilize and begin vertical adjustment. Contractor shall coordinate vertical adjustment timeframe with the Xcel Energy .	Xcel Energy	0	Pending	Pending		X
XCEENE-PR52.1	Exhibit 60-16	247+11	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-2/+3	Proposed Level 1	Proposed relocated line from XCEENE-52	Xcel Energy	0	-	-	X	
XCEENE-53	Exhibit 60-16	247+11	-	-	to	249+78	-	-	LT	Pr_7thAve	267.0	FT	-1/+2	Level 2	Construction Activities Include: Grading Utility located under proposed excavation, protect in place.	Xcel Energy	0	-	-	X	
CACOEC-21	Exhibit 60-16	247+75	-	-	to	-	-	-	RT	Pr_7thAve	1.0	EA	-2	Level 2	Construction Activities Include: Grading Utility located within grading limits, protect in place.	Cass County Electric Cooperative	0	-	-	X	
CENLIN-81	Exhibit 60-16	248+86	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-2/+2	Level 3	Construction Activities Include: Storm sewer installation Upon storm sewer installation, contractor shall notify Century Link/Lumen so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Century Link/Lumen .	Century Link	0	Pending	Pending		X
CENLIN-PR81.1	Exhibit 60-16	248+86	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-2/+2	Proposed Level 1	Proposed relocated line from CENLIN-81	Century Link	0	-	-	X	
XCEENE-54	Exhibit 60-16	248+86	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-2/+2	Level 3	Construction Activities Include: Storm sewer installation Upon storm sewer installation, contractor shall notify the Xcel Energy so they can mobilize and begin vertical adjustment. Contractor shall coordinate vertical adjustment timeframe with the Xcel Energy .	Xcel Energy	0	Pending	Pending		X
XCEENE-54.1	Exhibit 60-16	248+86	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-2/+2	Proposed Level 1	Proposed relocated line from XCEENE-54	Xcel Energy	0	Pending	Pending	X	
PRIELE-8	Exhibit 60-16	248+86	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-2/+2	Level 3	Construction Activities Include: Storm sewer installation Upon storm sewer installation, contractor shall notify the private electric company so they can mobilize and begin vertical relocation. Contractor shall coordinate relocation timeframe with the private electric company .	Private Electric	0	Pending	Pending		X
CENLIN-82	Exhibit 60-16	248+86	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-2/+2	Level 4	Construction Activities Include: Storm sewer installation Upon storm sewer installation, contractor shall notify Century Link/Lumen so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Century Link/Lumen .	Century Link	0	Pending	Pending		
CENLIN-83	Exhibit 60-16	249+88	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-2/+1	Level 4	Construction Activities Include: Storm sewer installation Upon storm sewer installation, contractor shall notify Century Link/Lumen so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Century Link/Lumen .	Century Link	0	Pending	Pending		
CACOEC-22	Exhibit 60-16	250+08	-	-	to	-	-	-	RT	Pr_7thAve	1.0	EA	-1	Level 2	Construction Activities Include: Grading Utility located within grading limits, protect in place.	Cass County Electric Cooperative	0	-	-	X	
XCEENE-55	Exhibit 60-16	250+56	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-1/+1	Level 2	Construction Activities Include: Watermain installation Utility crosses proposed watermain, protect in place.	Xcel Energy	0	-	-	X	
CENLIN-84	Exhibit 60-16	250+56	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-1/+1	Level 2	Construction Activities Include: Watermain installation Utility crosses proposed watermain, protect in place.	Century Link	0	-	-	X	

Utility Coordination Table Appendix A of SP 631(24)

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UE ID# UR ID# PR ID#	Utility Coordination Exhibits	Beginning Point			to	Ending Point			LT/RT or Crossing or Point Location	Roadway (Alignment/ Chain)	Approx. Qty	Unit	Max Excavation Cut (-) / Fill (+) Feet	Encounter Level	Comments	Utility Company	Type of Facility	After Notification - Time For Utility to Mobilize (D = Working Day, W = Week)	Estimated Time to Complete Relocation (D = Working Day, W = Week, H = Hours)	UTILITY ENCOUNTER TYPE (UE)	
		Sta.	Offset (FT)	RT/LT		Sta.	Offset (FT)	RT/LT												Protect in Place	Conflict
XCEENE-56	Exhibit 60-16	250+56	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-1/+1	**Level 2**	Construction Activities Include: Watermain installation Utility crosses proposed watermain, protect in place.	Xcel Energy	0	-	-	X	
CENLIN-85	Exhibit 60-16	251+28	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-2	**Level 2**	Construction Activities Include: Paving Utility located below proposed pavement, protect in place.	Century Link	0	-	-	X	
CENLIN-86	Exhibit 60-16	251+74	-	-	to	252+26	-	-	RT	Pr_7thAve	52.0	FT	-2	**Level 2**	Construction Activities Include: Paving Utility located below proposed pavement, protect in place.	Century Link	0	-	-	X	
702COM-13	Exhibit 60-16	251+75	-	-	to	252+32	-	-	RT	Pr_7thAve	57.0	FT	-2	**Level 2**	Construction Activities Include: Paving Utility located below proposed pavement, protect in place.	702 Communications	0	-	-	X	
MIDCO-51	Exhibit 60-16	251+76	-	-	to	252+31	-	-	RT	Pr_7thAve	55.0	FT	-2	**Level 2**	Construction Activities Include: Paving Utility located below proposed pavement, protect in place.	Mid-Continent Cable	0	-	-	X	
CACOEC-23	Exhibit 60-16	251+77	-	-	to	252+20	-	-	RT	Pr_7thAve	43.0	FT	-2	**Level 2**	Construction Activities Include: Paving Utility located below proposed pavement, protect in place.	Cass County Electric Cooperative	0	-	-	X	
CENLIN-87	Exhibit 60-16 to 60-17	252+26	-	-	to	255+23	-	-	RT	Pr_7thAve	297.0	FT	-1/+3	**Level 2**	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	Century Link	0	-	-	X	
PRIELE-9	Exhibit 60-16	252+50	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-2	**Level 2**	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	Private Electric	0	-	-	X	
702COM-14	Exhibit 60-16 to 60-17	252+95	-	-	to	254+99	-	-	RT	Pr_7thAve	204.0	FT	-1/+1	**Level 2**	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	702 Communications	0	-	-	X	
702COM-15	Exhibit 60-17	254+15	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	+2	**Level 2**	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	702 Communications	0	-	-	X	
CENLIN-88	Exhibit 60-17	254+16	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	+2	**Level 2**	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	Century Link	0	-	-	X	
PRIELE-10	Exhibit 60-17	254+70	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	+1	**Level 2**	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	Private Electric	0	-	-	X	
XCEENE-57	Exhibit 60-17	256+56	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-1	**Level 2**	Construction Activities Include: Watermain installation Utility crosses proposed watermain, protect in place.	Xcel Energy	0	-	-	X	
XCEENE-58	Exhibit 60-17	256+56	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-1	**Level 2**	Construction Activities Include: Watermain installation Utility crosses proposed watermain, protect in place.	Xcel Energy	0	-	-	X	
CENLIN-89	Exhibit 60-17	256+56	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-1	**Level 2**	Construction Activities Include: Watermain installation Utility crosses proposed watermain, protect in place.	Century Link	0	-	-	X	
CENLIN-90	Exhibit 60-17	256+75	-	-	to	258+02	-	-	RT	Pr_7thAve	127.0	FT	-1/+1	**Level 2**	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	Century Link	0	-	-	X	

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		Sta.	Offset (FT)	RT/LT		Sta.	Offset (FT)	RT/LT												Protect in Place	Conflict
702COM-16	Exhibit 60-17	256+75	-	-	to	257+89	-	-	RT	Pr_7thAve	114.0	FT	-1/+1	**Level 2**	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	702 Communications	0	-	-	X	
MIDCO-52	Exhibit 60-17	257+96	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-2	**Level 2**	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	Mid-Continent Cable	0	-	-	X	
CENLIN-91	Exhibit 60-17 to 60-18	258+80	-	-	to	262+11	-	-	RT	Pr_7thAve	331.0	FT	-1/+1	**Level 2**	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	Century Link	0	-	-	X	
702COM-17	Exhibit 60-17 to 60-18	259+00	-	-	to	261+97	-	-	RT	Pr_7thAve	297.0	FT	-1/+1	**Level 2**	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	702 Communications	0	-	-	X	
MIDCO-53	Exhibit 60-17 to 60-18	259+04	-	-	to	262+42	-	-	RT	Pr_7thAve	338.0	FT	-1/+2	**Level 2**	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	Mid-Continent Cable	0	-	-	X	
MIDCO-54	Exhibit 60-17 to 60-18	259+04	-	-	to	262+42	-	-	RT	Pr_7thAve	338.0	FT	-1/+2	**Level 2**	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	Mid-Continent Cable	0	-	-	X	
MIDCO-55	Exhibit 60-17 to 60-18	259+07	-	-	to	262+42	-	-	RT	Pr_7thAve	335.0	FT	-1/+2	**Level 2**	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	Mid-Continent Cable	0	-	-	X	
CENLIN-92	Exhibit 60-17	259+41	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-1	**Level 2**	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	Century Link	0	-	-	X	
CACOEC-24	Exhibit 60-17	260+18	-	-	to	-	-	-	RT	Pr_7thAve	1.0	EA	-1	**Level 2**	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	Cass County Electric Cooperative	0	-	-	X	
PRIELE-13	Exhibit 60-17 to 60-18	260+18	-	-	to	262+50	-	-	RT	Pr_7thAve	232.0	FT	-1/+1	**Level 2**	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	Private Electric	0	-	-	X	
CACOEC-25	Exhibit 60-18	261+58	-	-	to	-	-	-	RT	Pr_7thAve	1.0	EA	-1	**Level 2**	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	Cass County Electric Cooperative	0	-	-	X	
CACOEC-26	Exhibit 60-18	261+77	-	-	to	-	-	-	RT	Pr_7thAve	1.0	EA	-1	**Level 2**	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	Cass County Electric Cooperative	0	-	-	X	
702COM-18	Exhibit 60-18	261+98	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-1/+1	**Level 2**	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	702 Communications	0	-	-	X	
PRIELE-14	Exhibit 60-18	262+25	-	-	to	262+48	-	-	RT	Pr_7thAve	23.0	FT	-1/+1	**Level 2**	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	Private Electric	0	-	-	X	
MIDCO-56	Exhibit 60-18	262+41	-	-	to	262+54	-	-	RT	Pr_7thAve	13.0	FT	-1	**Level 2**	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	Mid-Continent Cable	0	-	-	X	
CONCOM-6	Exhibit 60-20	316+17	-	-	to	-	-	-	LT	Pr_12thAve	1.0	EA	-2/+1	**Level 2**	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	Consolidated Communications	0	-	-	X	

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		Sta.	Offset (FT)	RT/LT		Sta.	Offset (FT)	RT/LT												Protect in Place	Conflict
CONCOM-7	Exhibit 60-20	316+17	-	-	to	-	-	-	RT	Pr_12thAve	1.0	EA	-2/+1	Level 2	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	Consolidated Communications	0	-	-	X	
MIDCO-57	Exhibit 60-3	115+36	-	-	to	-	-	-	LT	Pr_9thSt	1.0	EA	+4	Level 3	Construction Activities Include: Grading Upon establishment of finish grade, contractor shall coordinate vertical adjustment of utility vault with Midco.	Mid-Continent Cable	0	Pending	Pending		X
MIDCO-PR57.1	Exhibit 60-3	115+36	-	-	to	-	-	-	LT	Pr_9thSt	1.0	EA	+4	Proposed Level 1	Proposed relocated vault from MIDCO-57	Mid-Continent Cable	0	-	-	X	
MIDCO-58	Exhibit 60-3	118+64	-	-	to	-	-	-	LT	Pr_9thSt	1.0	EA	+4	Level 4	Construction Activities Include: Sidewalk Paving, Grading Contractor shall notify Midco after topsoil has been stripped and coordinate vault relocation with Midco.	Mid-Continent Cable	0	Pending	Pending		
MIDCO-PR58.1	Exhibit 60-3	118+64	-	-	to	-	-	-	LT	Pr_9thSt	1.0	EA	+4	Proposed Level 1	Proposed relocated vault location from MIDCO-58 to be determined	Mid-Continent Cable	0	-	-	X	
XCEENE-59	Exhibit 60-3	120+10	-	-	to	-	-	-	LT	Pr_9thSt	1.0	EA	+2	Level 3	Construction Activities Include: Grading Upon establishment of finish grade, contractor shall coordinate vertical adjustment of utility vault with Xcel Energy.	Xcel Energy	0	Pending	Pending		X
XCEENE-PR59.1	Exhibit 60-3	120+10	-	-	to	-	-	-	LT	Pr_9thSt	1.0	EA	+2	Proposed Level 1	Proposed relocated vault location from XCEENE-59	Xcel Energy	0	-	-	X	
MIDCO-59	Exhibit 60-5	128+39	-	-	to	-	-	-	LT	Pr_9thSt	1.0	EA	+2	Level 4	Construction Activities Include: Paving Once pavement is removed, Contractor shall notify Midco so they can mobilize and begin relocation. Contractor shall coordinate relocation timeframe with Midco.	Mid-Continent Cable	0	Pending	Pending		
MIDCO-PR59.1	Exhibit 60-5	128+39	-	-	to	-	-	-	LT	Pr_9thSt	1.0	EA	+2	Proposed Level 1	Proposed relocated vault location from MIDCO-59 to be determined	Mid-Continent Cable	0	-	-	X	
MIDCO-60	Exhibit 60-5	128+40	-	-	to	-	-	-	RT	Pr_9thSt	1.0	EA	-1	Level 3	Construction Activities Include: Grading Upon establishment of finish grade, contractor shall coordinate vertical adjustment of utility vault with Midco.	Mid-Continent Cable	0	Pending	Pending		X
MIDCO-PR60.1	Exhibit 60-5	128+40	-	-	to	-	-	-	RT	Pr_9thSt	1.0	EA	-1	Proposed Level 1	Proposed relocated vault location from MIDCO-60	Mid-Continent Cable	0	-	-	X	
MIDCO-61	Exhibit 60-5	128+43	-	-	to	-	-	-	RT	Pr_9thSt	1.0	EA	-1	Level 3	Construction Activities Include: Grading Upon establishment of finish grade, contractor shall coordinate vertical adjustment of utility vault with Midco.	Mid-Continent Cable	0	Pending	Pending		X
MIDCO-PR61.1	Exhibit 60-5	128+43	-	-	to	-	-	-	RT	Pr_9thSt	1.0	EA	-1	Proposed Level 1	Proposed relocated vault location from MIDCO-61	Mid-Continent Cable	0	-	-	X	
CENLIN-93	Exhibit 60-5	128+45	-	-	to	-	-	-	RT	Pr_9thSt	1.0	EA	-1	Level 3	Construction Activities Include: Grading Upon establishment of finish grade, contractor shall coordinate vertical adjustment of utility vault with Century Link/Lumen.	Century Link	0	Pending	Pending		X
CENLIN-PR93.1	Exhibit 60-5	128+45	-	-	to	-	-	-	RT	Pr_9thSt	1.0	EA	-1	Proposed Level 1	Proposed relocated vault location from CENLIN-93	Century Link	0	-	-	X	
CACOEC-27	Exhibit 60-5	129+60	-	-	to	-	-	-	LT	Pr_9thSt	1.0	EA	-2	Level 4	Construction Activities Include: Paving Once pavement is removed, Contractor shall notify Cass County Electric so they can mobilize and remove utility vault.	Cass County Electric Cooperative	0	Pending	Pending		

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		Sta.	Offset (FT)	RT/LT		Sta.	Offset (FT)	RT/LT												Protect in Place	Conflict
CACOEC-28	Exhibit 60-6	138+80	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	0	Level 3	Construction Activities Include: Paving, storm sewer installation Once pavement is removed, Contractor shall notify Cass County Electric so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Cass County Electric.	Cass County Electric Cooperative	0	Pending	Pending		X
CACOEC-PR28.1	Exhibit 60-6	138+80	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	0	Proposed Level 1	Proposed relocated line from CACOEC-28	Cass County Electric Cooperative	0	-	-	X	
CACOEC-29	Exhibit 60-5	132+43	-	-	to	-	-	-	RT	Pr_9thSt	1.0	EA	-1	Level 4	Construction Activities Include: Paving Once pavement is removed, Contractor shall notify Cass County Electric so they can mobilize and begin relocation. Contractor shall coordinate relocation timeframe with Cass County Electric.	Cass County Electric Cooperative	0	Pending	Pending		
XCEENE-60	Exhibit 60-11	215+63	-	-	to	-	-	-	RT	Pr_7thAve	1.0	EA	-1	Level 3	Construction Activities Include: Grading Upon establishment of finish grade, contractor shall coordinate vertical adjustment of gas vault box with Xcel Energy.	Xcel Energy	0	Pending	Pending		X
XCEENE-PR60.1	Exhibit 60-11	215+63	-	-	to	-	-	-	RT	Pr_7thAve	1.0	EA	-1	Proposed Level 1	Proposed relocated vault location from XCEENE-60	Xcel Energy	0	-	-	X	
MIDCO-62	Exhibit 60-14	233+64	-	-	to	235+90	-	-	LT	Pr_7thAve	226.0	FT	-2	Level 3	Construction Activities Include: Paving, storm sewer installation Once pavement is removed, Contractor shall notify Midco so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Midco.	Mid-Continent Cable	0	Pending	Pending		X
QUEST-2	Exhibit 60-1	104+78	-	-	to	-	-	-	RT	Pr_9thSt	1.0	EA	-1	Level 2	Construction Activities Include: Grading Utility located within grading limits, protect in place.	Qwest Communications	0	-	-	X	
MIDCO-63	Exhibit 60-1	104+78	-	-	to	-	-	-	LT	Pr_9thSt	1.0	EA	+1	Level 4	Construction Activities Include: Sidewalk Paving Once pavement is removed, Contractor shall notify Midco so they can mobilize and begin relocation. Contractor shall coordinate relocation timeframe with Midco.	Mid-Continent Cable	0	Pending	Pending		
MIDCO-PR63.1	Exhibit 60-1	104+78	-	-	to	-	-	-	LT	Pr_9thSt	1.0	EA	+1	Proposed Level 1	Proposed relocated vault location from MIDCO-63 to be determined	Mid-Continent Cable	0	-	-	X	
MIDCO-64	Exhibit 60-4	124+65	-	-	to	128+45	-	-	LT	Pr_9thSt	380.0	FT	-2	Level 3	Construction Activities Include: Paving, storm sewer installation Once pavement is removed, Contractor shall notify Midco so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Midco.	Mid-Continent Cable	0	Pending	Pending		X
MIDCO-PR64.1	Exhibit 60-4	124+65	-	-	to	128+45	-	-	LT	Pr_9thSt	380.0	FT	-2	Proposed Level 1	Proposed relocated line from MIDCO-64	Mid-Continent Cable	0	-	-	X	
MIDCO-65	Exhibit 60-4	127+50	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-2	Level 3	Construction Activities Include: Storm sewer installation Once pavement is removed, Contractor shall notify Midco so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with Midco.	Mid-Continent Cable	0	Pending	Pending		X
MIDCO-66	Exhibit 60-4	128+45	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-2	Level 4	Construction Activities Include: Paving Once pavement is removed, Contractor shall notify Midco so they can mobilize and begin relocation. Contractor shall coordinate relocation timeframe with Midco.	Mid-Continent Cable	0	Pending	Pending		
MIDCO-PR66.1	Exhibit 60-4	128+45	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-2	Proposed Level 1	Proposed relocated vault location from MIDCO-66 to be determined	Mid-Continent Cable	0	-	-	X	
CACOEC-30	Exhibit 60-14	236+10	-	-	to	-	-	-	Crossing	Pr_7thAve	1.0	EA	-1/+4	Level 2	Construction Activities Include: Grading Utility located above proposed pavement, protect in place.	Cass County Electric Cooperative	0	-	-	X	
CENLIN-94	Exhibit 60-6	135+75	-	-	to	-	-	-	RT	Pr_9thSt	1.0	EA	+1	Level 3	Construction Activities Include: Grading Upon establishment of finish grade, contractor shall coordinate vertical adjustment of utility vault box with Century Link/Lumen.	Century Link	0	Pending	Pending		X

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		Sta.	Offset (FT)	RT/LT		Sta.	Offset (FT)	RT/LT												Protect in Place	Conflict
CENLIN-PR94.1	Exhibit 60-6	135+75	-	-	to	-	-	-	RT	Pr_9thSt	1.0	EA	+1	**Proposed Level 1**	Proposed relocated vault location from CENLIN-94	Century Link	0	-	-	X	
CENLIN-95	Exhibit 60-6	135+75	-	-	to	-	-	-	RT	Pr_9thSt	1.0	EA	+1	**Level 3**	Construction Activities Include: Grading Upon establishment of finish grade, contractor shall coordinate vertical adjustment of utility vault box with Century Link/Lumen.	Century Link	0	Pending	Pending		X
CENLIN-PR95.1	Exhibit 60-6	135+75	-	-	to	-	-	-	RT	Pr_9thSt	1.0	EA	+1	**Proposed Level 1**	Proposed relocated vault location from CENLIN-95	Century Link	0	-	-	X	
CENLIN-96	Exhibit 60-6	141+15	-	-	to	-	-	-	RT	Pr_9thSt	1.0	EA	-1	**Level 3**	Construction Activities Include: Grading Upon establishment of finish grade, contractor shall coordinate vertical adjustment of utility vault box with Century Link/Lumen.	Century Link	0	Pending	Pending		X
CENLIN-PR96.1	Exhibit 60-6	141+15	-	-	to	-	-	-	RT	Pr_9thSt	1.0	EA	-1	**Proposed Level 1**	Proposed relocated vault location from CENLIN-96	Century Link	0	-	-	X	
CENLIN-97	Exhibit 60-6	142+15	-	-	to	-	-	-	RT	Pr_9thSt	1.0	EA	-1	**Level 3**	Construction Activities Include: Grading Upon establishment of finish grade, contractor shall coordinate vertical adjustment of utility vault box with Century Link/Lumen.	Century Link	0	Pending	Pending		X
CENLIN-PR97.1	Exhibit 60-6	142+15	-	-	to	-	-	-	RT	Pr_9thSt	1.0	EA	-1	**Proposed Level 1**	Proposed relocated vault location from CENLIN-97	Century Link	0	-	-	X	
PRIELE-16	Exhibit 60-7	145+40	-	-	to	146+00	-	-	LT	Pr_9thSt	60.0	FT	-1	**Level 3**	Construction Activities Include: Paving Once pavement is removed, Contractor shall notify the private electric company so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe with private electric company.	Private Electric	0	Pending	Pending		X
PRIELE-PR16.1	Exhibit 60-7	145+40	-	-	to	146+00	-	-	LT	Pr_9thSt	60.0	FT	-1	**Proposed Level 1**	Proposed relocated line from PRIELE-16	Private Electric	0	-	-	X	
PRIELE-17	Exhibit 60-7	145+40	-	-	to	-	-	-	LT	Pr_9thSt	1.0	EA	-1	**Level 2**	Construction Activities Include: Grading Utility located within grading limits, protect in place.	Private Electric	0	-	-	X	
CONCOM-8	Exhibit 60-8	153+60	-	-	to	-	-	-	LT	Pr_9thSt	1.0	EA	-2	**Level 4**	Construction Activities Include: Paving Once pavement is removed, Contractor shall notify Consolidated Communications so they can mobilize and begin relocation. Contractor shall coordinate relocation timeframe with Consolidated Communications.	Consolidated Communications	0	Pending	Pending		
CONCOM-PR8.1	Exhibit 60-8	153+60	-	-	to	-	-	-	LT	Pr_9thSt	1.0	EA	-2	**Proposed Level 1**	Proposed relocated line from CONCOM-8 to be determined	Consolidated Communications	0	-	-	X	
MIDCO-68	Exhibit 60-6	136+25	-	-	to	138+10	-	-	LT	Pr_9thSt	185.0	FT	+1	**Level 3**	Construction Activities Include: Paving Once pavement is removed, Contractor shall notify midco so they can mobilize and begin vertical utility adjustment. Contractor shall coordinate adjustment timeframe Midco.	Mid-Continent Cable	0	Pending	Pending		X
MIDCO-PR68.1	Exhibit 60-6	136+25	-	-	to	138+10	-	-	LT	Pr_9thSt	185.0	FT	+1	**Proposed Level 1**	Proposed relocated line from MIDCO-68	Mid-Continent Cable	0	-	-	X	
MIDCO-69	Exhibit 60-6	138+10	-	-	to	147+75	-	-	LT	Pr_9thSt	965.0	FT	-1	**Level 4**	Construction Activities Include: Paving, storm sewer installation Once pavement is removed, Contractor shall notify Midco so they can mobilize and begin relocation. Contractor shall coordinate relocation timeframe with Midco..	Mid-Continent Cable	0	Pending	Pending		
MIDCO-PR69.1	Exhibit 60-6	138+10	-	-	to	147+75	-	-	LT	Pr_9thSt	965.0	FT	-1	**Proposed Level 1**	Proposed relocated line from MIDCO-69 to be deterimined	Mid-Continent Cable	0	-	-	X	

Utility Coordination Table Appendix A of SP 631(24)

TMA--SU-FXP-8-992(045) PCN 23537

UE ID# UR ID# PR ID#	Utility Coordination Exhibits	Beginning Point			to	Ending Point			LT/RT or Crossing or Point Location	Roadway (Alignment/ Chain)	Approx. Qty	Unit	Max Excavation Cut (-) / Fill (+) Feet	Encounter Level	Comments	Utility Company	Type of Facility	After Notification - Time For Utility to Mobilize (D = Working Day, W = Week)	Estimated Time to Complete Relocation (D = Working Day, W = Week, H = Hours)	UTILITY ENCOUNTER TYPE (UE)	
		Sta.	Offset (FT)	RT/LT		Sta.	Offset (FT)	RT/LT												Protect in Place	Conflict
CACOEC-32	Exhibit 60-7	143+60	-	-	to	-	-	-	LT	Pr_9thSt	1.0	EA	+1	Level 2	Construction Activities Include: Grading Utility located within grading limits, protect in place.	Cass County Electric Cooperative	0	-	-	X	
PRIELE-18	Exhibit 60-14 to 60-15	237+75	-	-	to	240+25	-	-	RT	Pr_7thAve	250.0	FT	+2	Level 2	Construction Activities Include: Grading Utility located below proposed excavation, protect in place.	Private Electric	0	-	-	X	
CIWEFA-1	Exhibit 60-3	120+00	-	-	to	-	-	-	LT	Pr_9thSt	1.0	EA	+3	Level 3	Construction Activities Include: Grading Upon establishment of finish grade, contractor shall coordinate vertical adjustment of utility vault box with the City of West Fargo	City of West Fargo	0	Pending	Pending		X
CIWEFA-2	Exhibit 60-4	128+10	-	-	to	-	-	-	LT	Pr_9thSt	1.0	EA	+2	Level 4	Construction Activities Include: Paving Once pavement is removed, Contractor shall notify the City of West Fargo so they can mobilize and begin relocation. Contractor shall coordinate relocation timeframe with the City.	City of West Fargo	0	Pending	Pending		
CIWEFA-3	Exhibit 60-5	128+60	-	-	to	-	-	-	LT	Pr_9thSt	1.0	EA	+2	Level 4	Construction Activities Include: Paving Once pavement is removed, Contractor shall notify the City of West Fargo so they can mobilize and begin relocation. Contractor shall coordinate relocation timeframe with the City.	City of West Fargo	0	Pending	Pending		
CIWEFA-4	Exhibit 60-6	137+75	-	-	to	-	-	-	LT	Pr_9thSt	1.0	EA	-1	Level 4	Construction Activities Include: Paving Once pavement is removed, Contractor shall notify the City of West Fargo so they can mobilize and begin relocation. Contractor shall coordinate relocation timeframe with the City.	City of West Fargo	0	Pending	Pending		
CIWEFA-5	Exhibit 60-6	141+80	-	-	to	-	-	-	LT	Pr_9thSt	1.0	EA	+1	Level 4	Construction Activities Include: Paving Once pavement is removed, Contractor shall notify the City of West Fargo so they can mobilize and begin relocation. Contractor shall coordinate relocation timeframe with the City.	City of West Fargo	0	Pending	Pending		
CIWEFA-6	Exhibit 60-10	210+70	-	-	to	-	-	-	RT	Pr_7thAve	1.0	EA	+5	Level 4	Construction Activities Include: Paving Once pavement is removed, Contractor shall notify the City of West Fargo so they can mobilize and begin relocation. Contractor shall coordinate relocation timeframe with the City.	City of West Fargo	0	Pending	Pending		
CIWEFA-7	Exhibit 60-11	215+25	-	-	to	-	-	-	RT	Pr_7thAve	1.0	EA	+3	Level 4	Construction Activities Include: Paving Once pavement is removed, Contractor shall notify the City of West Fargo so they can mobilize and begin relocation. Contractor shall coordinate relocation timeframe with the City.	City of West Fargo	0	Pending	Pending		
CIWEFA-8	Exhibit 60-12	219+25	-	-	to	-	-	-	RT	Pr_7thAve	1.0	EA	+3	Level 4	Construction Activities Include: Paving Once pavement is removed, Contractor shall notify the City of West Fargo so they can mobilize and begin relocation. Contractor shall coordinate relocation timeframe with the City.	City of West Fargo	0	Pending	Pending		
CIWEFA-9	Exhibit 60-14	234+25	-	-	to	-	-	-	RT	Pr_7thAve	1.0	EA	+3	Level 4	Construction Activities Include: Paving Once pavement is removed, Contractor shall notify the City of West Fargo so they can mobilize and begin relocation. Contractor shall coordinate relocation timeframe with the City.	City of West Fargo	0	Pending	Pending		
CIWEFA-10	Exhibit 60-14	233+60	-	-	to	-	-	-	LT	Pr_7thAve	1.0	EA	+1	Level 3	Construction Activities Include: Paving Once pavement is removed, Contractor shall notify the City of West Fargo so they can mobilize and begin relocation. Contractor shall coordinate relocation timeframe with the City.	City of West Fargo	0	Pending	Pending		X
CIWEFA-11	Exhibit 60-14	129+50	-	-	to	-	-	-	LT	Pr_7thAve	1.0	EA	+1	Level 4	Construction Activities Include: Paving Once pavement is removed, Contractor shall notify the City of West Fargo so they can mobilize and begin relocation. Contractor shall coordinate relocation timeframe with the City.	City of West Fargo	0	Pending	Pending		
CENLIN-98	Exhibit 60-11	210+40	-	-	to	-	-	-	LT	Pr_7thAve	1.0	EA	+1	Level 4	Construction Activities Include: Paving Once pavement is removed, Contractor shall notify the Century Linik/Lumen so they can mobilize and begin relocation. Contractor shall coordinate relocation timeframe with Century Linik/Lumen.	Century Link	0	Pending	Pending		
CENLIN-PR98.1	Exhibit 60-11	210+40	-	-	to	-	-	-	LT	Pr_7thAve	1.0	EA	+1	Proposed Level 1	Proposed relocated vault location from CENLIN-98 to be deterimined	Century Link	0	-	-	X	
XCEENE-62	Exhibit 60-7	143+10	-	-	to	-	-	-	LT	Pr_7thAve	1.0	EA	+1	Level 4	Construction Activities Include: Sidewalk paving Once pavement is removed, Contractor shall notify the Xcel Energy so they can mobilize and begin relocation. Contractor shall coordinate relocation timeframe with Xcel Energy.	Xcel Energy	0	Pending	Pending		

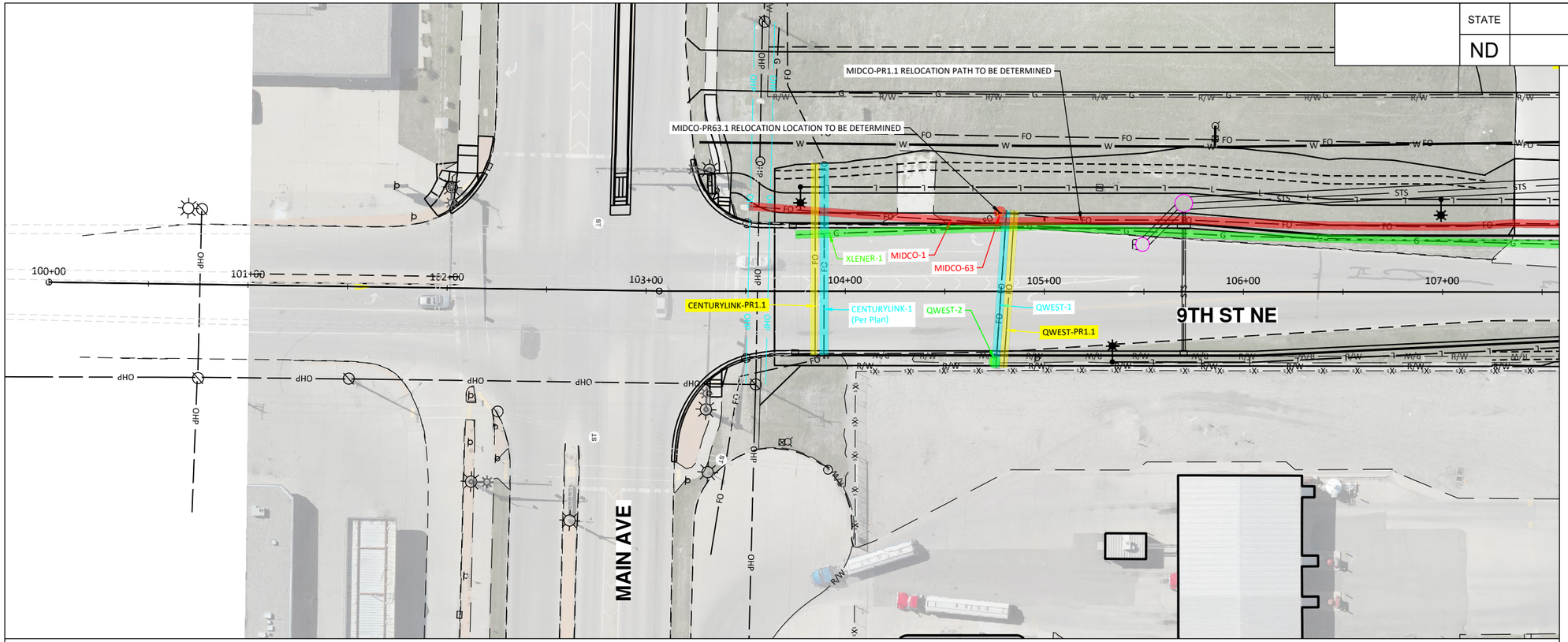
Utility Coordination Table Appendix A of SP 631(24)

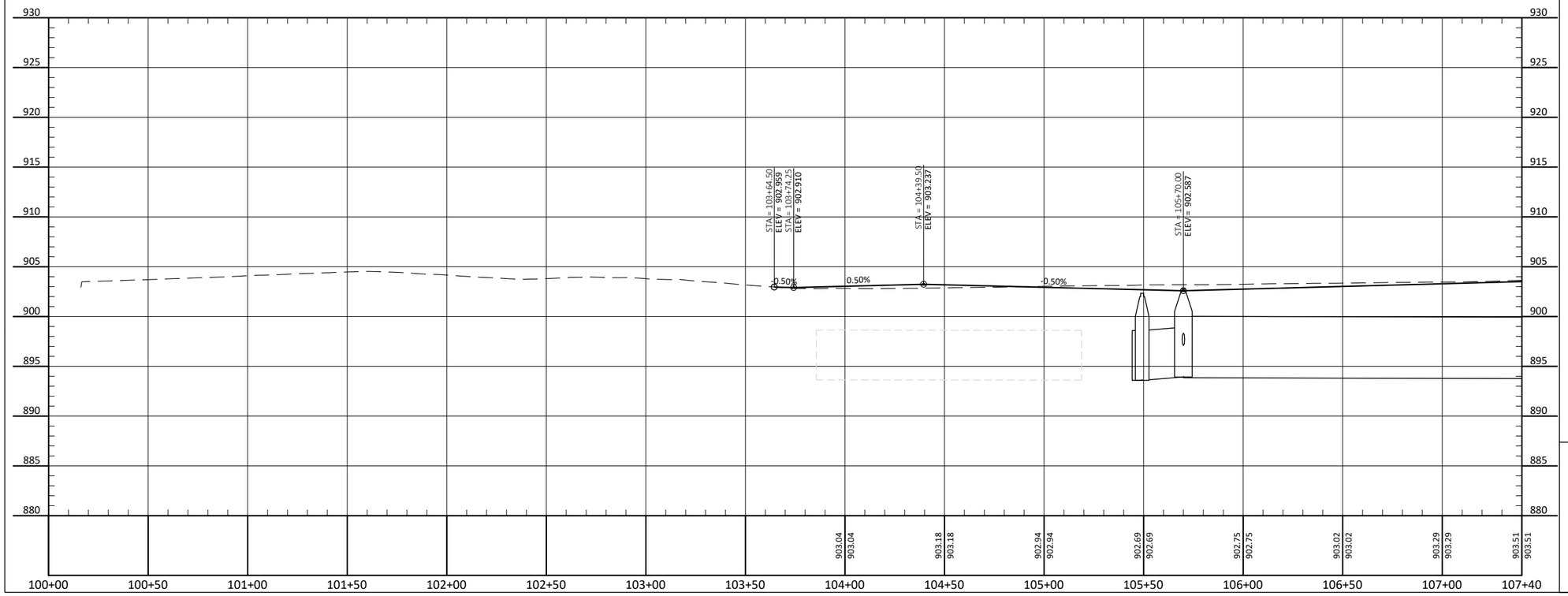
TMA--SU-FXP-8-992(045) PCN 23537

UE ID# UR ID# PR ID#	Utility Coordination Exhibits	Beginning Point			to	Ending Point			LT/RT or Crossing or Point Location	Roadway (Alignment/ Chain)	Approx. Qty	Unit	Max Excavation Cut (-) / Fill (+) Feet	Encounter Level	Comments	Utility Company	Type of Facility	After Notification - Time For Utility to Mobilize (D = Working Day, W = Week)	Estimated Time to Complete Relocation (D = Working Day, W = Week, H = Hours)	UTILITY ENCOUNTER TYPE (UE)	
		Sta.	Offset (FT)	RT/LT		Sta.	Offset (FT)	RT/LT												Protect in Place	Conflict
XCEENE-PR62.1	Exhibit 60-7	143+10	-	-	to	-	-	-	LT	Pr_7thAve	1.0	EA	+1	Proposed Level 1	Proposed relocated vault location from XCEENE-62 to be deterimined	Xcel Energy	0	-	-	X	
CIWEFA-12	Exhibit 60-8	155+20	-	-	to	-	-	-	LT	Pr_9thSt	1.0	EA	+1	Level 4	Construction Activities Include: Paving Once pavement is removed, Contractor shall notify the City of West Fargo so they can mobilize and begin relocation. Contractor shall coordinate relocation timeframe with the City.	City of West Fargo	0	Pending	Pending		
CENLIN-99	Exhibit 60-7	145+48	-	-	to	-	-	-	RT	Pr_9thSt	1.0	EA	-1	Level 3	Construction Activities Include: Grading Upon establishment of finish grade, contractor shall coordinate vertical adjustment of utility vault box with Century Link/Lumen.	Century Link	0	Pending	Pending		X
CENLIN-PR99.1	Exhibit 60-7	145+48	-	-	to	-	-	-	RT	Pr_9thSt	1.0	EA	-1	Proposed Level 1	Proposed relocated vault location from CENLIN-99	Century Link	0	-	-	X	
CIWEFA-13	Exhibit 60-19	311+80	-	-	to	-	-	-	RT	Pr_12thAve	1.0	EA	+3	Level 4	Construction Activities Include: Paving Once pavement is removed, Contractor shall notify the City of West Fargo so they can mobilize and begin relocation. Contractor shall coordinate relocation timeframe with the City.	City of West Fargo	0	Pending	Pending		
CIWEFA-14	Exhibit 60-8	153+75	-	-	to	-	-	-	LT	Pr_9thSt	1.0	EA	+3	Level 4	Construction Activities Include: Paving Once pavement is removed, Contractor shall notify the City of West Fargo so they can mobilize and begin relocation. Contractor shall coordinate relocation timeframe with the City.	City of West Fargo	0	Pending	Pending		
CENLIN-100	Exhibit 60-16	247+05	-	-	to	-	-	-	LT	Pr_7thAve	1.0	EA	+1	Level 2	Construction Activities Include: Watermain installation Utility crosses proposed watermain, protect in place.	Century Link	0	-	-	X	
XCEENE-64	Exhibit 60-16	247+05	-	-	to	-	-	-	LT	Pr_7thAve	1.0	EA	+1	Level 2	Construction Activities Include: Watermain installation Utility crosses proposed watermain, protect in place.	Xcel Energy	0	-	-	X	
CENLIN-101	Exhibit 60-16	252+10	-	-	to	-	-	-	LT	Pr_7thAve	1.0	EA	0	Level 2	Construction Activities Include: Watermain installation Utility crosses proposed watermain, protect in place.	Century Link	0	-	-	X	
XCEENE-65	Exhibit 60-16	252+10	-	-	to	-	-	-	LT	Pr_7thAve	1.0	EA	0	Level 2	Construction Activities Include: Watermain installation Utility crosses proposed watermain, protect in place.	Xcel Energy	0	-	-	X	
CENLIN-102	Exhibit 60-17	254+60	-	-	to	-	-	-	LT	Pr_7thAve	1.0	EA	0	Level 2	Construction Activities Include: Watermain installation Utility crosses proposed watermain, protect in place.	Century Link	0	-	-	X	
XCEENE-66	Exhibit 60-17	254+60	-	-	to	-	-	-	LT	Pr_7thAve	1.0	EA	0	Level 2	Construction Activities Include: Watermain installation Utility crosses proposed watermain, protect in place.	Xcel Energy	0	-	-	X	
XCEENE-67	Exhibit 60-17	259+60	-	-	to	-	-	-	LT	Pr_7thAve	1.0	EA	0	Level 2	Construction Activities Include: Watermain installation Utility crosses proposed watermain, protect in place.	Xcel Energy	0	-	-	X	
XCEENE-68	Exhibit 60-17	259+60	-	-	to	-	-	-	LT	Pr_7thAve	1.0	EA	0	Level 2	Construction Activities Include: Watermain installation Utility crosses proposed watermain, protect in place.	Xcel Energy	0	-	-	X	
BUNSFR-1	Exhibit 60-3	117+65	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	+3	Level 2	Construction Activities Include: Paving Utility located below proposed pavement, protect in place.	Burlington Northern Santa Fe Railway	0	-	-	X	
CACOEC-33	Exhibit 60-10	128+25	-	-	to	-	-	-	Crossing	Pr_9thSt	1.0	EA	-1/+4	Level 3	Construction Activities Include: Paving Once pavement is removed, Contractor shall notify the Cass County Electric so they can mobilize and begin relocation. Contractor shall coordinate relocation timeframe with Cass County Electric.	Cass County Electric Cooperative	0	Pending	Pending		X

Appendix B – Utility Exhibits

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-992(045)	60	1





UTILITY ENCOUNTER LEVEL DESIGNATIONS	
UTILITY ENCOUNTER LEVEL	DESCRIPTION
Level 1	Utility not affected by proposed improvements, no impacts.
Level 2	Construction activities will occur above and\or below the utility line. No relocation needed.
Level 3	Utility permanently impacted by proposed improvements and requires vertical adjustment.
Level 4	Utility permanently impacted by proposed improvements and requires complete relocation. Vertical and horizontal relocation required.
Proposed Level 1	Utility that is to be relocated by the Utility Company, and after Utility is relocated to the new location, the final Encounter Level would be that of Level 1.
Proposed Level 2	Utility that is to be relocated by the Utility Company, and after Utility is relocated to the new location, the final Encounter Level would be that of Level 2.
Abandoned	Utility line that was an encounter and is now abandoned in place. See comments for construction dispostion, removal, and/or remain in place.

N

30 0 30 60
Scale Feet

Construction - Legend
- Construction Limit
- Existing Right of Way Line
- Proposed Right of Way Line
- Existing Easement Line
- Proposed Easement Line

HOUSTON engineering, inc.

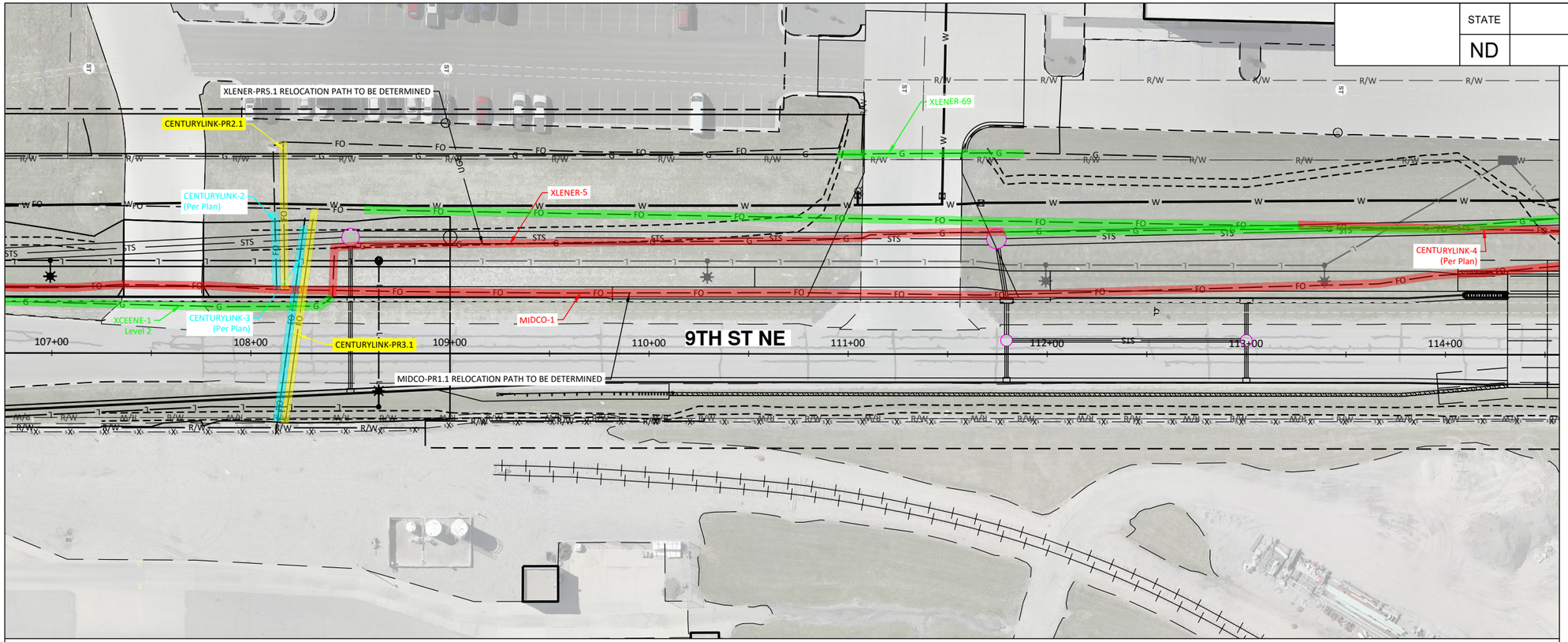
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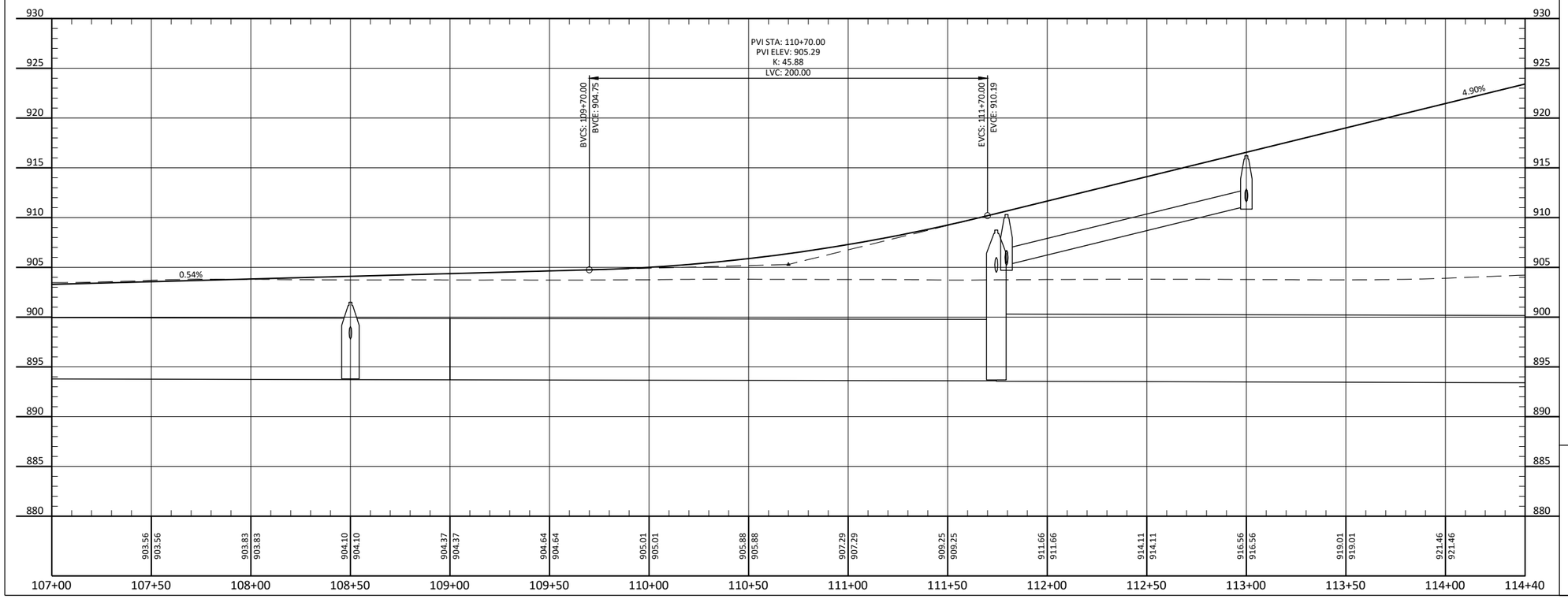
Plan & Profile
Utility Conflict Exhibits

9th St NE - Main Ave E to 12th Ave NE 7th Ave NE - 9th St NE to Near 45th St N
Sta 100+00 to 107+40

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-992(045)	60	2





UTILITY ENCOUNTER LEVEL	DESCRIPTION
Level 1	Utility not affected by proposed improvements, no impacts.
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Abandoned	Utility line that was an encounter and is now abandoned in place. See comments for construction dispostion, removal, and/or remain in place.

N

30 0 30 60
Scale Feet

Construction - Legend
- Construction Limit
- Existing Right of Way Line
- Proposed Right of Way Line
- Existing Easement Line
- Proposed Easement Line

HOUSTON engineering, inc.

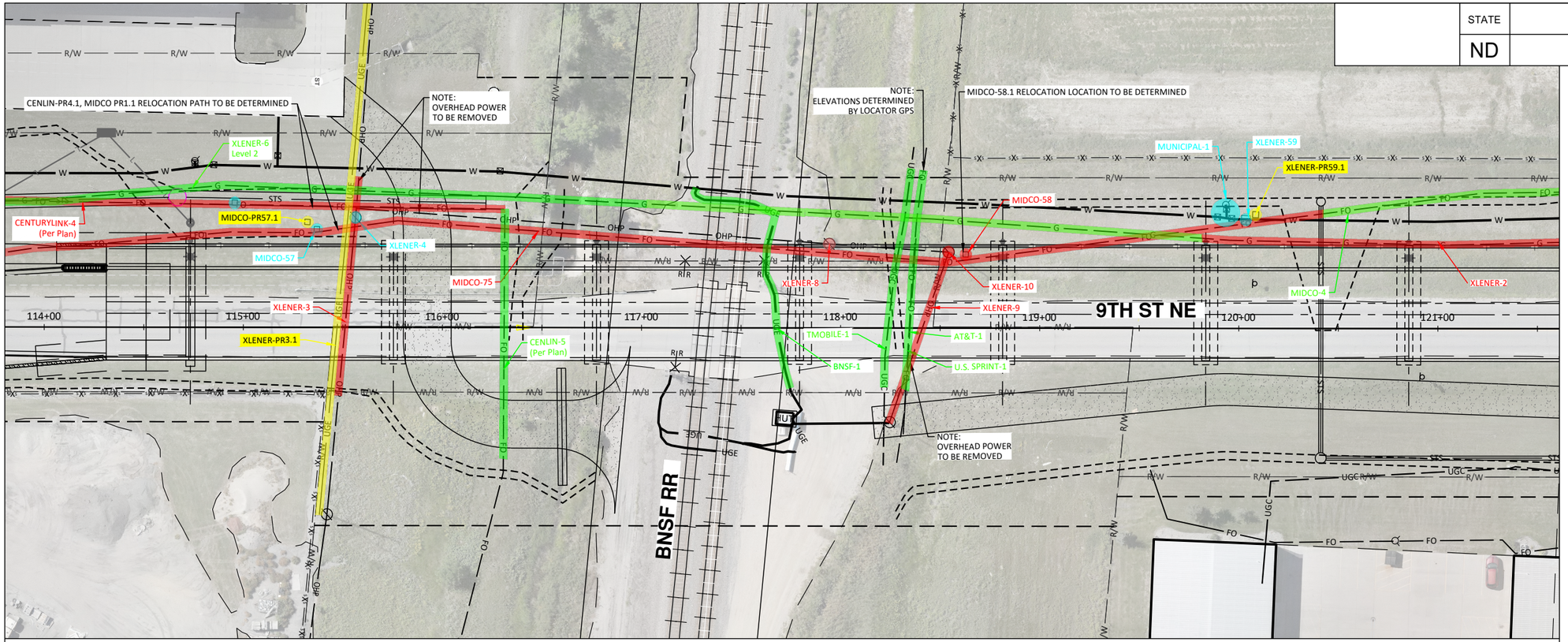
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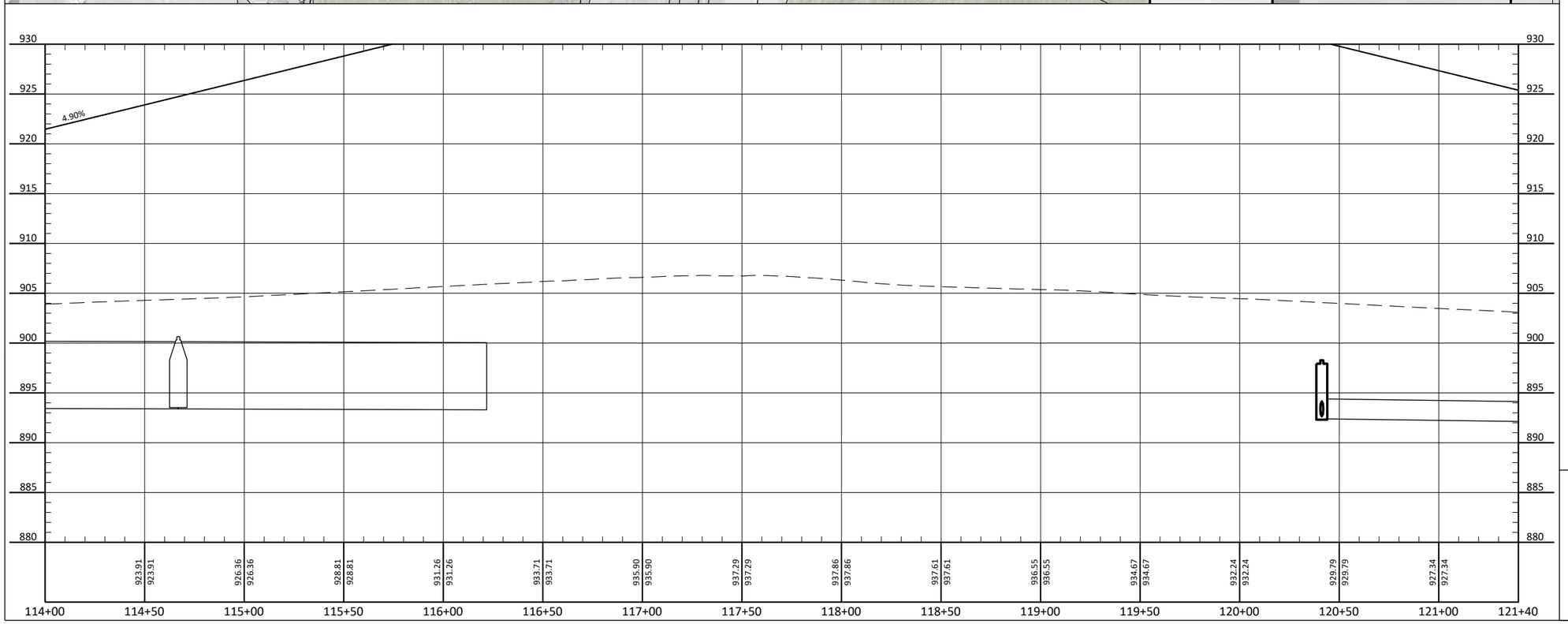
Plan & Profile
Utility Conflict Exhibits

9th St NE - Main Ave E to 12th Ave NE
7th Ave NE - 9th St NE to Near 45th St N
Sta 107+00 - 114+40

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-992(045)	60	3





UTILITY ENCOUNTER LEVEL DESIGNATIONS	
UTILITY ENCOUNTER LEVEL	DESCRIPTION
Level 1	Utility not affected by proposed improvements, no impacts.
Level 2	Construction activities will occur above and\or below the utility line. No relocation needed.
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Level 4	Utility permanently impacted by proposed improvements and requires complete relocation. Vertical and horizontal relocation required.
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Proposed Level 2	Utility that is to be relocated by the Utility Company, and after Utility is relocated to the new location, the final Encounter Level would be that of Level 2.
Abandoned	Utility line that was an encounter and is now abandoned in place. See comments for construction dispostion, removal, and/or remain in place.

Scale: 30 0 30 60 Feet

Construction - Legend
- Construction Limit
- Existing Right of Way Line
- Proposed Right of Way Line
- Existing Easement Line
- Proposed Easement Line

HOUSTON engineering, inc.

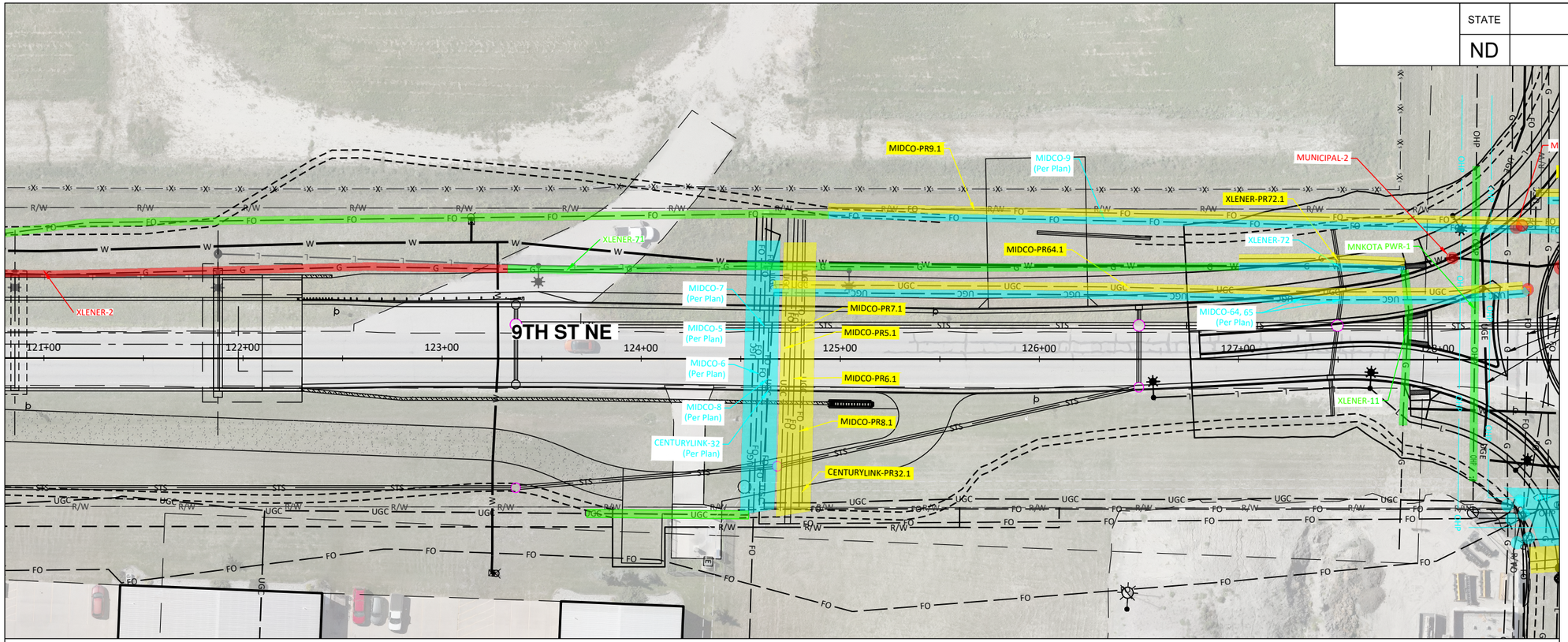
ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

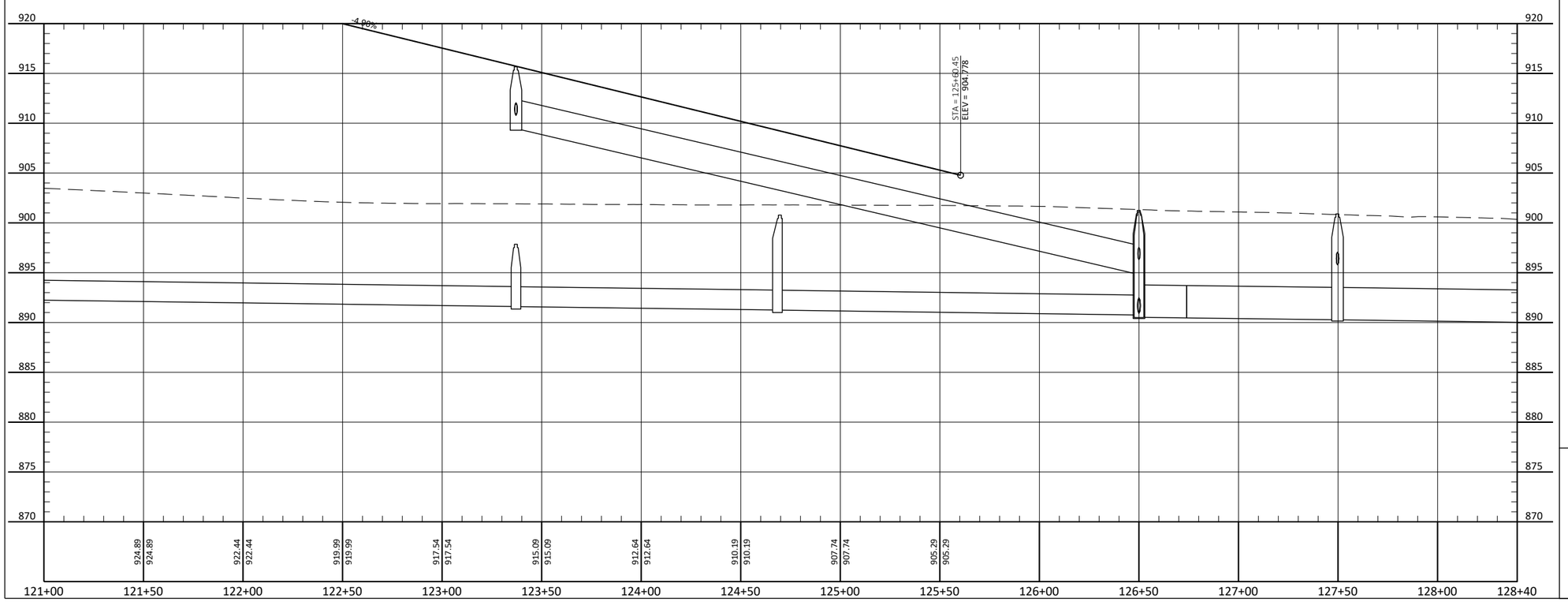
Plan & Profile
Utility Conflict Exhibits

9th St NE - Main Ave E to 12th Ave NE 7th Ave NE - 9th St NE to Near 45th St N
Sta 114+00 to 121+40

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-992(045)	60	4





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N

30 0 30 60
Scale Feet

UTILITY ENCOUNTER LEVEL DESIGNATIONS

UTILITY ENCOUNTER LEVEL	DESCRIPTION
Level 1	Utility not affected by proposed improvements, no impacts.
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Abandoned	Utility line that was an encounter and is now abandoned in place. See comments for construction dispostion, removal, and/or remain in place.

Construction - Legend
- Construction Limit
- R/W — Existing Right of Way Line
- R/W — Proposed Right of Way Line
- Existing Easement Line
- Proposed Easement Line

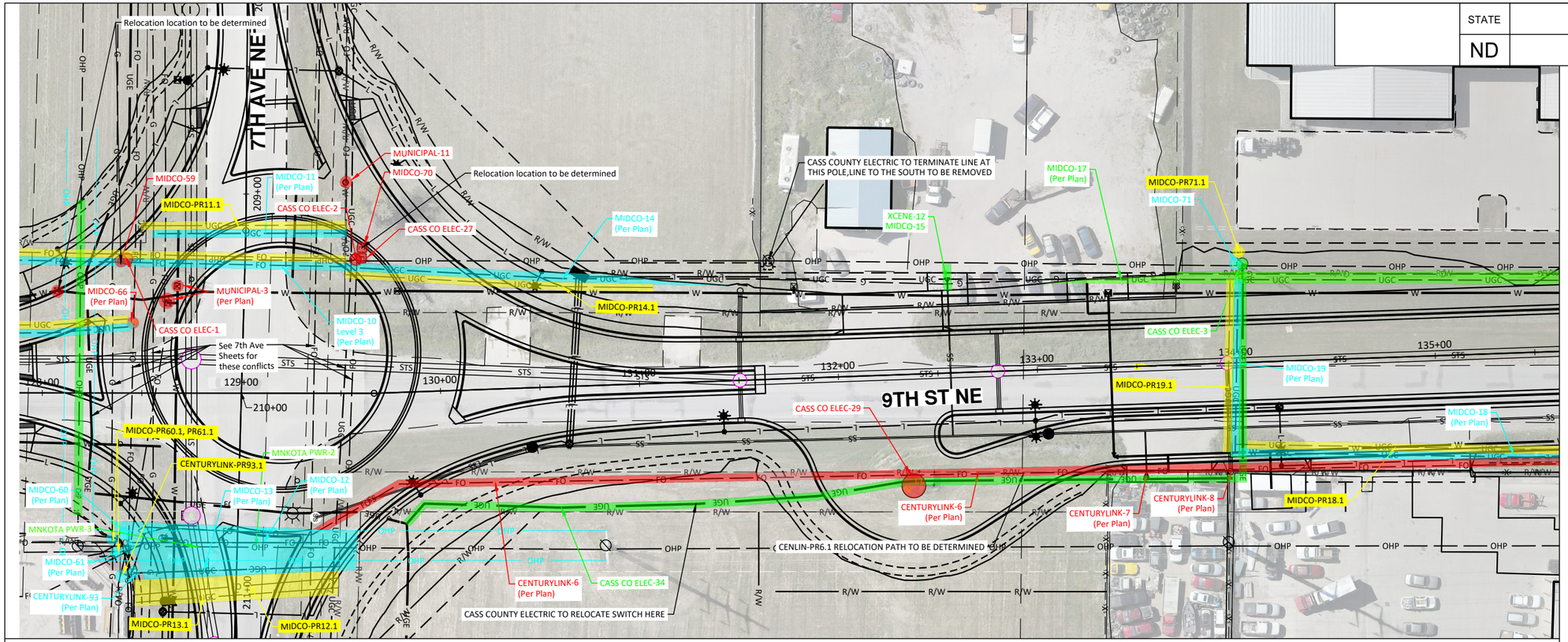
HOUSTON engineering, inc.

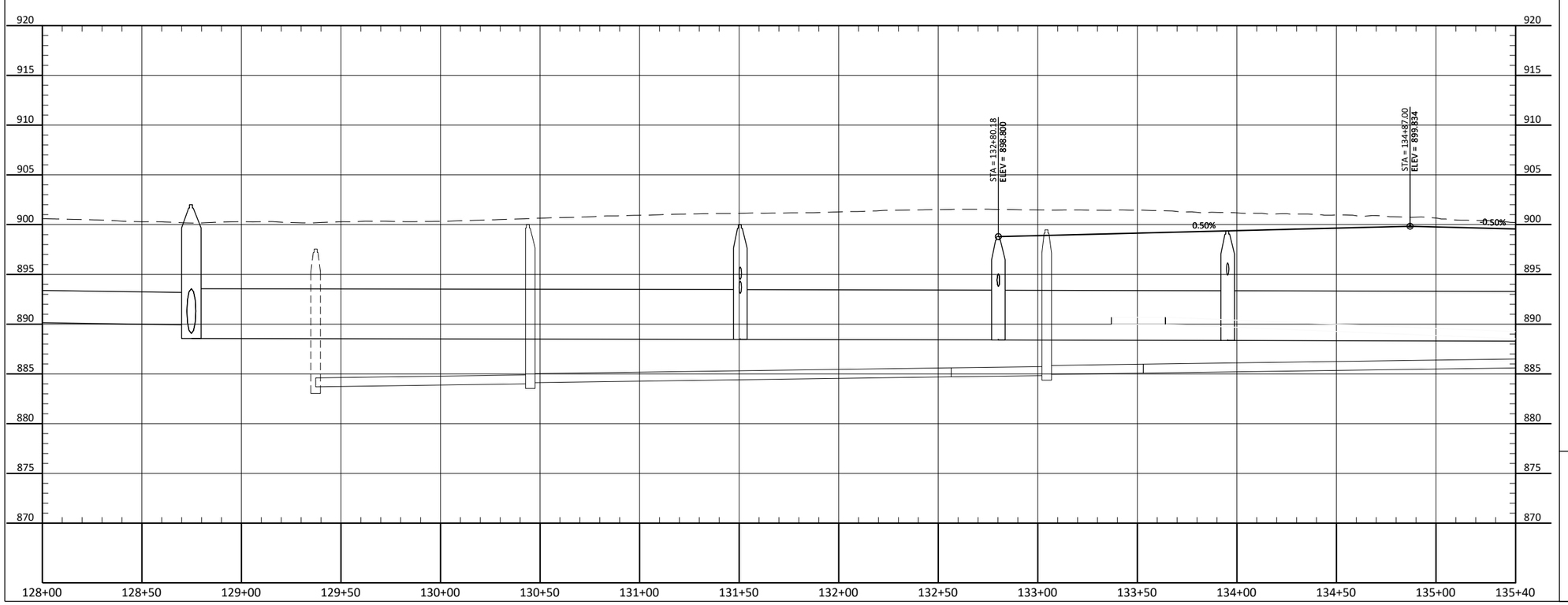
ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

Plan & Profile
Utility Conflict Exhibits

9th St NE - Main Ave E to 12th Ave NE 7th Ave NE - 9th St NE to Near 45th St N
Sta 121+00 to 128+40

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-992(045)	60	5





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UTILITY ENCOUNTER LEVEL DESIGNATIONS

UTILITY ENCOUNTER LEVEL	DESCRIPTION
Level 1	Utility not affected by proposed improvements, no impacts.
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Abandoned	Utility line that was an encounter and is now abandoned in place. See comments for construction dispostion, removal, and/or remain in place.

N

30 0 30 60
Scale Feet

Construction - Legend
- Construction Limit
- R/W — Existing Right of Way Line
- R/W — Proposed Right of Way Line
- Existing Easement Line
- Proposed Easement Line

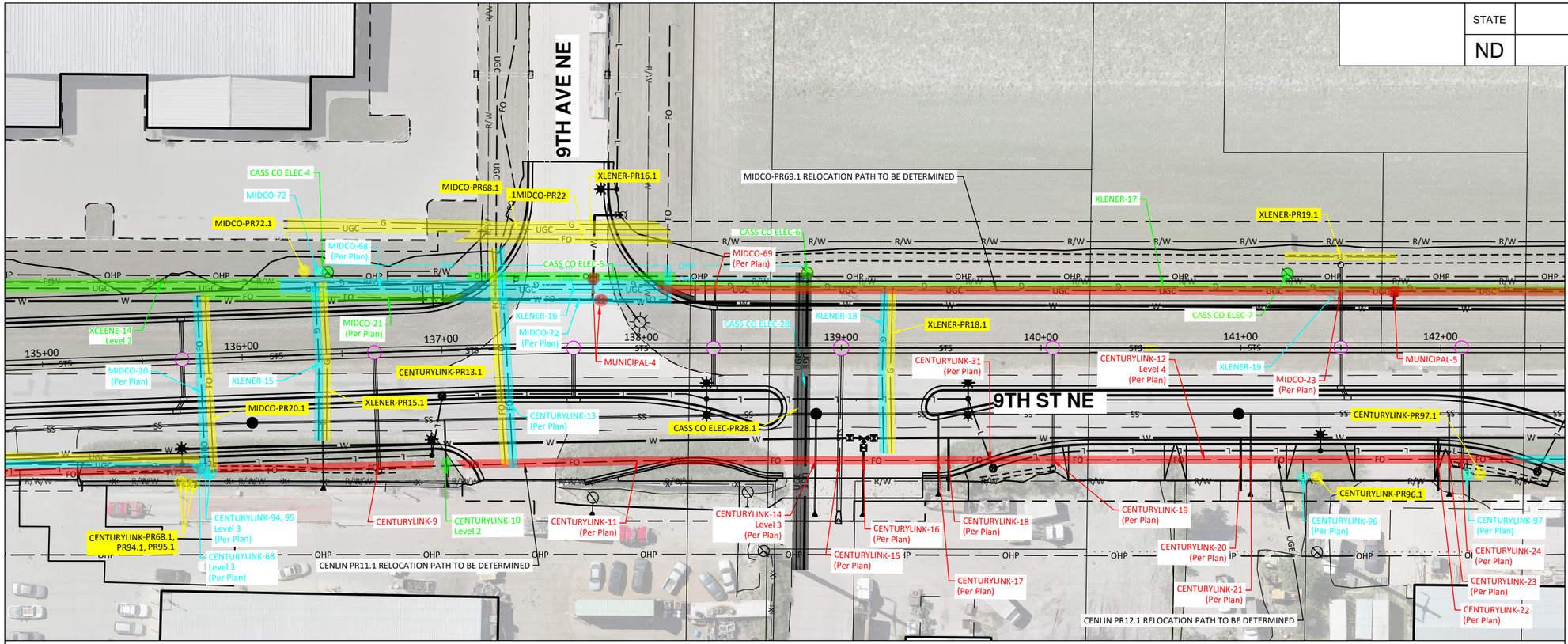
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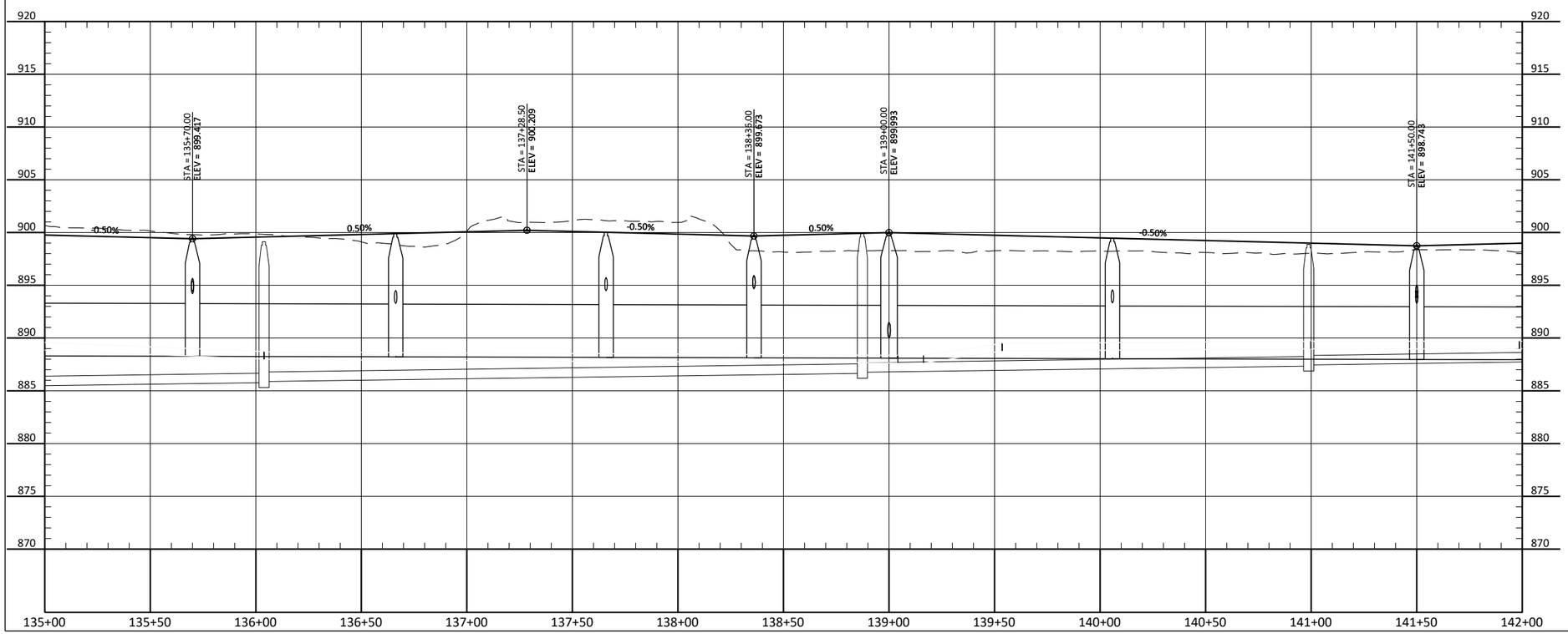
ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

Plan & Profile
Utility Conflict Exhibits

9th St NE - Main Ave E to 12th Ave NE 7th Ave NE - 9th St NE to Near 45th St N
Sta 128+00 to 135+40

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-992(045)	60	6





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N

30 0 30 60
Scale Feet

UTILITY ENCOUNTER LEVEL DESIGNATIONS	
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Construction - Legend
- Construction Limit
- Existing Right of Way Line
- Proposed Right of Way Line
- Existing Easement Line
- Proposed Easement Line

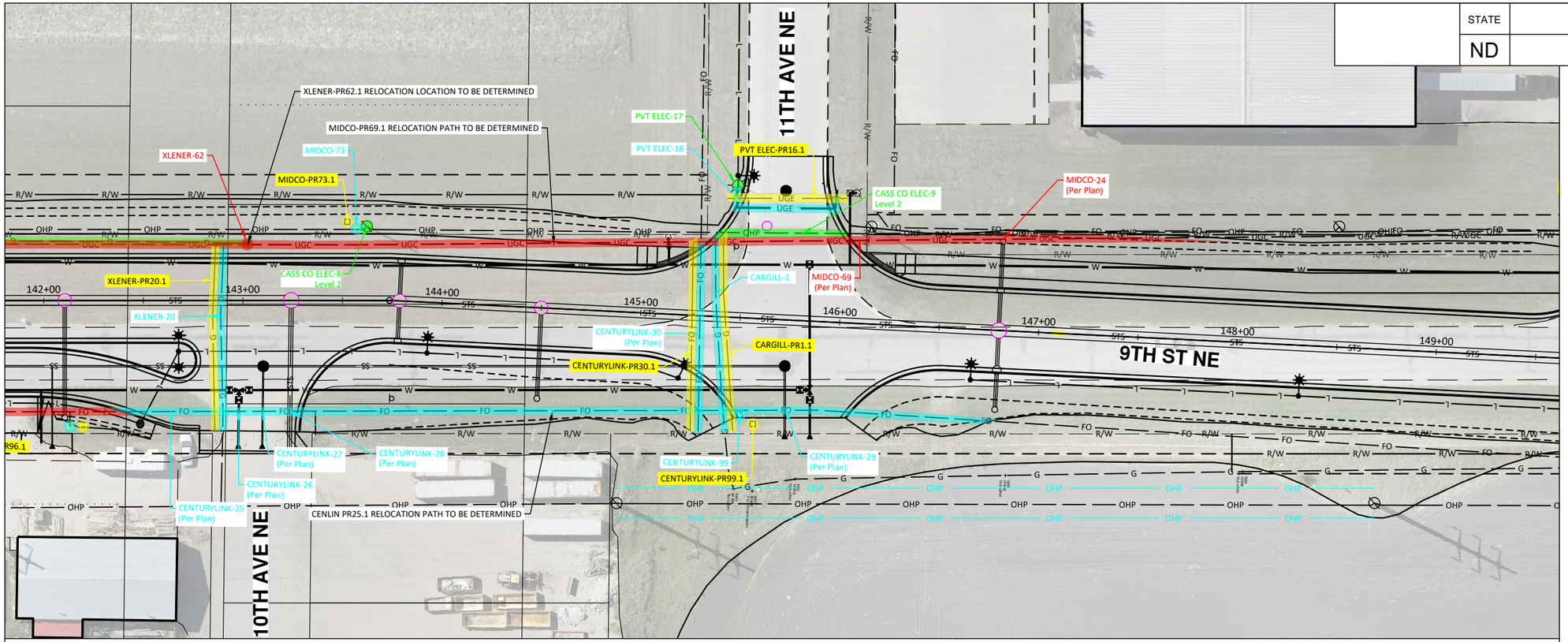
HOUSTON engineering, inc.

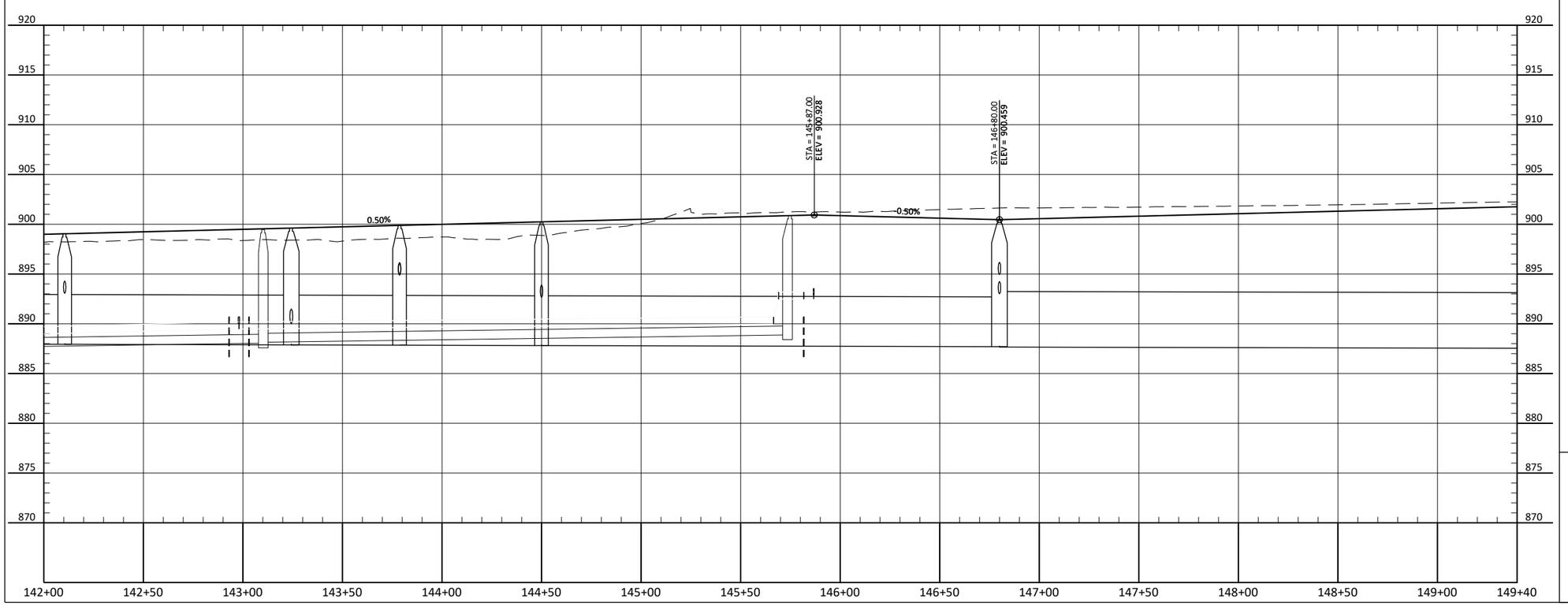
ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

Plan & Profile
Utility Conflict Exhibits

9th St NE - Main Ave E to 12th Ave NE 7th Ave NE - 9th St NE to Near 45th St N
Sta 135+00 to 142+00

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-992(045)	60	7





N

30 0 30 60
Scale Feet

UTILITY ENCOUNTER LEVEL DESIGNATIONS	
UTILITY ENCOUNTER LEVEL	DESCRIPTION
Level 1	Utility not affected by proposed improvements, no impacts.
Level 2	Construction activities will occur above and\or below the utility line. No relocation needed.
Level 3	Utility permanently impacted by proposed improvements and requires vertical adjustment.
Level 4	Utility permanently impacted by proposed improvements and requires complete relocation. Vertical and horizontal relocation required.
Proposed Level 1	Utility that is to be relocated by the Utility Company, and after Utility is relocated to the new location, the final Encounter Level would be that of Level 1.
Proposed Level 2	Utility that is to be relocated by the Utility Company, and after Utility is relocated to the new location, the final Encounter Level would be that of Level 2.
Abandoned	Utility line that was an encounter and is now abandoned in place. See comments for construction dispostion, removal, and/or remain in place.

Construction - Legend
- Construction Limit
- Existing Right of Way Line
- Proposed Right of Way Line
- Existing Easement Line
- Proposed Easement Line

HOUSTON engineering, inc.

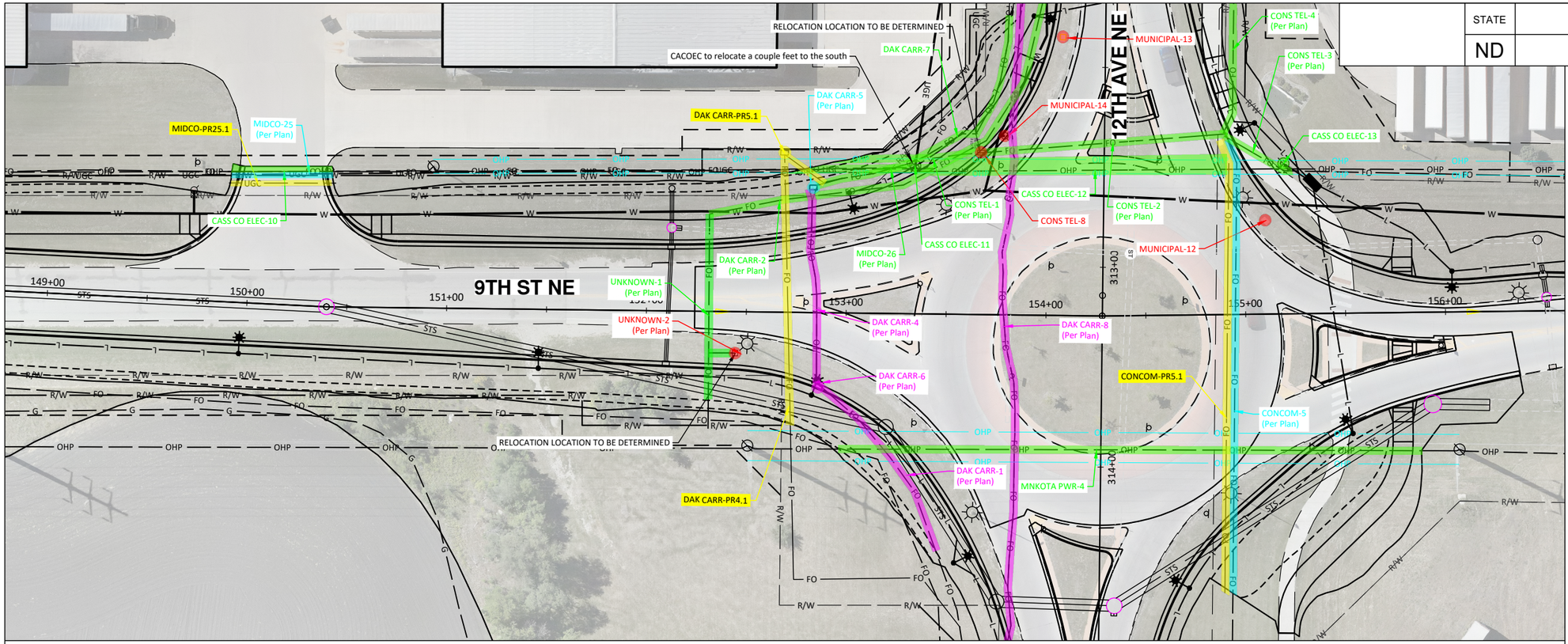
ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

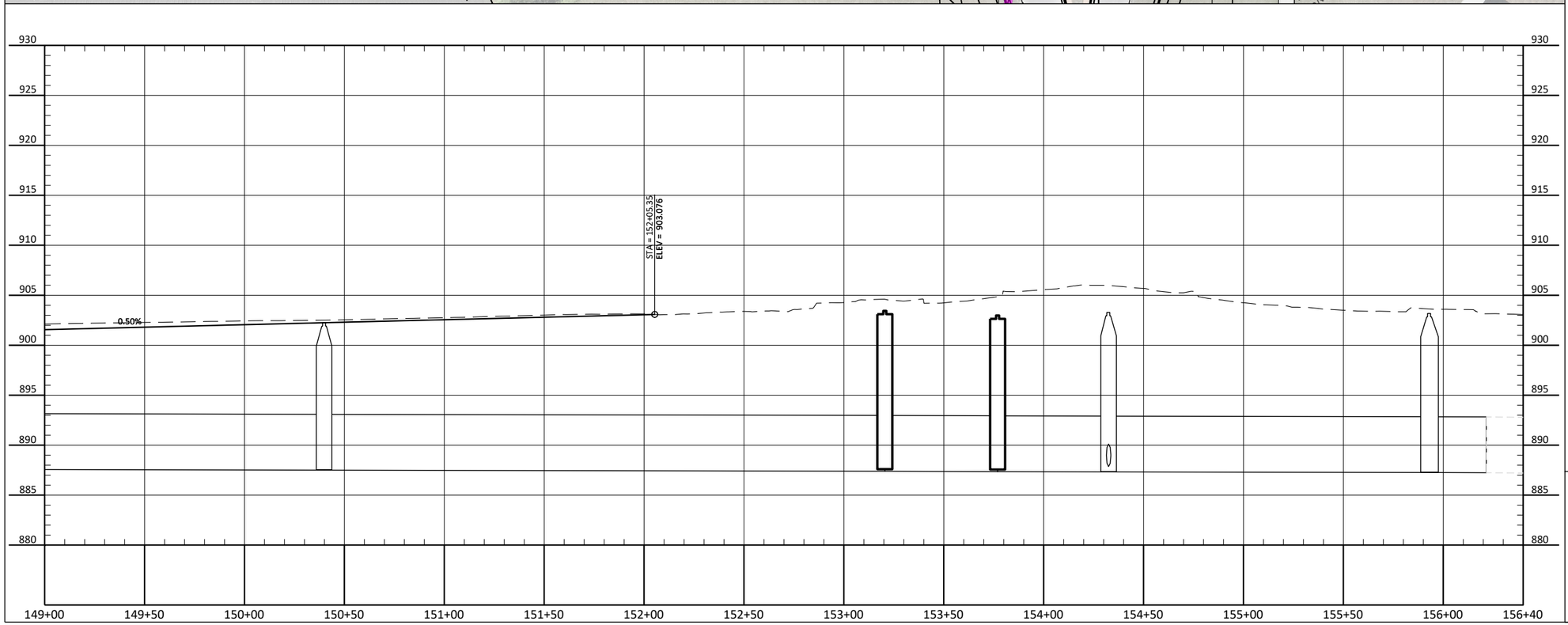
Plan & Profile
Utility Conflict Exhibits

9th St NE - Main Ave E to 12th Ave NE 7th Ave NE - 9th St NE to Near 45th St N
Sta 142+00 to 149+40

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-992(045)	60	8





UTILITY ENCOUNTER LEVEL DESIGNATIONS	
UTILITY ENCOUNTER LEVEL	DESCRIPTION
Level 1	Utility not affected by proposed improvements, no impacts.
Level 2	Construction activities will occur above and\or below the utility line. No relocation needed.
Level 3	Utility permanently impacted by proposed improvements and requires vertical adjustment.
Level 4	Utility permanently impacted by proposed improvements and requires complete relocation. Vertical and horizontal relocation required.
Proposed Level 1	Utility that is to be relocated by the Utility Company, and after Utility is relocated to the new location, the final Encounter Level would be that of Level 1.
Proposed Level 2	Utility that is to be relocated by the Utility Company, and after Utility is relocated to the new location, the final Encounter Level would be that of Level 2.
Abandoned	Utility line that was an encounter and is now abandoned in place. See comments for construction dispostion, removal, and/or remain in place.

N

30 0 30 60
Scale Feet

Construction - Legend
- Construction Limit
- Existing Right of Way Line
- Proposed Right of Way Line
- Existing Easement Line
- Proposed Easement Line

HOUSTON engineering, inc.

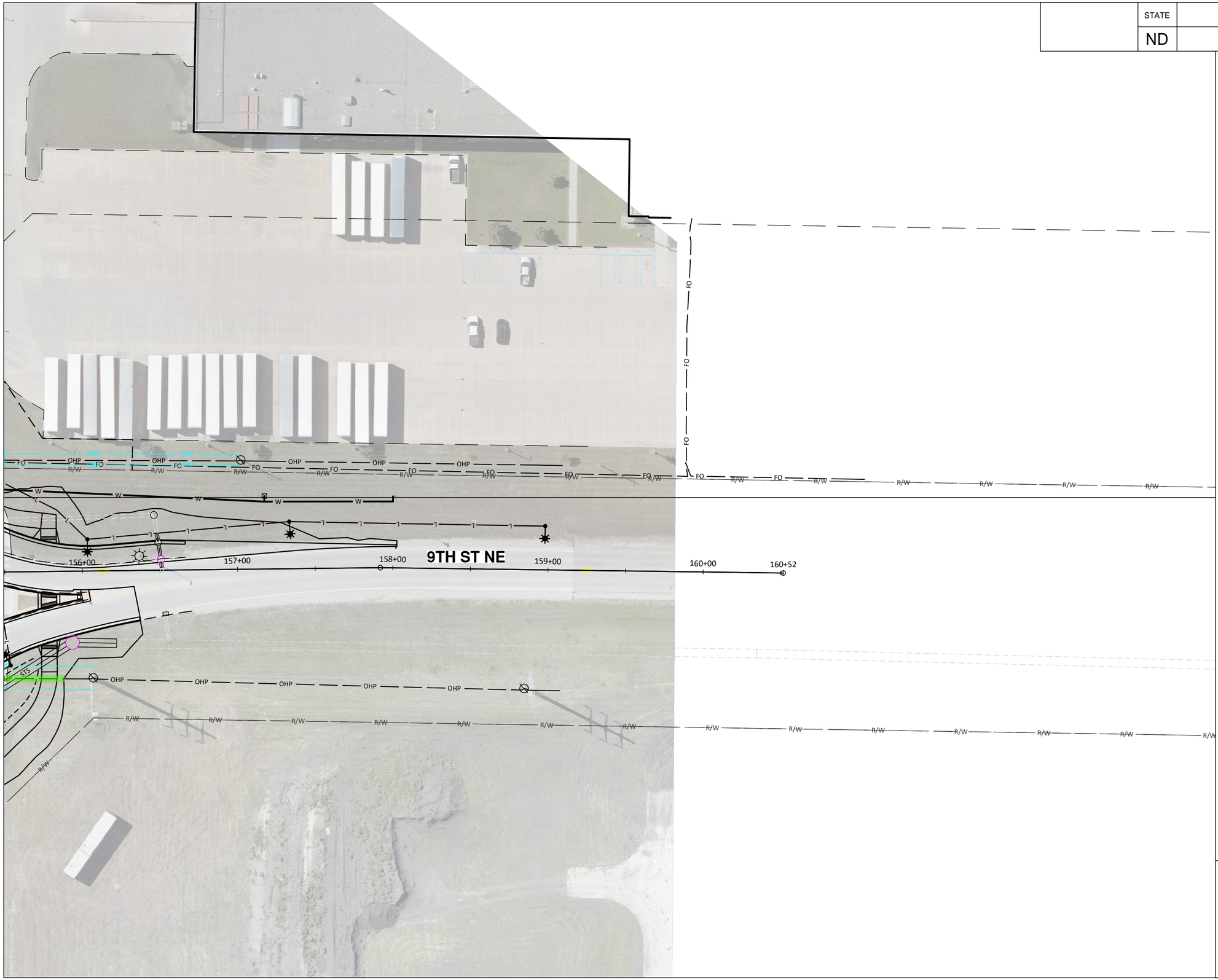
ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

Plan & Profile
Utility Conflict Exhibits

9th St NE - Main Ave E to 12th Ave NE 7th Ave NE - 9th St NE to Near 45th St N
Sta 149+00 to 159+40

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-992(045)	60	9



N

30 0 30 60
Scale Feet

UTILITY ENCOUNTER LEVEL DESIGNATIONS	
UTILITY ENCOUNTER LEVEL	DESCRIPTION
Level 1	Utility not affected by proposed improvements, no impacts.
Level 2	Construction activities will occur above and\or below the utility line. No relocation needed.
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Abandoned	Utility line that was an encounter and is now abandoned in place. See comments for construction dispostion, removal, and/or remain in place.

Construction - Legend

- Construction Limit
- Existing Right of Way Line
- Proposed Right of Way Line
- Existing Easement Line
- Proposed Easement Line

HOUSTON engineering, inc.

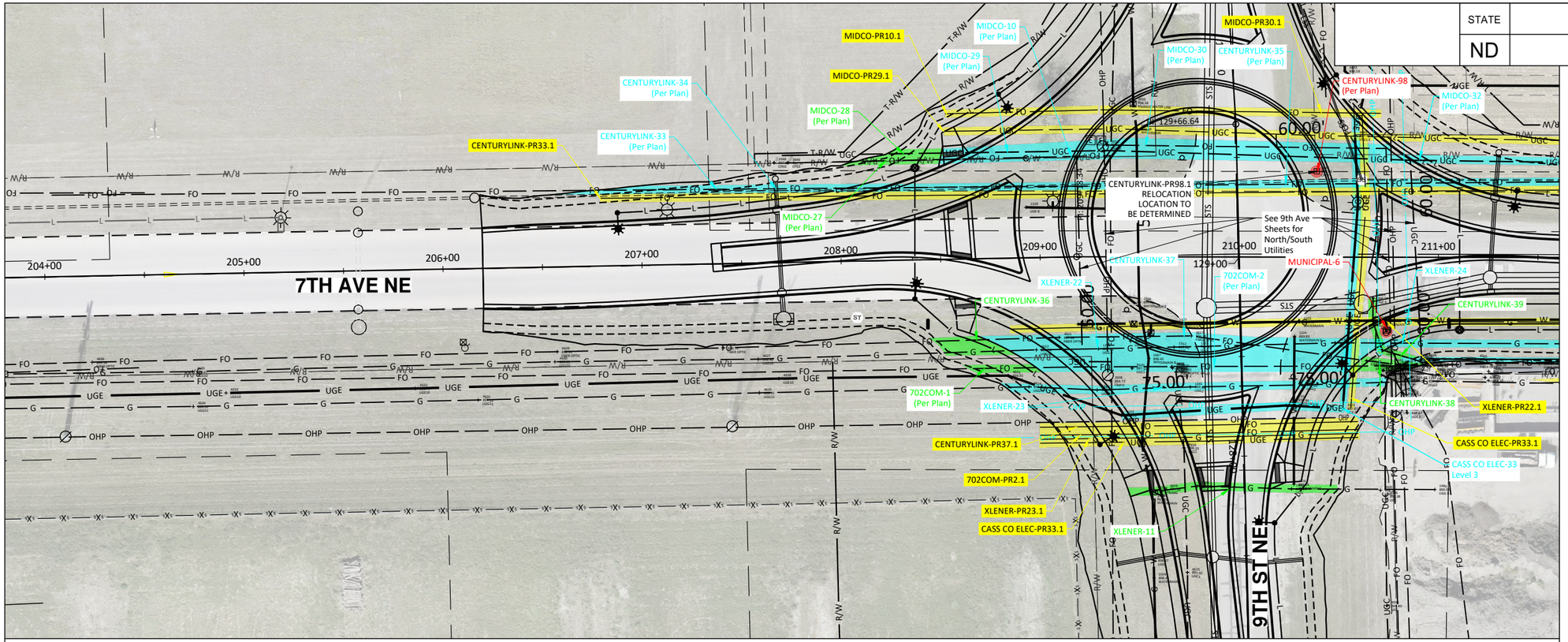
ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

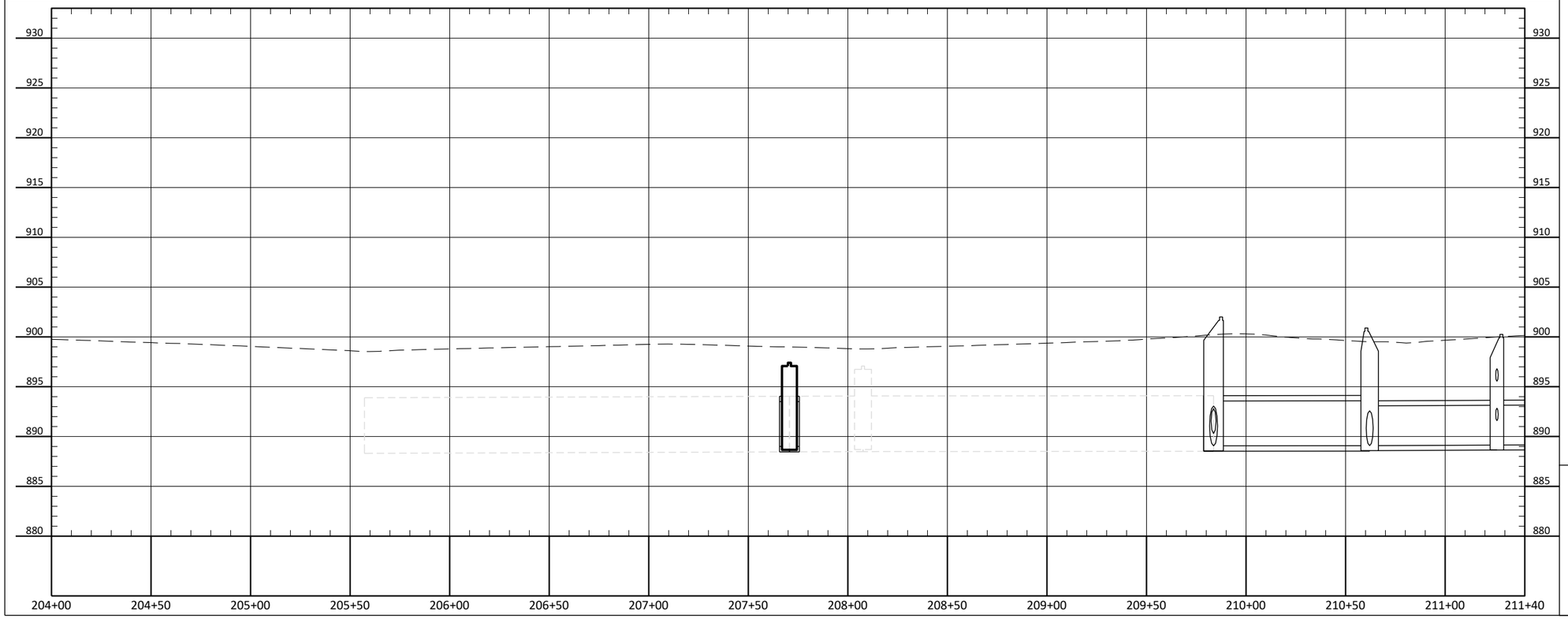
Plan & Profile
Utility Conflict Exhibits

9th St NE - Main Ave E to 12th Ave NE 7th Ave NE - 9th St NE to Near 45th St N
Sta 155+50 to 160+52

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-992(045)	60	10





N

30 0 30 60

Scale Feet

UTILITY ENCOUNTER LEVEL DESIGNATIONS	
UTILITY ENCOUNTER LEVEL	DESCRIPTION
Level 1	Utility not affected by proposed improvements, no impacts.
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Abandoned	Utility line that was an encounter and is now abandoned in place. See comments for construction dispostion, removal, and/or remain in place.

Construction - Legend

- Construction Limit
- Existing Right of Way Line
- Proposed Right of Way Line
- Existing Easement Line
- Proposed Easement Line

HOUSTON engineering, inc.

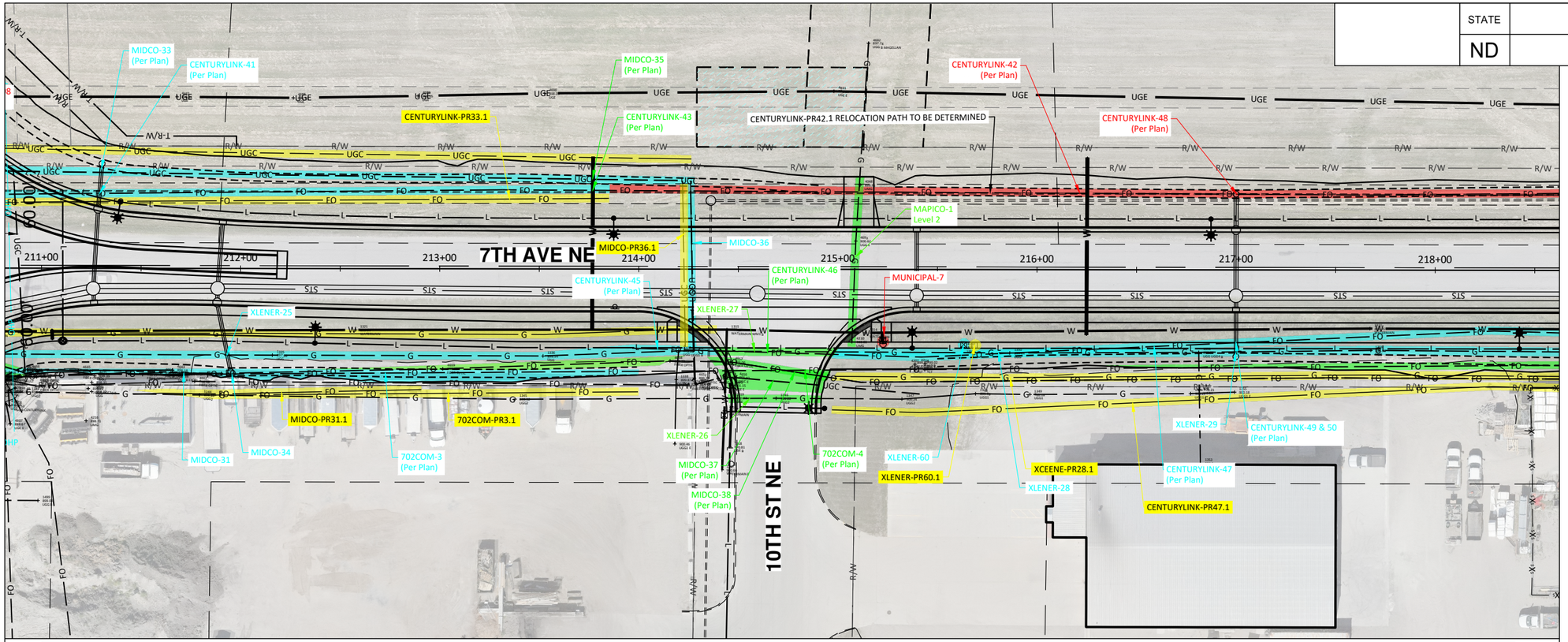
ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

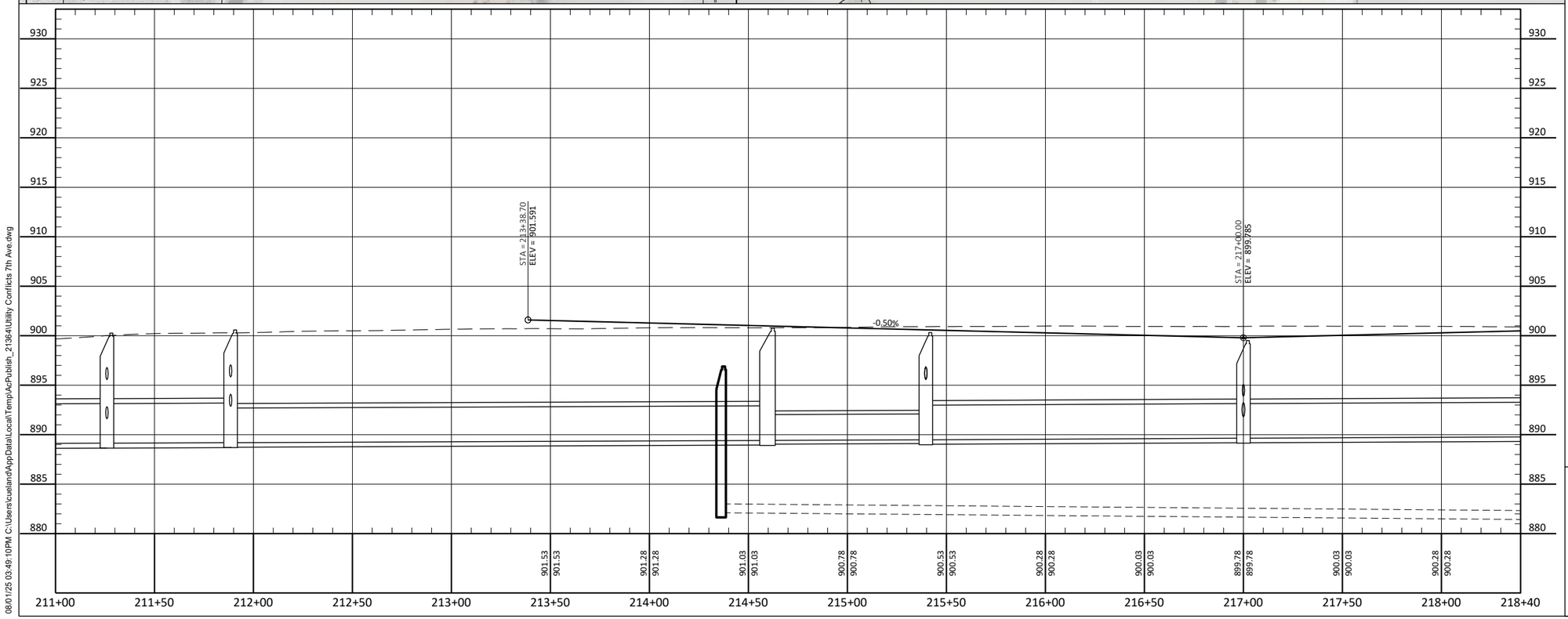
Plan & Profile
Utility Conflict Exhibits

9th St NE - Main Ave E to 12th Ave NE
7th Ave NE - 9th St NE to Near 45th St N
Sta 204+00 to 211+40

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-992(045)	60	11





UTILITY ENCOUNTER LEVEL	DESCRIPTION
Level 1	Utility not affected by proposed improvements, no impacts.
Level 2	Construction activities will occur above and/or below the utility line. No relocation needed.
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Proposed Level 2	Utility that is to be relocated by the Utility Company, and after Utility is relocated to the new location, the final Encounter Level would be that of Level 2.
Abandoned	Utility line that was an encounter and is now abandoned in place. See comments for construction dispostion, removal, and/or remain in place.

N

30 0 30 60
Scale Feet

Construction - Legend
- Construction Limit
- Existing Right of Way Line
- Proposed Right of Way Line
- Existing Easement Line
- Proposed Easement Line

HOUSTON engineering, inc.

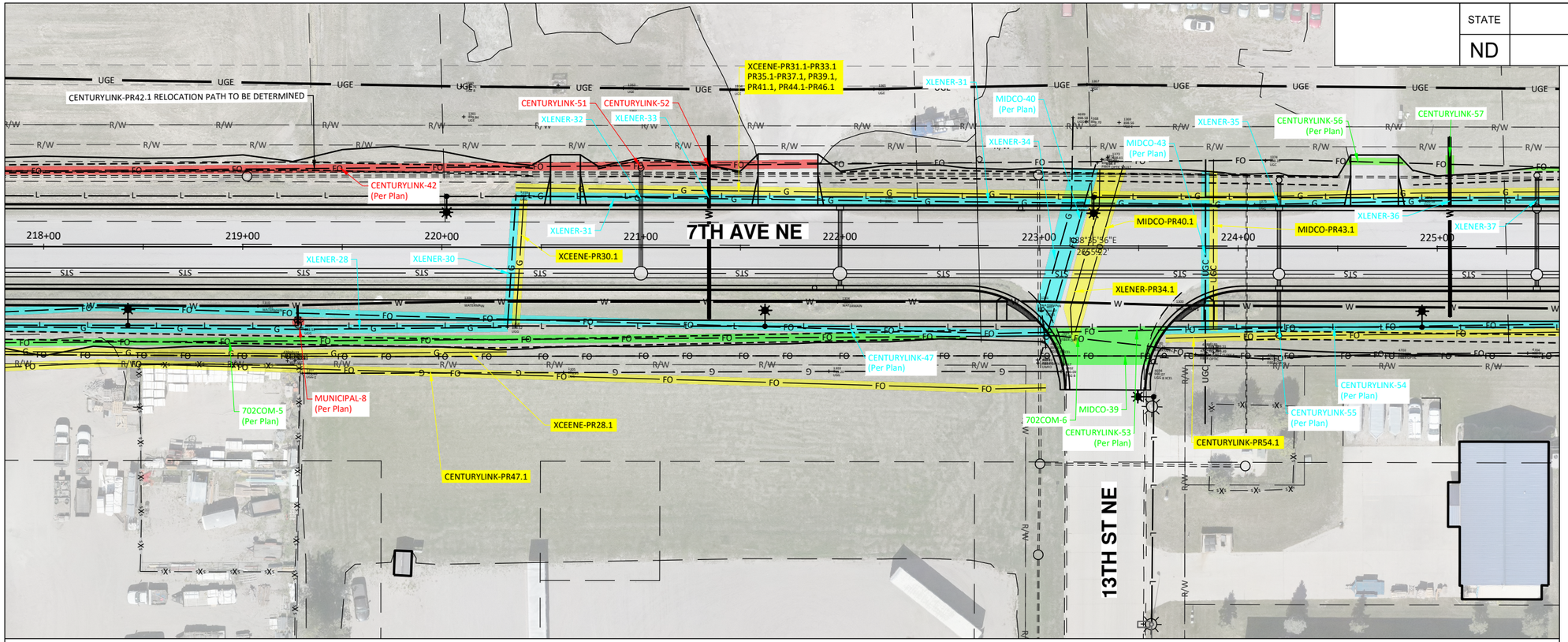
ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

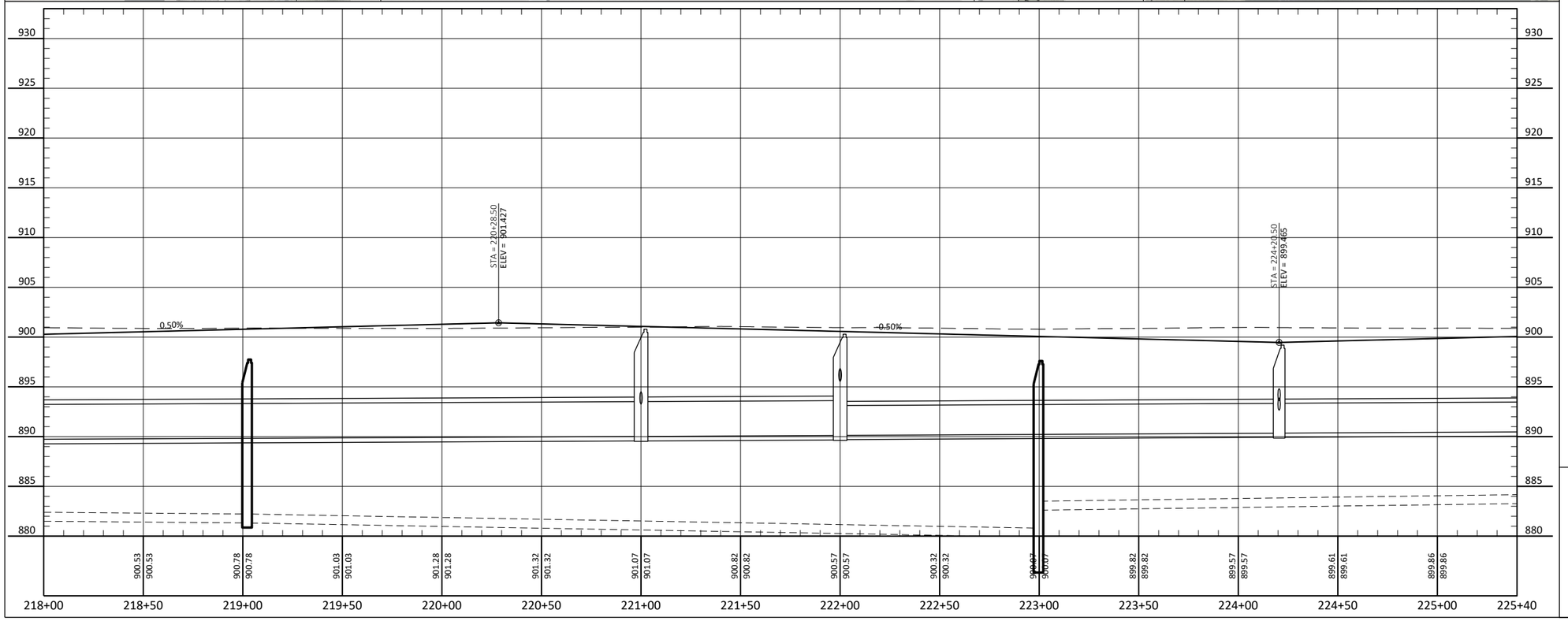
Plan & Profile
Utility Conflict Exhibits

9th St NE - Main Ave E to 12th Ave NE
7th Ave NE - 9th St NE to Near 45th St N
Sta 211+00 to 218+00

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-992(045)	60	12





UTILITY ENCOUNTER LEVEL DESIGNATIONS	
UTILITY ENCOUNTER LEVEL	DESCRIPTION
Level 1	Utility not affected by proposed improvements, no impacts.
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Proposed Level 2	Utility that is to be relocated by the Utility Company, and after Utility is relocated to the new location, the final Encounter Level would be that of Level 2.
Abandoned	Utility line that was an encounter and is now abandoned in place. See comments for construction dispostion, removal, and/or remain in place.

Construction - Legend
- Construction Limit
- R/W — Existing Right of Way Line
- R/W — Proposed Right of Way Line
- Existing Easement Line
- Proposed Easement Line

HOUSTON engineering, inc.

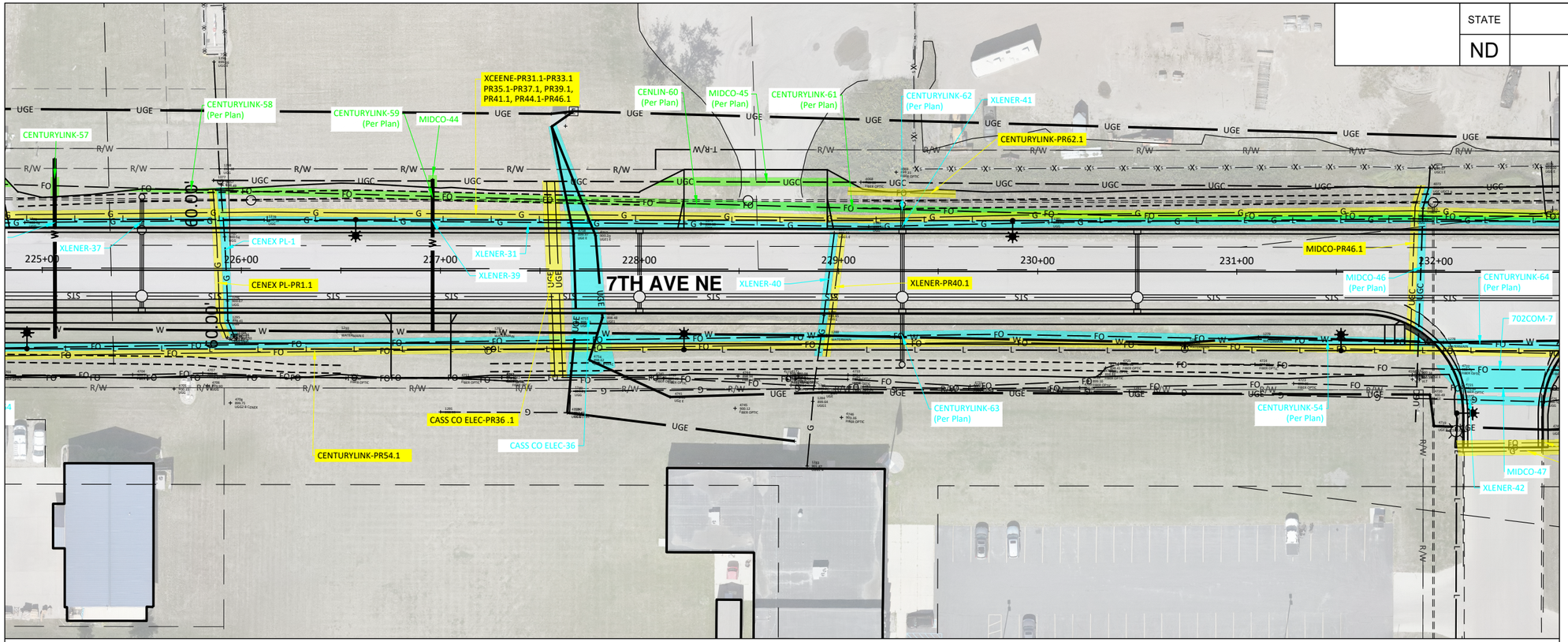
ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

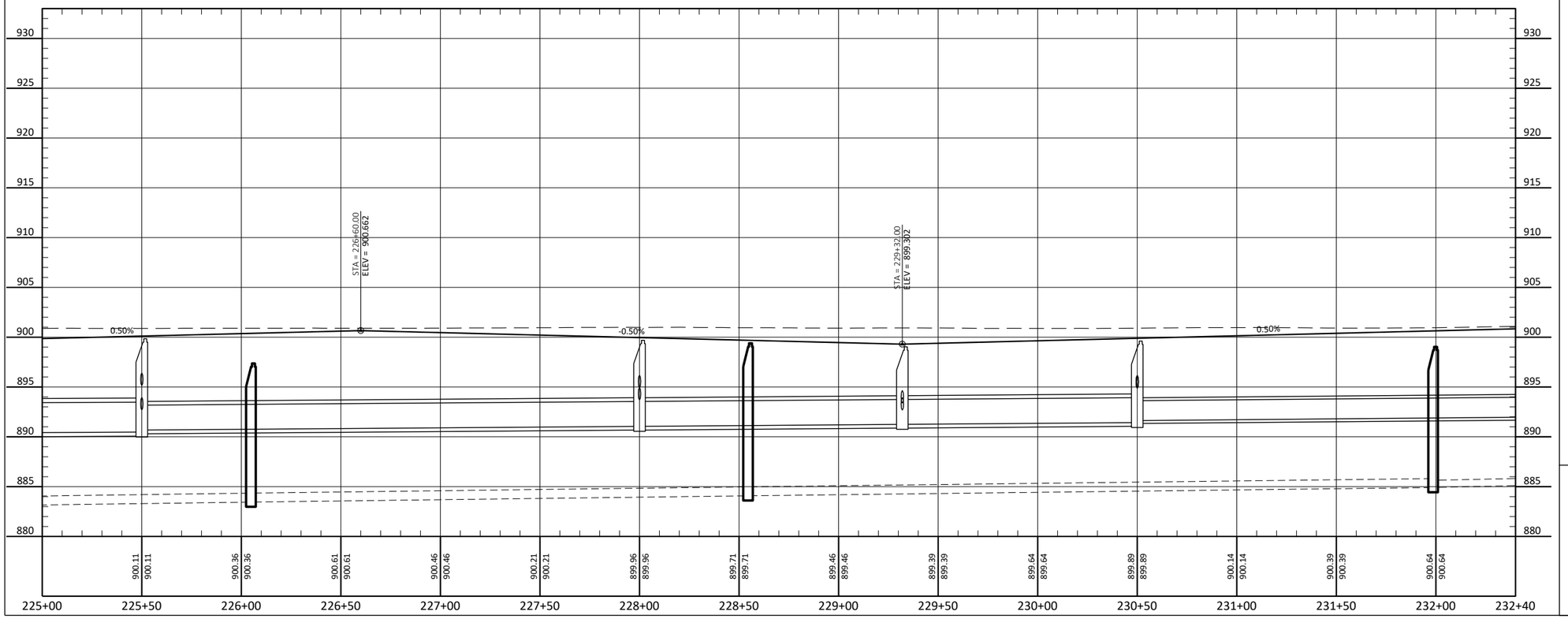
Plan & Profile
Utility Conflict Exhibits

9th St NE - Main Ave E to 12th Ave NE
7th Ave NE - 9th St NE to Near 45th St N
Sta 218+00 to 225+40

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-992(045)	60	13





N

30 0 30 60
Scale Feet

UTILITY ENCOUNTER LEVEL	DESCRIPTION
Level 1	Utility not affected by proposed improvements, no impacts.
Level 2	Construction activities will occur above and/or below the utility line. No relocation needed.
Level 3	Utility permanently impacted by proposed improvements and requires vertical adjustment.
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Abandoned	Utility line that was an encounter and is now abandoned in place. See comments for construction dispostion, removal, and/or remain in place.

Construction - Legend
- Construction Limit
- Existing Right of Way Line
- Proposed Right of Way Line
- Existing Easement Line
- Proposed Easement Line

HOUSTON engineering, inc.

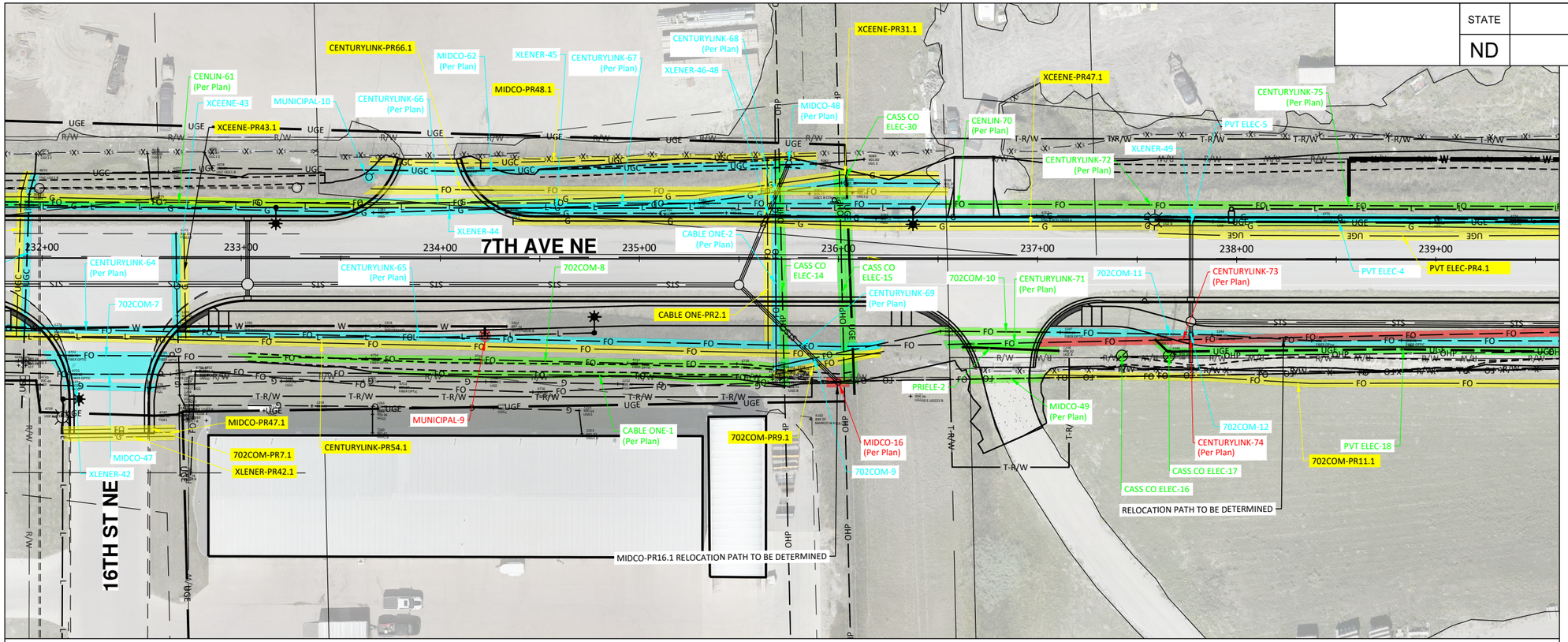
ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

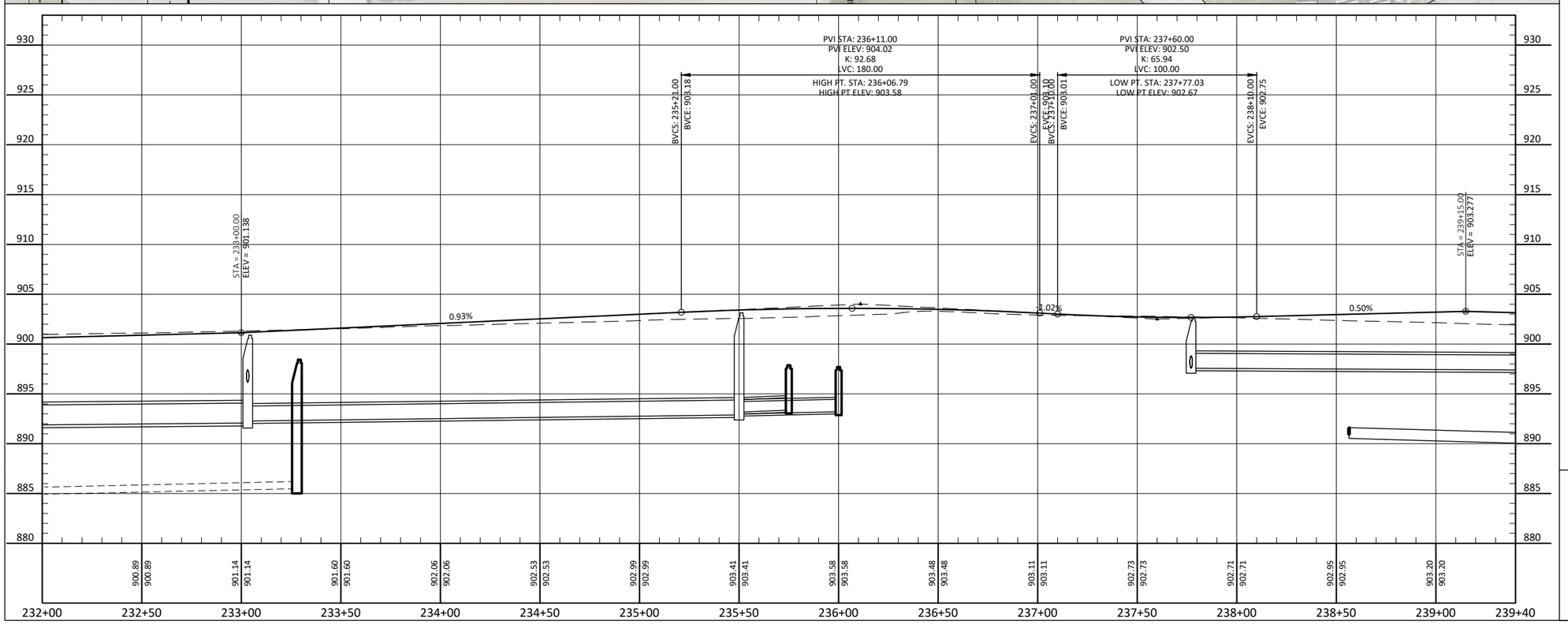
Plan & Profile
Utility Conflict Exhibits

9th St NE - Main Ave E to 12th Ave NE
7th Ave NE - 9th St NE to Near 45th St N
Sta 225+00 to 232+40

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-992(045)	60	14





UTILITY ENCOUNTER LEVEL DESIGNATIONS	
UTILITY ENCOUNTER LEVEL	DESCRIPTION
Level 1	Utility not affected by proposed improvements, no impacts.
Level 2	Construction activities will occur above and/or below the utility line. No relocation needed.
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Level 4	Utility permanently impacted by proposed improvements and requires complete relocation. Vertical and horizontal relocation required.
Proposed Level 1	Utility that is to be relocated by the Utility Company, and after Utility is relocated to the new location, the final Encounter Level would be that of Level 1.
Proposed Level 2	Utility that is to be relocated by the Utility Company, and after Utility is relocated to the new location, the final Encounter Level would be that of Level 2.
Abandoned	Utility line that was an encounter and is now abandoned in place. See comments for construction dispostion, removal, and/or remain in place.

N

30 0 30 60
Scale Feet

Construction - Legend
- Construction Limit
- Existing Right of Way Line
- Proposed Right of Way Line
- Existing Easement Line
- Proposed Easement Line

HOUSTON engineering, inc.

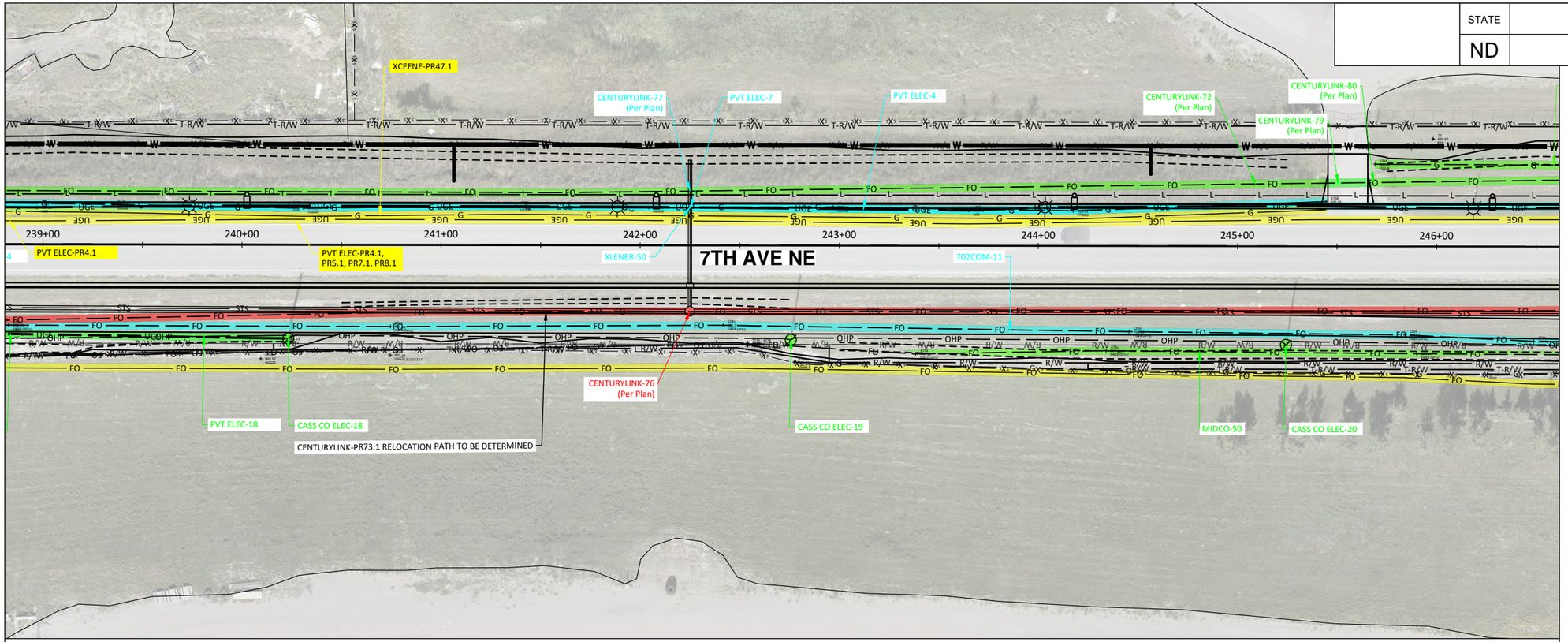
ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

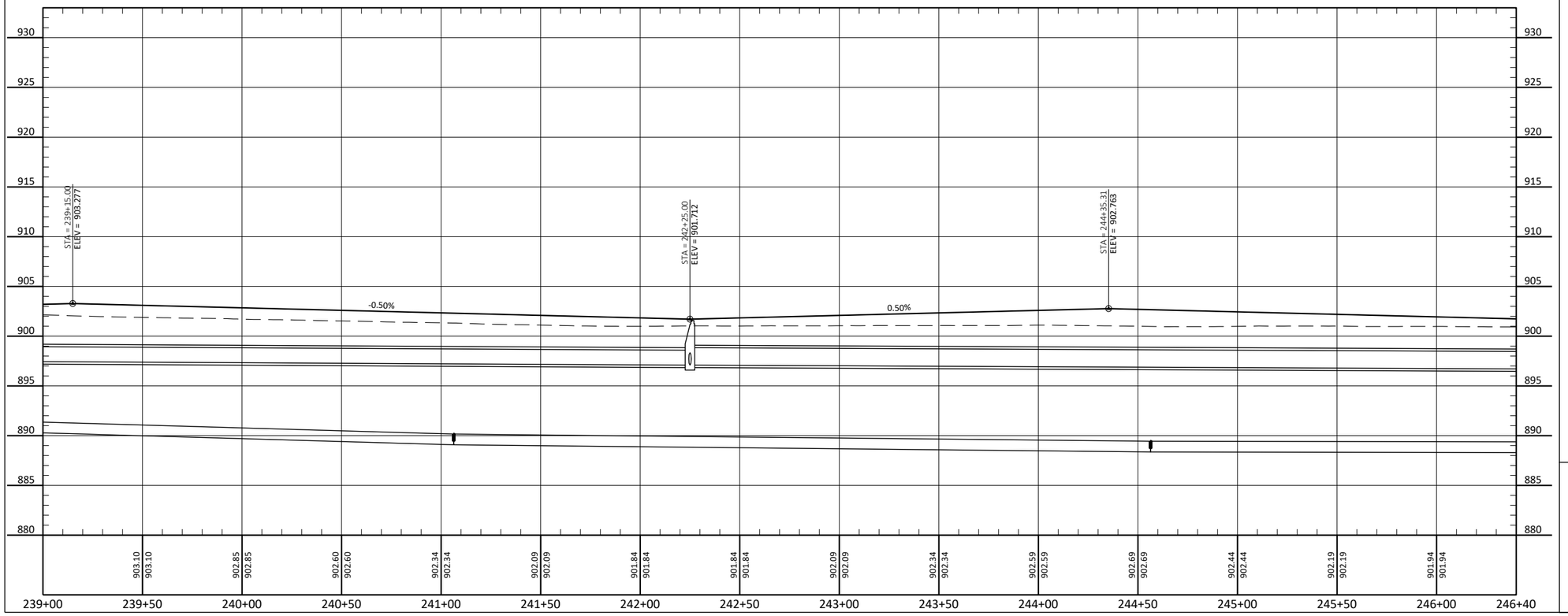
Plan & Profile
Utility Conflict Exhibits

9th St NE - Main Ave E to 12th Ave NE 7th Ave NE - 9th St NE to Near 45th St N
Sta 232+00 to 239+40

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-992(045)	60	15





UTILITY ENCOUNTER LEVEL	DESCRIPTION
Level 1	Utility not affected by proposed improvements, no impacts.
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Abandoned	Utility line that was an encounter and is now abandoned in place. See comments for construction dispostion, removal, and/or remain in place.

N

30 0 30 60
Scale Feet

Construction - Legend
- Construction Limit
- Existing Right of Way Line
- Proposed Right of Way Line
- Existing Easement Line
- Proposed Easement Line

HOUSTON engineering, inc.

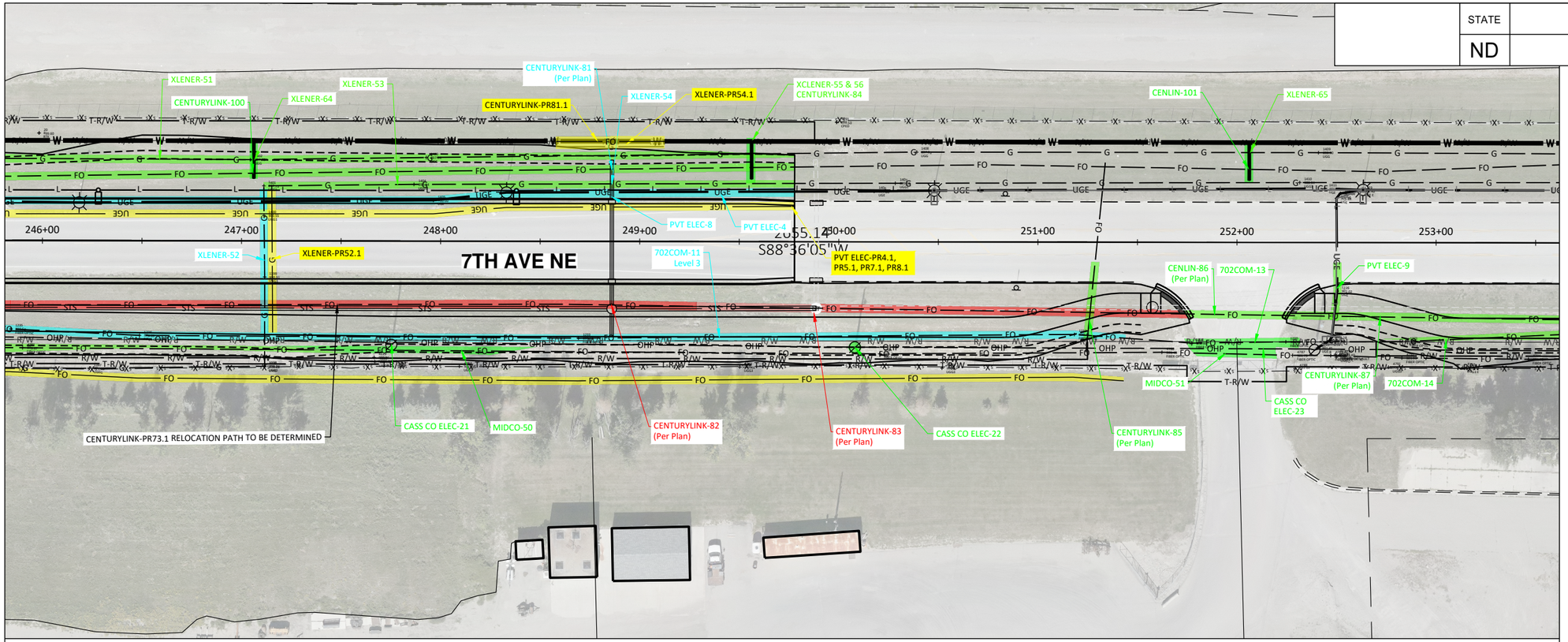
ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

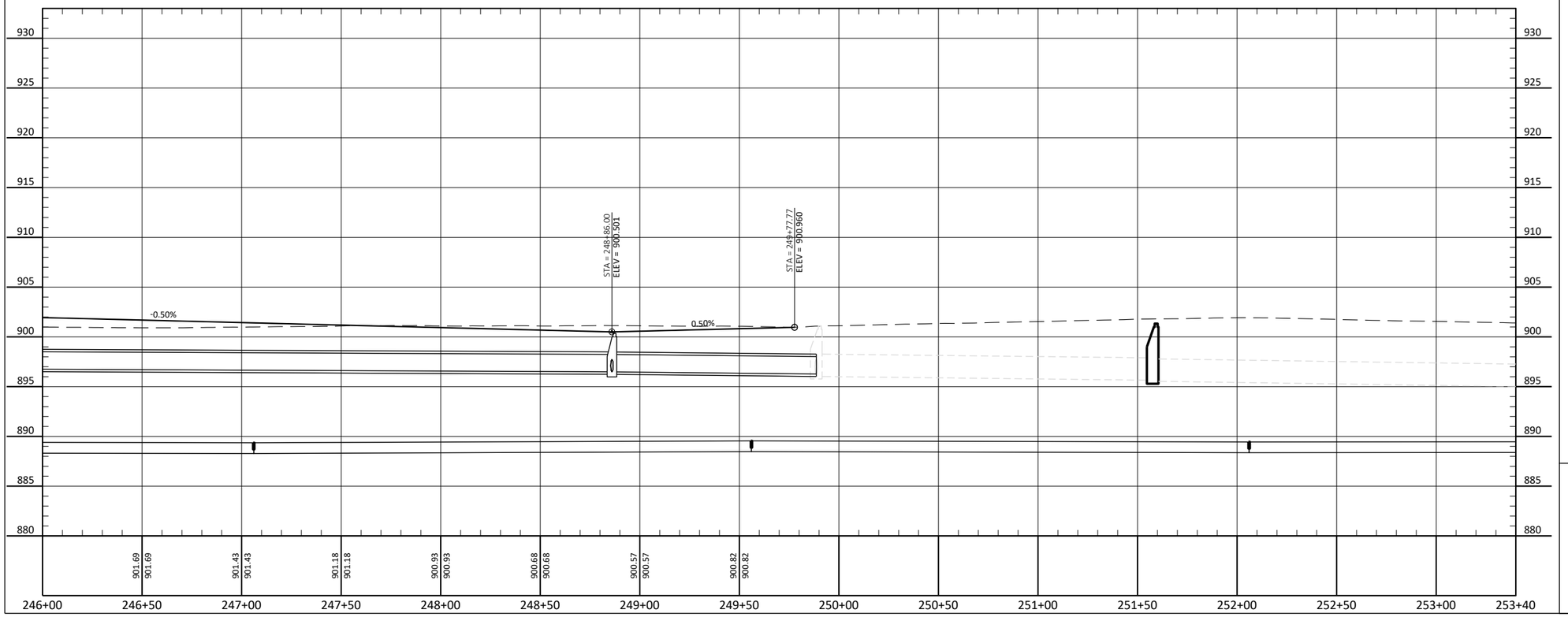
Plan & Profile
Utility Conflict Exhibits

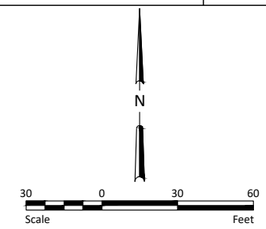
9th St NE - Main Ave E to 12th Ave NE
7th Ave NE - 9th St NE to Near 45th St N
Sta 239+00 to 246+40

08/01/25 03:50:16 PM C:\Users\cueland\AppData\Local\Temp\AcPublish_21364\Utility Conflicts 7th Ave.dwg

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-992(045)	60	16







UTILITY ENCOUNTER LEVEL	DESCRIPTION
Level 1	Utility not affected by proposed improvements, no impacts.
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Abandoned	Utility line that was an encounter and is now abandoned in place. See comments for construction dispostion, removal, and/or remain in place.

Construction - Legend
- Construction Limit
- Existing Right of Way Line
- Proposed Right of Way Line
- Existing Easement Line
- Proposed Easement Line

HOUSTON engineering, inc.

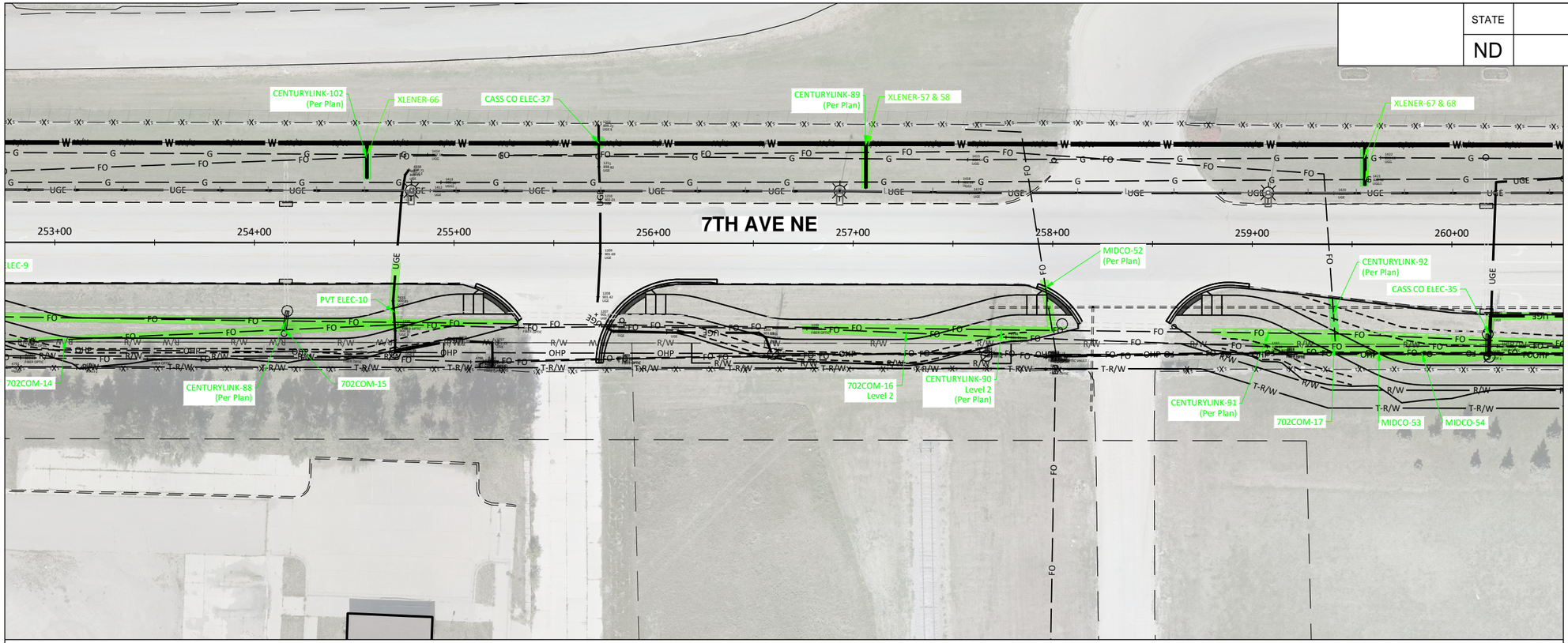
ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

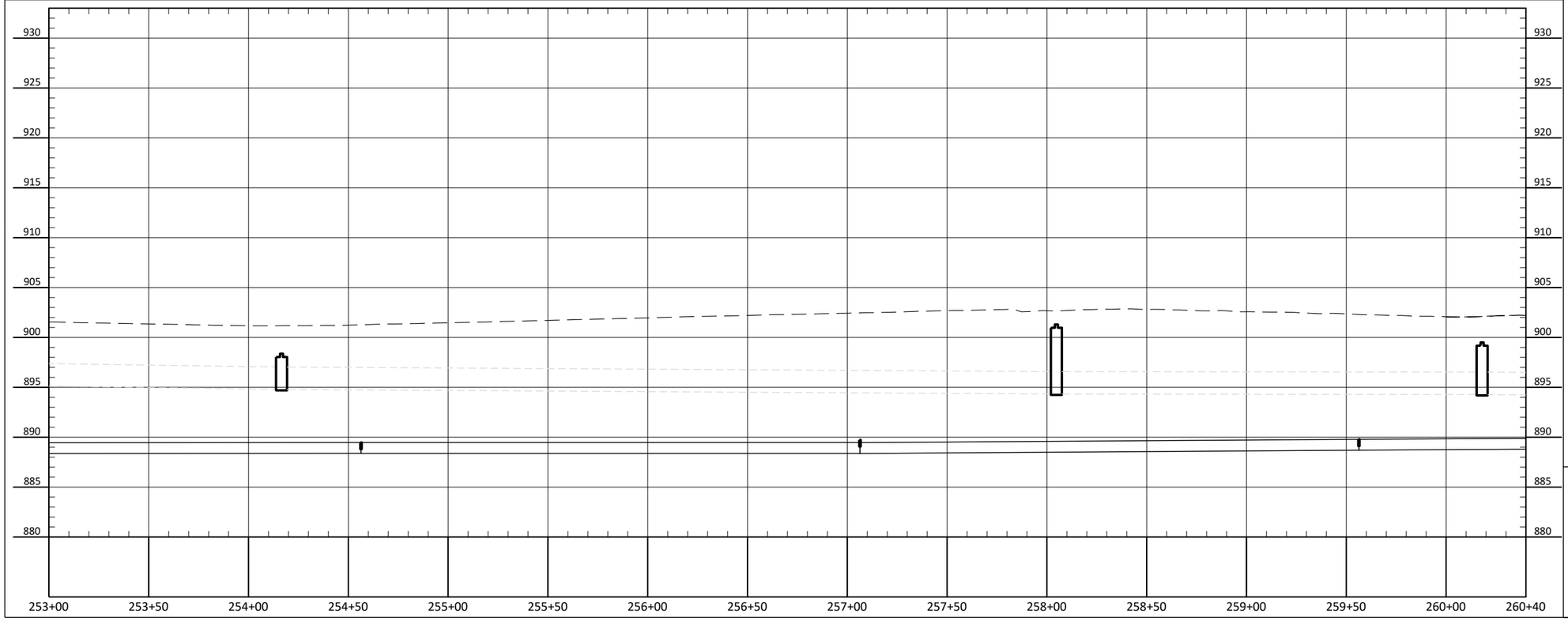
Plan & Profile
Utility Conflict Exhibits

9th St NE - Main Ave E to 12th Ave NE
7th Ave NE - 9th St NE to Near 45th St N
Sta 246+00 to 253+40

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-992(045)	60	17





N

30 0 30 60

Scale Feet

UTILITY ENCOUNTER LEVEL DESIGNATIONS	
UTILITY ENCOUNTER LEVEL	DESCRIPTION
Level 1	Utility not affected by proposed improvements, no impacts.
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Abandoned	Utility line that was an encounter and is now abandoned in place. See comments for construction dispostion, removal, and/or remain in place.

Construction - Legend

- Construction Limit
- Existing Right of Way Line
- Proposed Right of Way Line
- Existing Easement Line
- Proposed Easement Line

HOUSTON engineering, inc.

ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

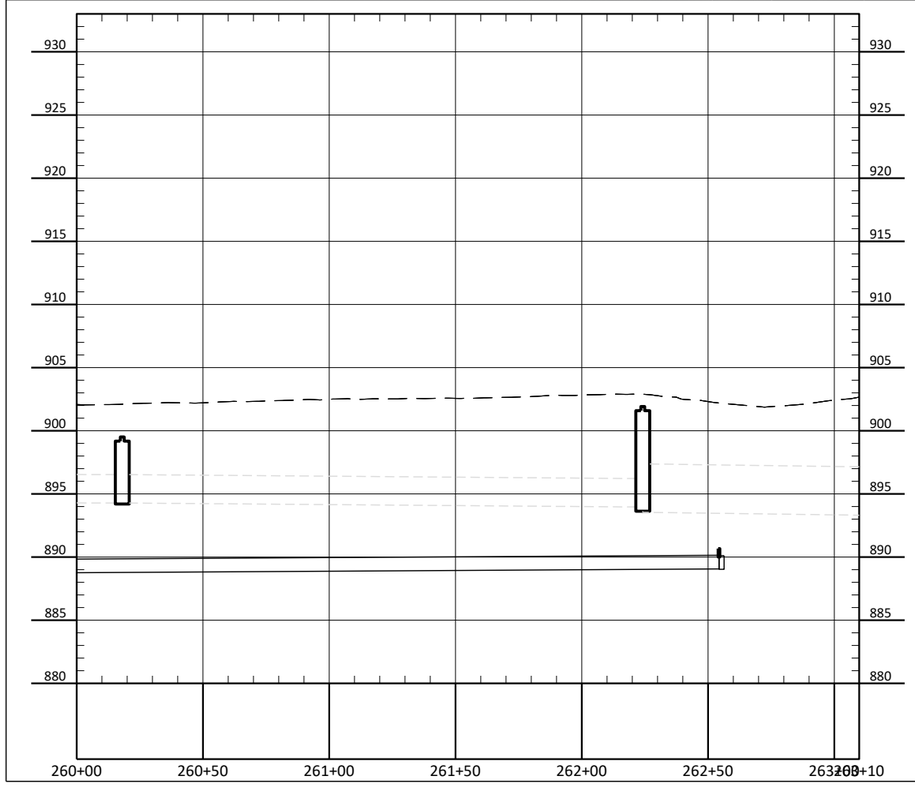
Plan & Profile
Utility Conflict Exhibits

9th St NE - Main Ave E to 12th Ave NE
7th Ave NE - 9th St NE to Near 45th St N
Sta 253+00 to 260+40

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-992(045)	60	18





N

30 0 30 60

Scale Feet

UTILITY ENCOUNTER LEVEL DESIGNATIONS	
UTILITY ENCOUNTER LEVEL	DESCRIPTION
Level 1	Utility not affected by proposed improvements, no impacts.
Level 2	Construction activities will occur above and\or below the utility line. No relocation needed.
Level 3	Utility permanently impacted by proposed improvements and requires vertical adjustment.
Level 4	Utility permanently impacted by proposed improvements and requires complete relocation. Vertical and horizontal relocation required.
Proposed Level 1	Utility that is to be relocated by the Utility Company, and after Utility is relocated to the new location, the final Encounter Level would be that of Level 1.
Proposed Level 2	Utility that is to be relocated by the Utility Company, and after Utility is relocated to the new location, the final Encounter Level would be that of Level 2.
Abandoned	Utility line that was an encounter and is now abandoned in place. See comments for construction dispostion, removal, and/or remain in place.

Construction - Legend

- Construction Limit
- R/W — Existing Right of Way Line
- R/W — Proposed Right of Way Line
- Existing Easement Line
- Proposed Easement Line

HOUSTON engineering, inc.

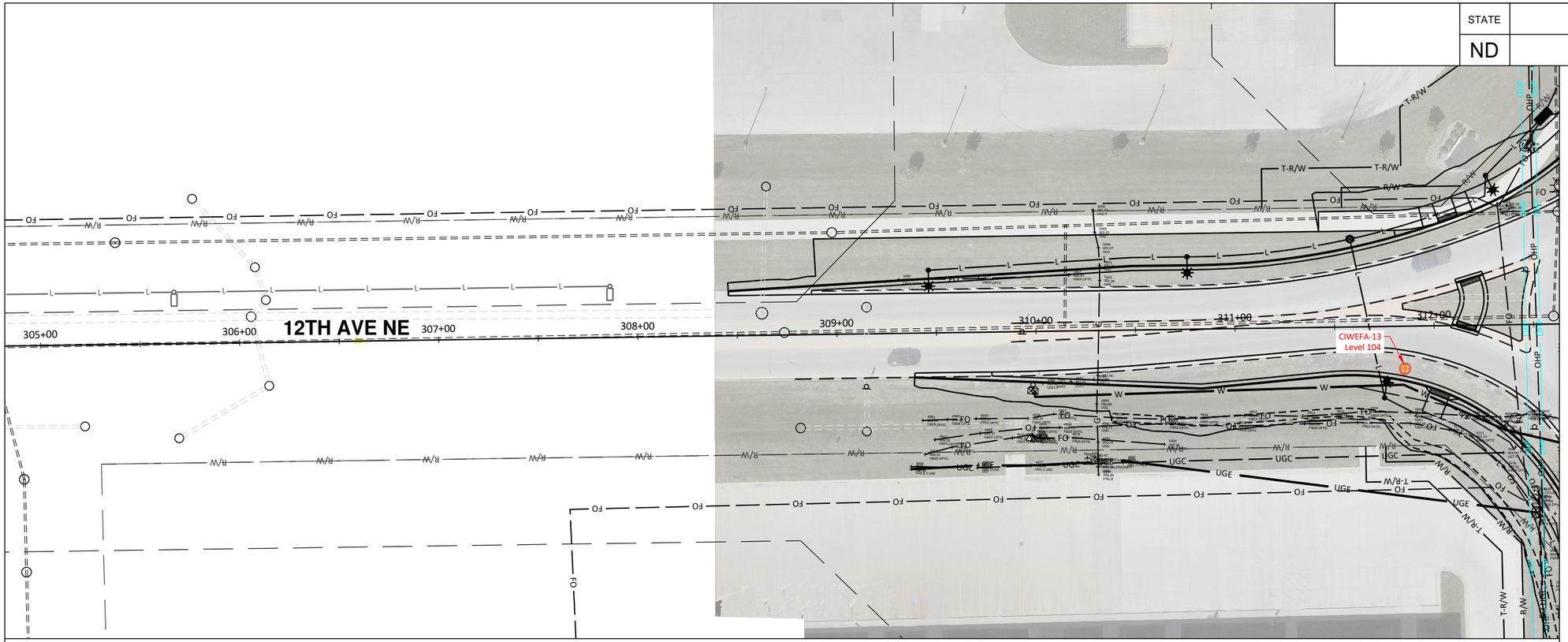
ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

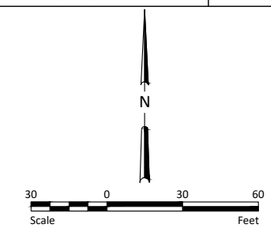
Plan & Profile
Utility Conflict Exhibits

9th St NE - Main Ave E to 12th Ave NE
7th Ave NE - 9th St NE to Near 45th St N
Sta 260+00 to 263+00

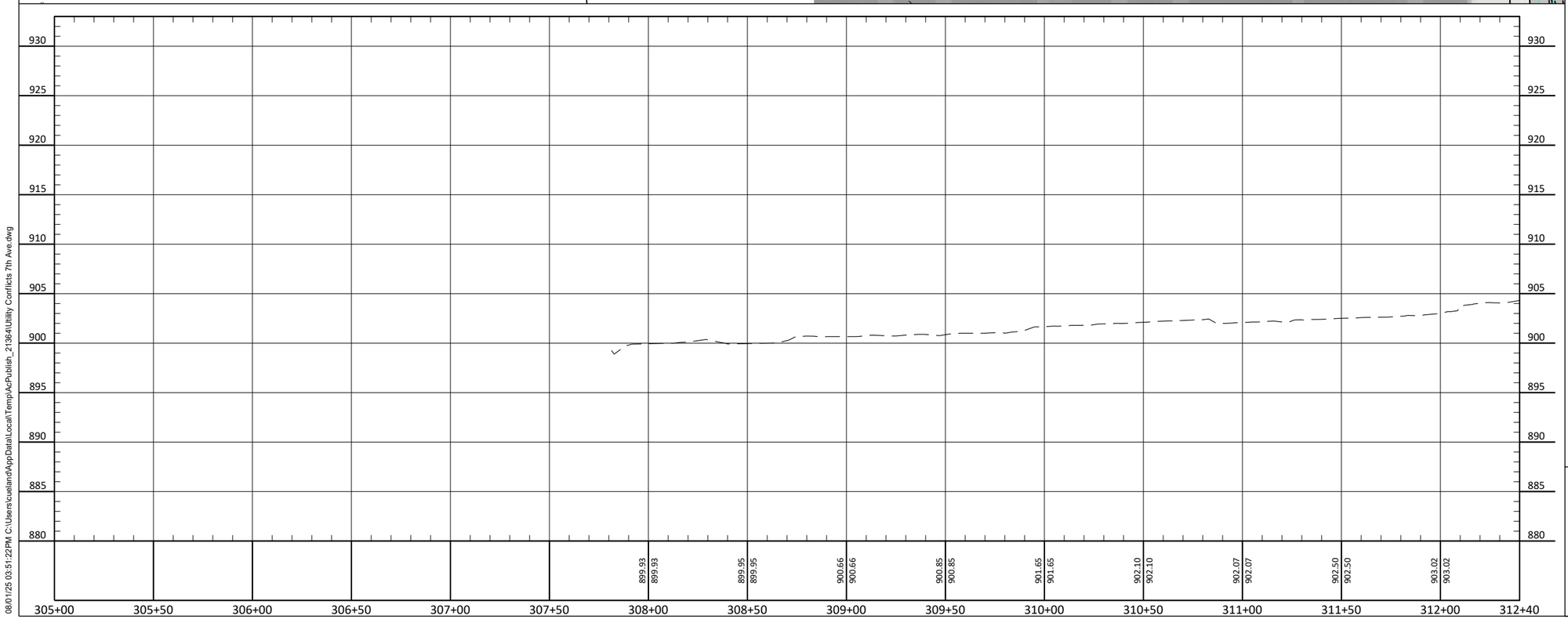
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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-992(045)	60	19





UTILITY ENCOUNTER LEVEL DESIGNATIONS	
UTILITY ENCOUNTER LEVEL	DESCRIPTION
Level 1	Utility not affected by proposed improvements, no impacts.
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Abandoned	Utility line that was an encounter and is now abandoned in place. See comments for construction dispostion, removal, and/or remain in place.



Construction - Legend
- Construction Limit
- R/W — Existing Right of Way Line
- R/W — Proposed Right of Way Line
- Existing Easement Line
- Proposed Easement Line

HOUSTON engineering, inc.

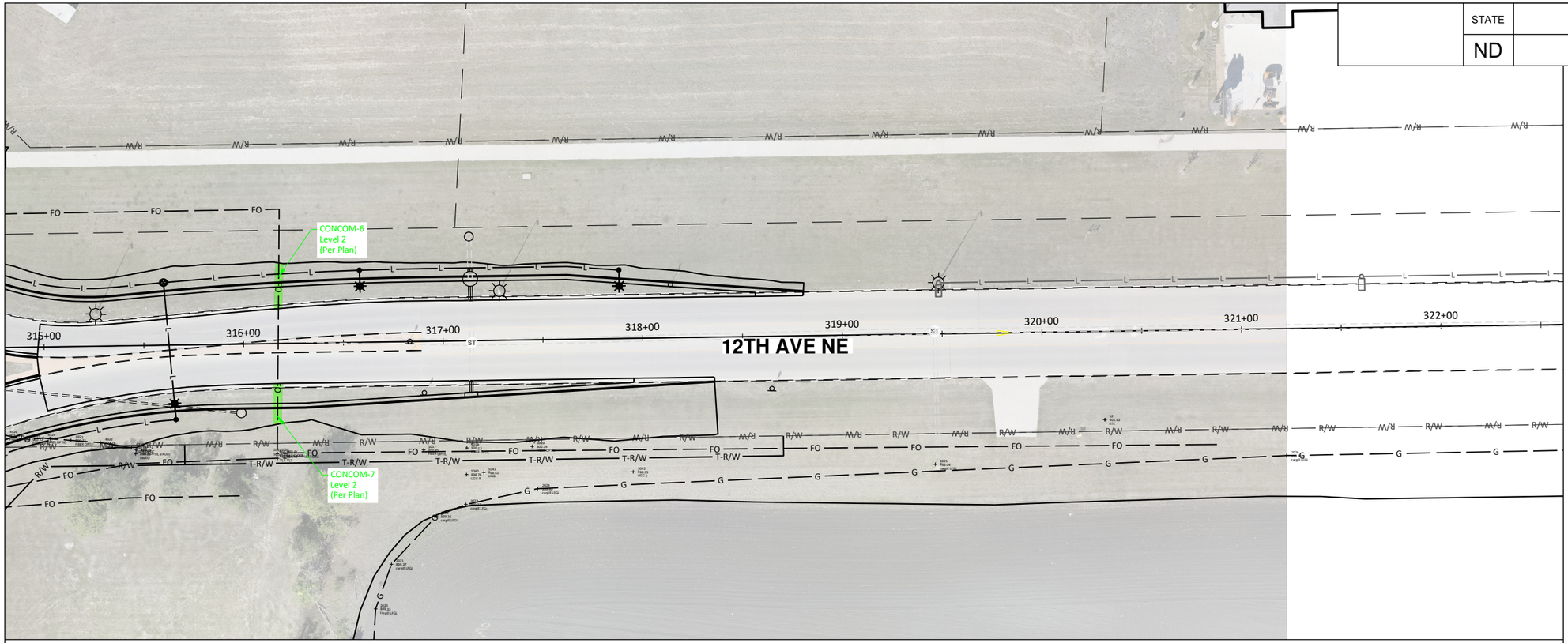
ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

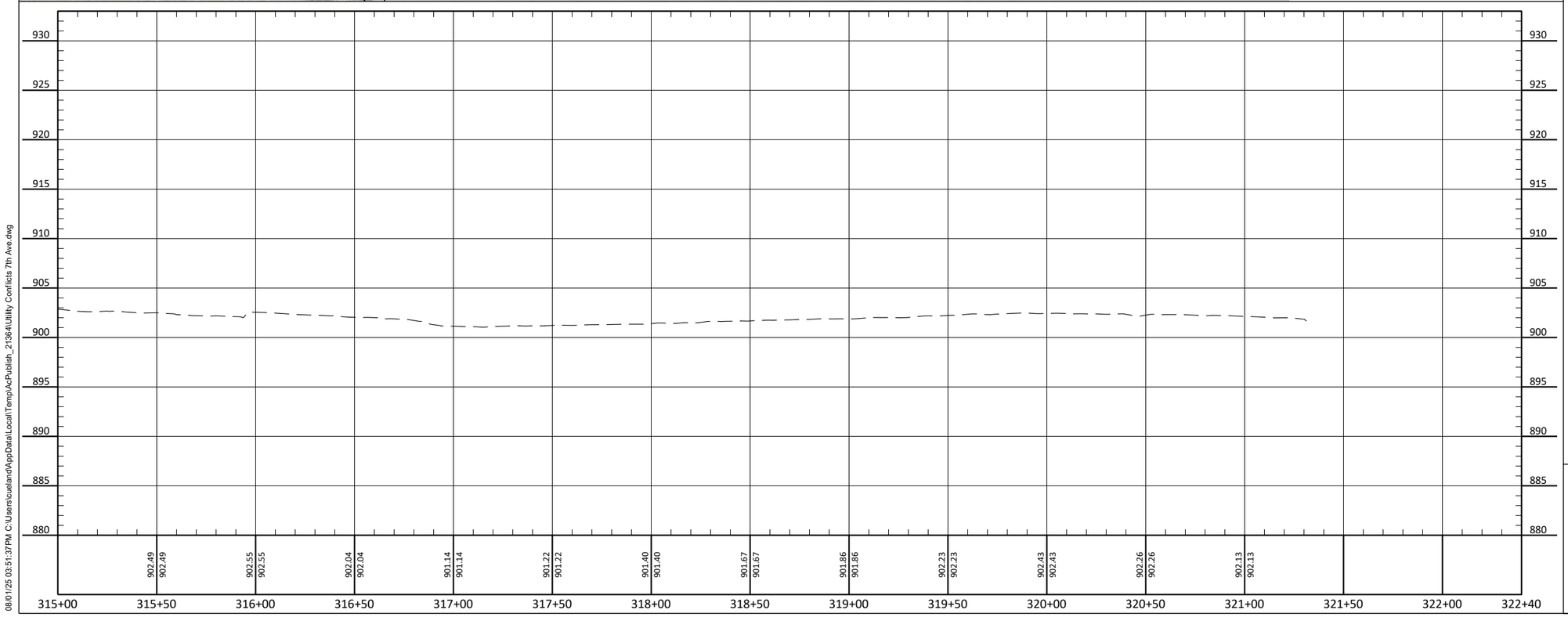
Plan & Profile
Utility Conflict Exhibits

9th St NE - Main Ave E to 12th Ave NE
7th Ave NE - 9th St NE to Near 45th St N
Sta 309+00 to 309+40

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	SU-8-992(045)	60	20





N

30 0 30 60
Scale Feet

UTILITY ENCOUNTER LEVEL	DESCRIPTION
Level 1	Utility not affected by proposed improvements, no impacts.
Level 2	Construction activities will occur above and\or below the utility line. No relocation needed.
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Level 4	Utility permanently impacted by proposed improvements and requires complete relocation. Vertical and horizontal relocation required.
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Construction - Legend
- Construction Limit
- R/W — Existing Right of Way Line
- R/W — Proposed Right of Way Line
- Existing Easement Line
- Proposed Easement Line

HOUSTON engineering, inc.

ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

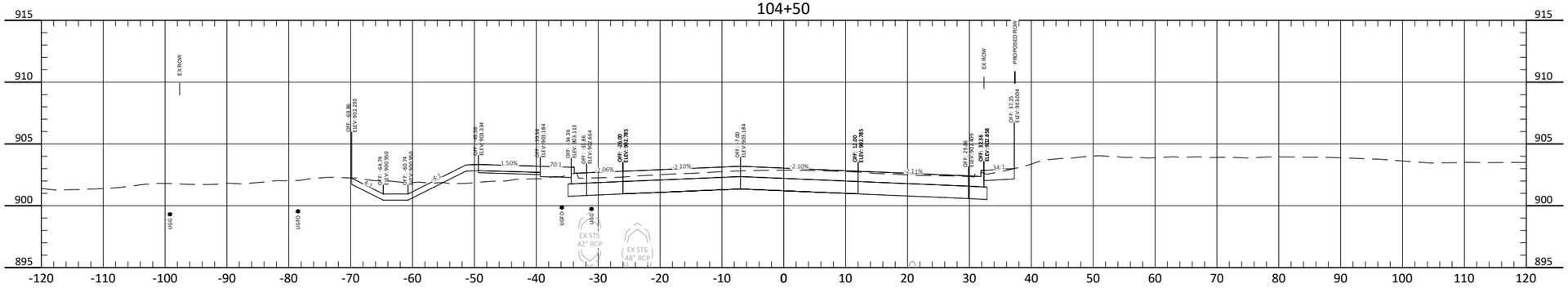
Plan & Profile
Utility Conflict Exhibits

9th St NE - Main Ave E to 12th Ave NE
7th Ave NE - 9th St NE to Near 45th St N
Sta 315+00 to 322+00

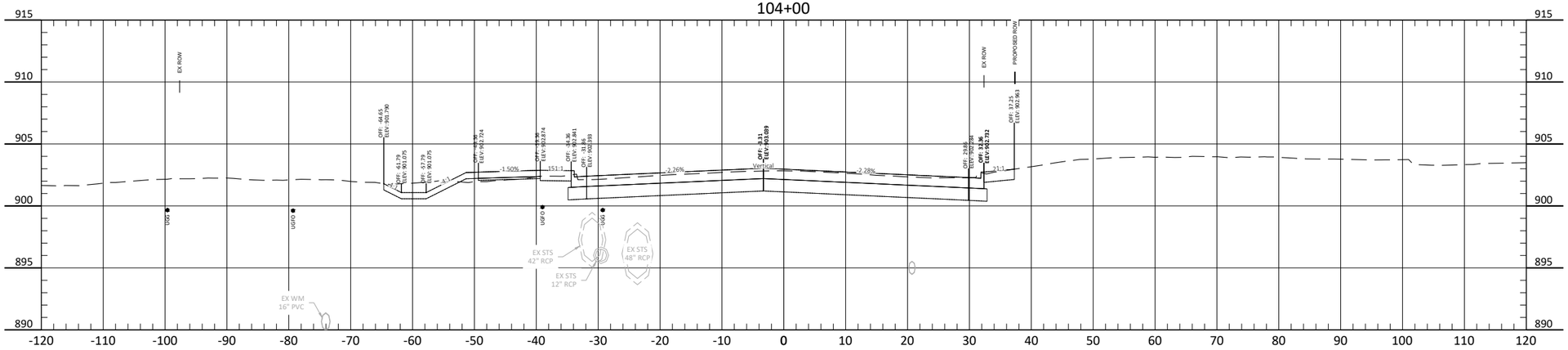
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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TMA-SU-FXP-8-992(045)	200	1

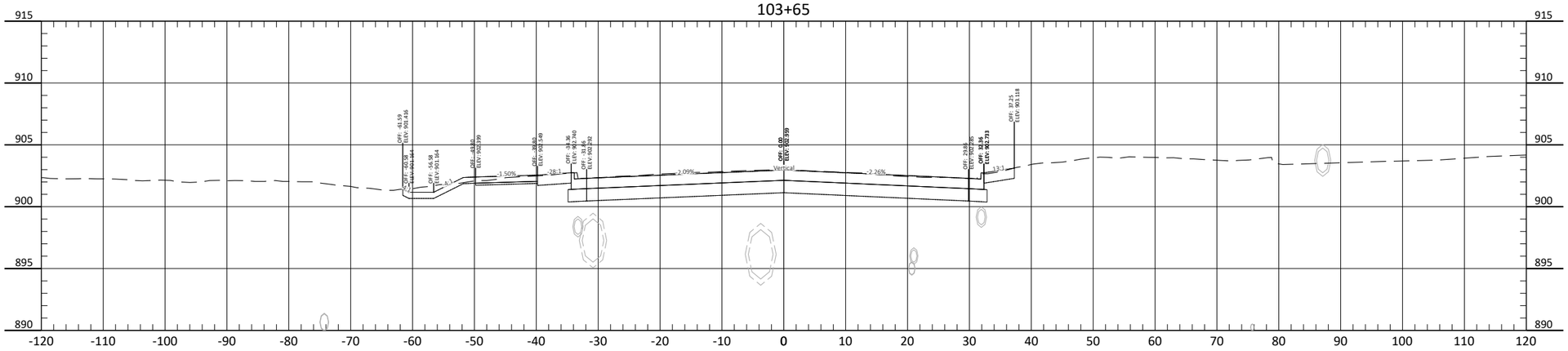
104+50



104+00



103+65



PRELIMINARY
NOT FOR CONSTRUCTION

CITY OF WEST FARGO

HOUSTON engineering, inc.

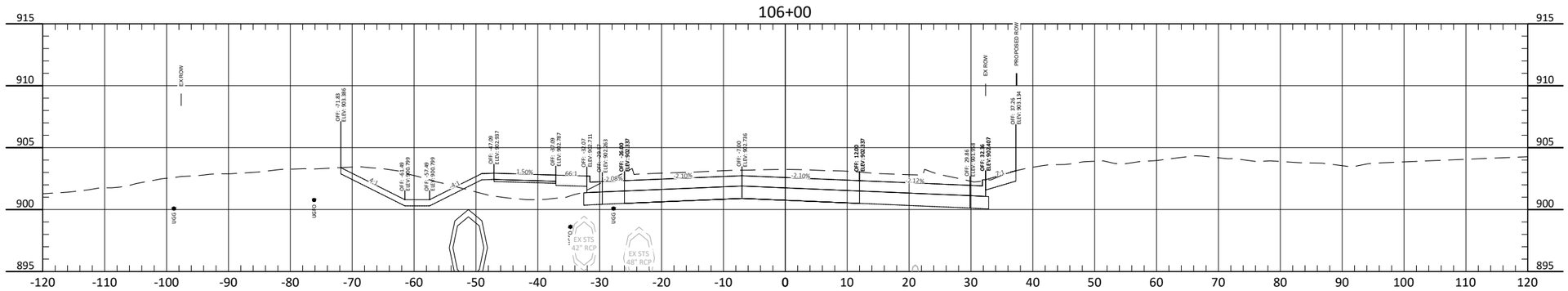
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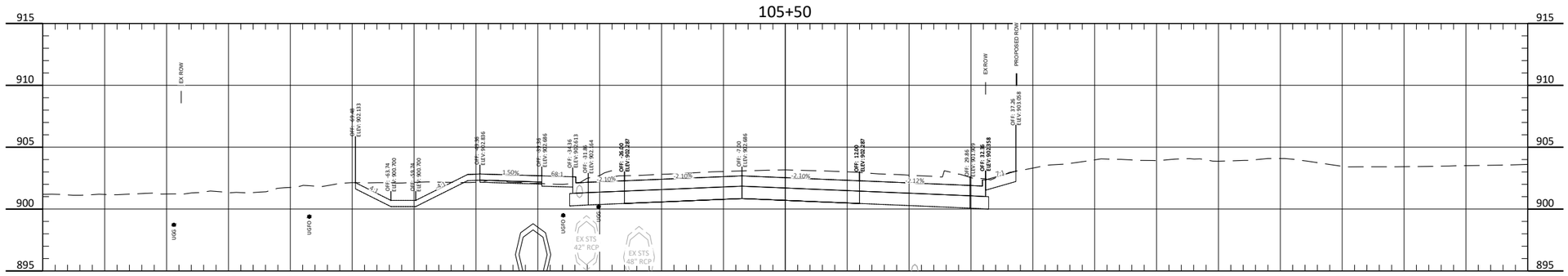
Cross Sections - 9th St NE

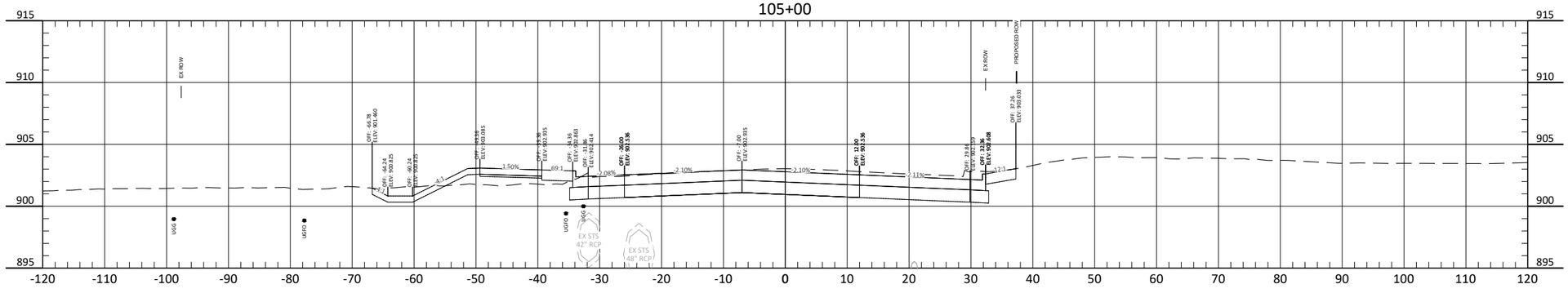
9th St NE from Main Ave to 12th Ave N
7th Ave NE from 9th St NE to 45th St N

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TMA-SU-FXP-8-992(045)	200	2







PRELIMINARY
NOT FOR CONSTRUCTION

CITY OF WEST FARGO

HOUSTON engineering, inc.

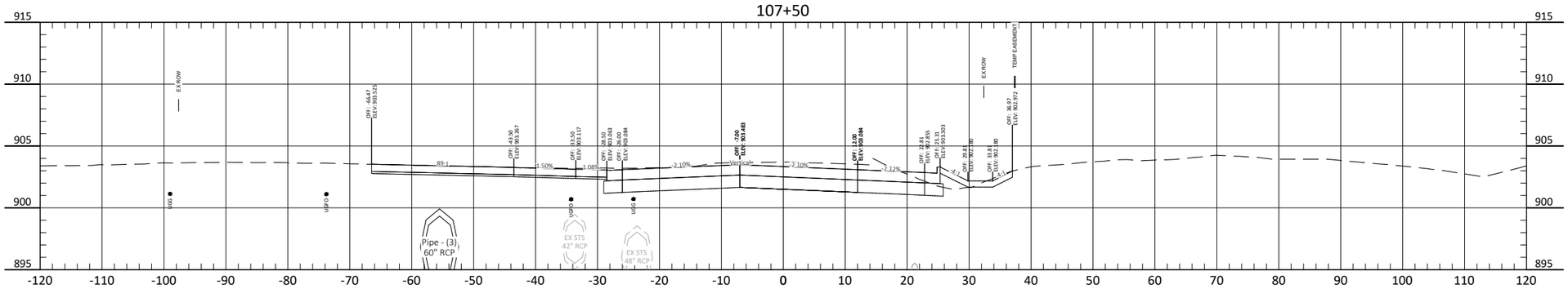
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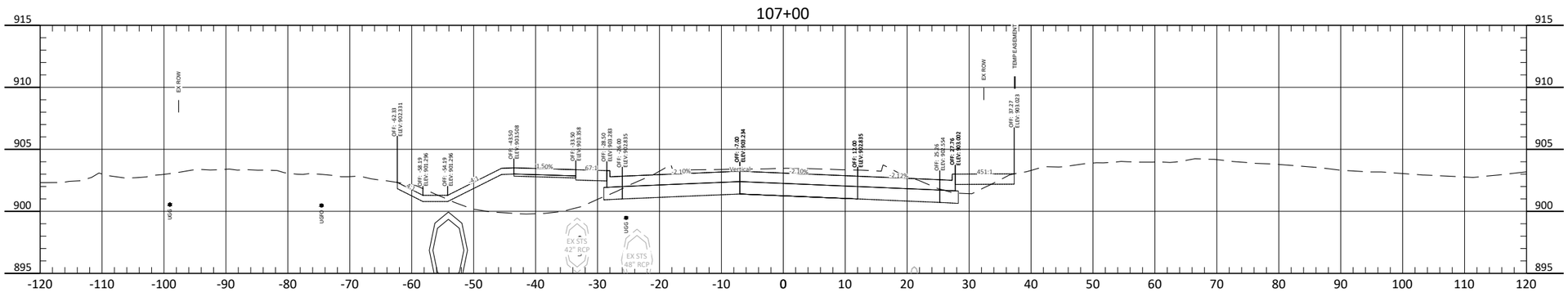
Cross Sections - 9th St NE

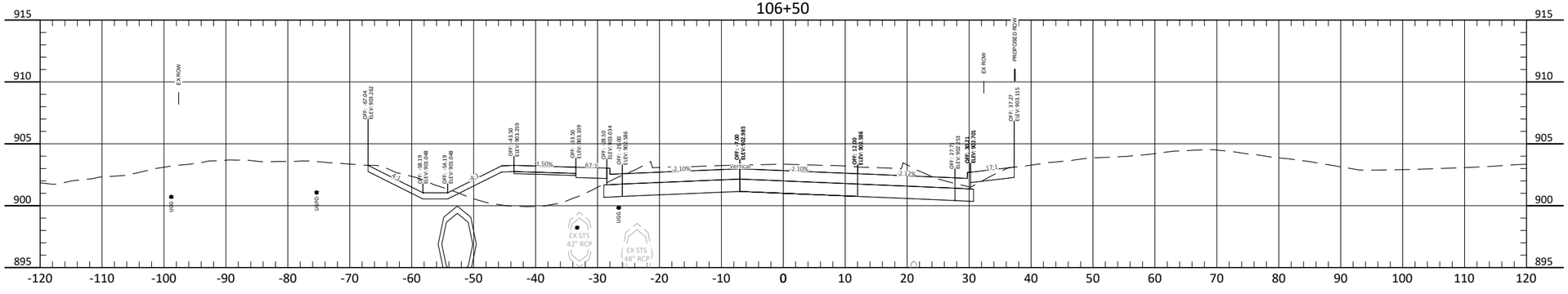
9th St NE from Main Ave to 12th Ave N
7th Ave NE from 9th St NE to 45th St N

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TMA-SU-FXP-8-992(045)	200	3







PRELIMINARY
NOT FOR CONSTRUCTION

CITY OF WEST FARGO

HOUSTON engineering, inc.

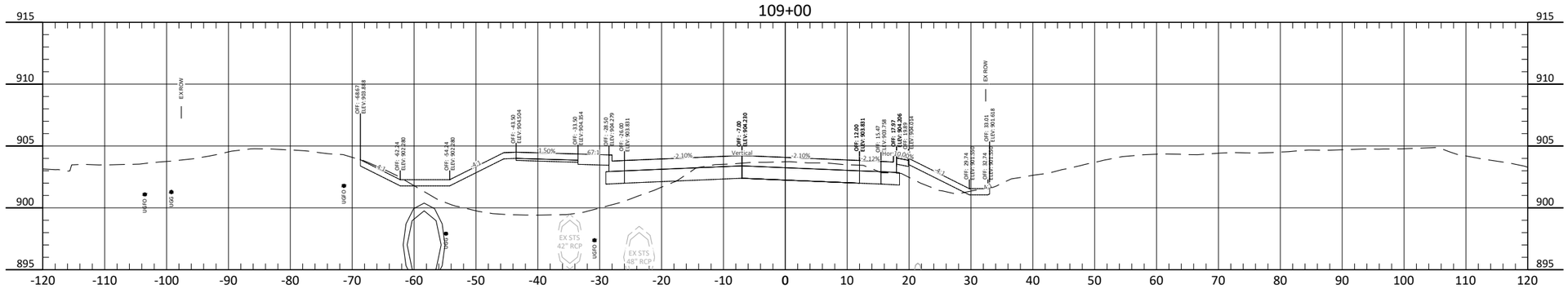
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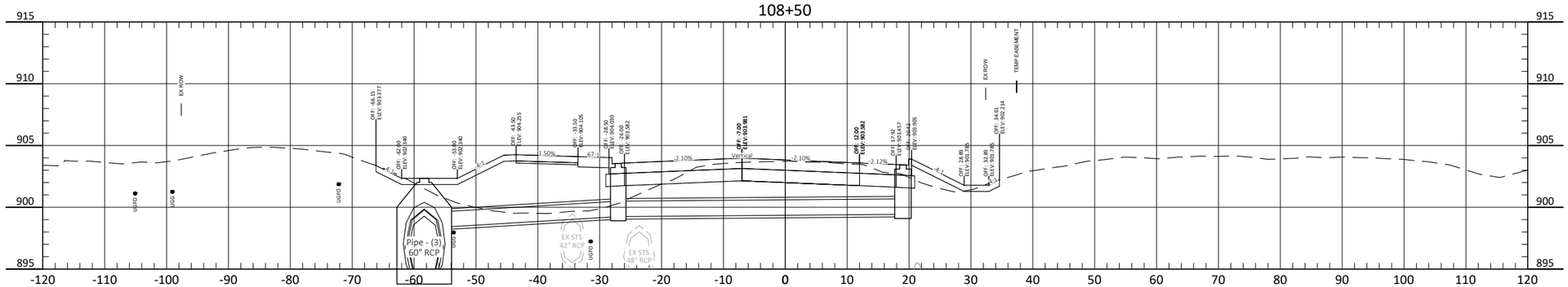
Cross Sections - 9th St NE

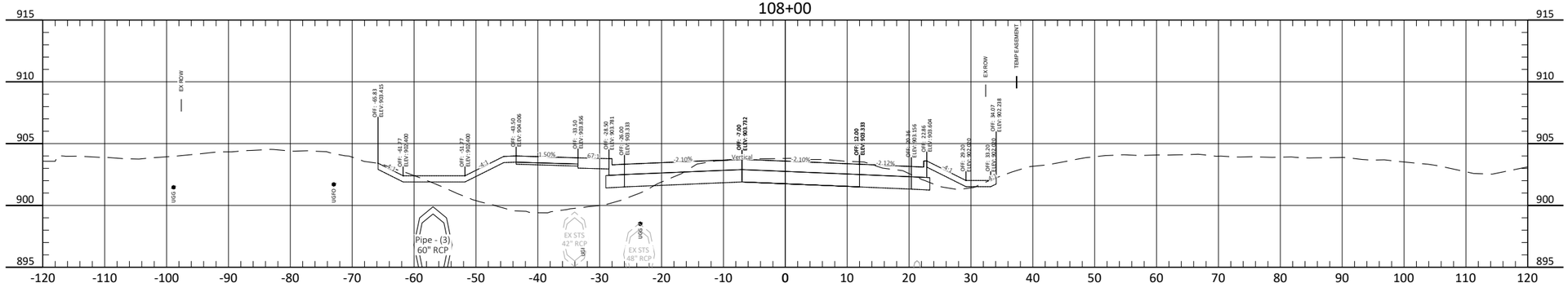
9th St NE from Main Ave to 12th Ave N
7th Ave NE from 9th St NE to 45th St N

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TMA-SU-FXP-8-992(045)	200	4







PRELIMINARY
NOT FOR CONSTRUCTION

CITY OF WEST FARGO

HOUSTON engineering, inc.

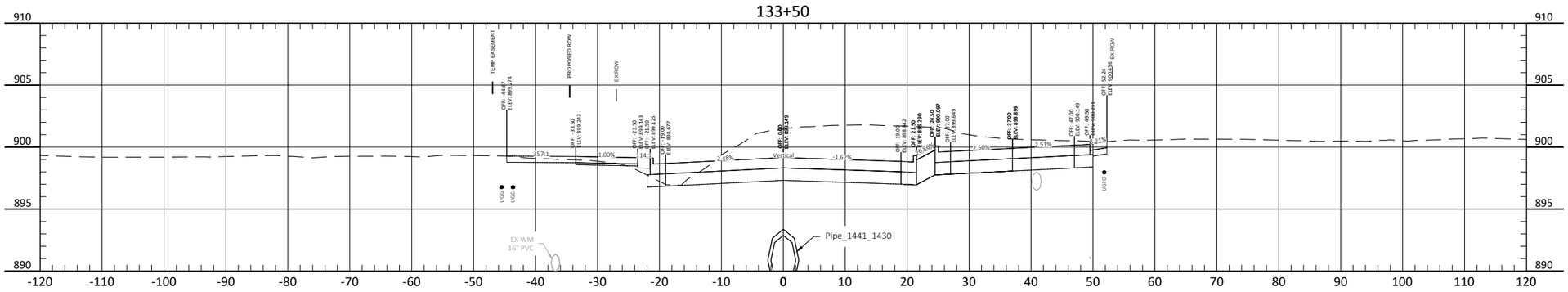
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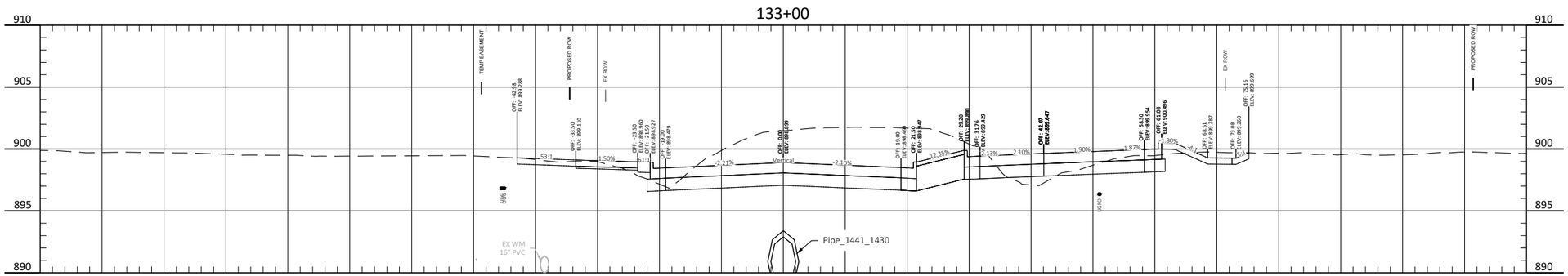
Cross Sections - 9th St NE

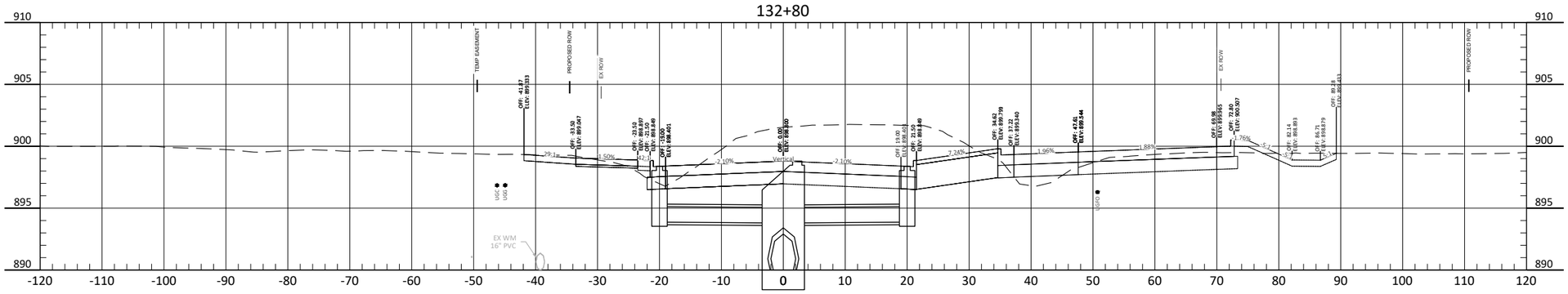
9th St NE from Main Ave to 12th Ave N
7th Ave NE from 9th St NE to 45th St N

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TMA-SU-FXP-8-992(045)	200	5







PRELIMINARY
NOT FOR CONSTRUCTION

CITY OF WEST FARGO

HOUSTON engineering, inc.

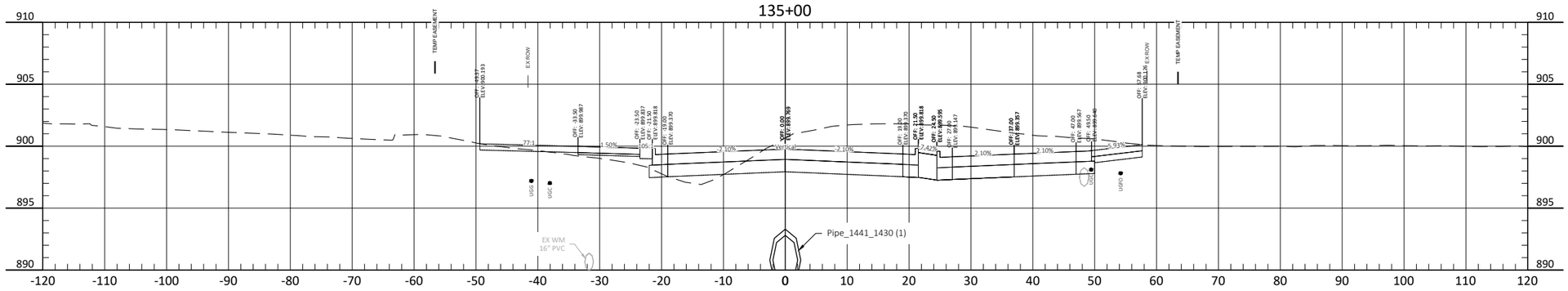
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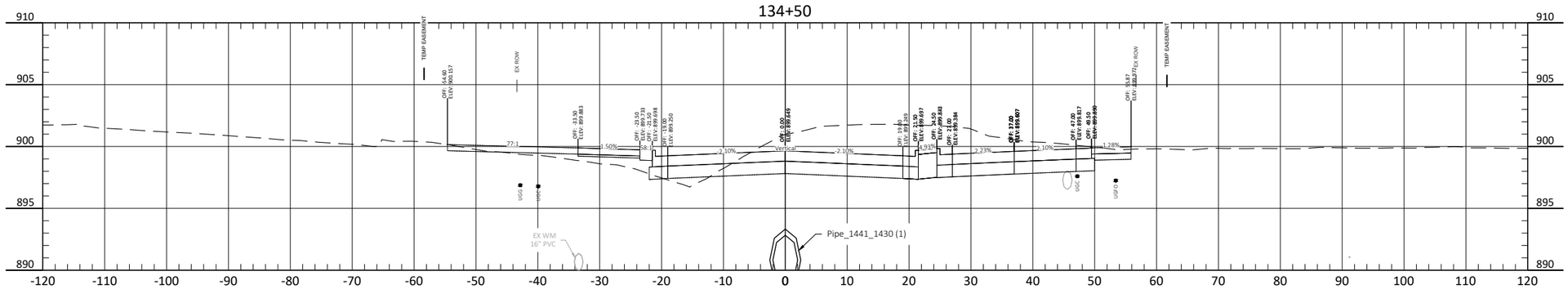
Cross Sections - 9th St NE

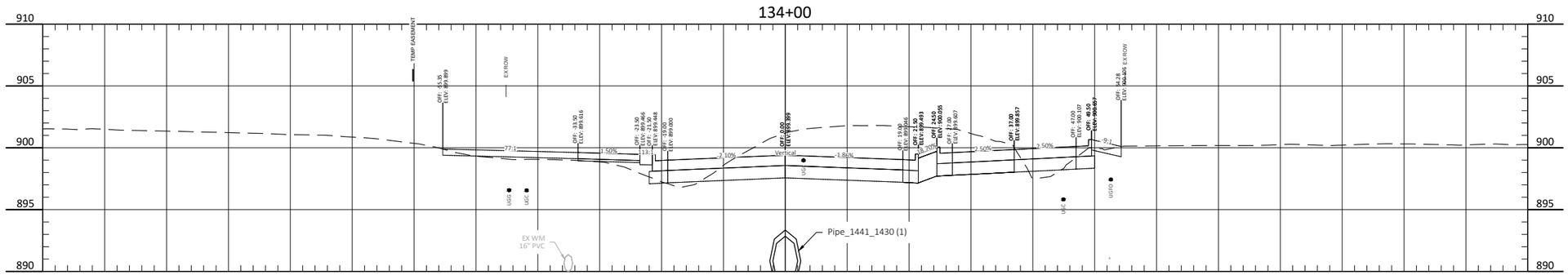
9th St NE from Main Ave to 12th Ave N
7th Ave NE from 9th St NE to 45th St N

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TMA-SU-FXP-8-992(045)	200	6







PRELIMINARY
NOT FOR CONSTRUCTION

CITY OF WEST FARGO

HOUSTON engineering, inc.

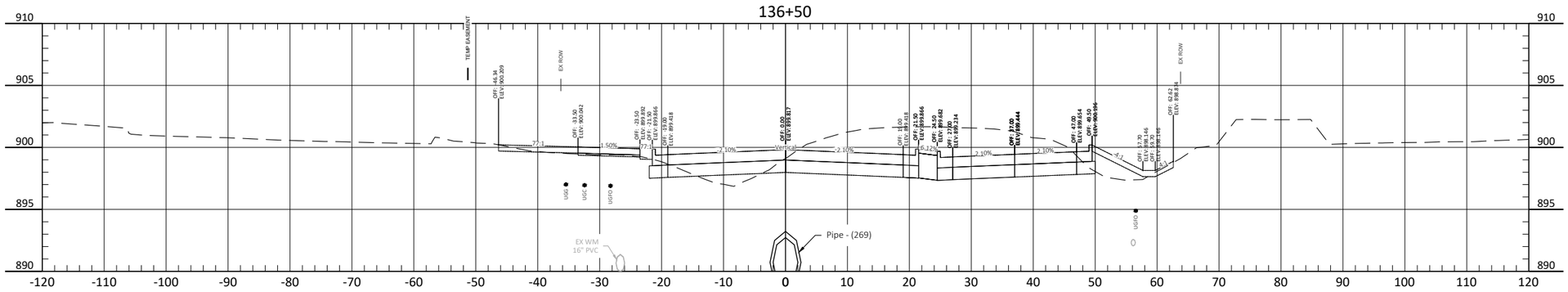
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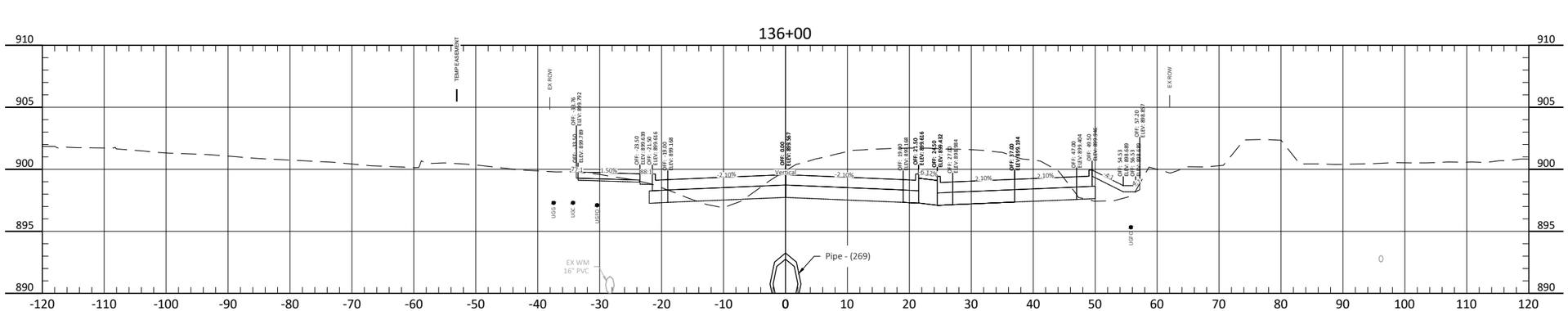
Cross Sections - 9th St NE

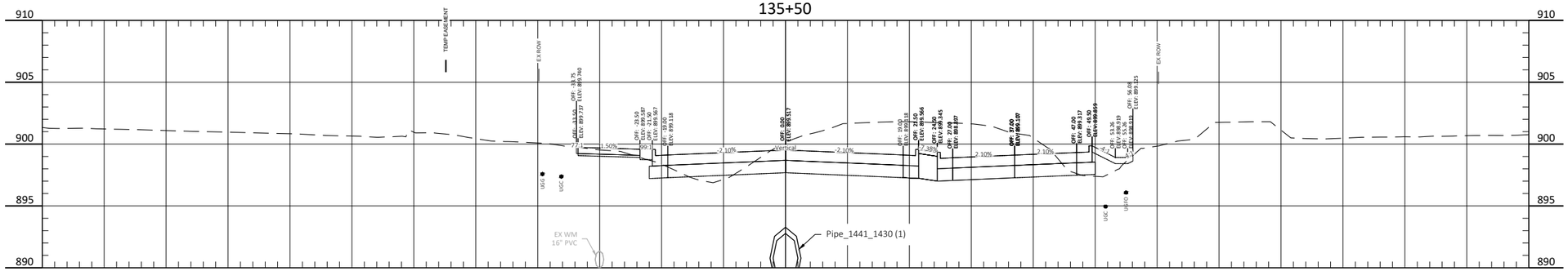
9th St NE from Main Ave to 12th Ave N
7th Ave NE from 9th St NE to 45th St N

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TMA-SU-FXP-8-992(045)	200	7







PRELIMINARY
NOT FOR CONSTRUCTION

CITY OF WEST FARGO

HOUSTON engineering, inc.

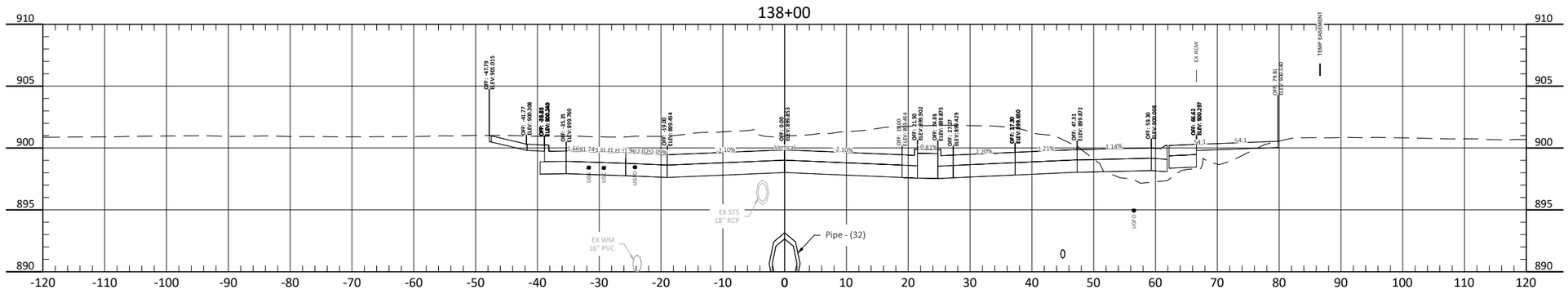
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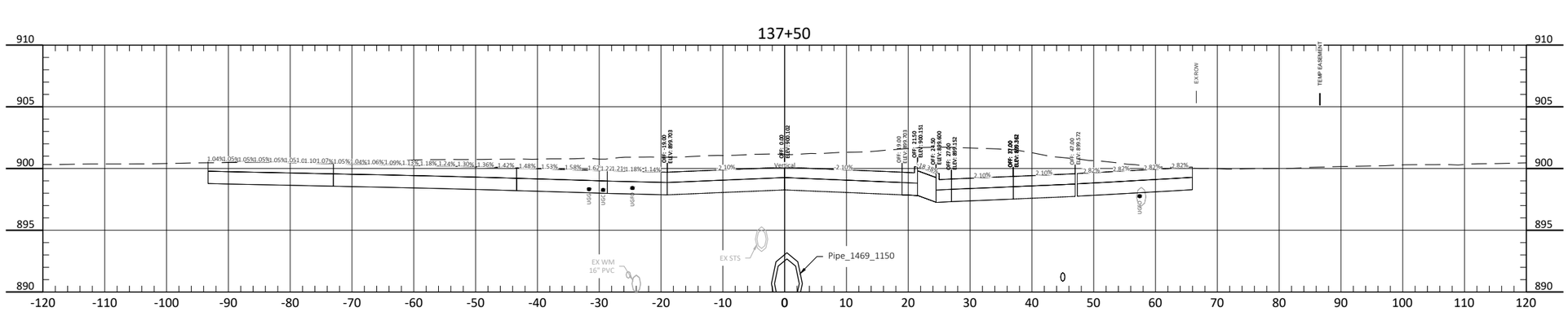
Cross Sections - 9th St NE

9th St NE from Main Ave to 12th Ave N
7th Ave NE from 9th St NE to 45th St N

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TMA-SU-FXP-8-992(045)	200	8





PRELIMINARY
NOT FOR CONSTRUCTION

CITY OF WEST FARGO

HOUSTON engineering, inc.

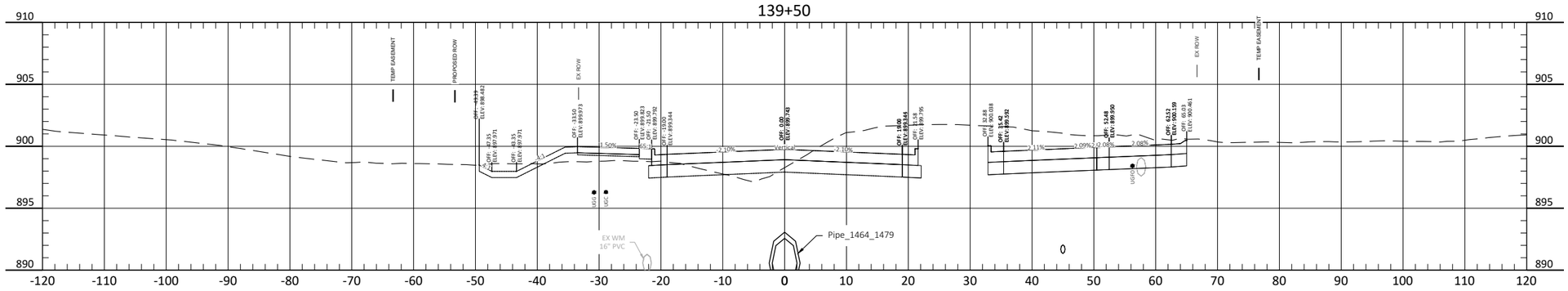
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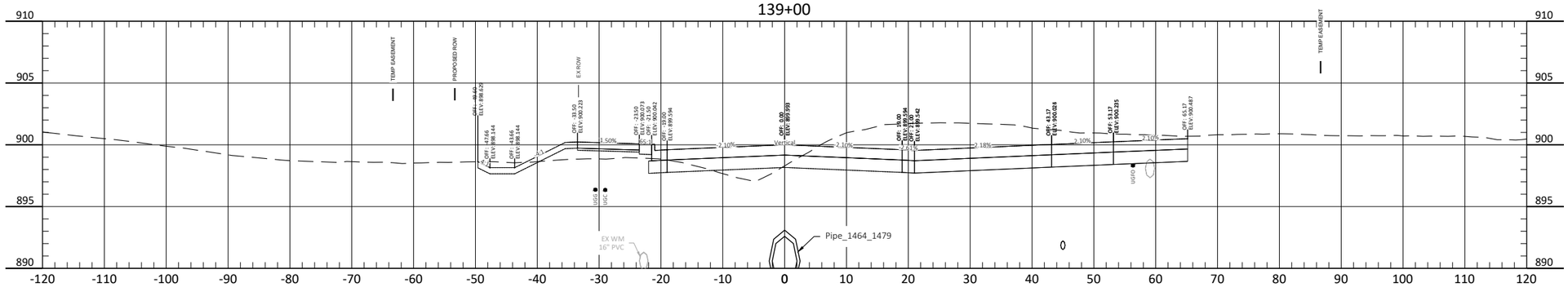
Cross Sections - 9th St NE

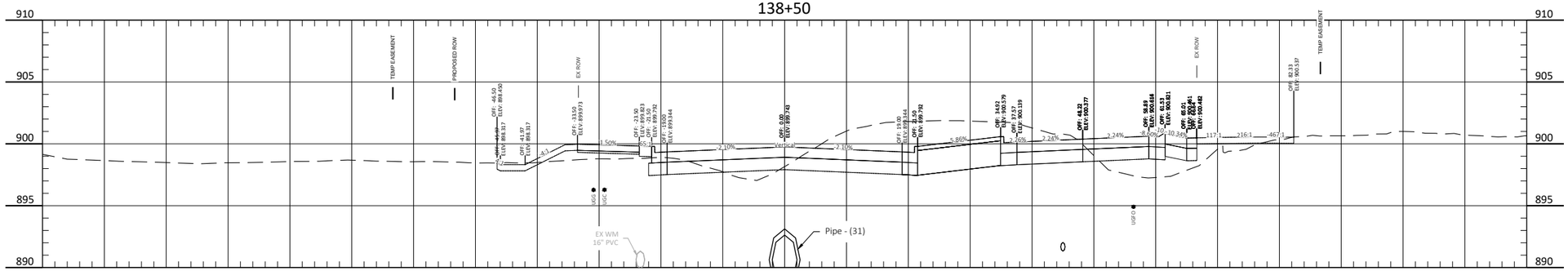
9th St NE from Main Ave to 12th Ave N
7th Ave NE from 9th St NE to 45th St N

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TMA-SU-FXP-8-992(045)	200	9







PRELIMINARY
NOT FOR CONSTRUCTION

CITY OF WEST FARGO

HOUSTON engineering, inc.

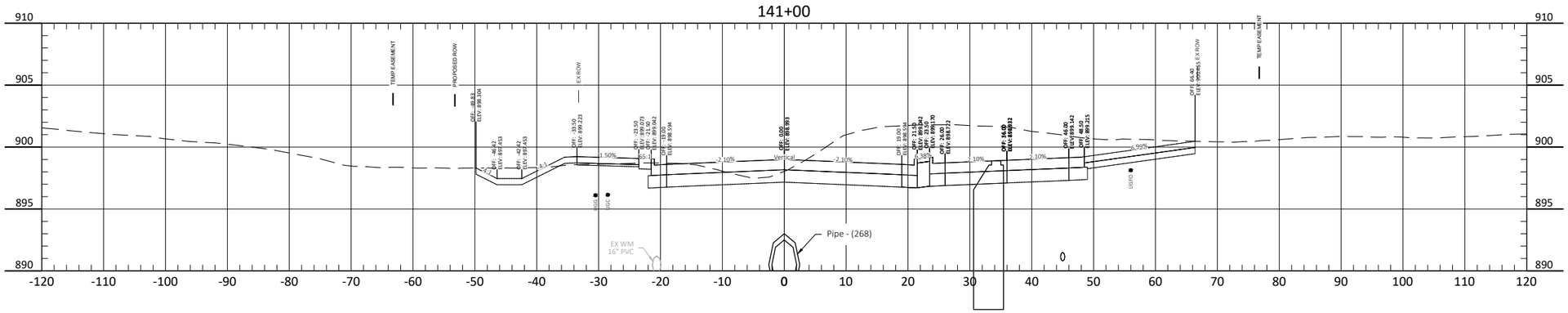
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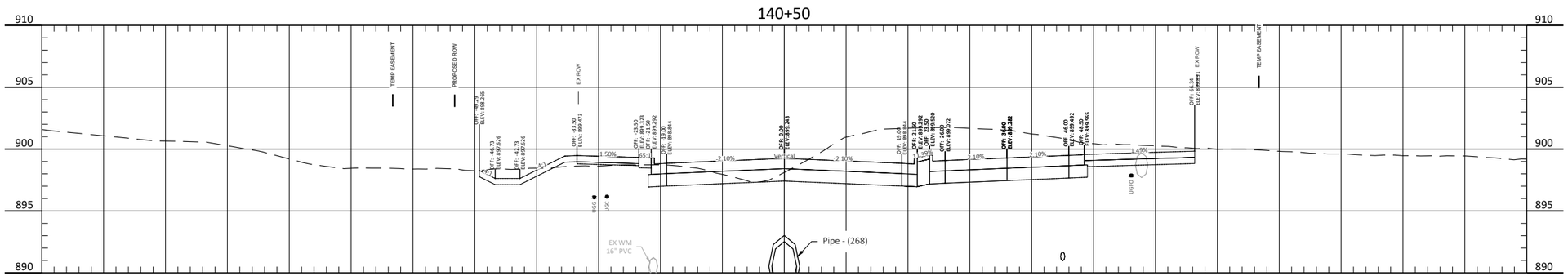
Cross Sections - 9th St NE

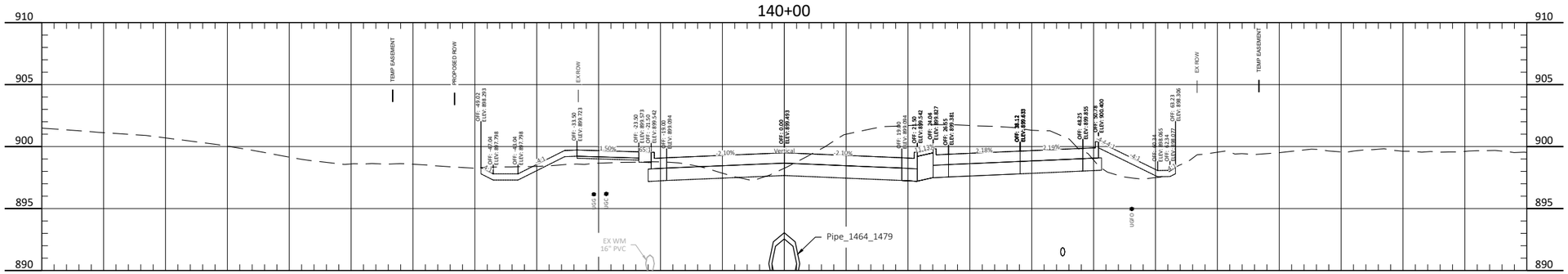
9th St NE from Main Ave to 12th Ave N
7th Ave NE from 9th St NE to 45th St N

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TMA-SU-FXP-8-992(045)	200	10







PRELIMINARY
NOT FOR CONSTRUCTION

CITY OF WEST FARGO

HOUSTON engineering, inc.

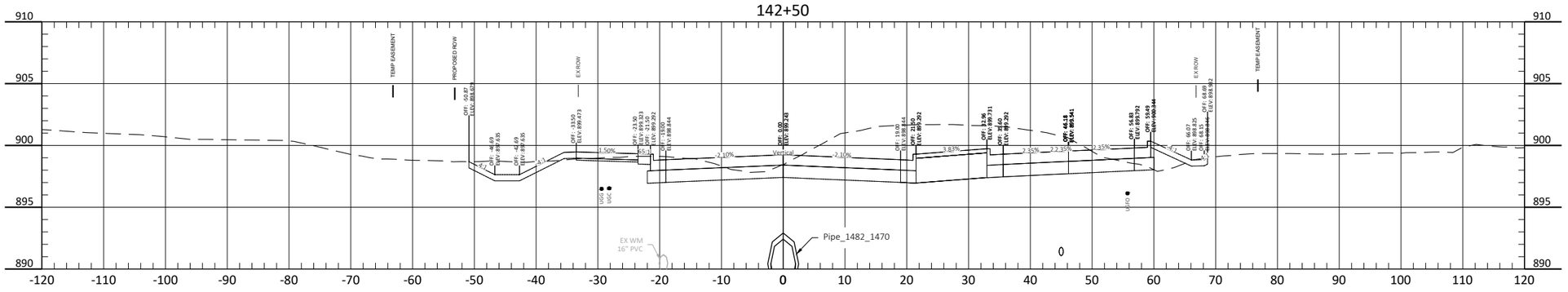
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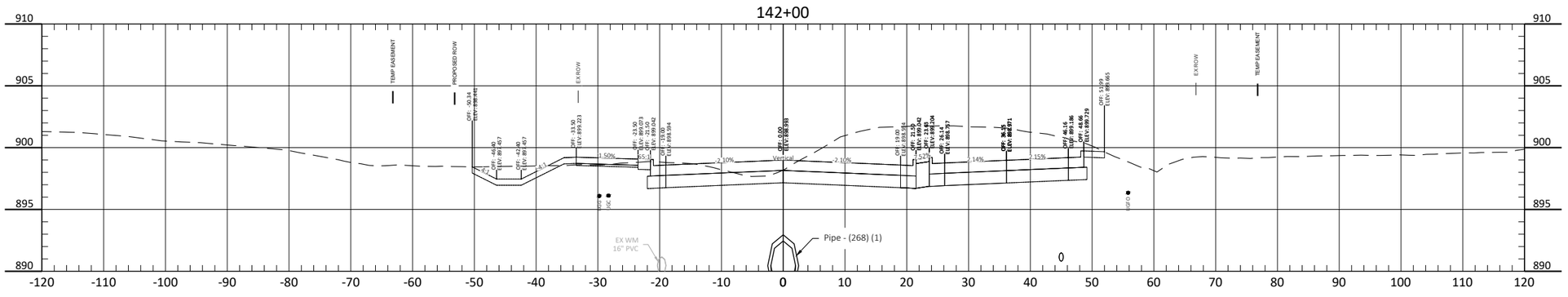
Cross Sections - 9th St NE

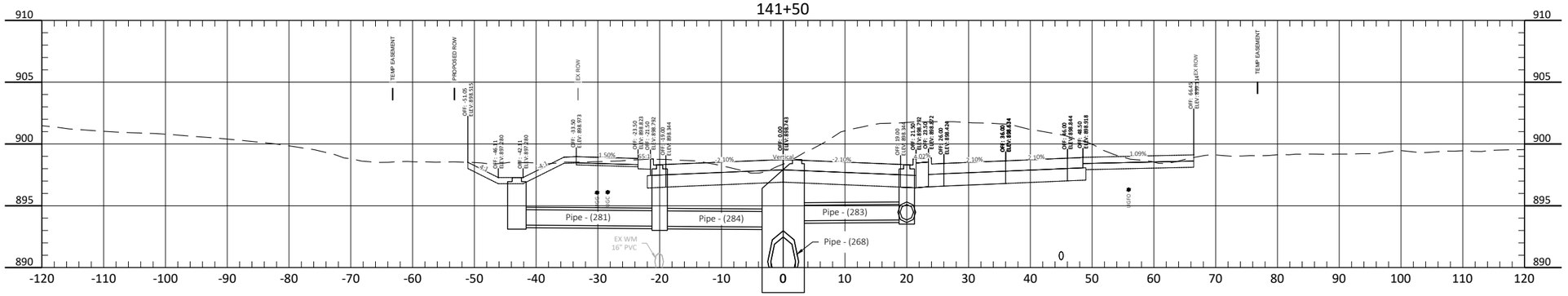
9th St NE from Main Ave to 12th Ave N
7th Ave NE from 9th St NE to 45th St N

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TMA-SU-FXP-8-992(045)	200	11







PRELIMINARY
NOT FOR CONSTRUCTION

CITY OF WEST FARGO

HOUSTON engineering, inc.

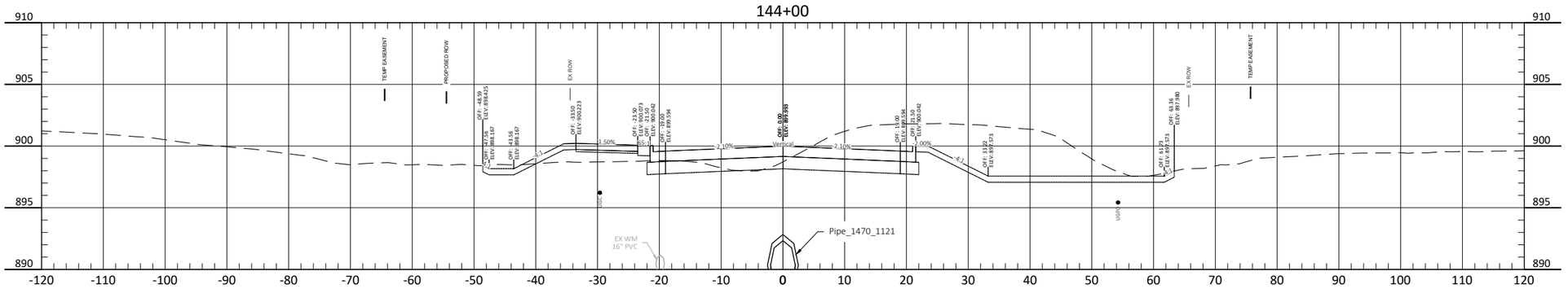
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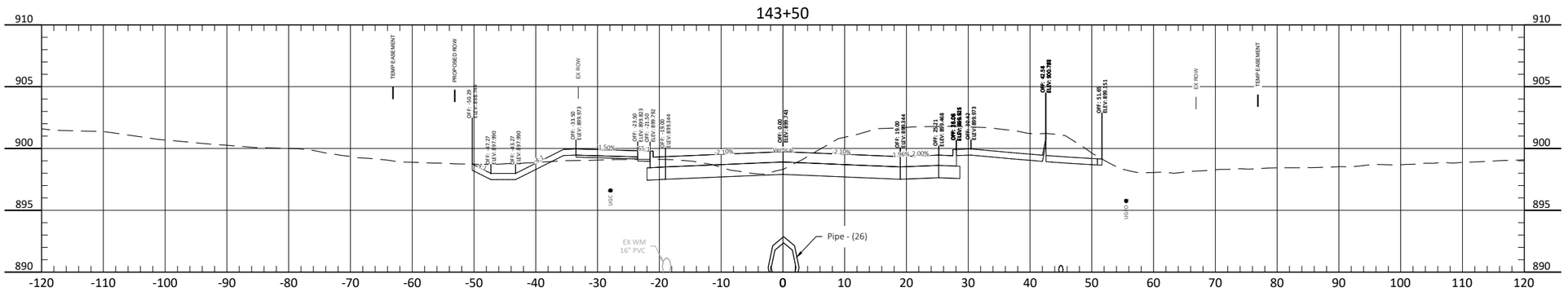
Cross Sections - 9th St NE

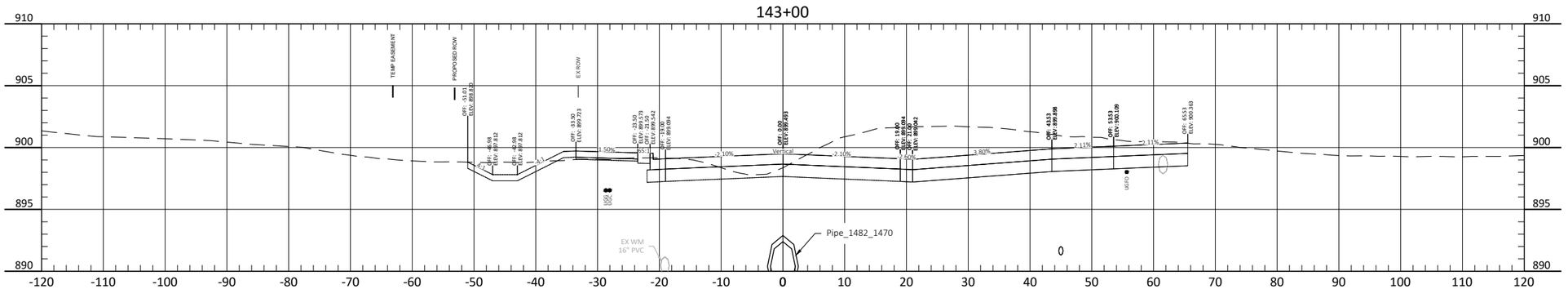
9th St NE from Main Ave to 12th Ave N
7th Ave NE from 9th St NE to 45th St N

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TMA-SU-FXP-8-992(045)	200	12







PRELIMINARY
NOT FOR CONSTRUCTION

CITY OF WEST FARGO

HOUSTON engineering, inc.

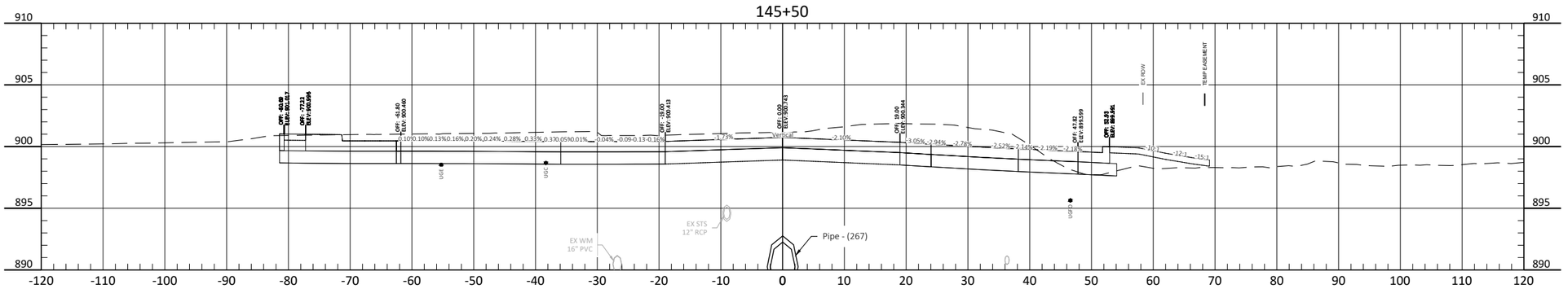
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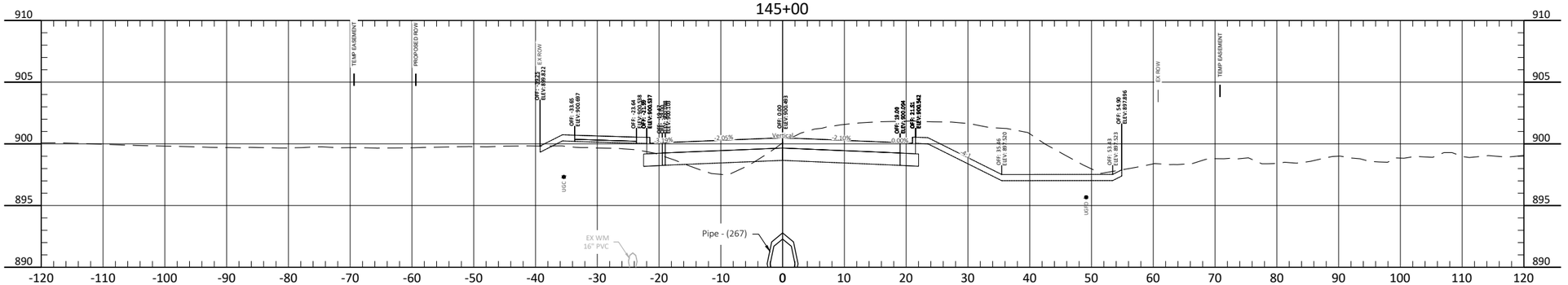
Cross Sections - 9th St NE

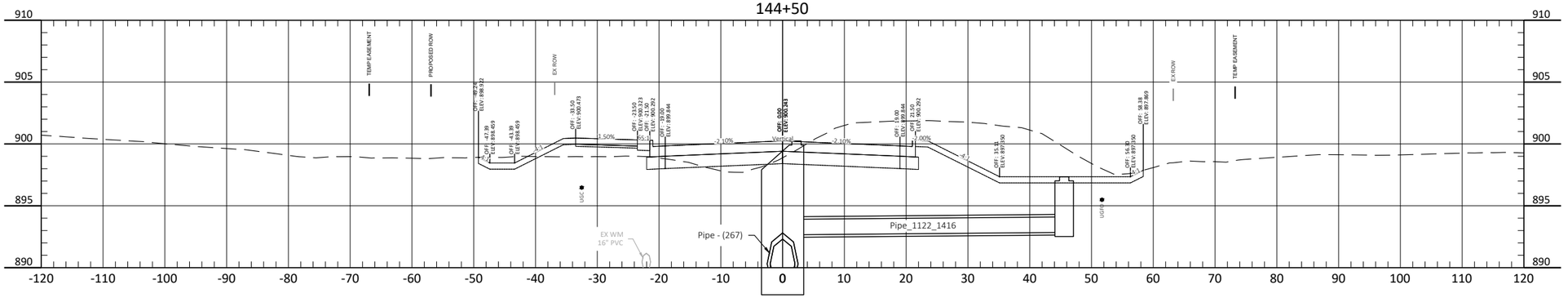
9th St NE from Main Ave to 12th Ave N
7th Ave NE from 9th St NE to 45th St N

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TMA-SU-FXP-8-992(045)	200	13







PRELIMINARY
NOT FOR CONSTRUCTION

CITY OF WEST FARGO

HOUSTON engineering, inc.

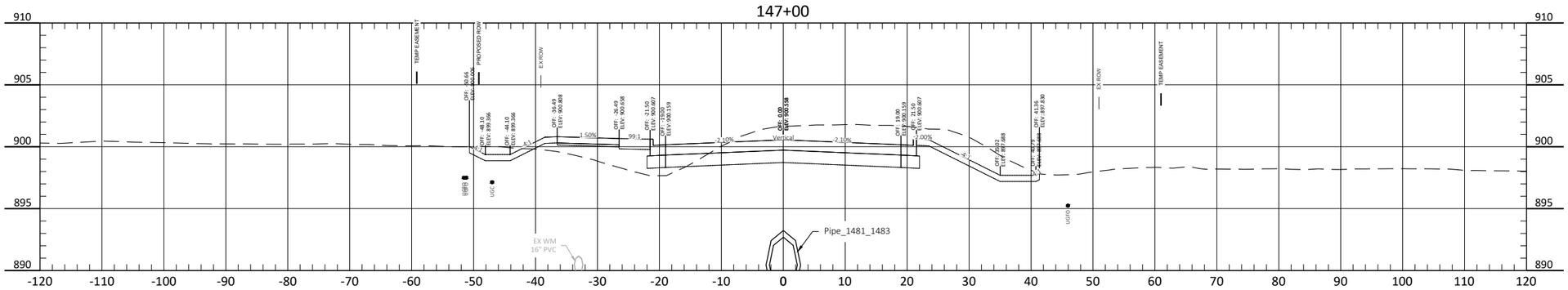
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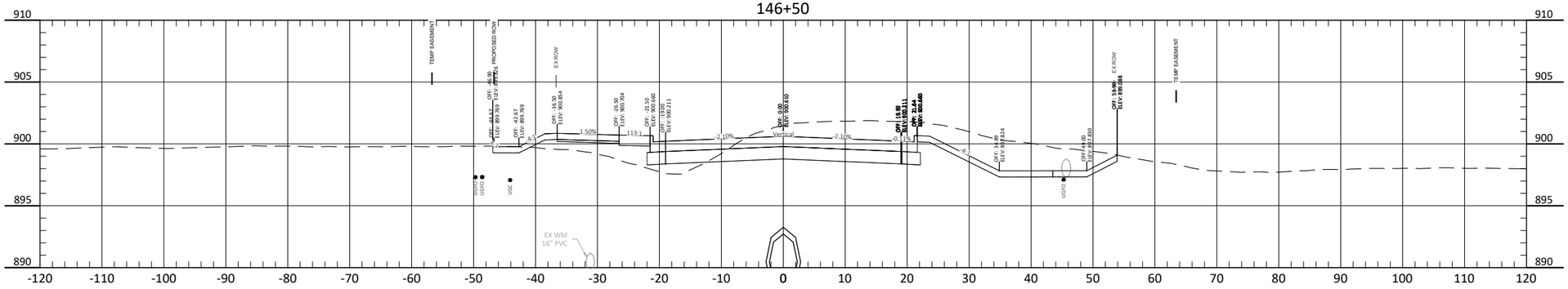
Cross Sections - 9th St NE

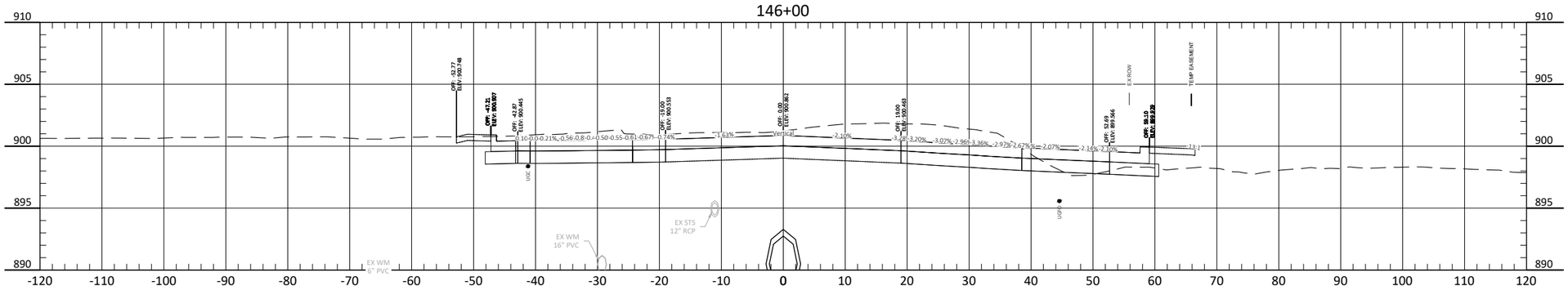
9th St NE from Main Ave to 12th Ave N
7th Ave NE from 9th St NE to 45th St N

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TMA-SU-FXP-8-992(045)	200	14







PRELIMINARY
NOT FOR CONSTRUCTION

CITY OF WEST FARGO

HOUSTON engineering, inc.

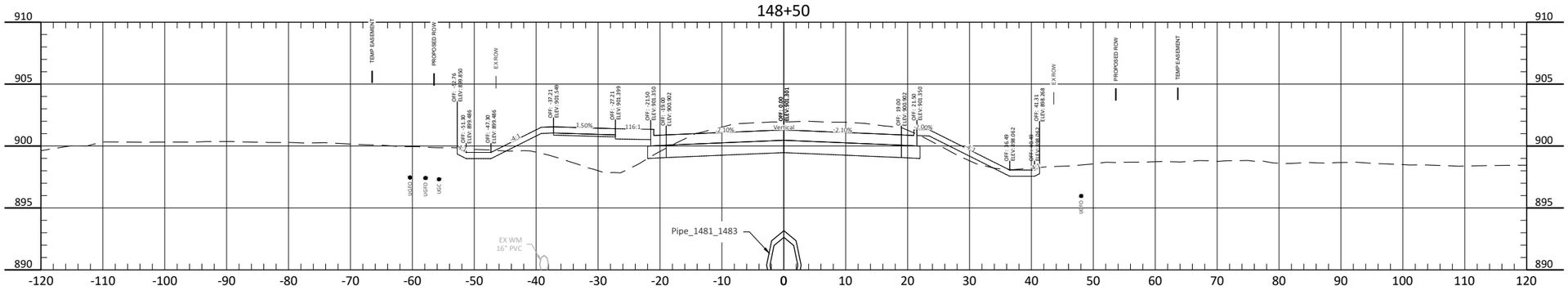
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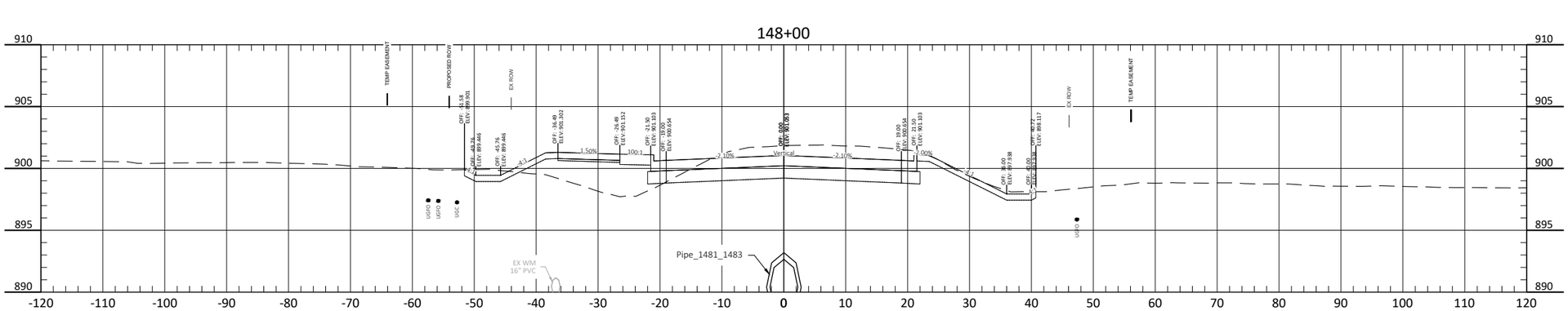
Cross Sections - 9th St NE

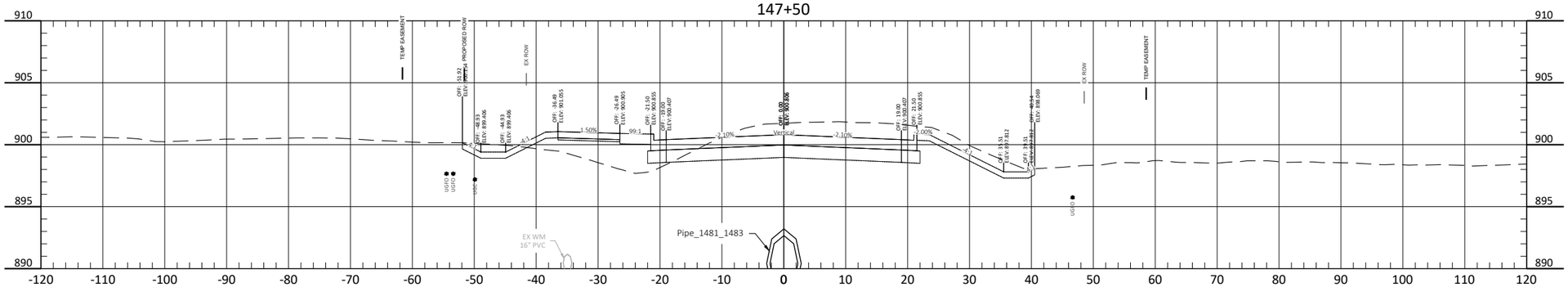
9th St NE from Main Ave to 12th Ave N
7th Ave NE from 9th St NE to 45th St N

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TMA-SU-FXP-8-992(045)	200	15







PRELIMINARY
NOT FOR CONSTRUCTION

CITY OF WEST FARGO

HOUSTON engineering, inc.

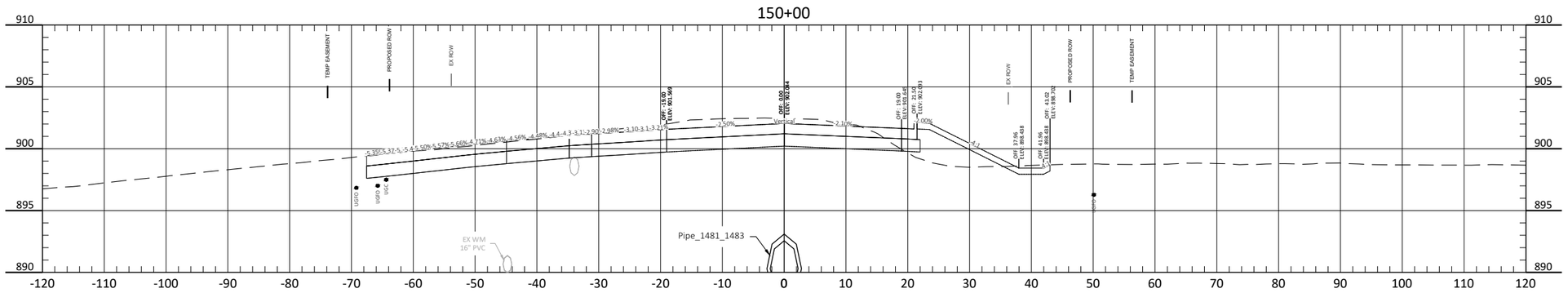
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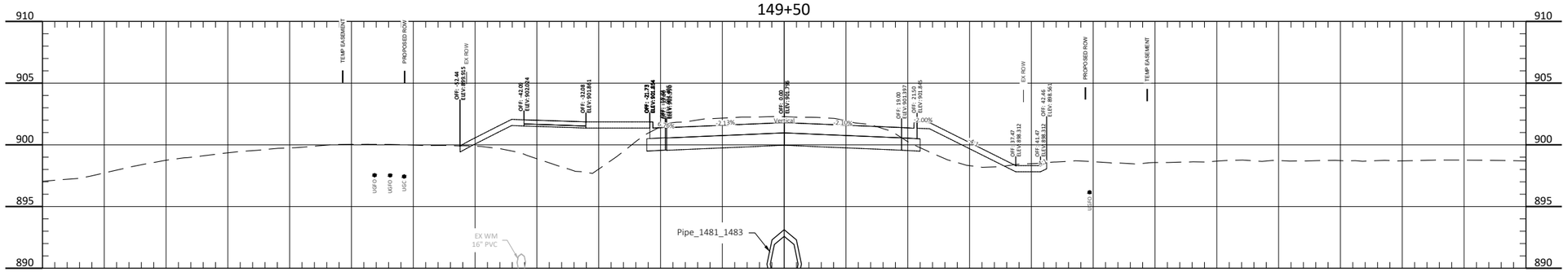
Cross Sections - 9th St NE

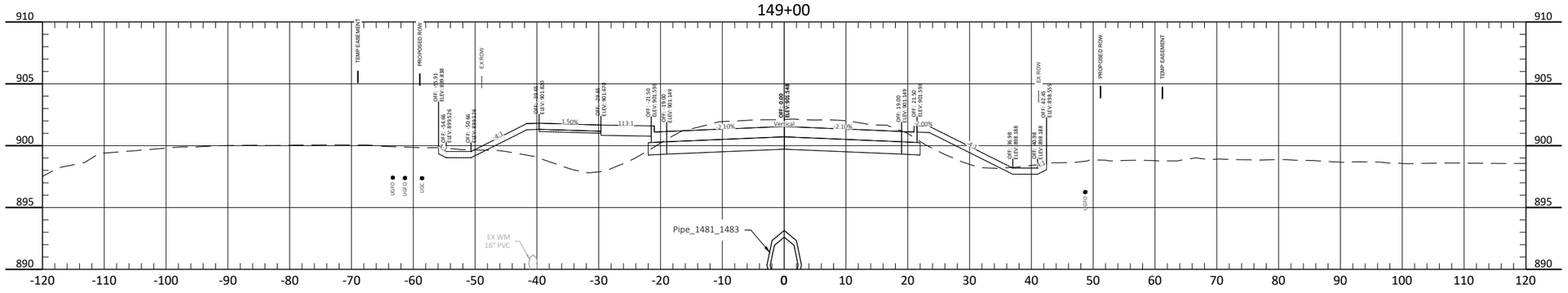
9th St NE from Main Ave to 12th Ave N
7th Ave NE from 9th St NE to 45th St N

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TMA-SU-FXP-8-992(045)	200	16







PRELIMINARY
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CITY OF WEST FARGO

HOUSTON engineering, inc.

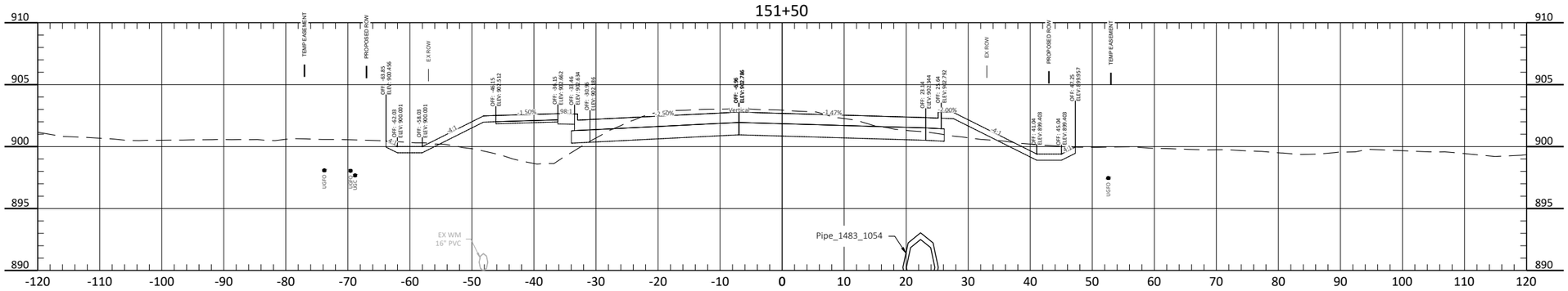
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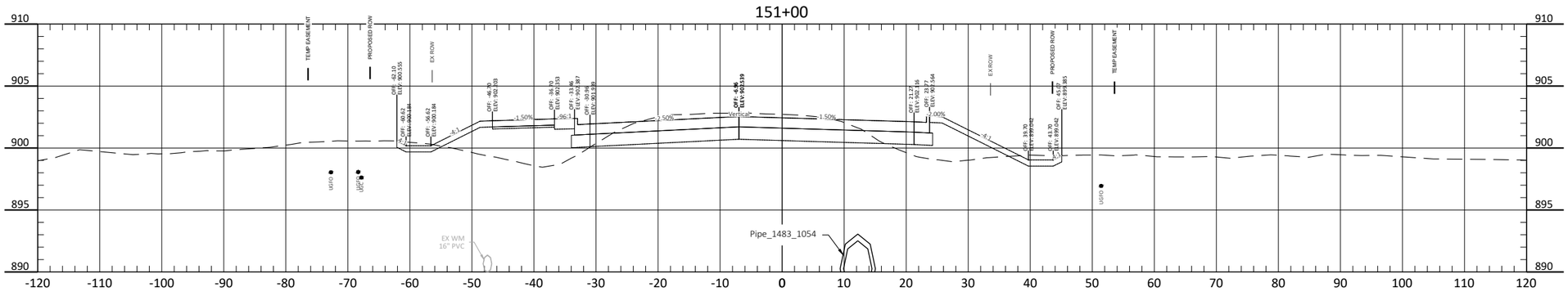
Cross Sections - 9th St NE

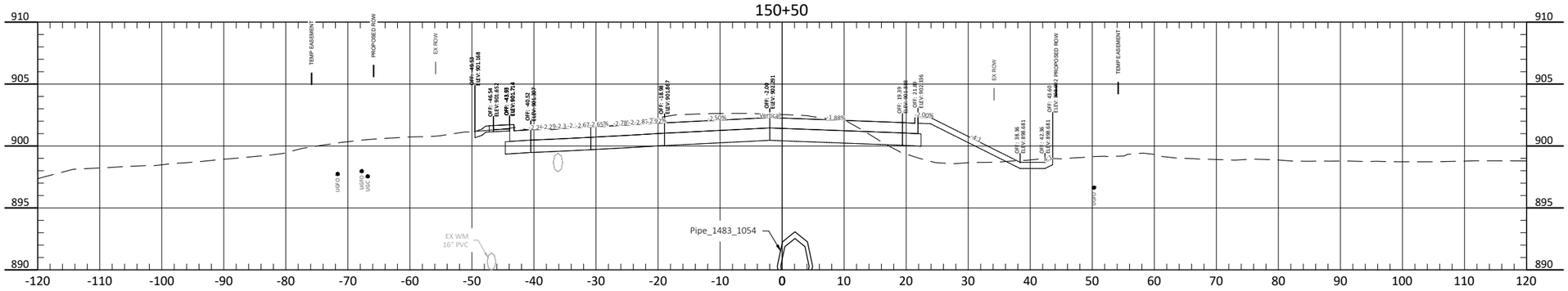
9th St NE from Main Ave to 12th Ave N
7th Ave NE from 9th St NE to 45th St N

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TMA-SU-FXP-8-992(045)	200	17







PRELIMINARY
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CITY OF WEST FARGO

HOUSTON engineering, inc.

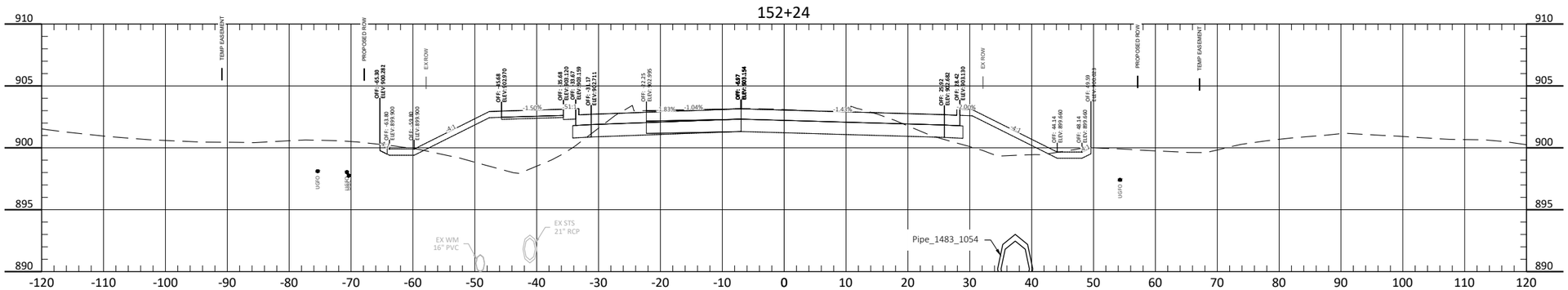
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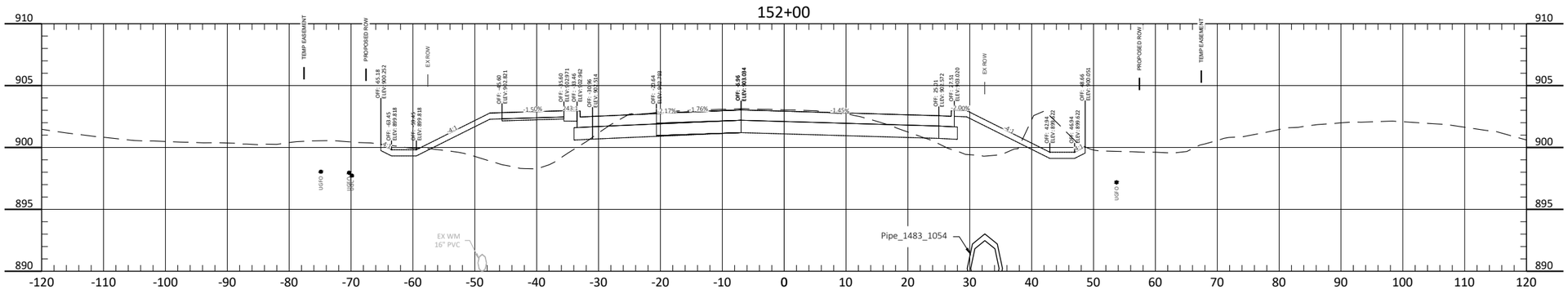
Cross Sections - 9th St NE

9th St NE from Main Ave to 12th Ave N
7th Ave NE from 9th St NE to 45th St N

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TMA-SU-FXP-8-992(045)	200	18





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CITY OF WEST FARGO

HOUSTON engineering, inc.

ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

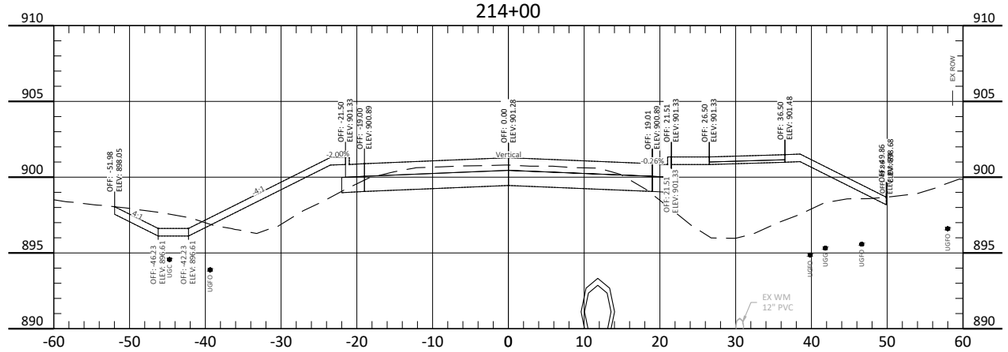
Cross Sections - 9th St NE

9th St NE from Main Ave to 12th Ave N
7th Ave NE from 9th St NE to 45th St N

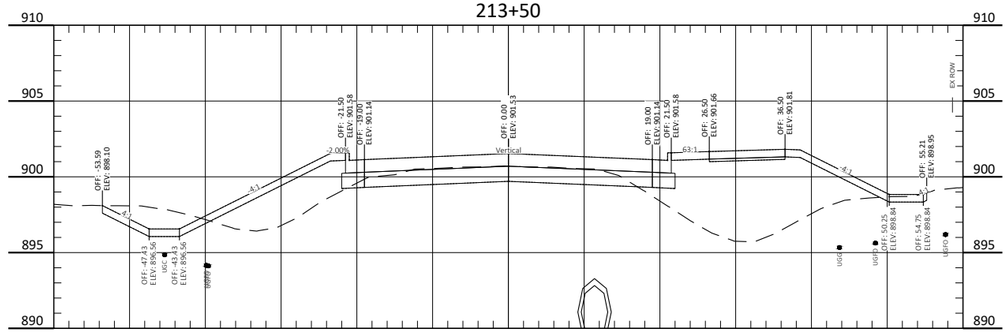
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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TMA-SU-FXP-8-992(045)	200	19

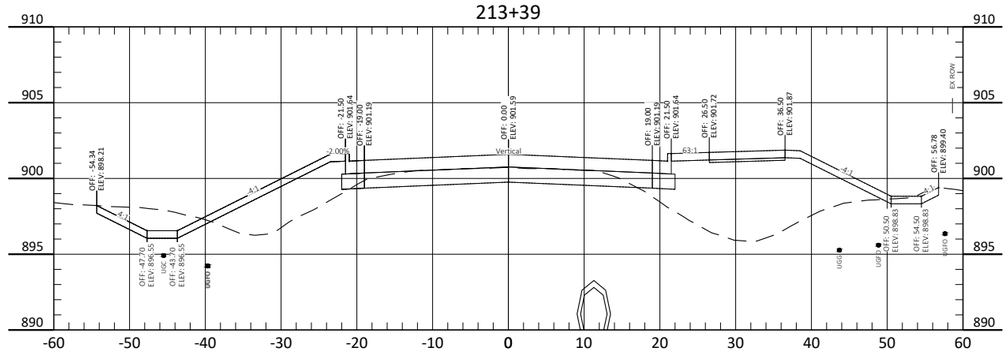
214+00



213+50



213+39



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CITY OF WEST FARGO

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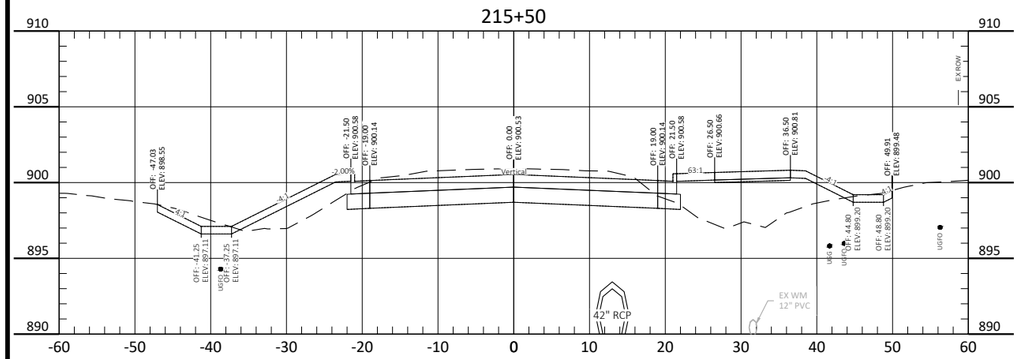
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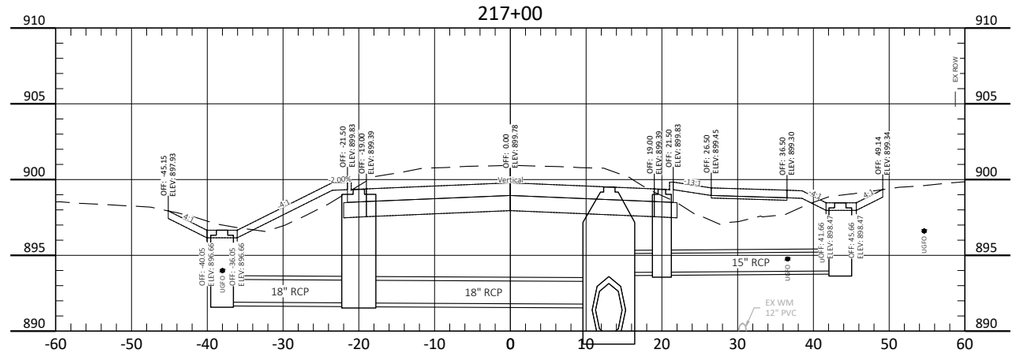
Cross Sections - 7th Ave NE

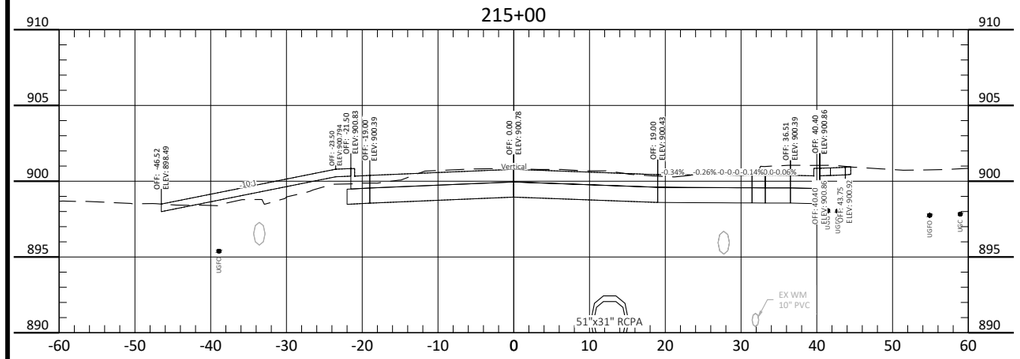
9th St NE from Main Ave to 12th Ave N
7th Ave NE from 9th St NE to 45th St N

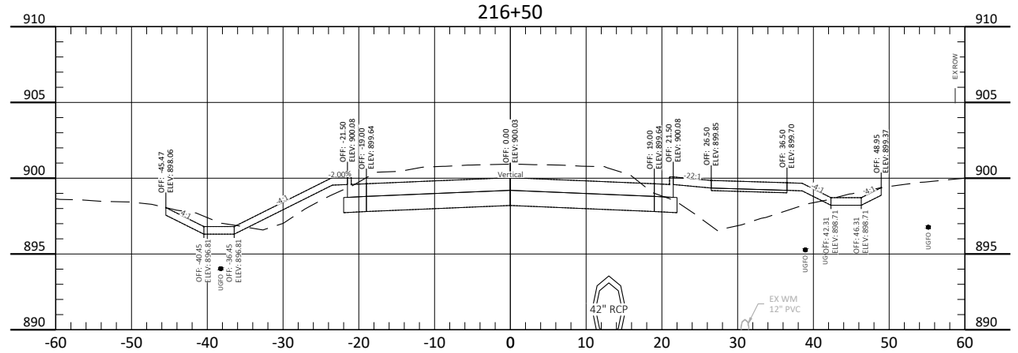
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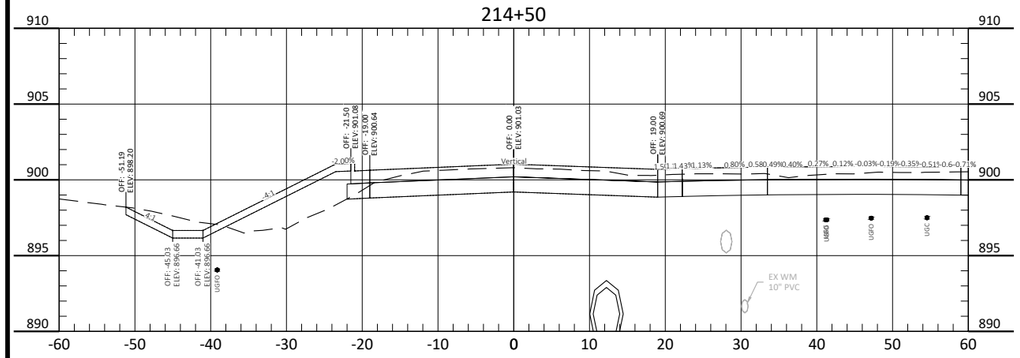
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TMA-SU-FXP-8-992(045)	200	20

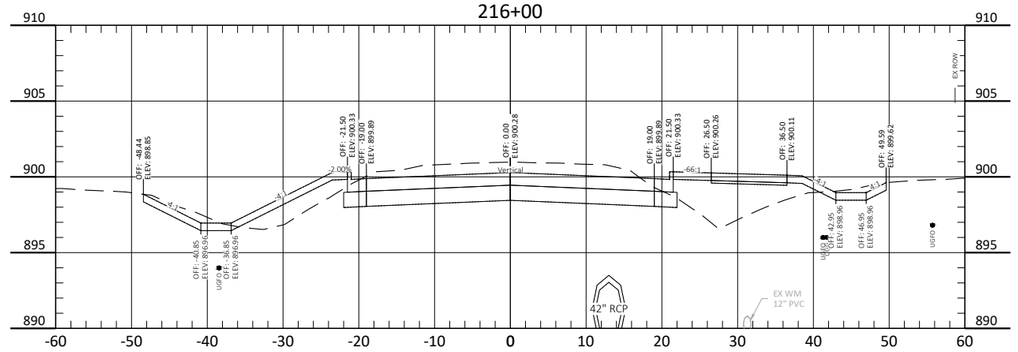












PRELIMINARY
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CITY OF WEST FARGO

HOUSTON engineering, inc.

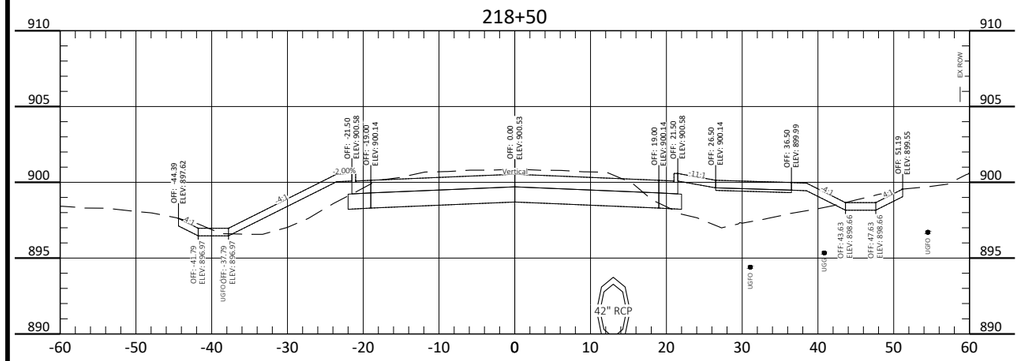
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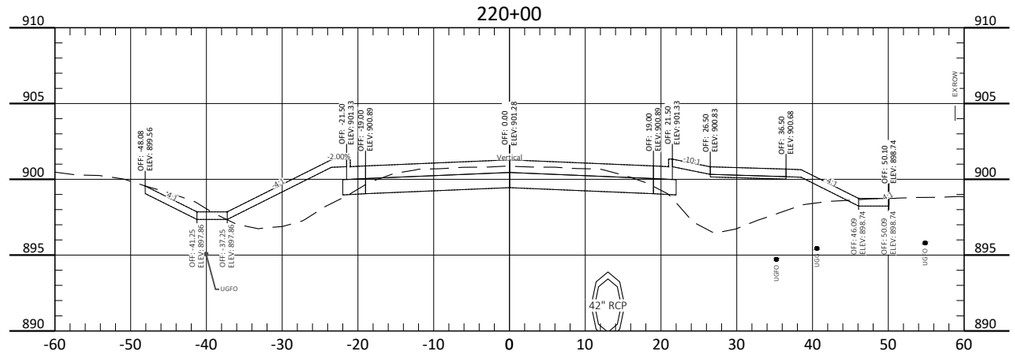
Cross Sections - 7th Ave NE

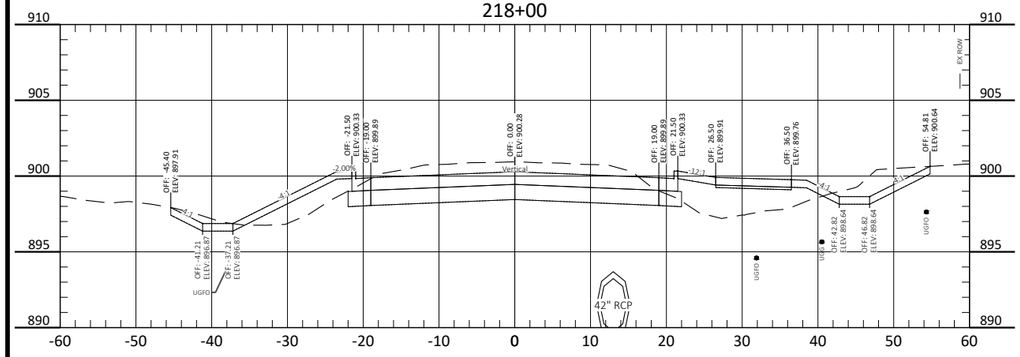
9th St NE from Main Ave to 12th Ave N
7th Ave NE from 9th St NE to 45th St N

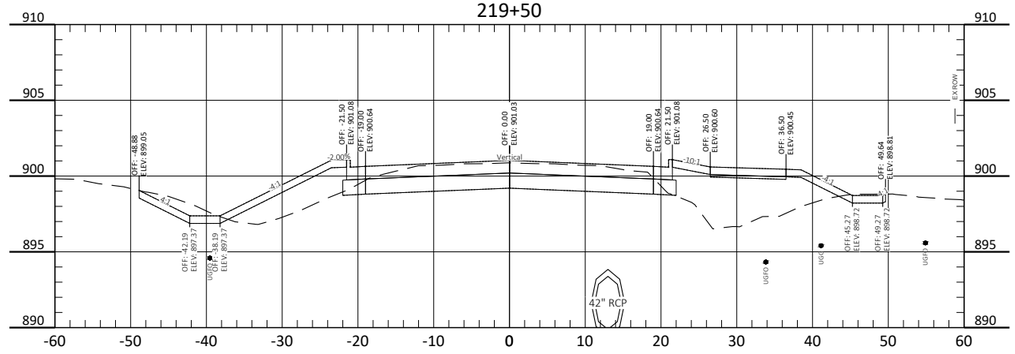
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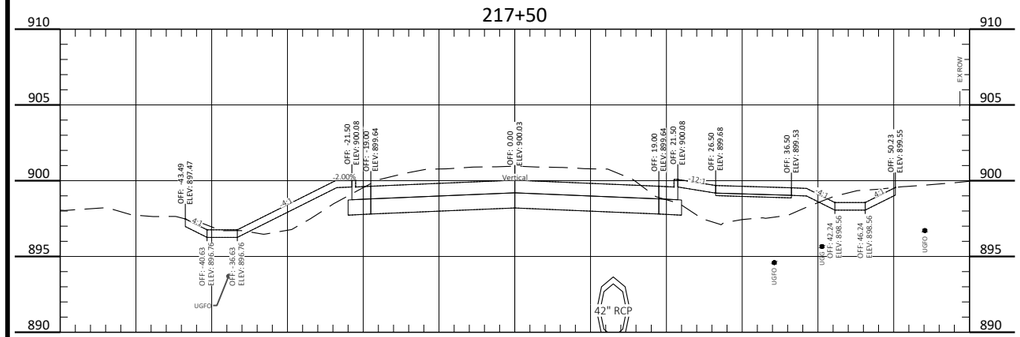
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TMA-SU-FXP-8-992(045)	200	21

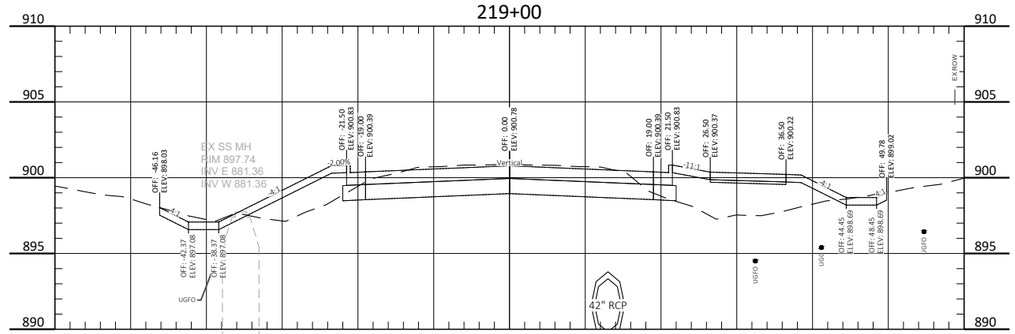












PRELIMINARY
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CITY OF WEST FARGO

HOUSTON engineering, inc.

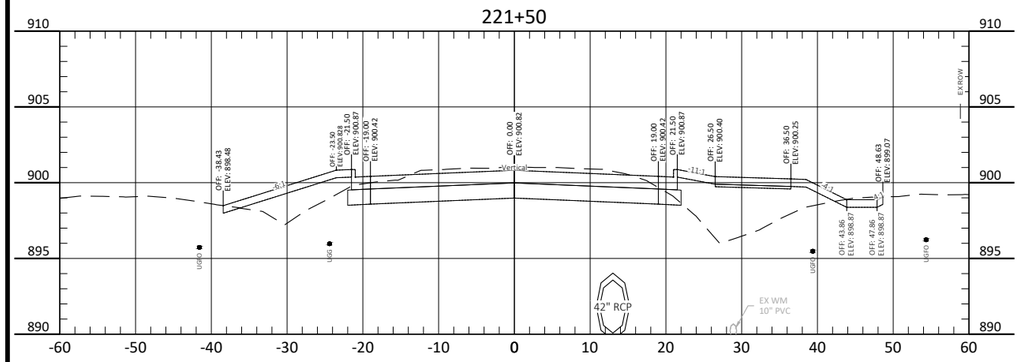
ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

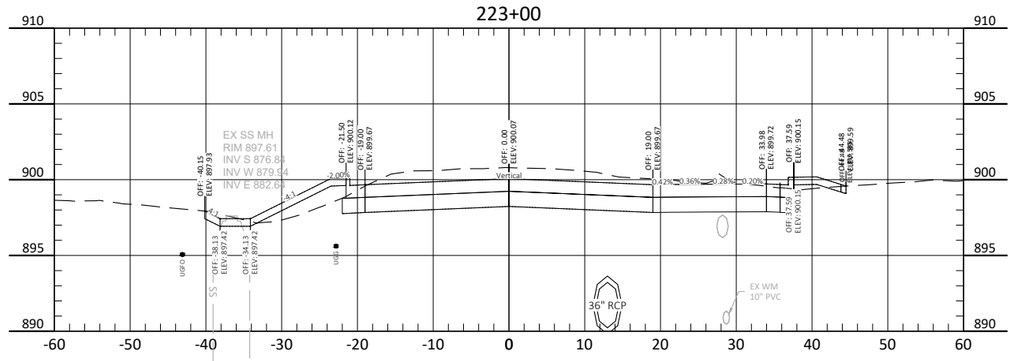
Cross Sections - 7th Ave NE

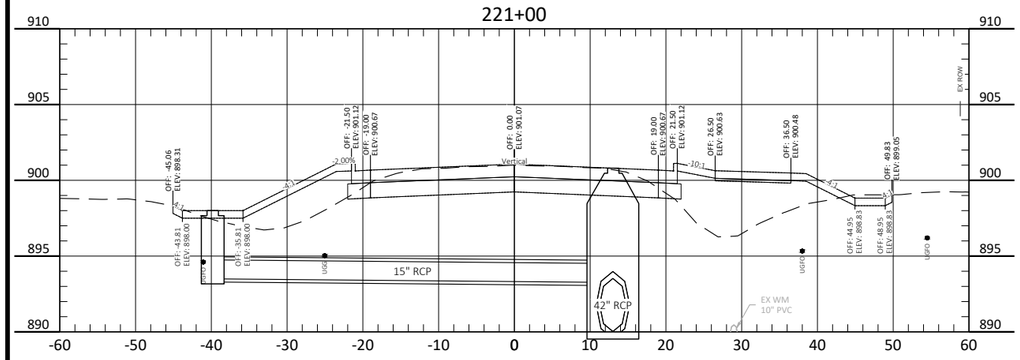
9th St NE from Main Ave to 12th Ave N
7th Ave NE from 9th St NE to 45th St N

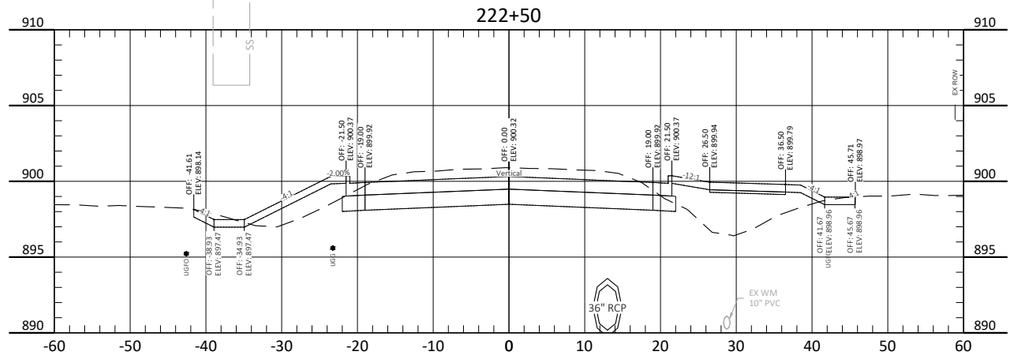
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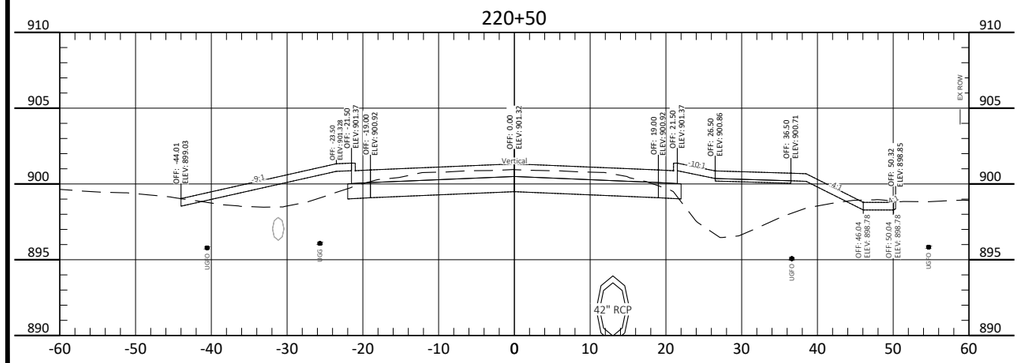
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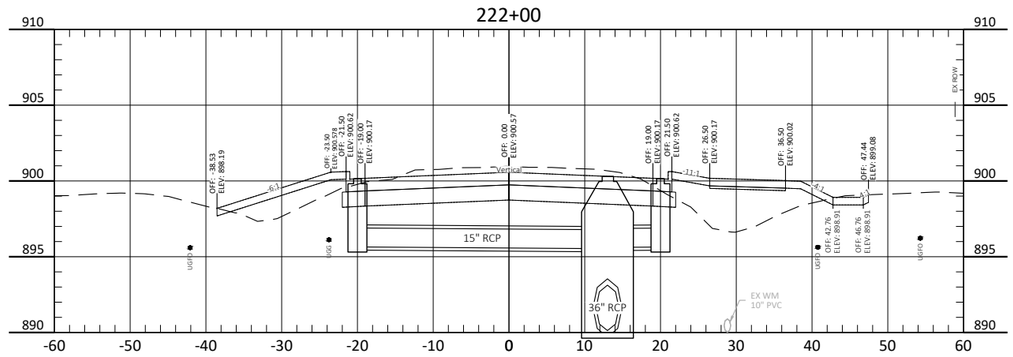












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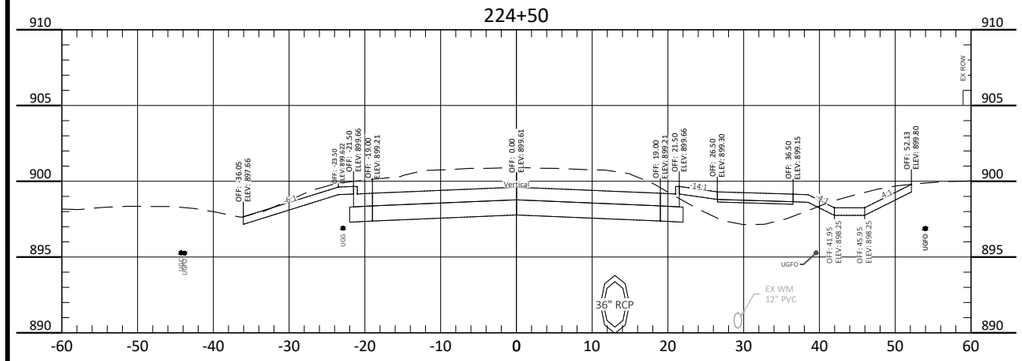
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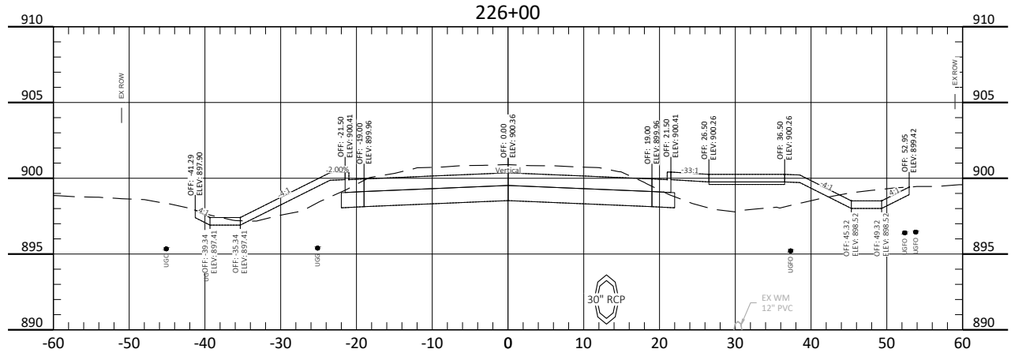
Cross Sections - 7th Ave NE

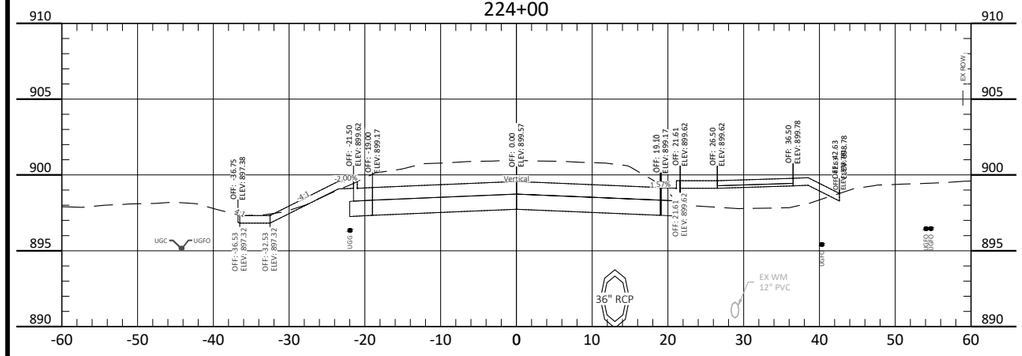
9th St NE from Main Ave to 12th Ave N
7th Ave NE from 9th St NE to 45th St N

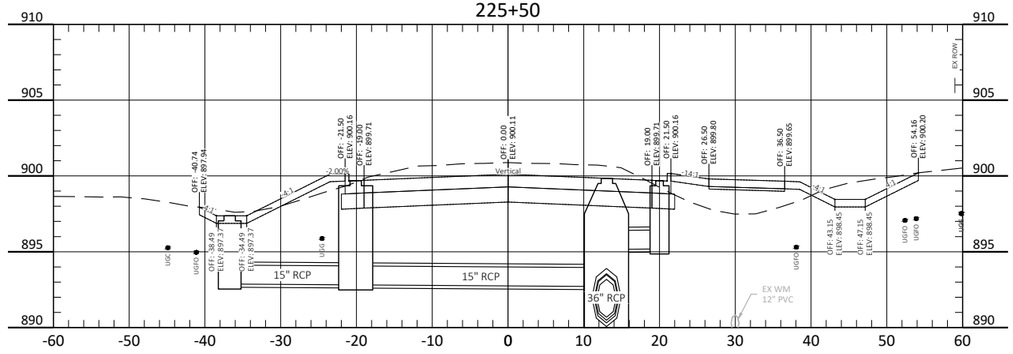
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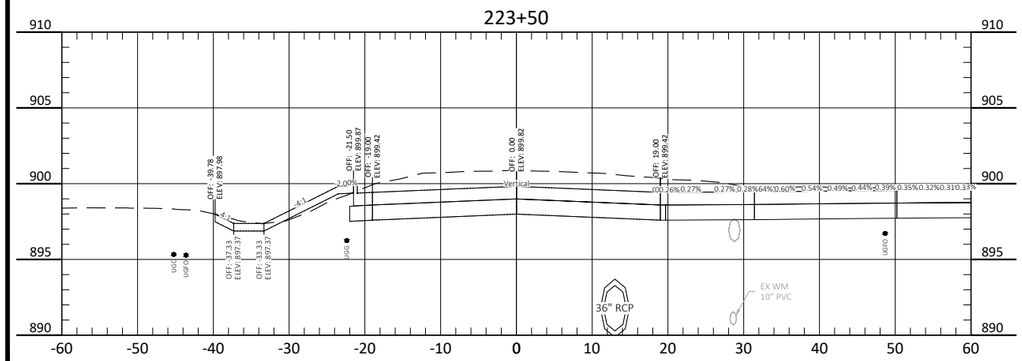
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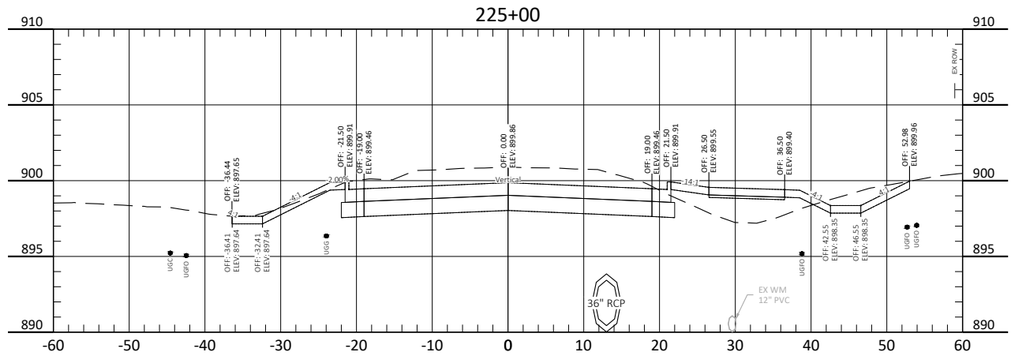












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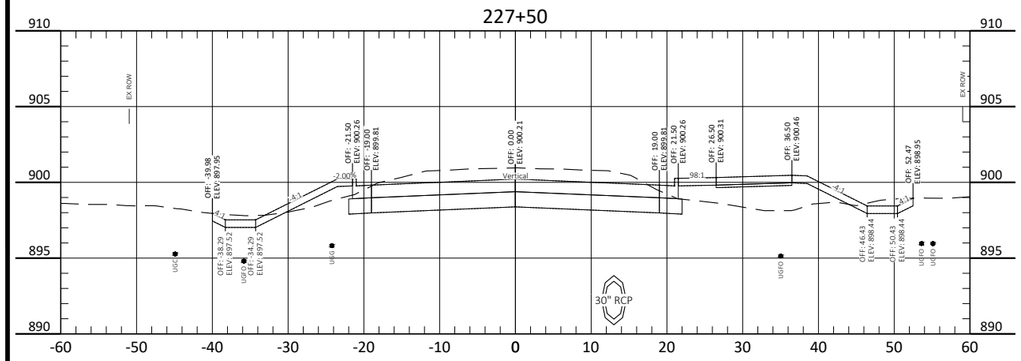
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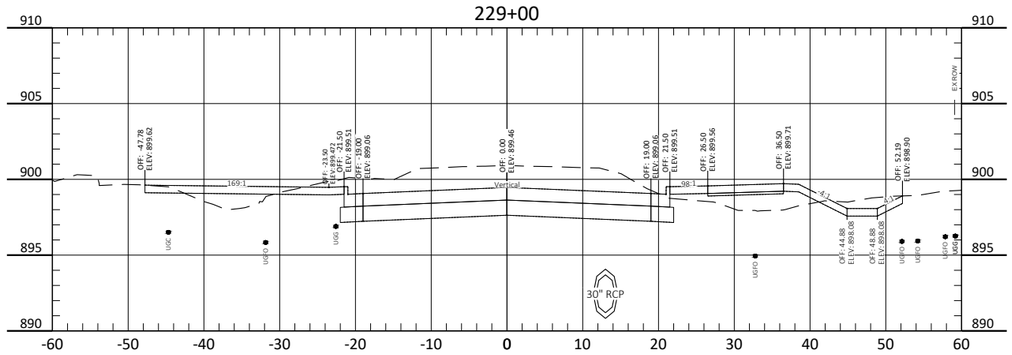
Cross Sections - 7th Ave NE

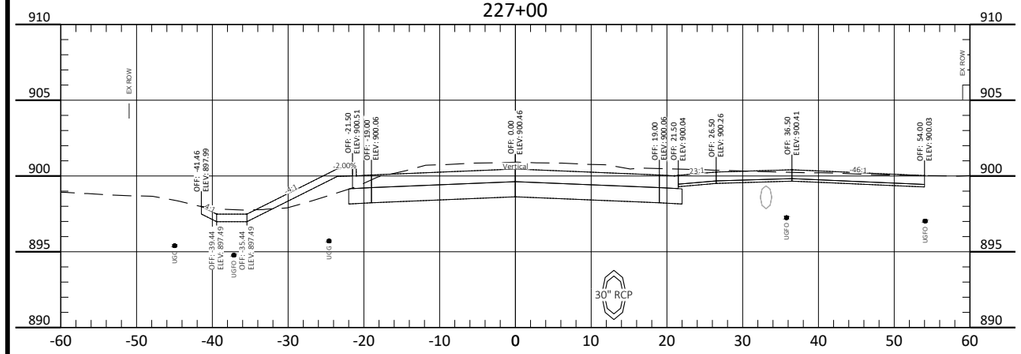
9th St NE from Main Ave to 12th Ave N
7th Ave NE from 9th St NE to 45th St N

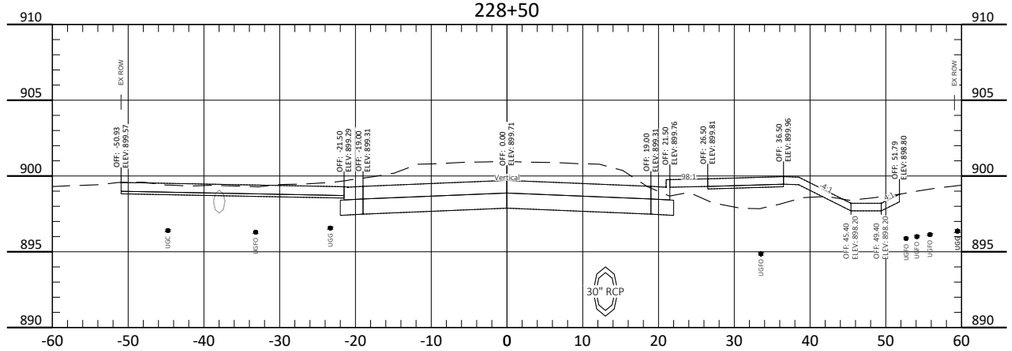
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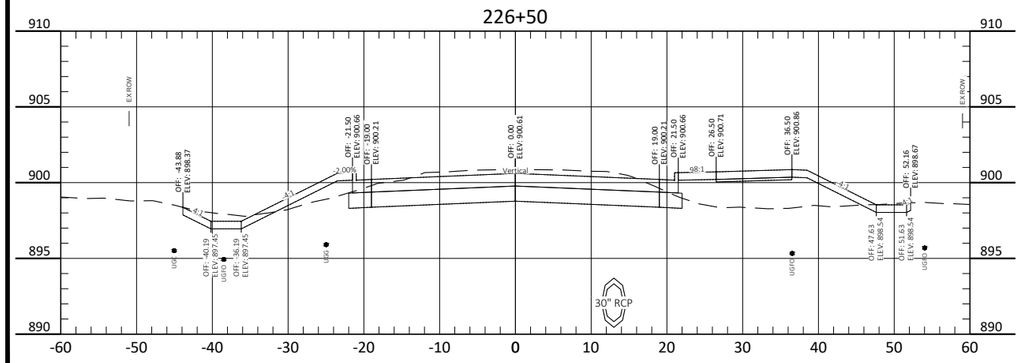
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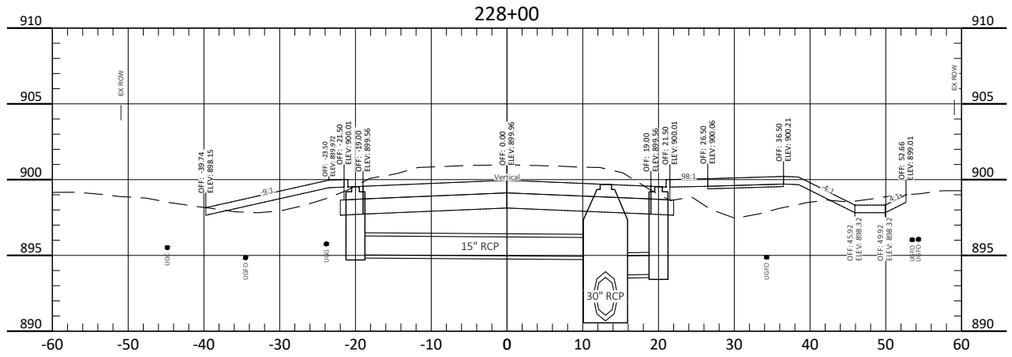












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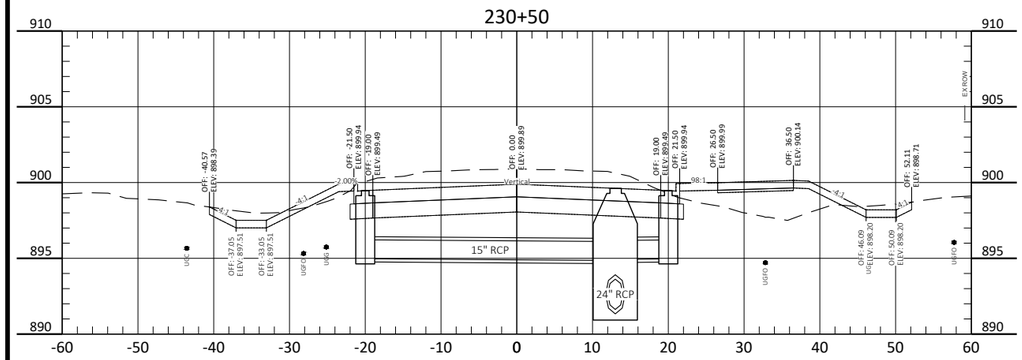
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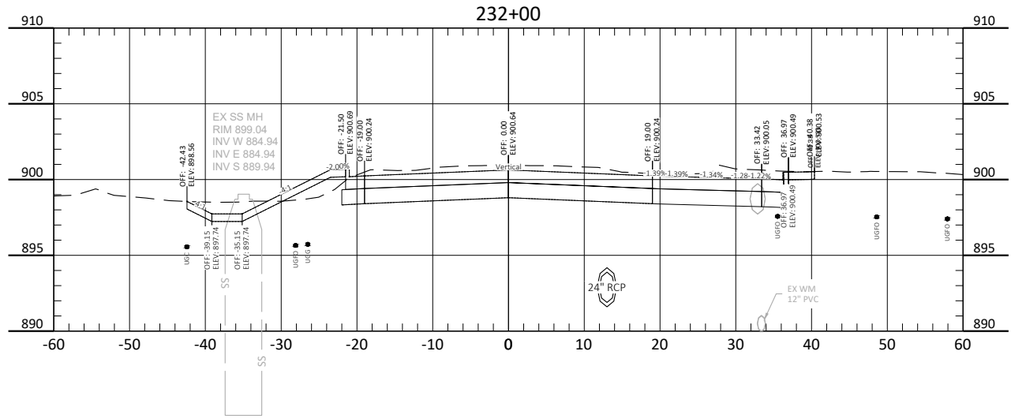
Cross Sections - 7th Ave NE

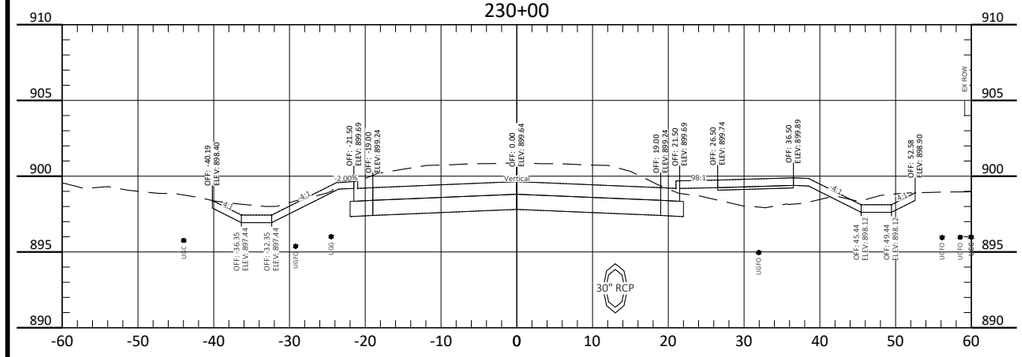
9th St NE from Main Ave to 12th Ave N
7th Ave NE from 9th St NE to 45th St N

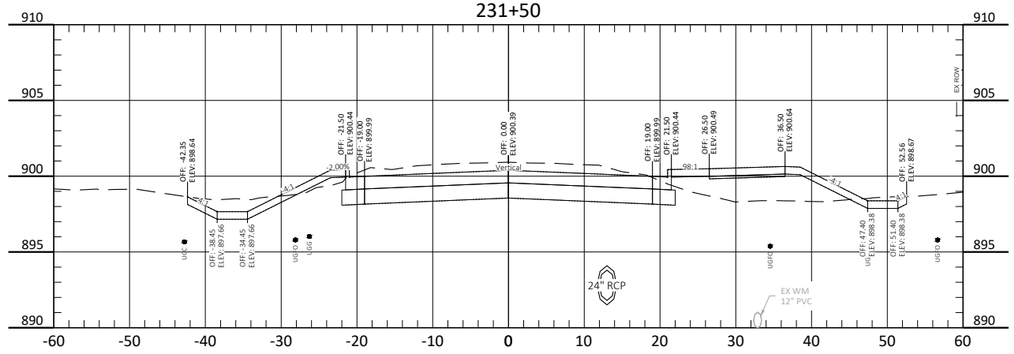
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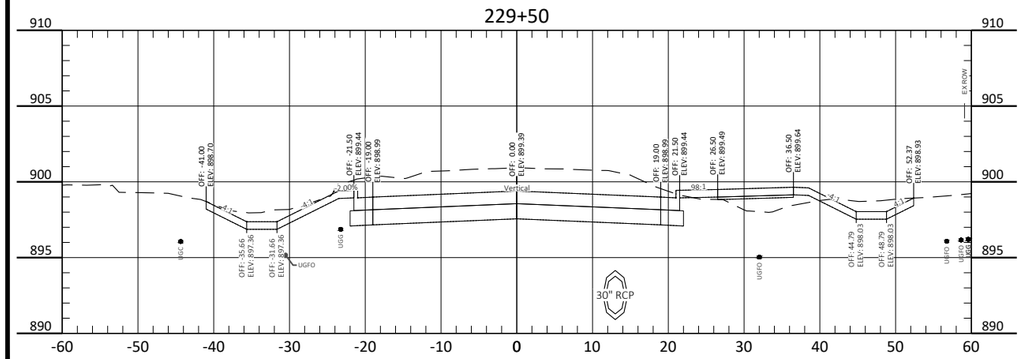
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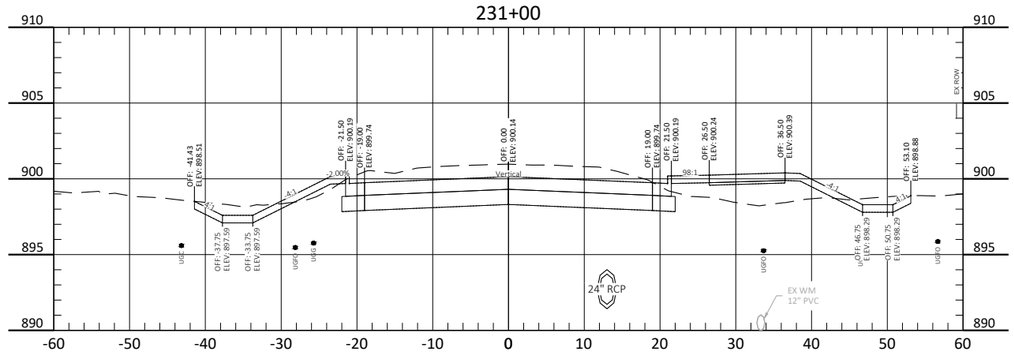












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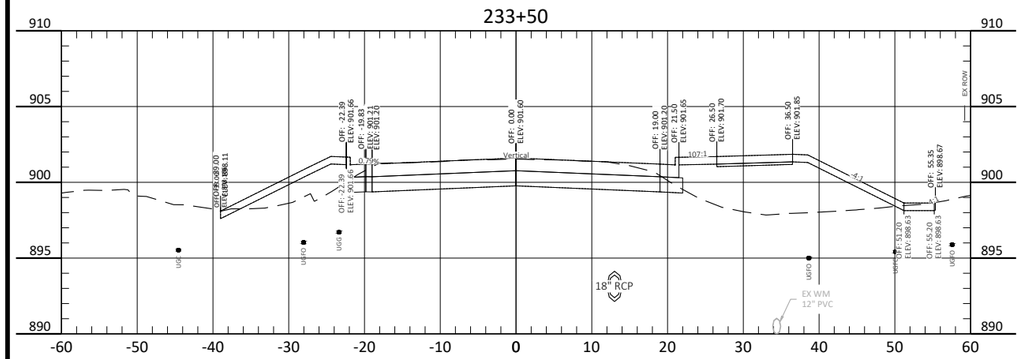
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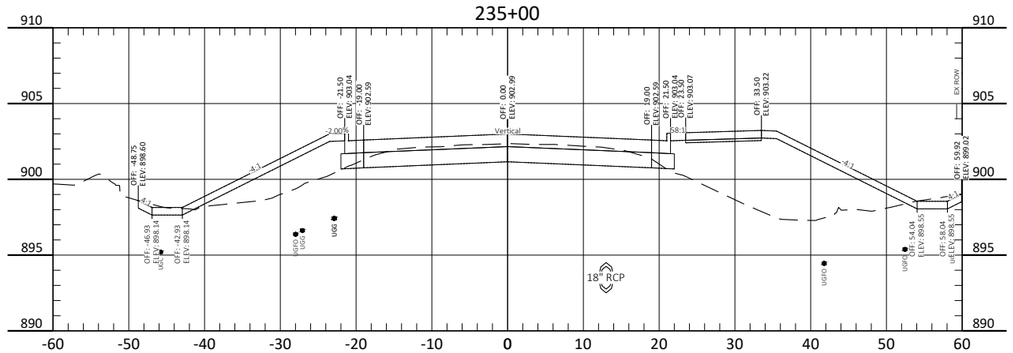
Cross Sections - 7th Ave NE

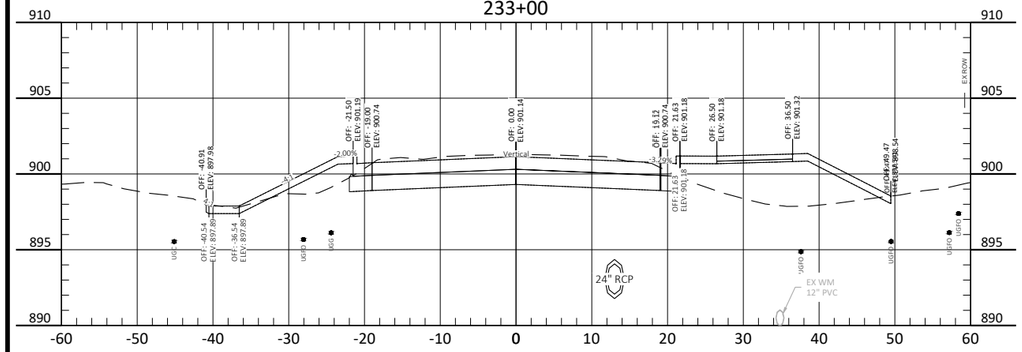
9th St NE from Main Ave to 12th Ave N
7th Ave NE from 9th St NE to 45th St N

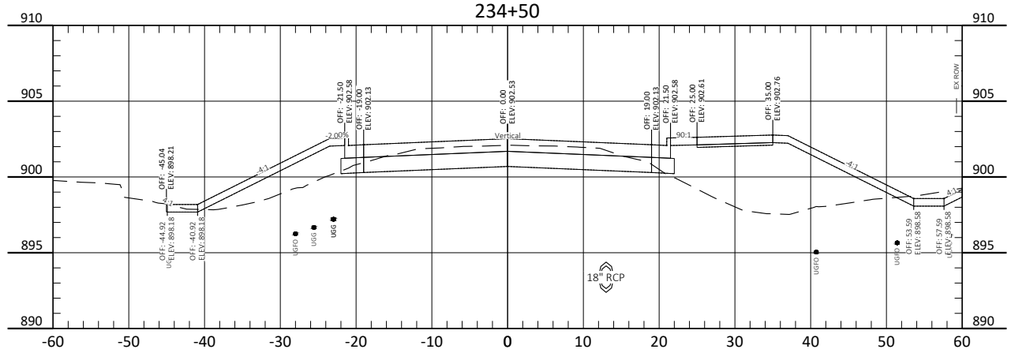
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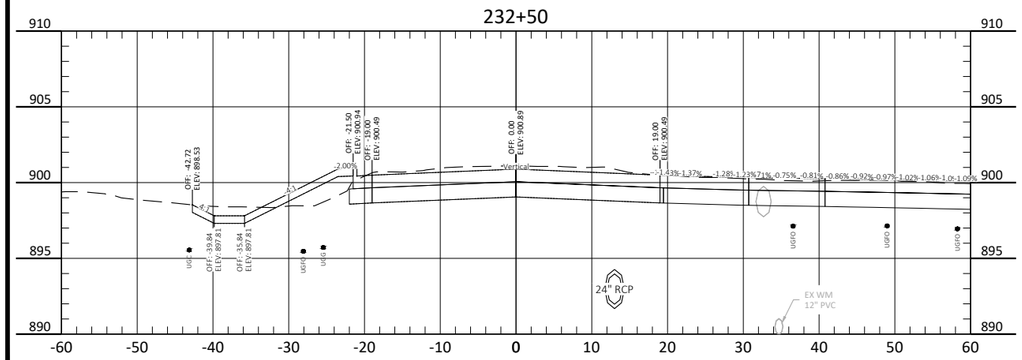
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	ND	TMA-SU-FXP-8-992(045)	200	26

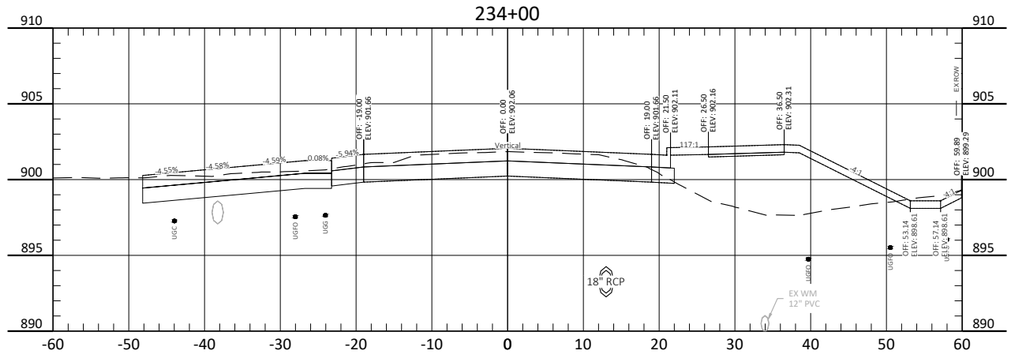












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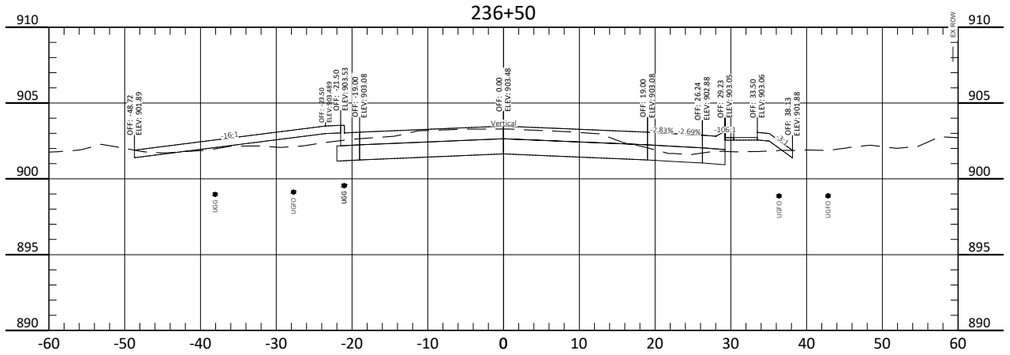
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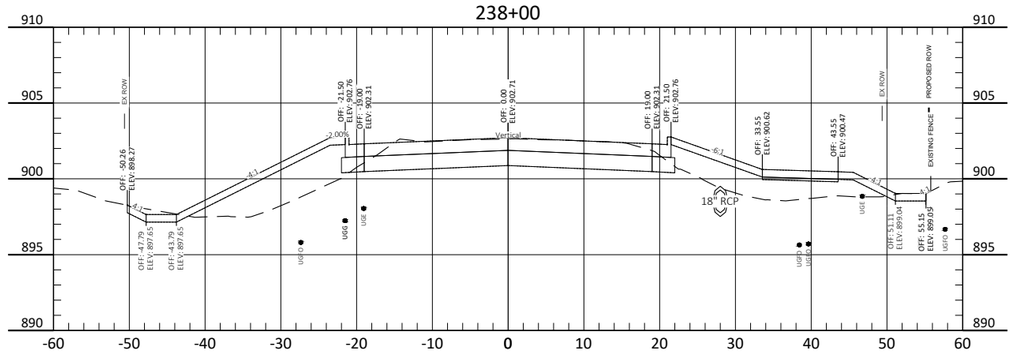
Cross Sections - 7th Ave NE

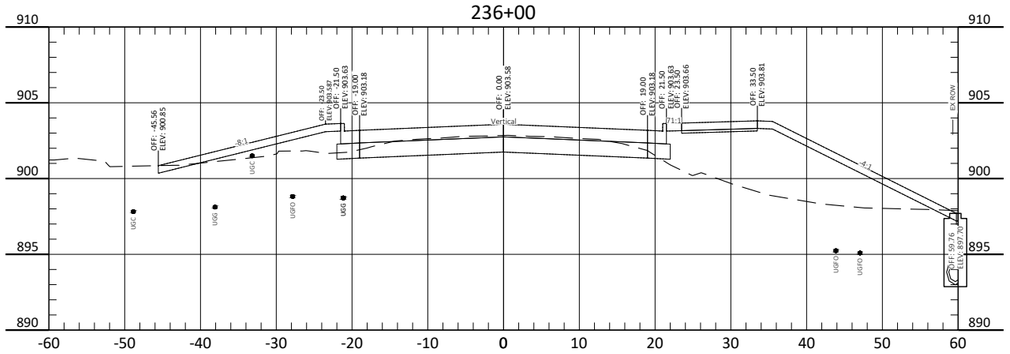
9th St NE from Main Ave to 12th Ave N
7th Ave NE from 9th St NE to 45th St N

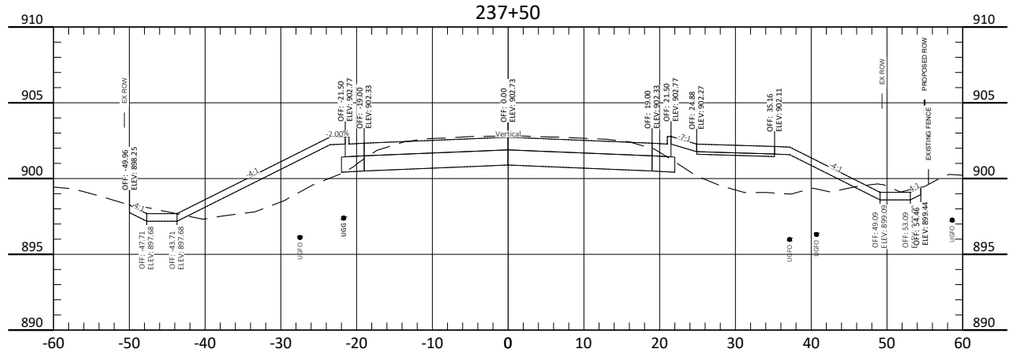
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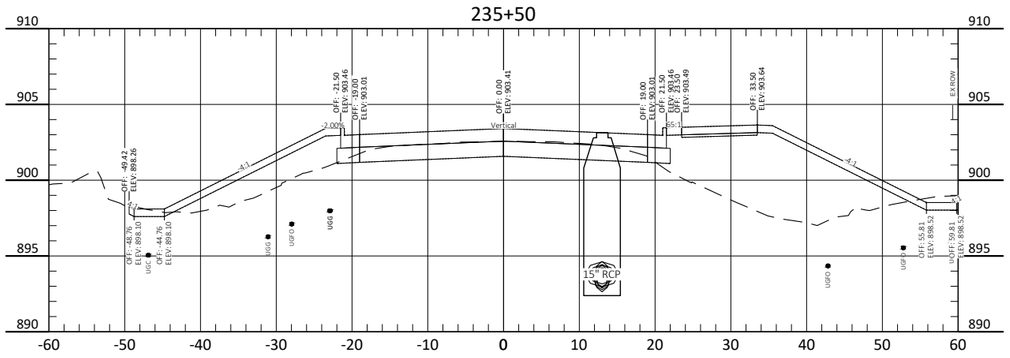
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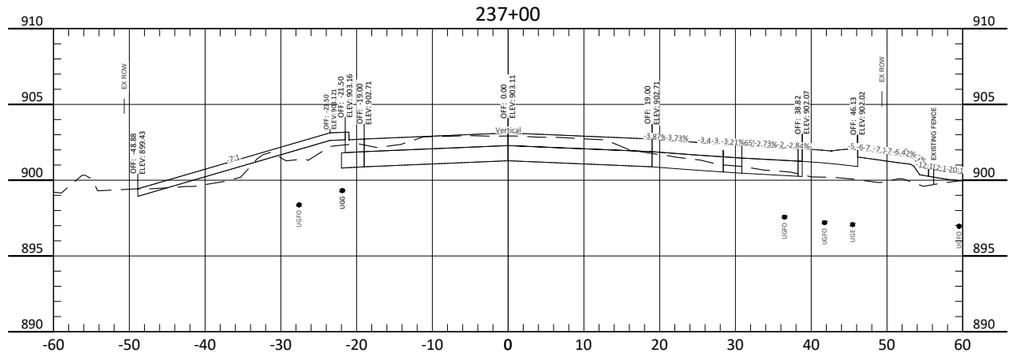












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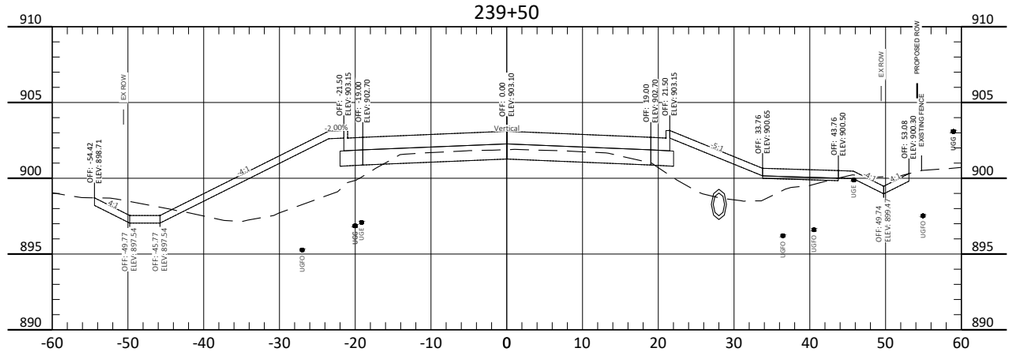
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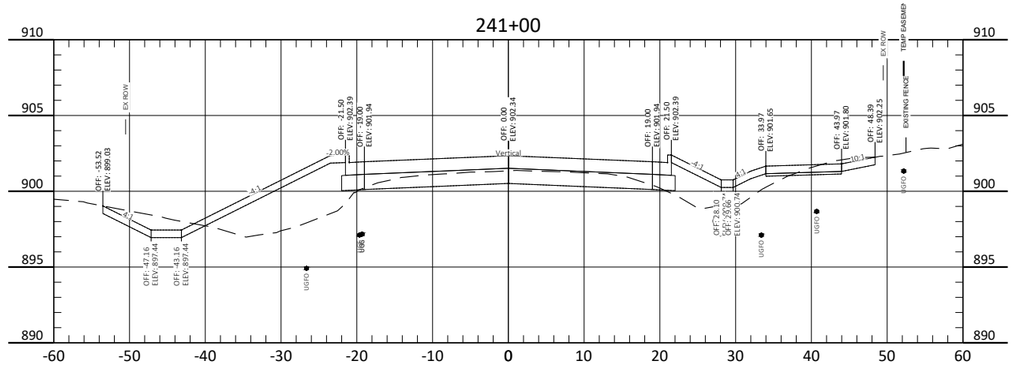
Cross Sections - 7th Ave NE

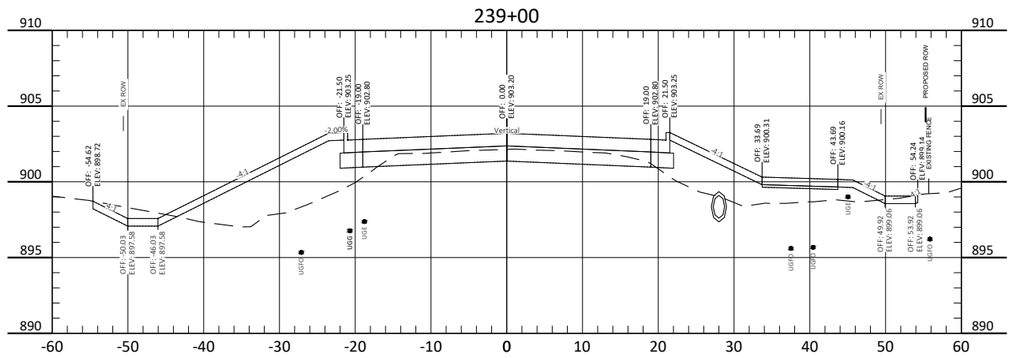
9th St NE from Main Ave to 12th Ave N
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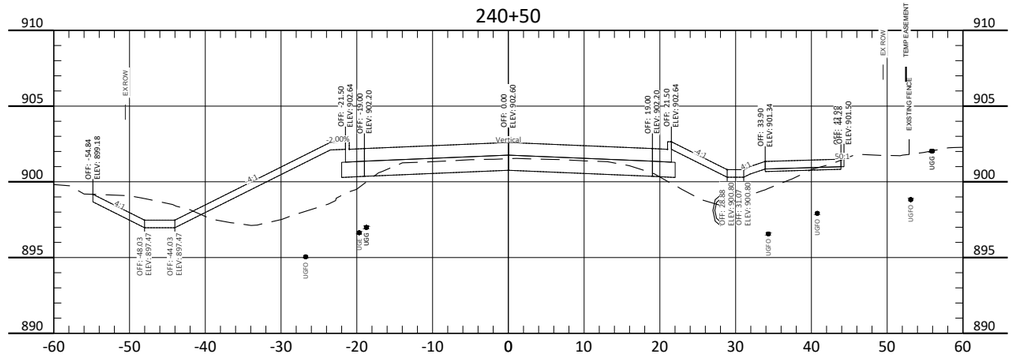
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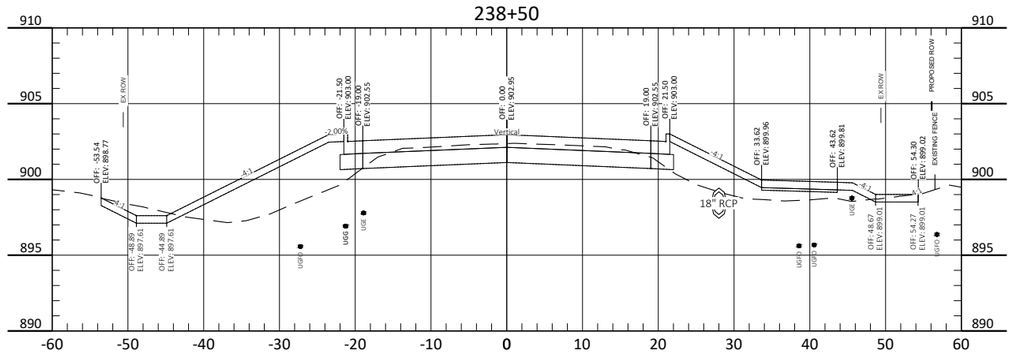
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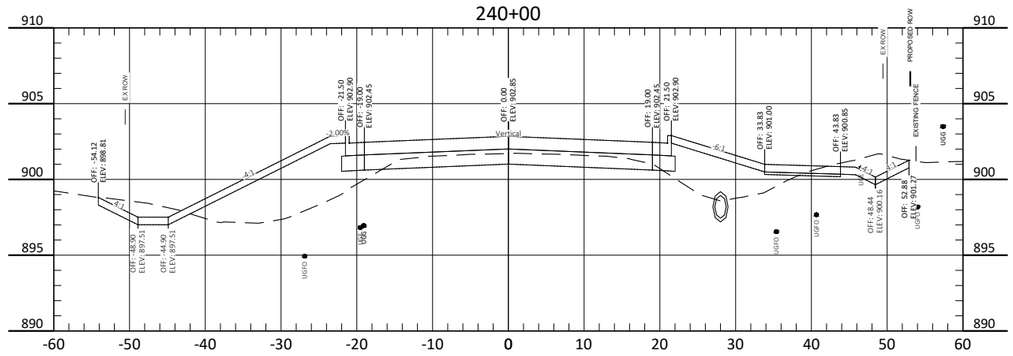












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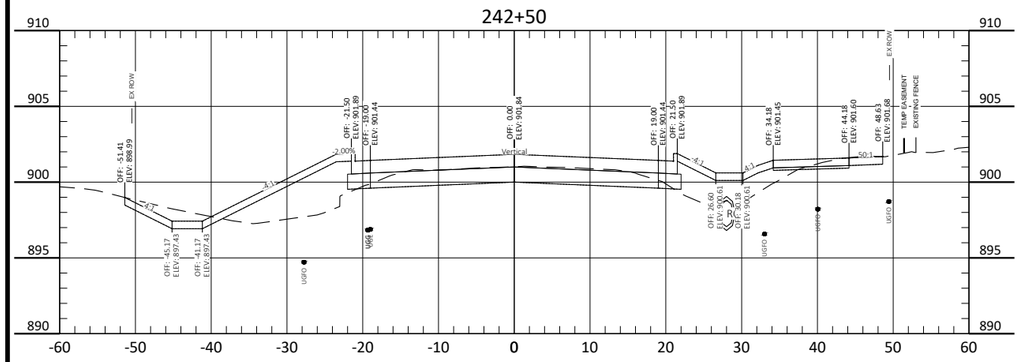
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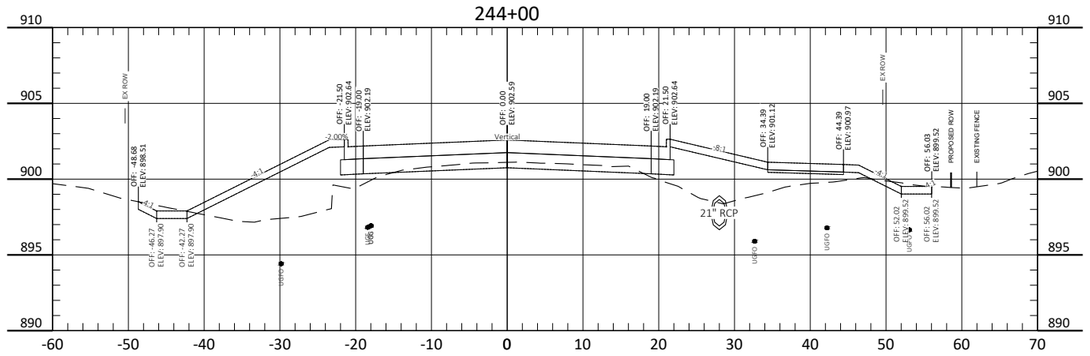
Cross Sections - 7th Ave NE

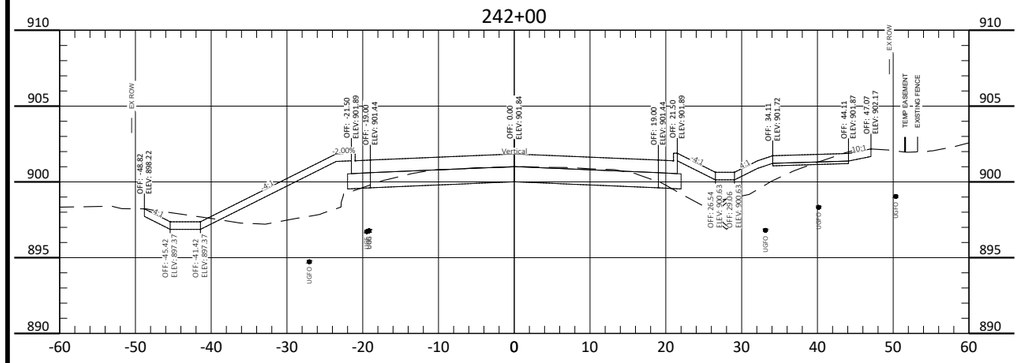
9th St NE from Main Ave to 12th Ave N
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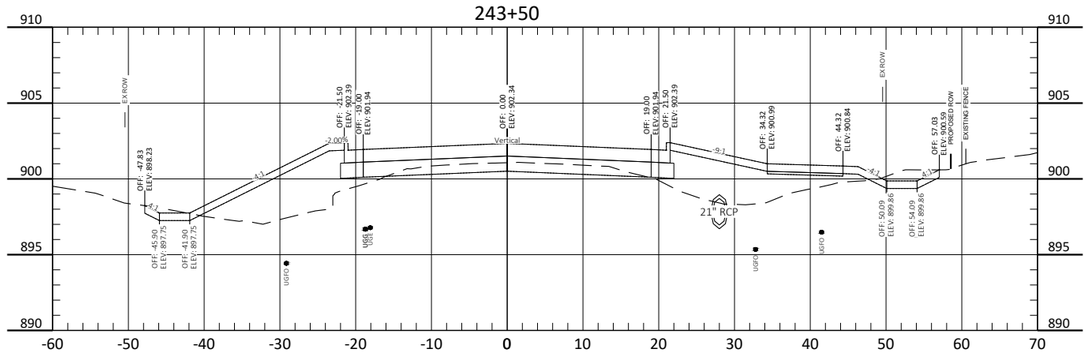
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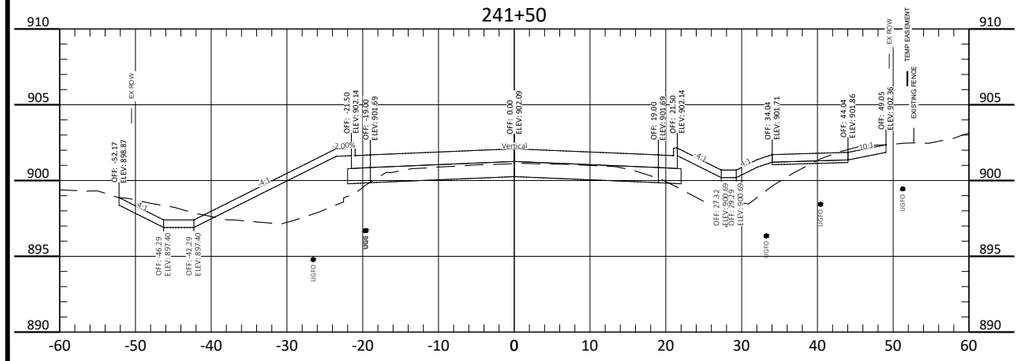
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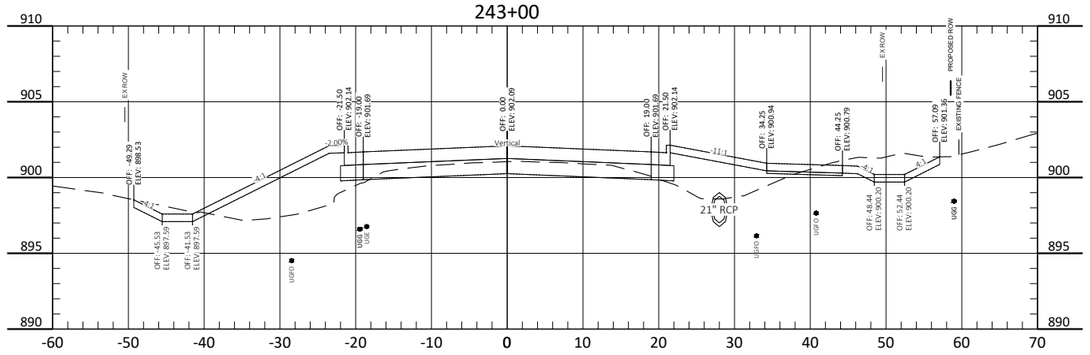












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CITY OF WEST FARGO

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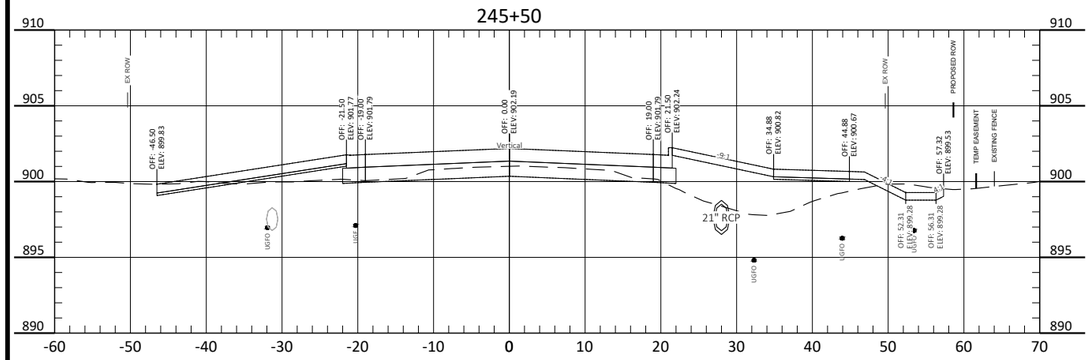
ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

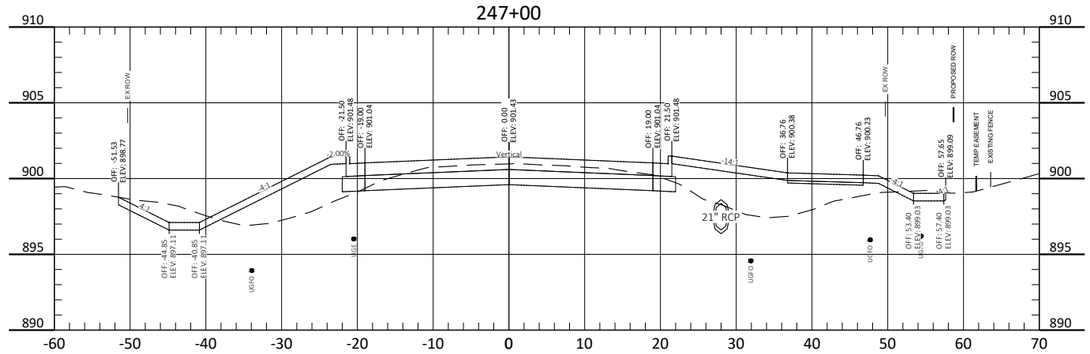
Cross Sections - 7th Ave NE

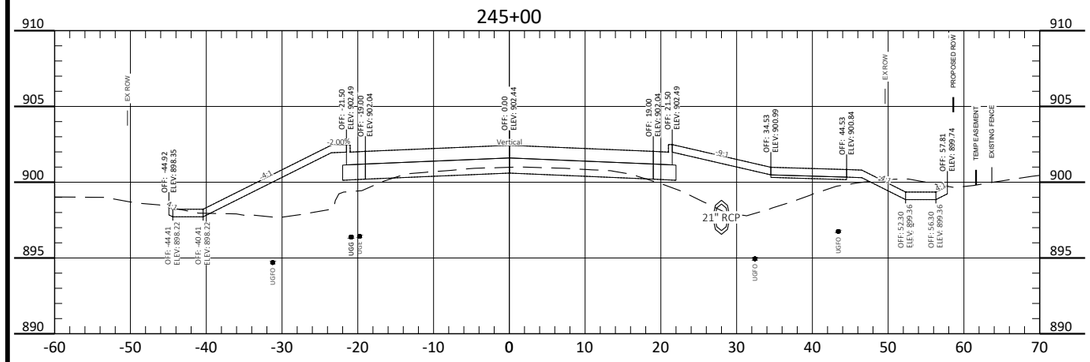
9th St NE from Main Ave to 12th Ave N
7th Ave NE from 9th St NE to 45th St N

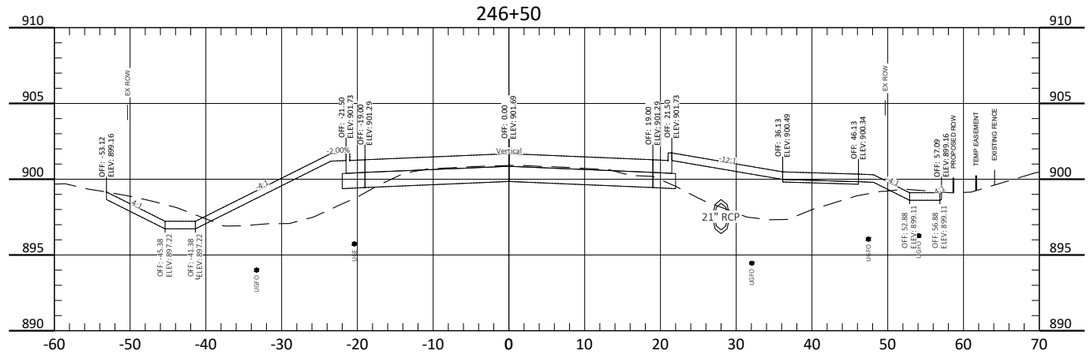
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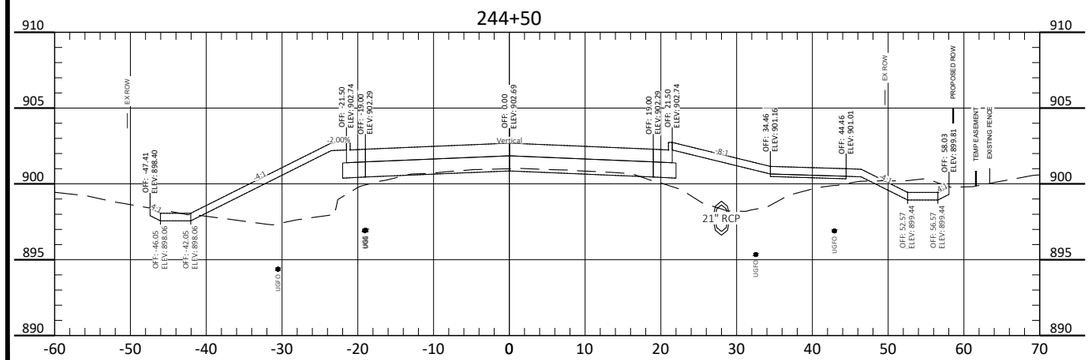
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	ND	TMA-SU-FXP-8-992(045)	200	30

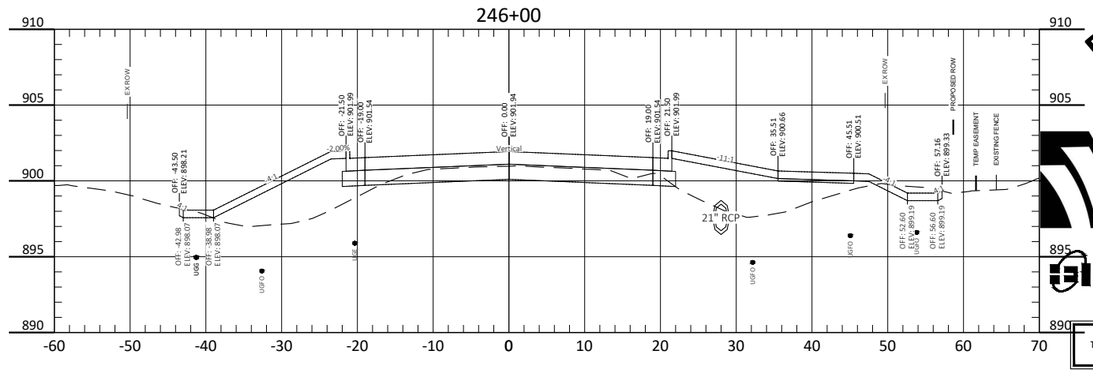












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CITY OF WEST FARGO

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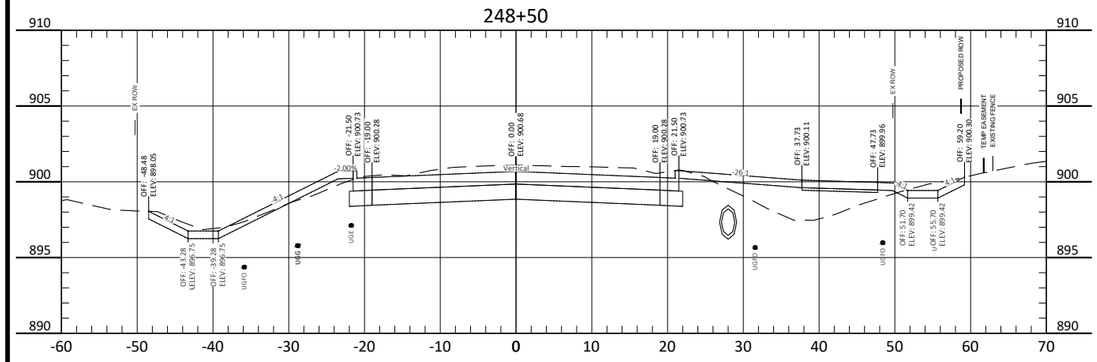
ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

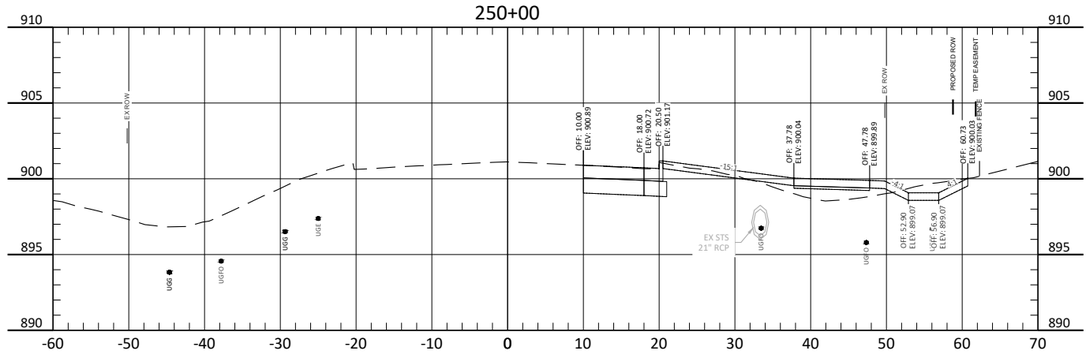
Cross Sections - 7th Ave NE

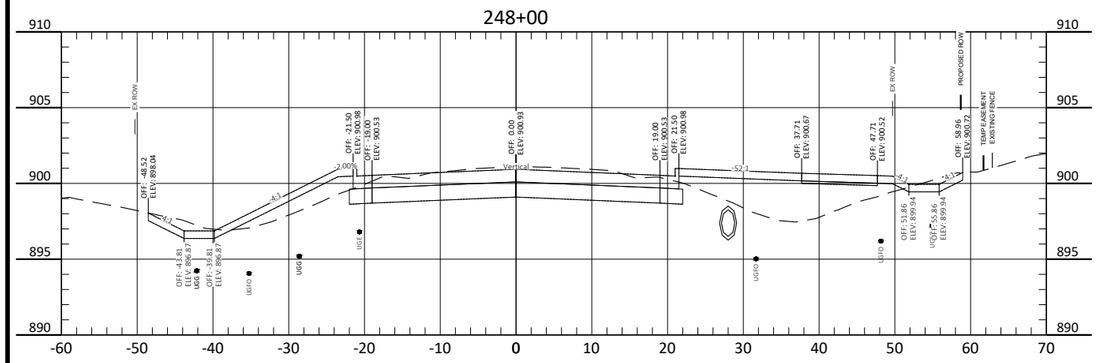
9th St NE from Main Ave to 12th Ave N
7th Ave NE from 9th St NE to 45th St N

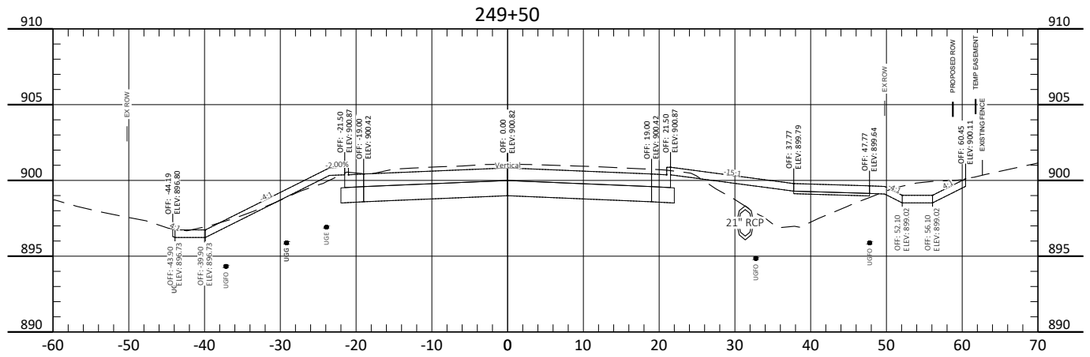
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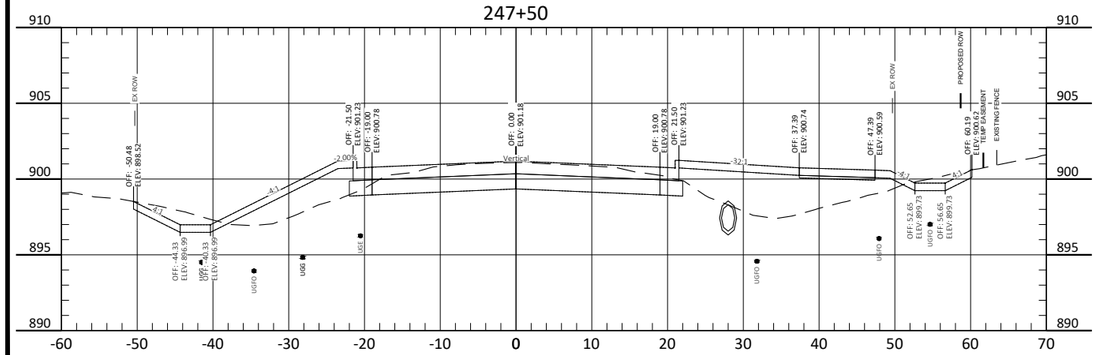
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	ND	TMA-SU-FXP-8-992(045)	200	31

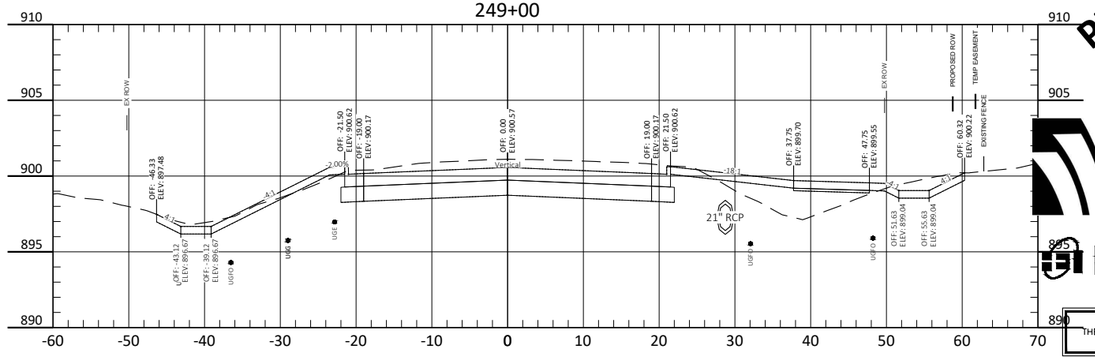












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CITY OF WEST FARGO

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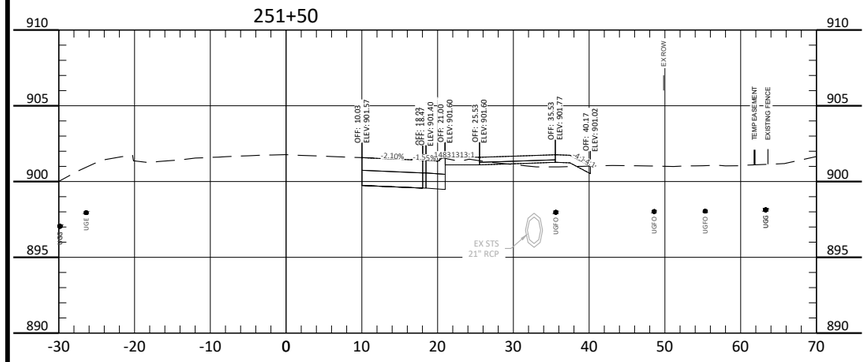
ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

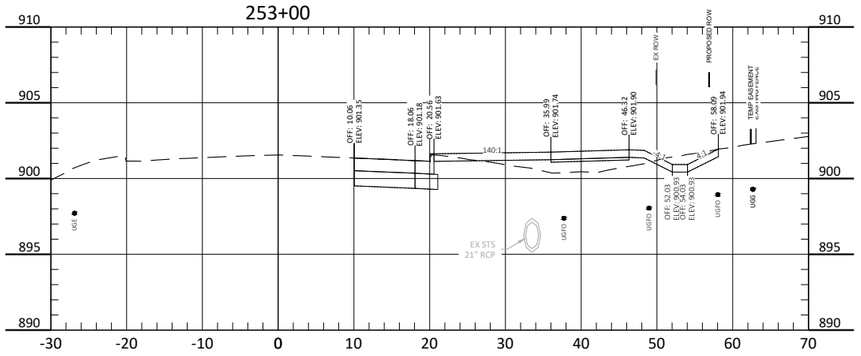
Cross Sections - 7th Ave NE

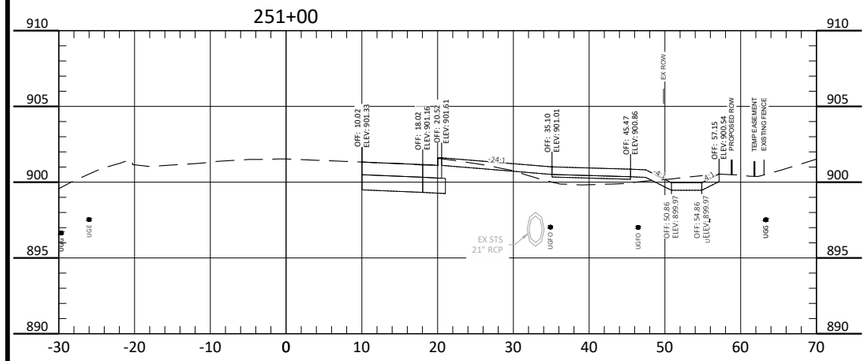
9th St NE from Main Ave to 12th Ave N
7th Ave NE from 9th St NE to 45th St N

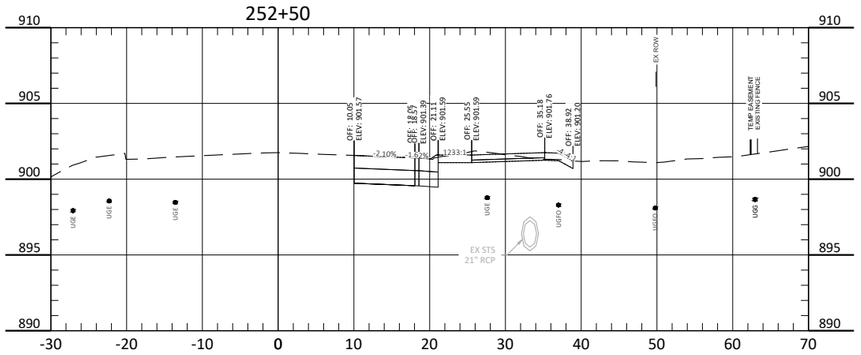
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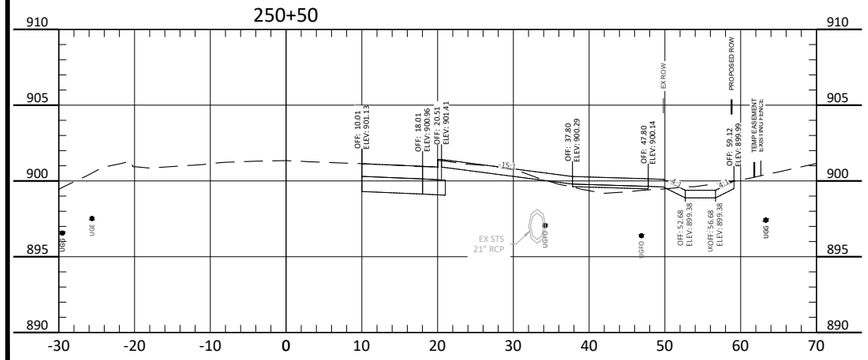
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TMA-SU-FXP-8-992(045)	200	32

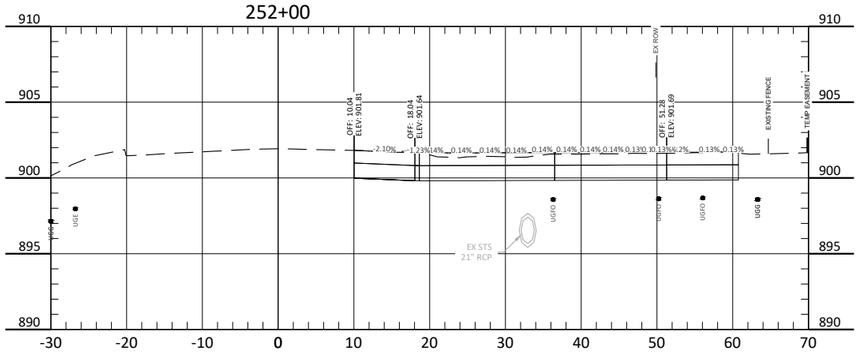












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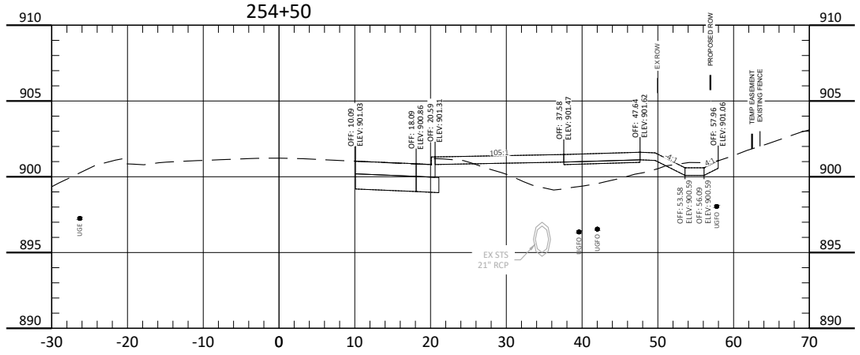
ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

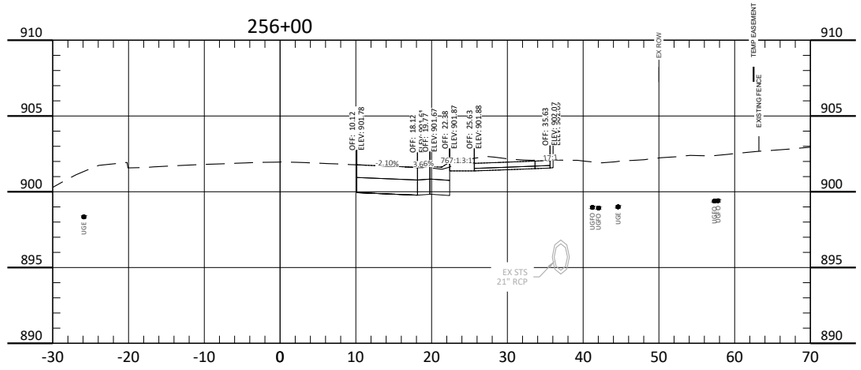
Cross Sections - 7th Ave NE

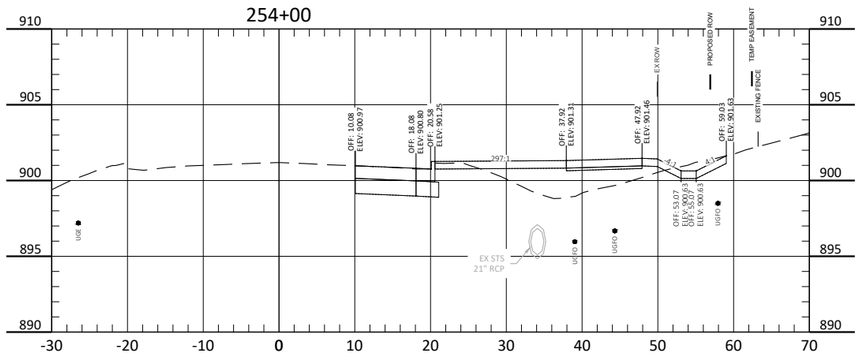
9th St NE from Main Ave to 12th Ave N
7th Ave NE from 9th St NE to 45th St N

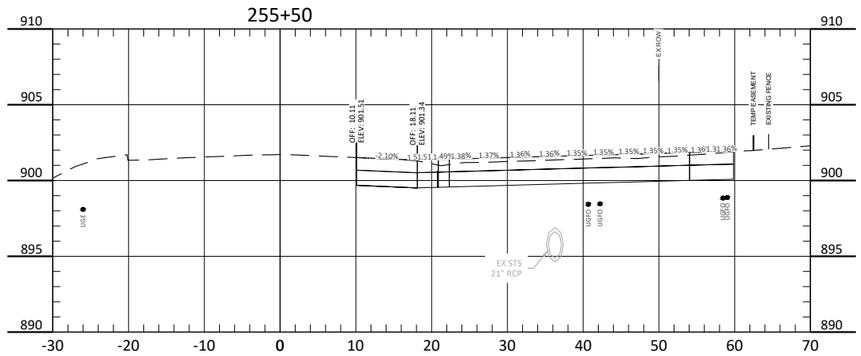
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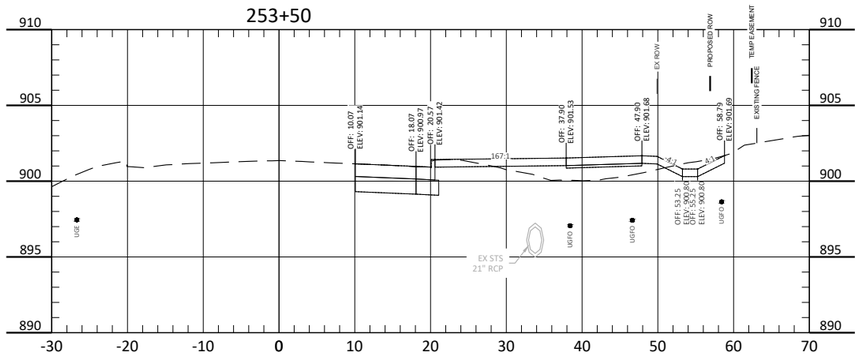
	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TMA-SU-FXP-8-992(045)	200	33

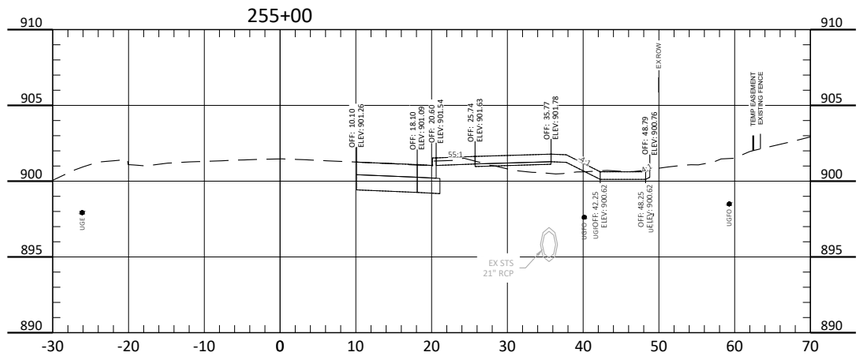












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CITY OF WEST FARGO

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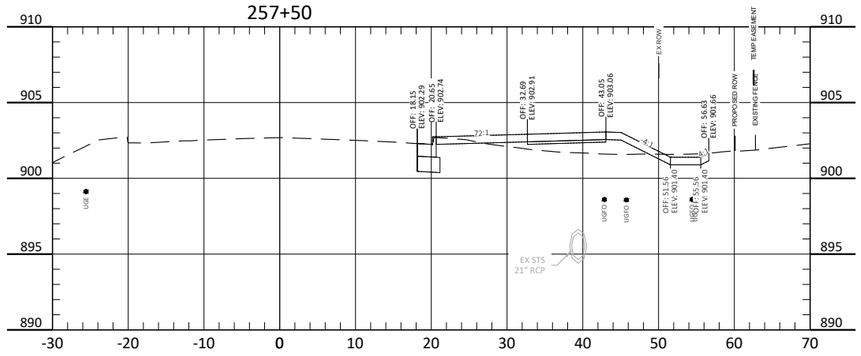
ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

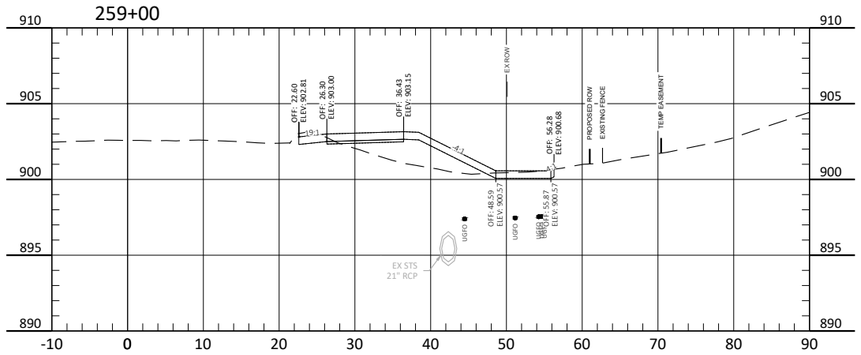
Cross Sections - 7th Ave NE

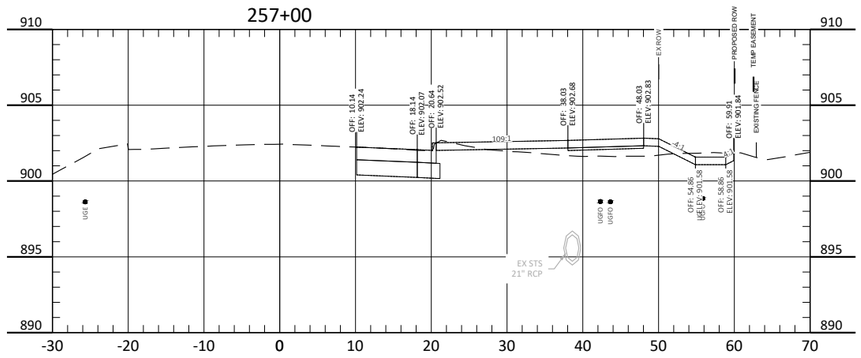
9th St NE from Main Ave to 12th Ave N
7th Ave NE from 9th St NE to 45th St N

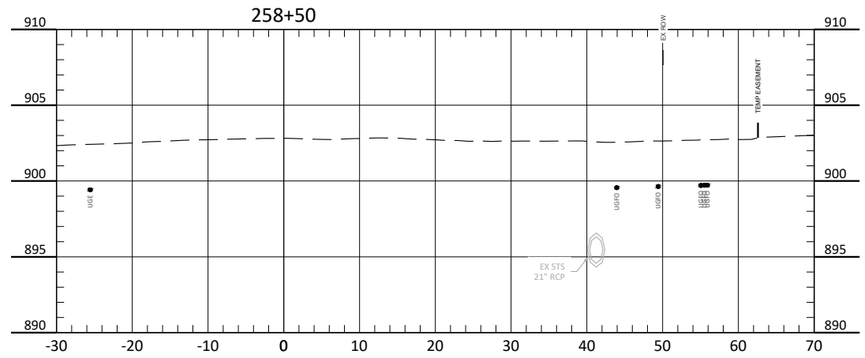
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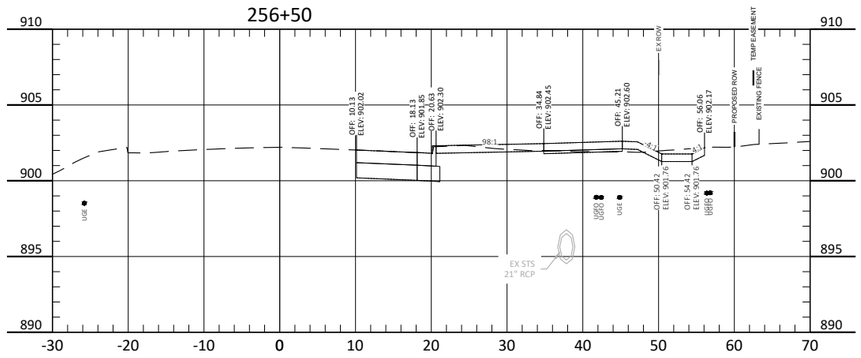
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	ND	TMA-SU-FXP-8-992(045)	200	34

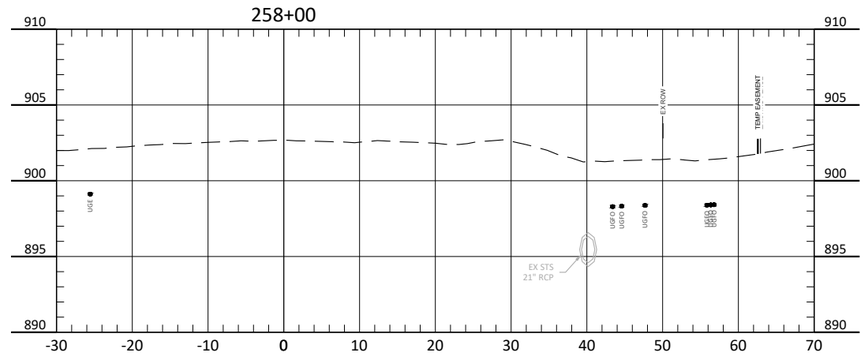












PRELIMINARY
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CITY OF WEST FARGO

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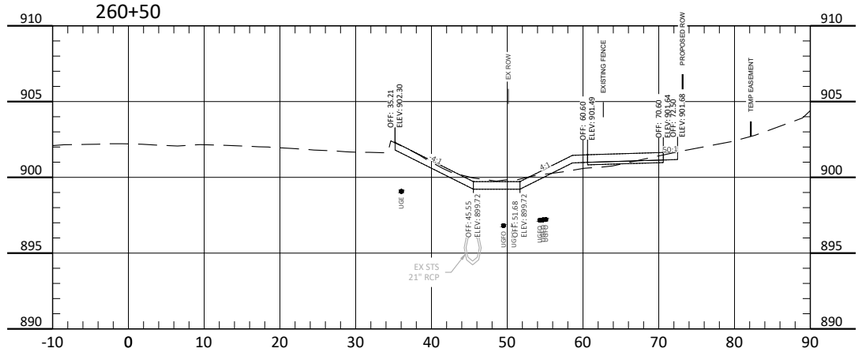
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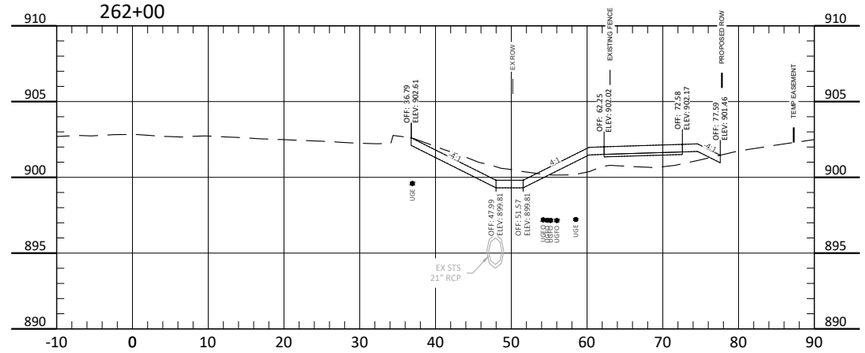
Cross Sections - 7th Ave NE

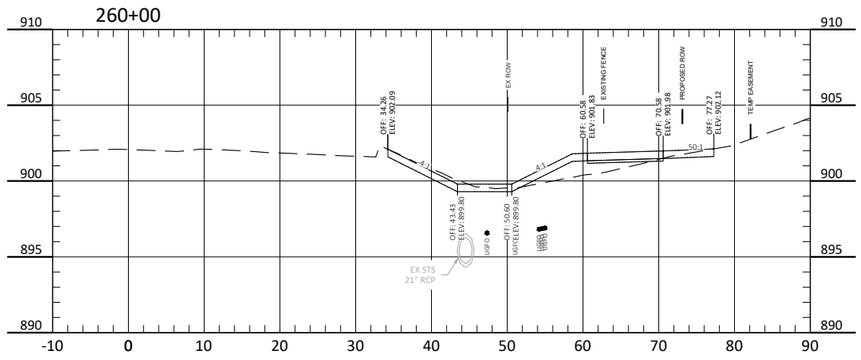
9th St NE from Main Ave to 12th Ave N
7th Ave NE from 9th St NE to 45th St N

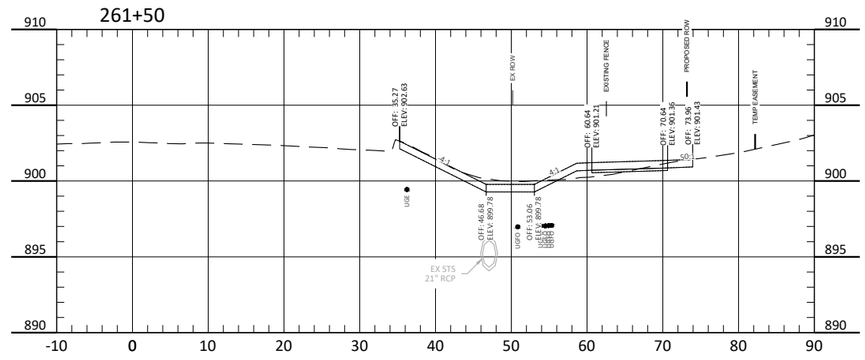
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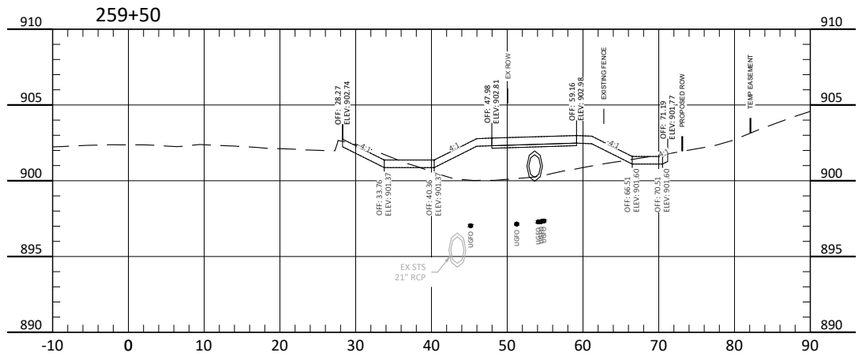
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	ND	TMA-SU-FXP-8-992(045)	200	35

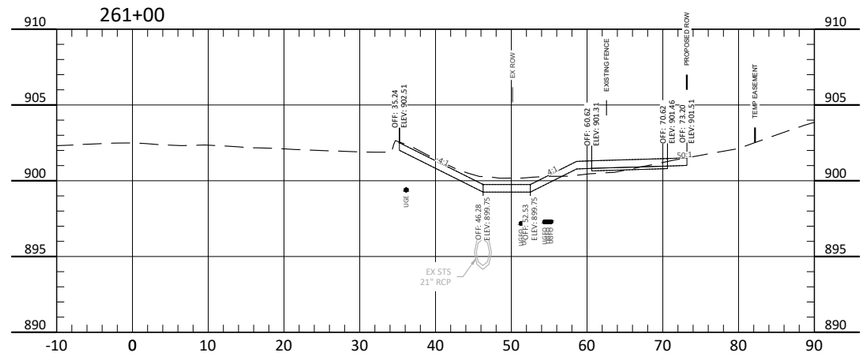












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CITY OF WEST FARGO

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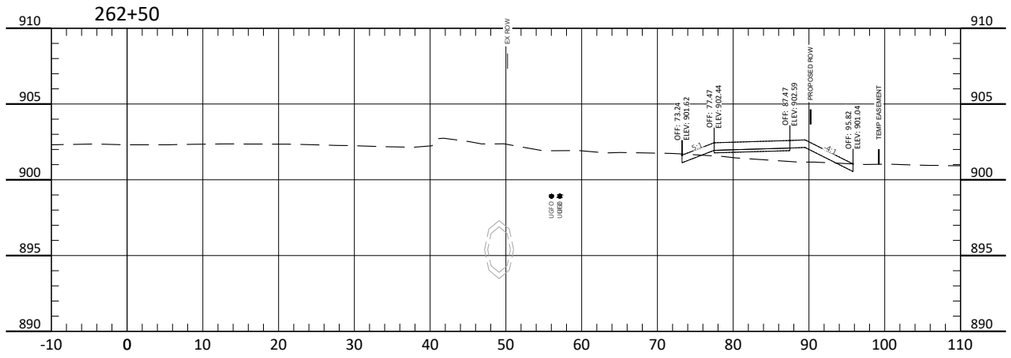
ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

Cross Sections - 7th Ave NE

9th St NE from Main Ave to 12th Ave N
7th Ave NE from 9th St NE to 45th St N

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TMA-SU-FXP-8-992(045)	200	36



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CITY OF WEST FARGO

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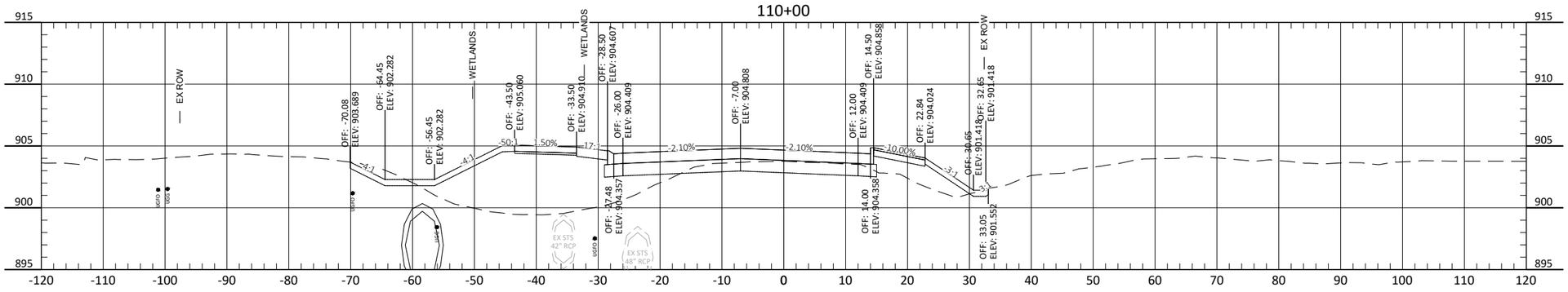
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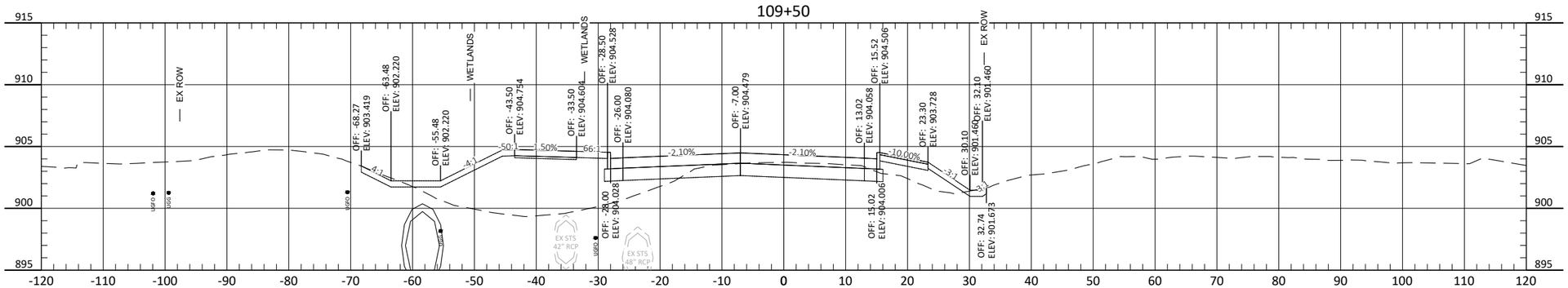
Cross Sections - 7th Ave NE

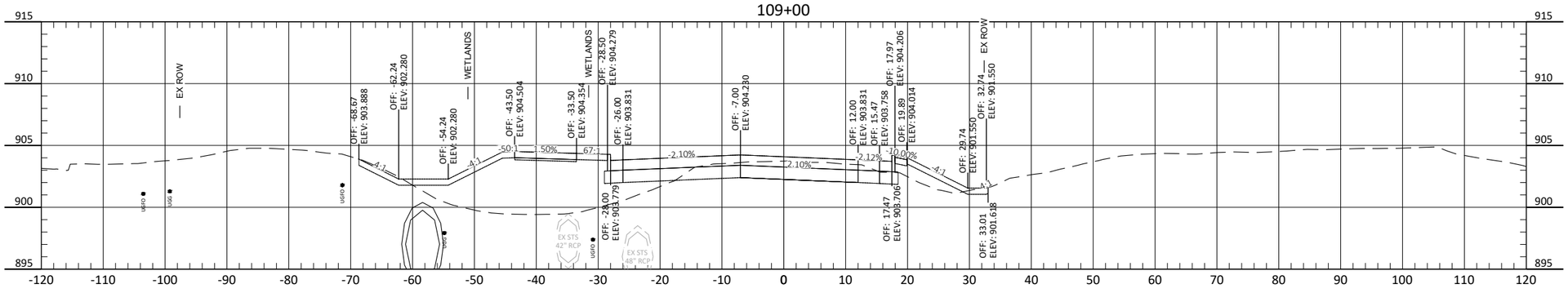
9th St NE from Main Ave to 12th Ave N
7th Ave NE from 9th St NE to 45th St N

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	2293	200	1







PRELIMINARY
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CITY OF WEST FARGO

HOUSTON engineering, inc.

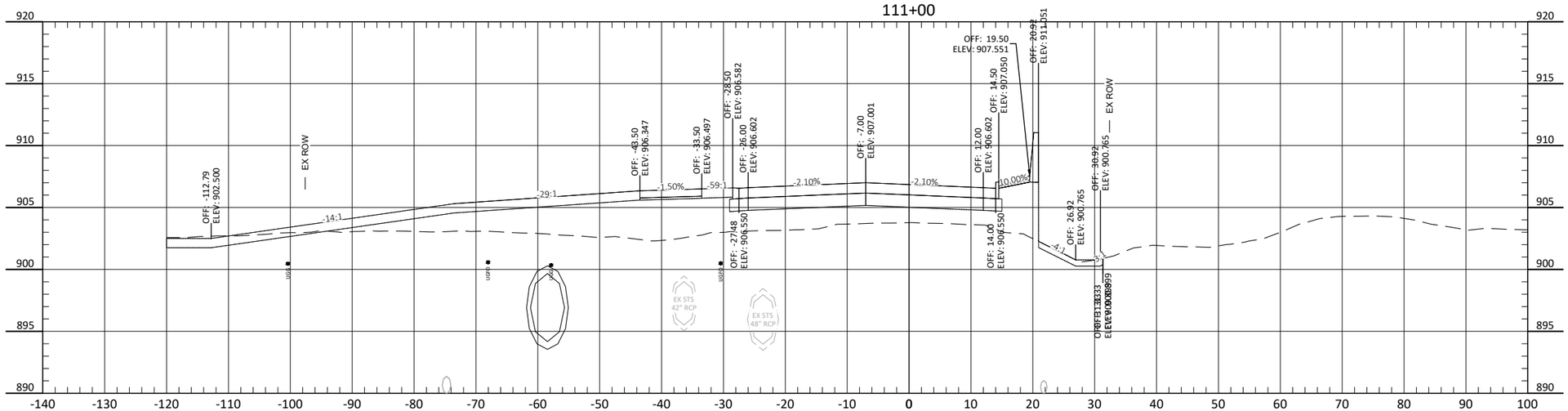
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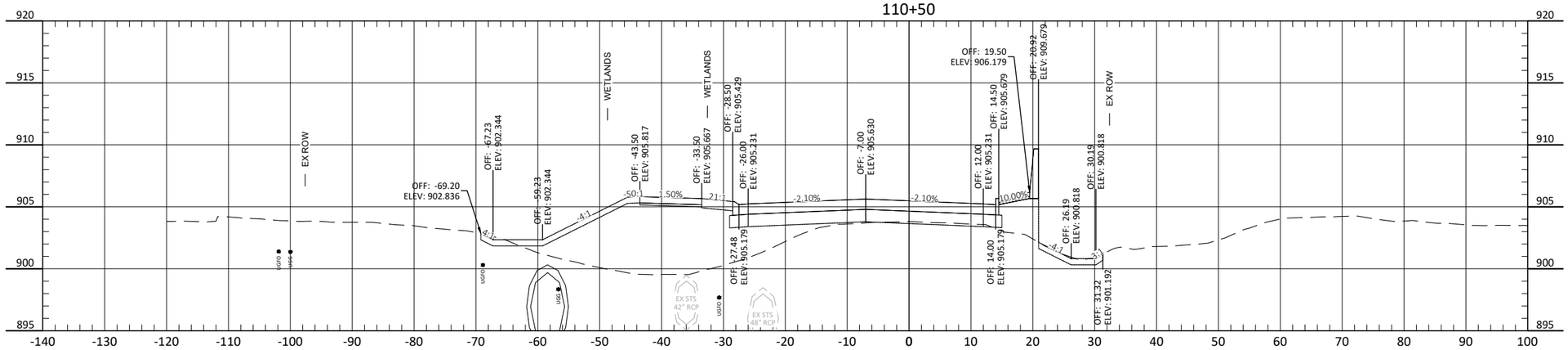
Cross Sections - 9th St NE

9th St NE Grade Separation

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	2293	200	2





PRELIMINARY
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CITY OF WEST FARGO

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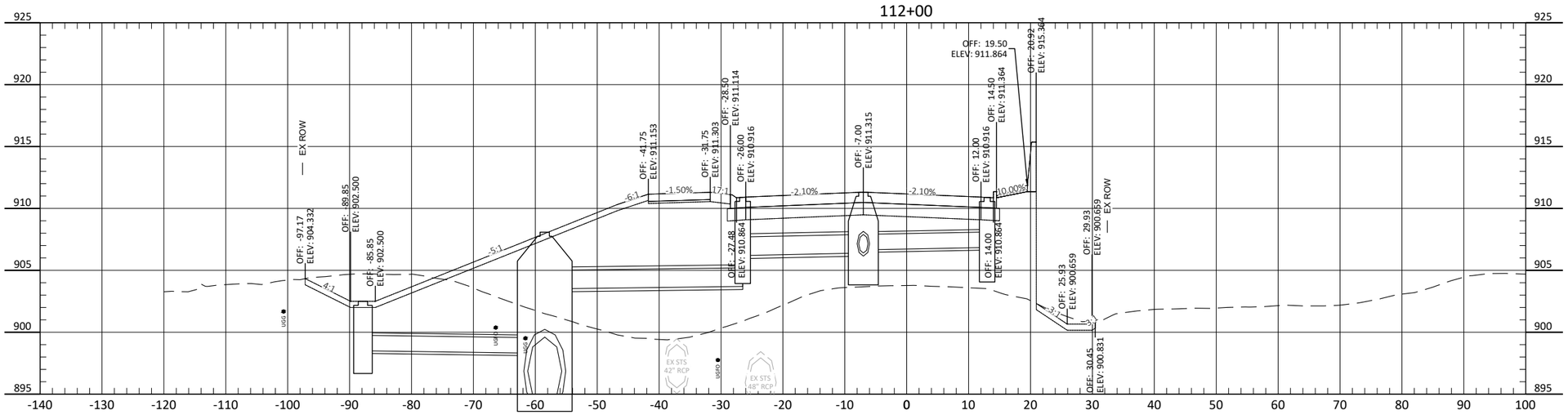
ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

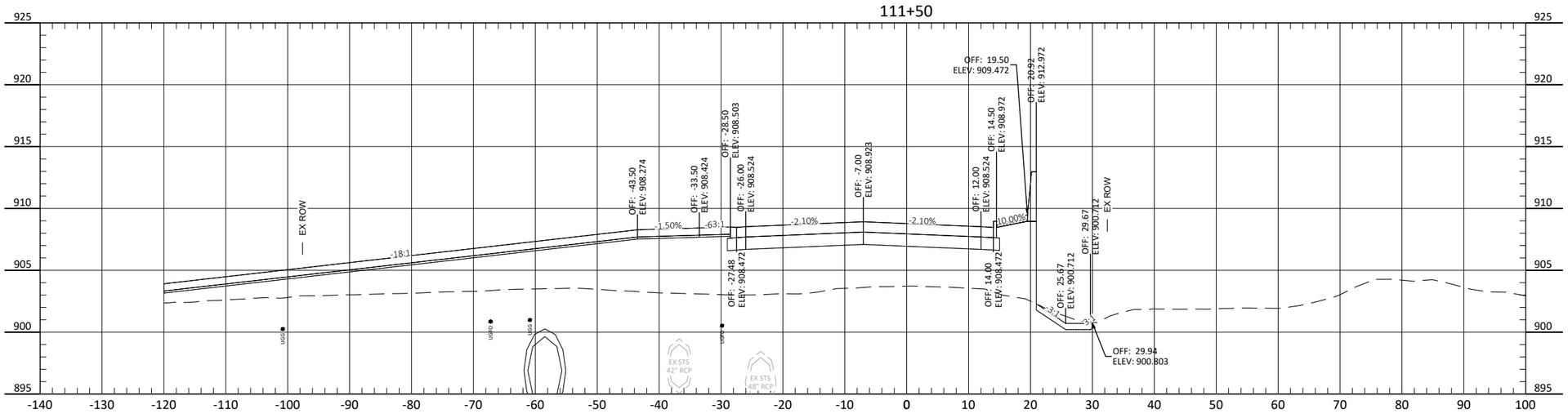
Cross Sections - 9th St NE

9th St NE Grade Separation

H:\JBN\8600\8654\8654_0004 9th St\CAD\0_RAISE GRANT\Plans\200 - 9th St Cross Sections_Main to 7th Ave.dwg XS-2-7/17/2025 8:20 AM- (cueland)

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	2293	200	3





PRELIMINARY
NOT FOR CONSTRUCTION

CITY OF WEST FARGO

HOUSTON engineering, inc.

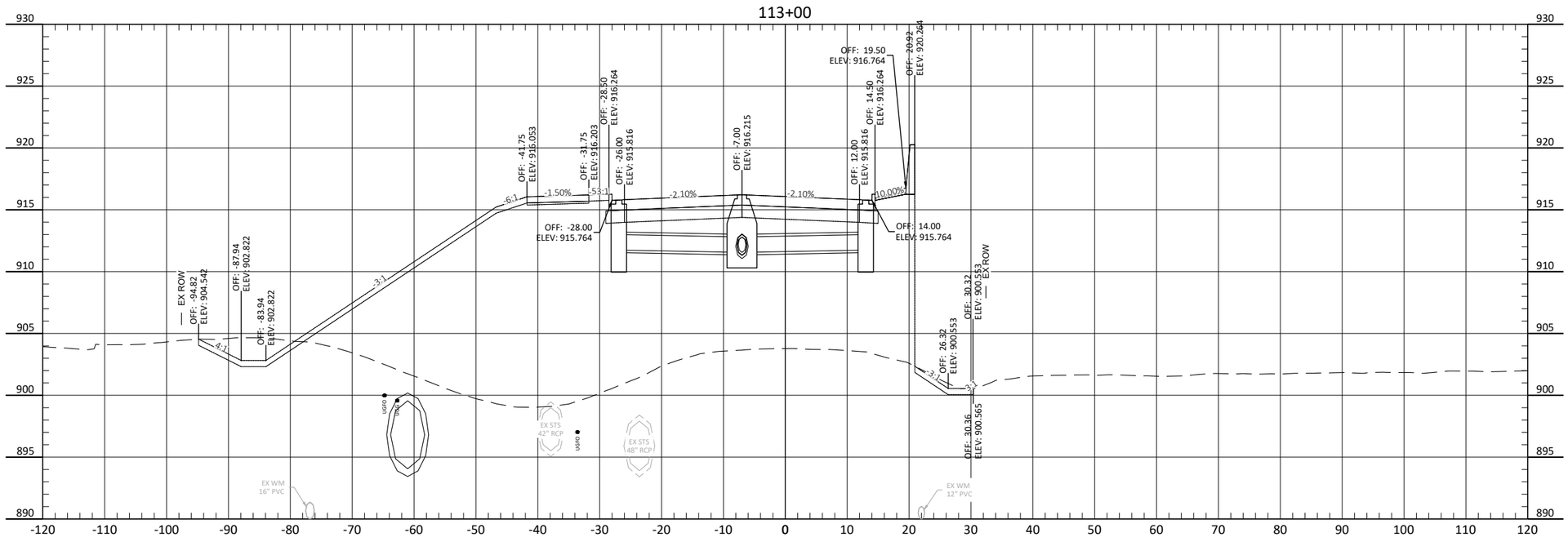
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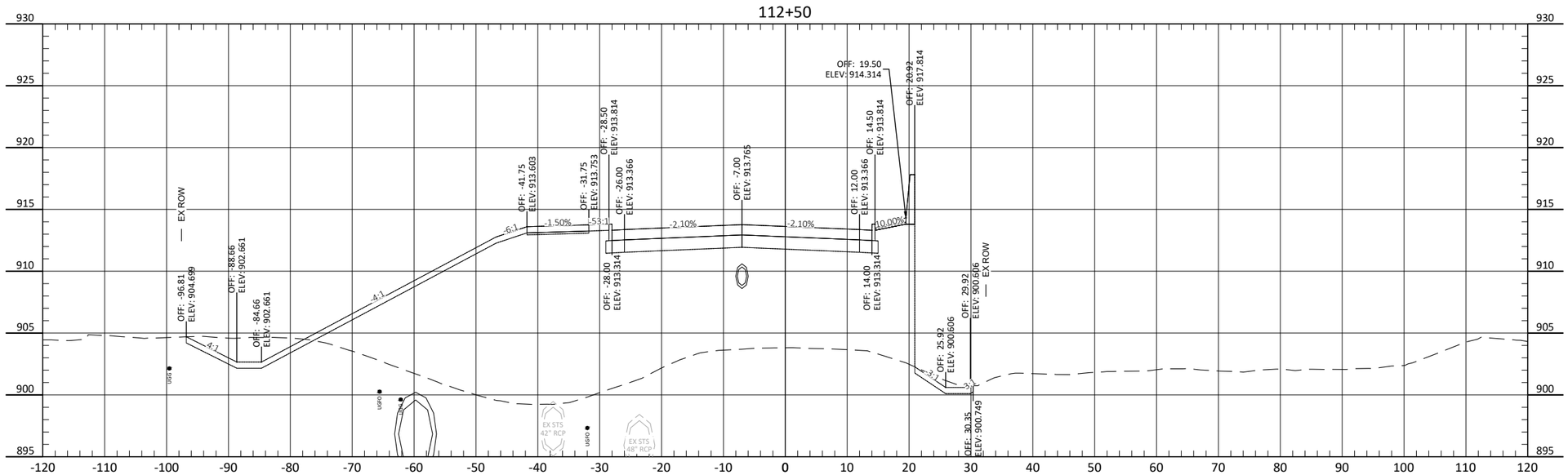
Cross Sections - 9th St NE

9th St NE Grade Separation

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	2293	200	4





PRELIMINARY
NOT FOR CONSTRUCTION

CITY OF WEST FARGO

HOUSTON engineering, inc.

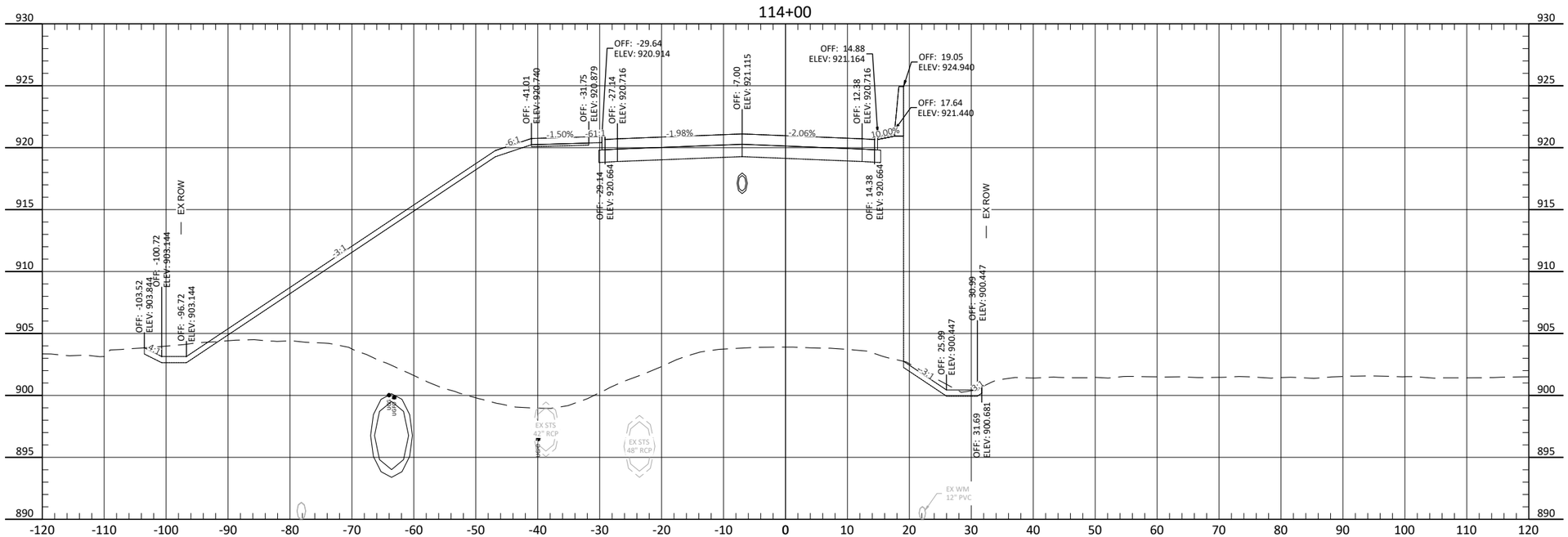
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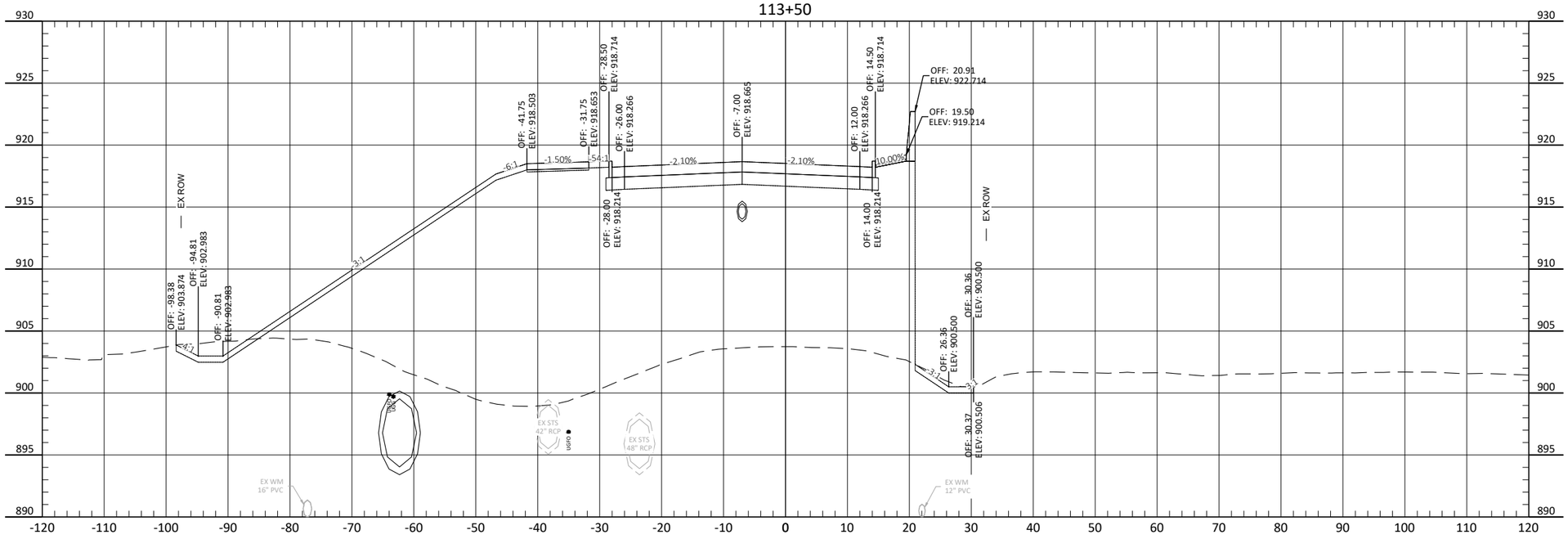
Cross Sections - 9th St NE

9th St NE Grade Separation

H:\JBN\8600\8654\8654_0004 9th St\CADD\0_RAISE GRANT\Plans\200 - 9th St Cross Sections_Main to 7th Ave.dwg-XS-4-7/17/2025 8:20 AM-(cueland)

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	2293	200	5





PRELIMINARY
NOT FOR CONSTRUCTION

CITY OF WEST FARGO

HOUSTON engineering, inc.

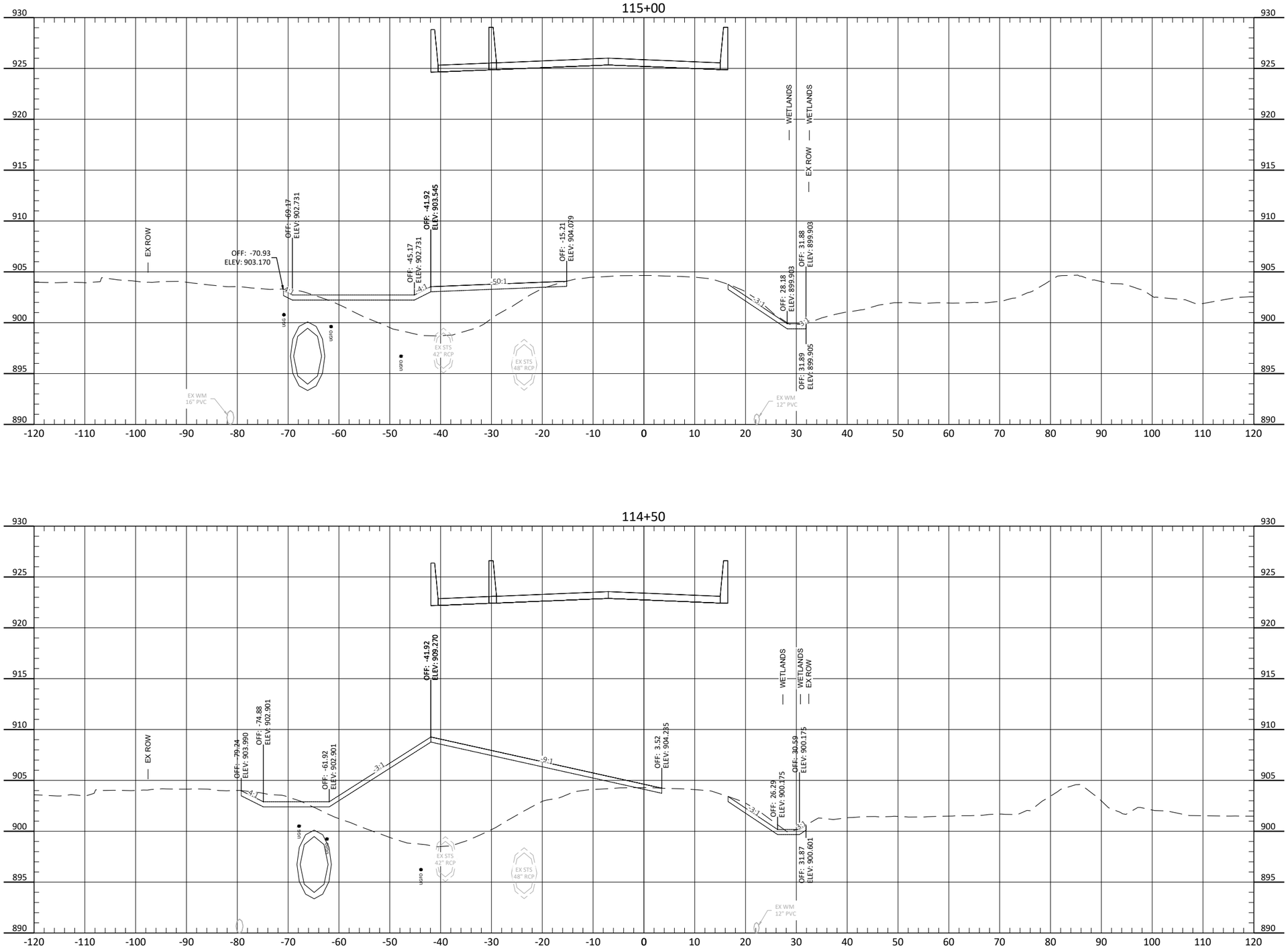
ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

Cross Sections - 9th St NE

9th St NE Grade Separation

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	2293	200	6



PRELIMINARY
NOT FOR CONSTRUCTION

CITY OF WEST FARGO

HOUSTON engineering, inc.

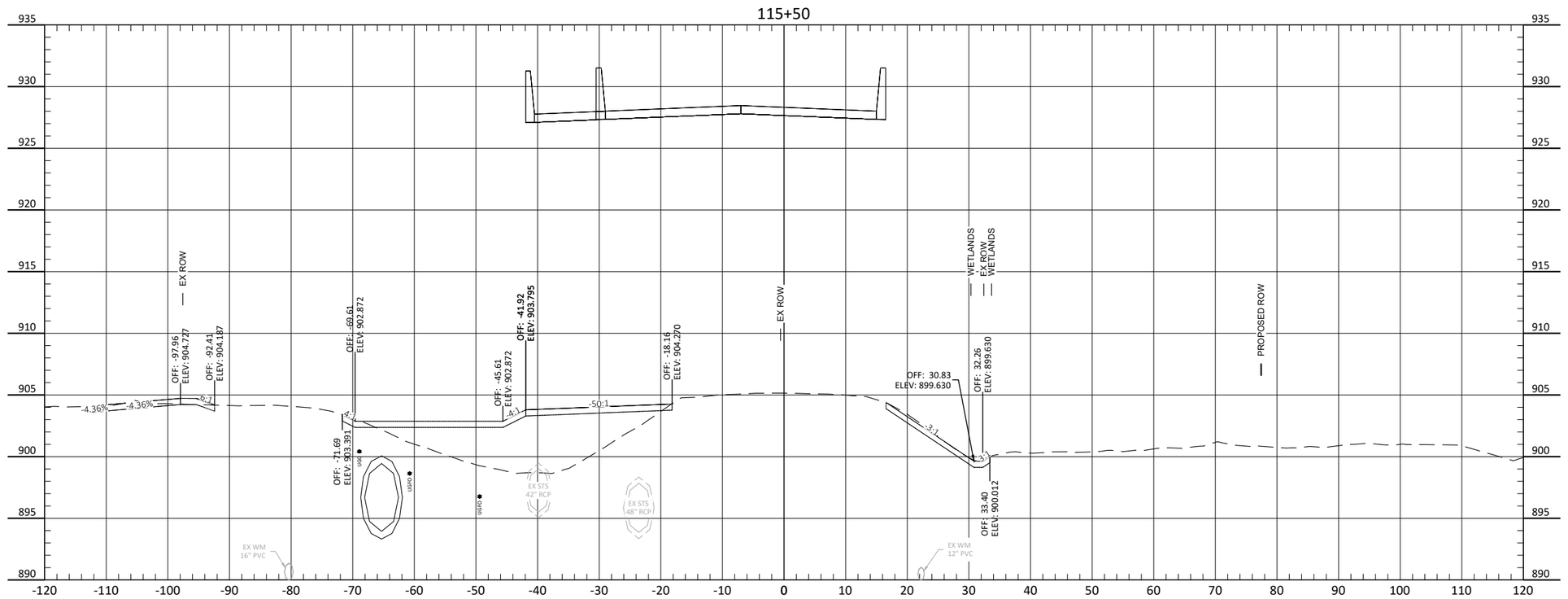
ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

Cross Sections - 9th St NE

9th St NE Grade Separation

H:\JBN\8600\8654\8654_0004 9th St\CAD\0_RAISE GRANT\Plans\200 - 9th St Cross Sections_Main to 7th Ave.dwg-XS-6-7/17/2025 8:20 AM-(cueland)

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	2293	200	7



PRELIMINARY
NOT FOR CONSTRUCTION

CITY OF WEST FARGO

HOUSTON engineering, inc.

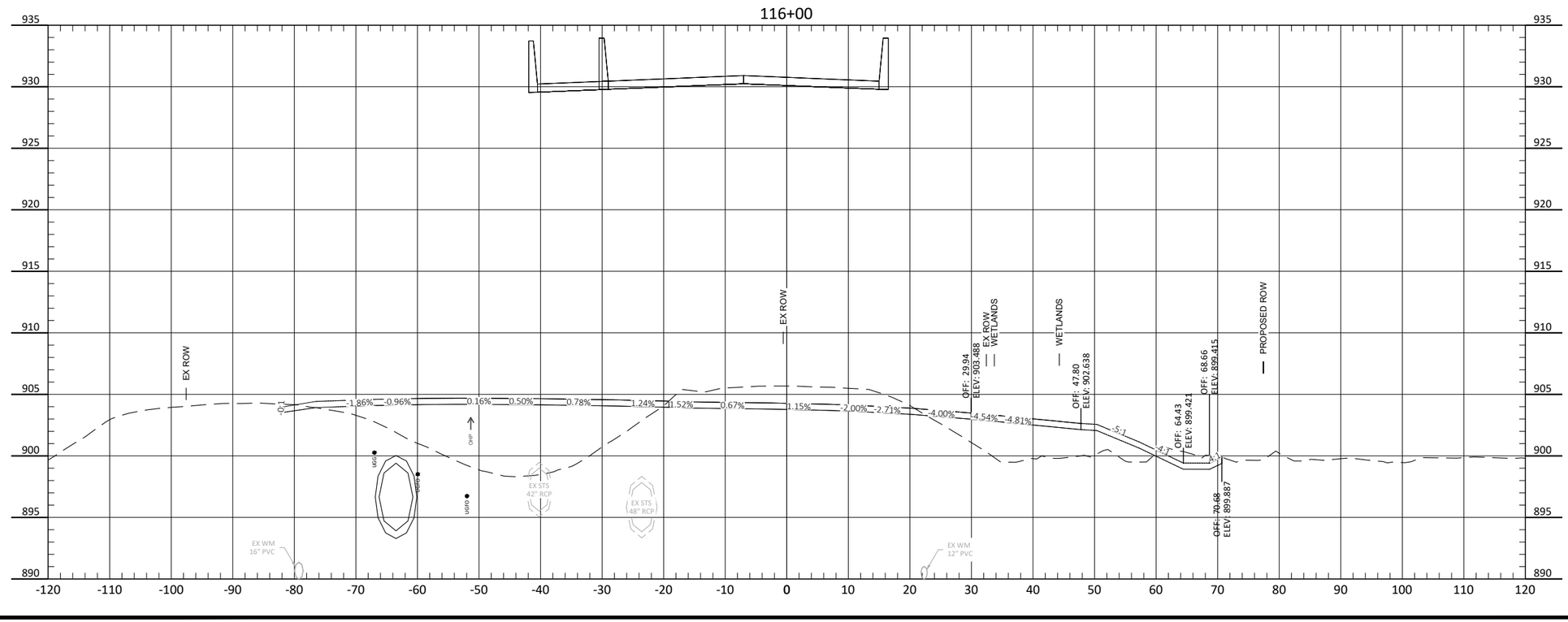
ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

Cross Sections - 9th St NE

9th St NE Grade Separation

H:\JBN\8600\8654\8654_0004 9th St\CAD\0_RAISE GRANT\Plans\200 - 9th St Cross Sections_Main to 7th Ave.dwg-XS-7-17/2025 8:21 AM-(cueland)

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	2293	200	8



PRELIMINARY
NOT FOR CONSTRUCTION

CITY OF WEST FARGO

HOUSTON engineering, inc.

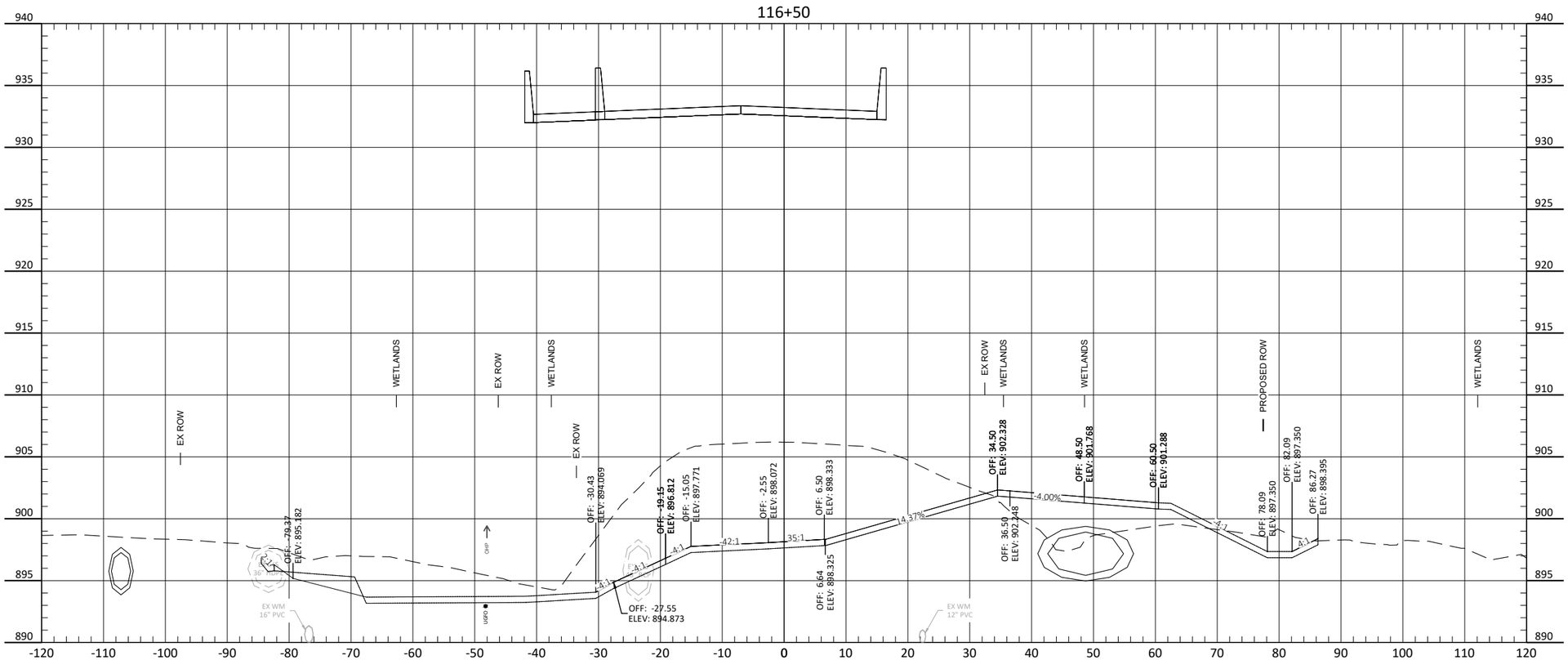
ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

Cross Sections - 9th St NE

9th St NE Grade Separation

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	2293	200	9



PRELIMINARY
NOT FOR CONSTRUCTION

CITY OF WEST FARGO

HOUSTON engineering, inc.

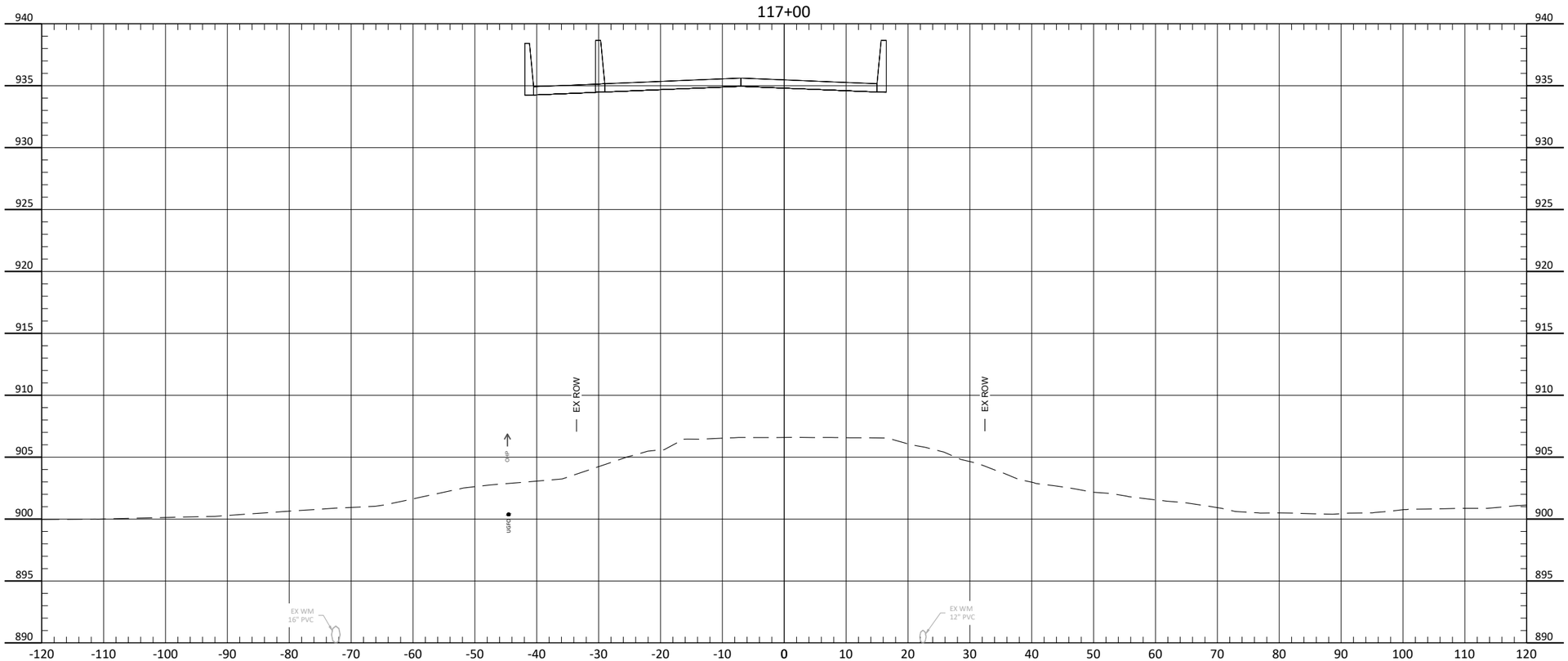
ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

Cross Sections - 9th St NE

9th St NE Grade Separation

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	2293	200	10



PRELIMINARY
NOT FOR CONSTRUCTION

CITY OF WEST FARGO

HOUSTON engineering, inc.

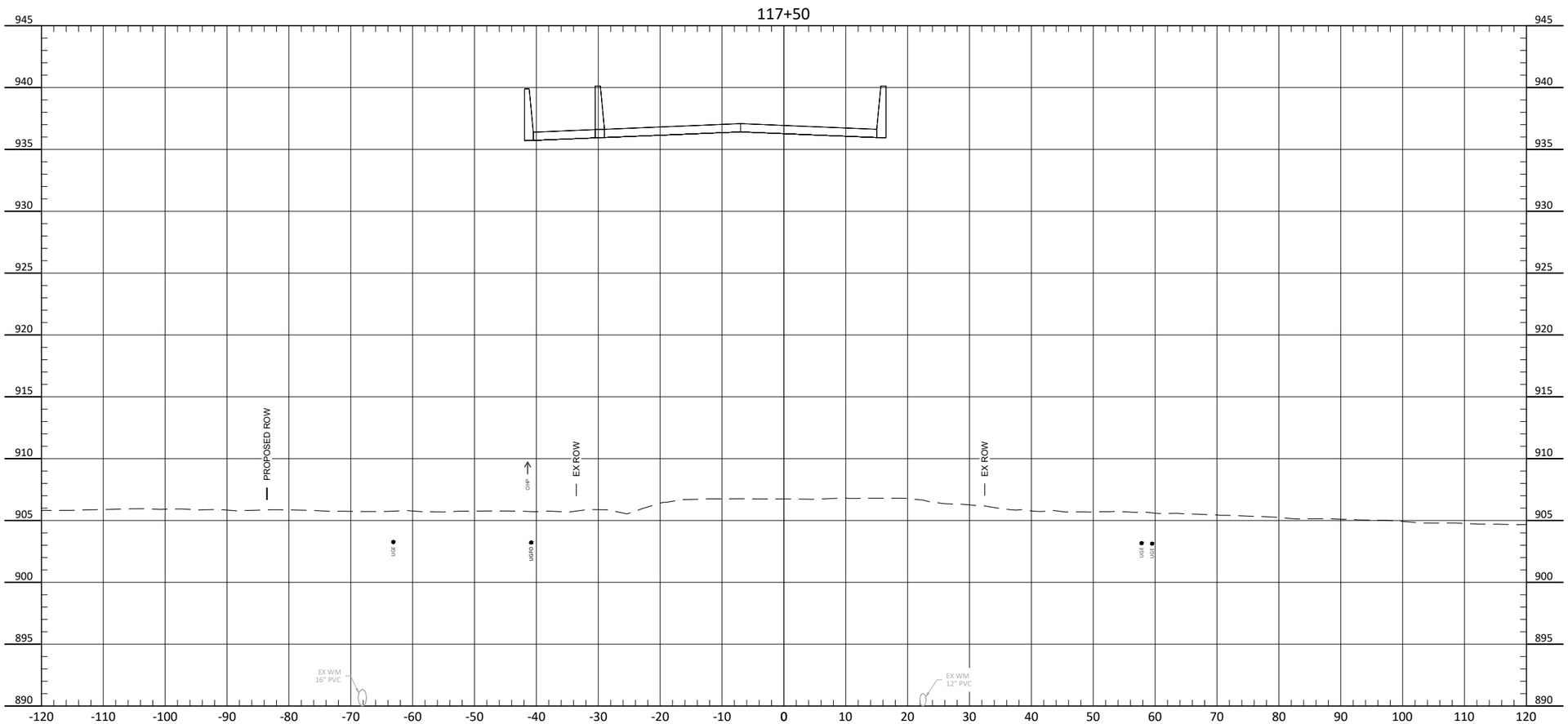
ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

Cross Sections - 9th St NE

9th St NE Grade Separation

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	2293	200	11



PRELIMINARY
NOT FOR CONSTRUCTION

CITY OF WEST FARGO

HOUSTON engineering, inc.

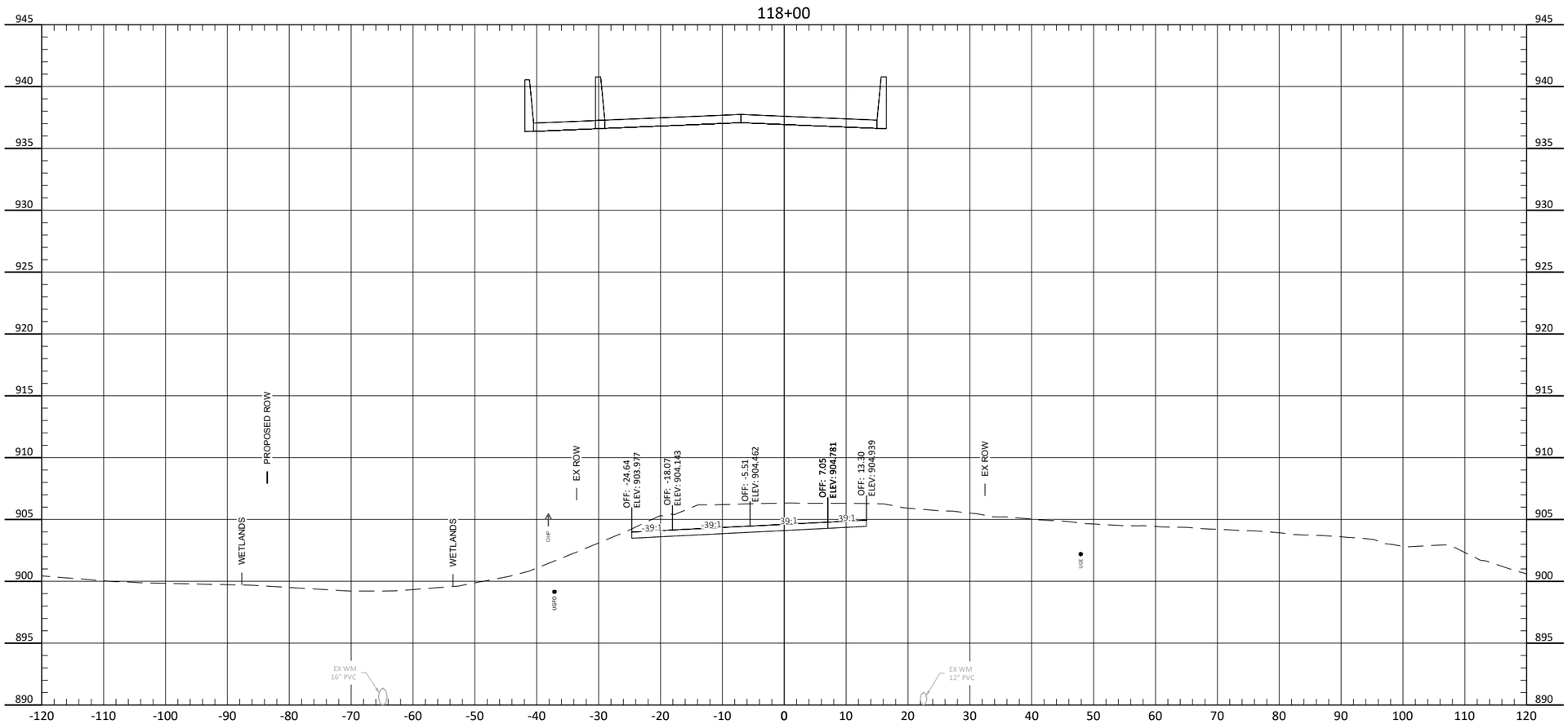
ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

Cross Sections - 9th St NE

9th St NE Grade Separation

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	2293	200	12



PRELIMINARY
NOT FOR CONSTRUCTION

CITY OF WEST FARGO

HOUSTON engineering, inc.

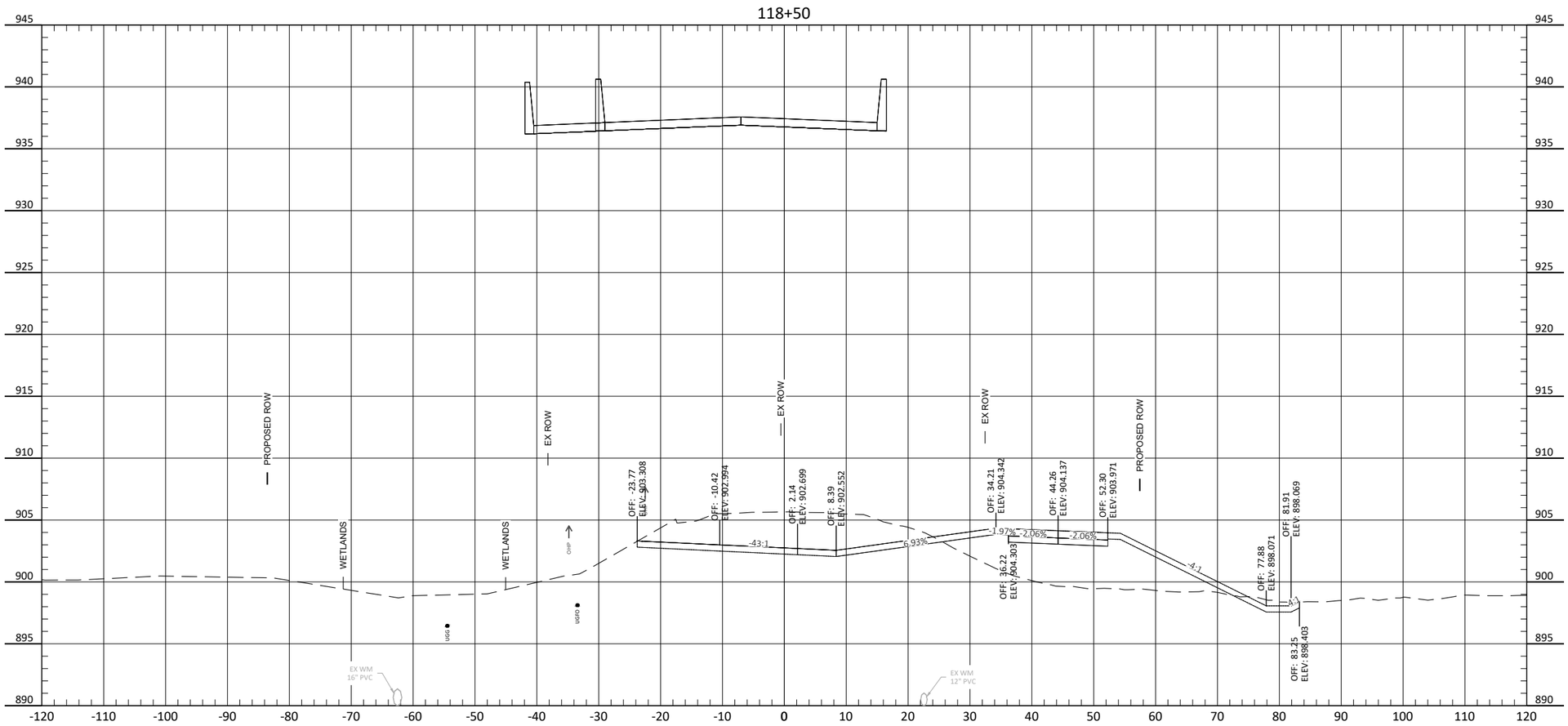
ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

Cross Sections - 9th St NE

9th St NE Grade Separation

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	2293	200	13



PRELIMINARY
NOT FOR CONSTRUCTION

CITY OF WEST FARGO

HOUSTON engineering, inc.

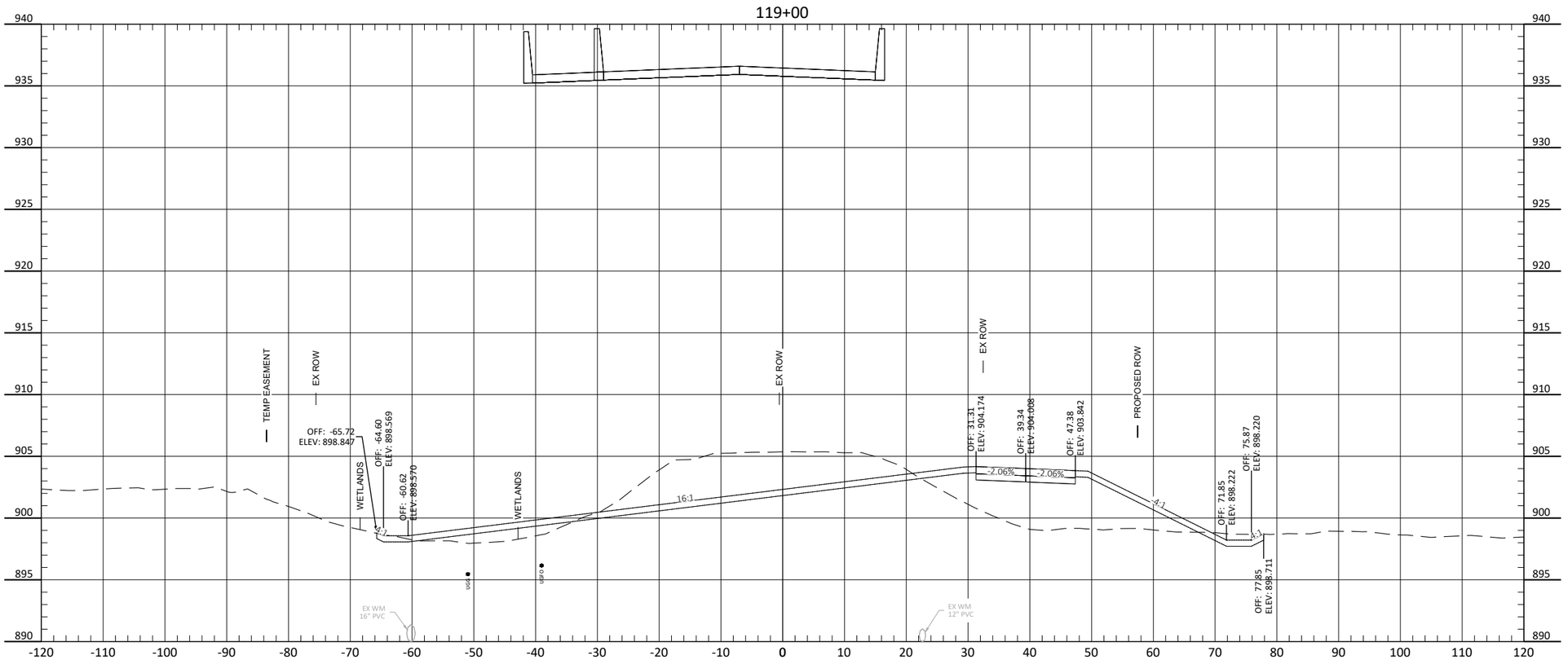
ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

Cross Sections - 9th St NE

9th St NE Grade Separation

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	2293	200	14



PRELIMINARY
NOT FOR CONSTRUCTION

CITY OF WEST FARGO

HOUSTON engineering, inc.

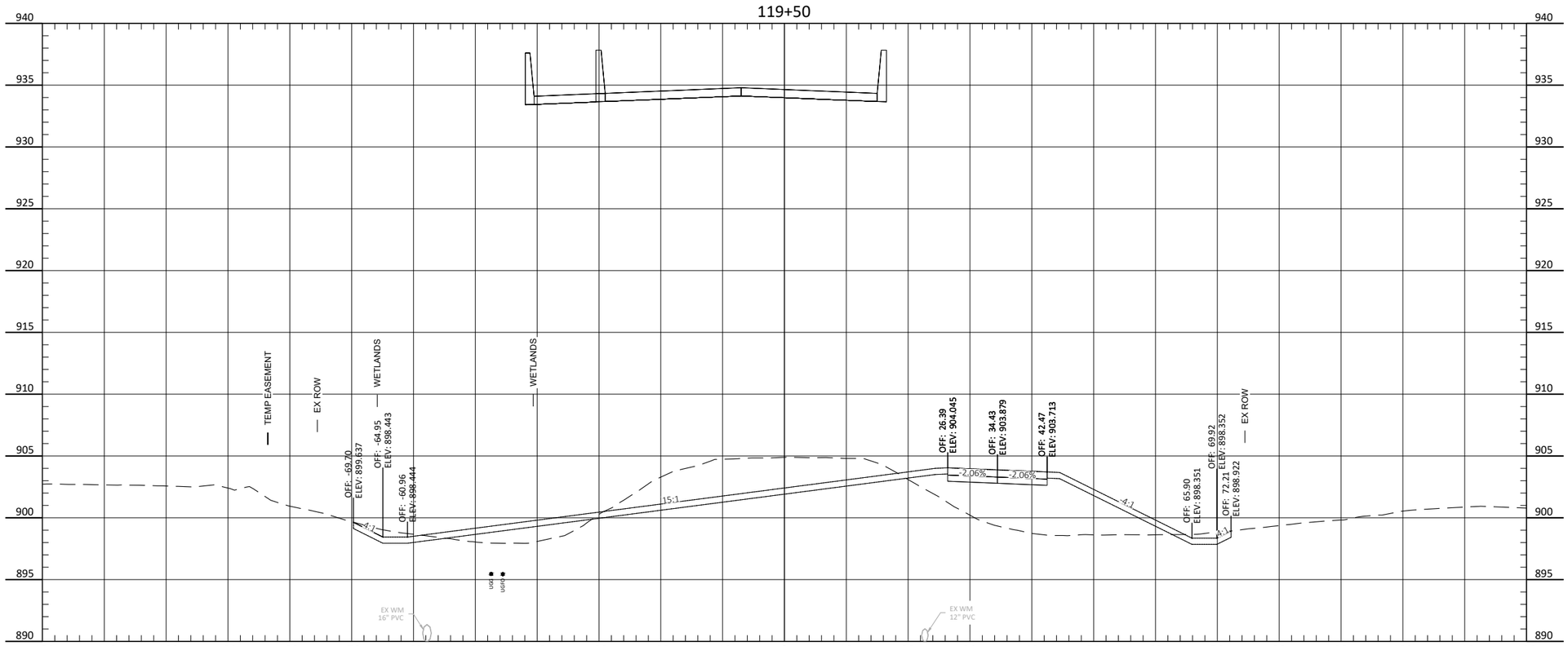
ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

Cross Sections - 9th St NE

9th St NE Grade Separation

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	2293	200	15



PRELIMINARY
NOT FOR CONSTRUCTION

CITY OF WEST FARGO

HOUSTON engineering, inc.

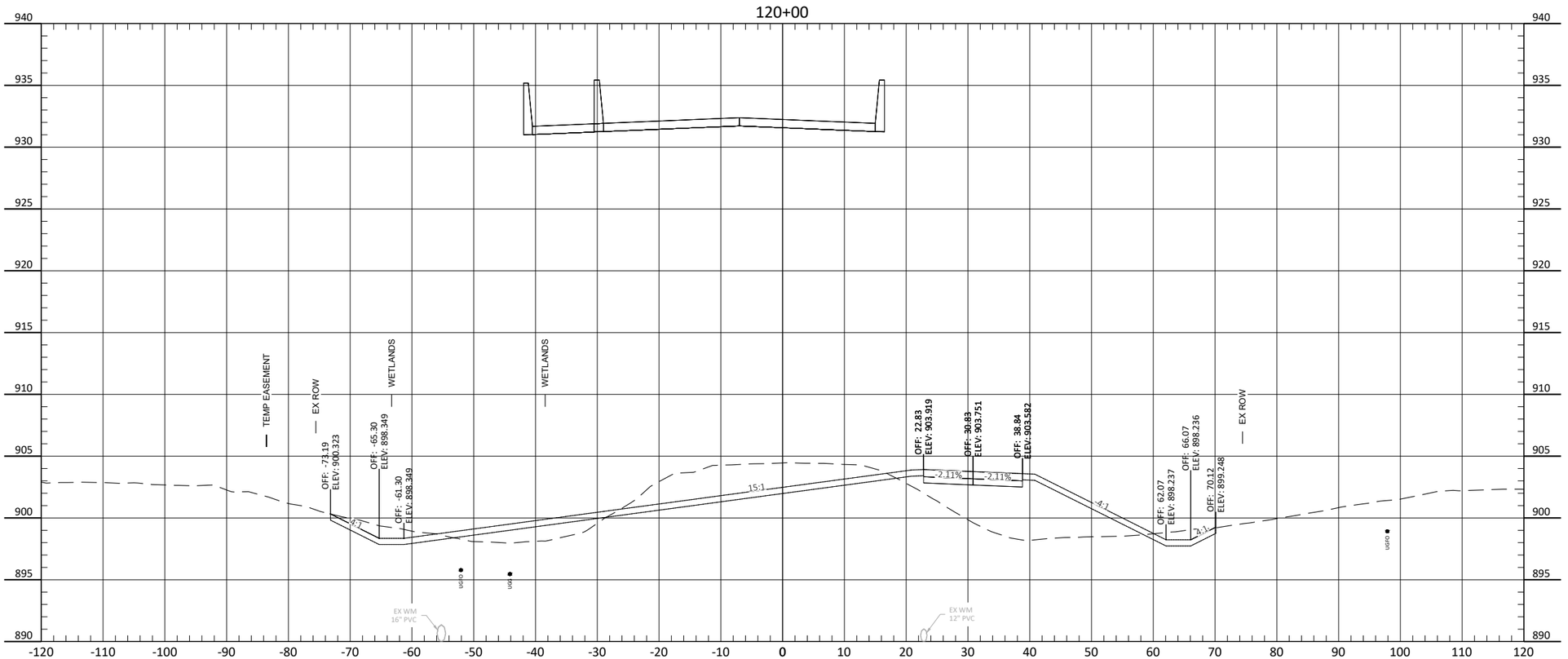
ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

Cross Sections - 9th St NE

9th St NE Grade Separation

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	2293	200	16



PRELIMINARY
NOT FOR CONSTRUCTION

CITY OF WEST FARGO

HOUSTON engineering, inc.

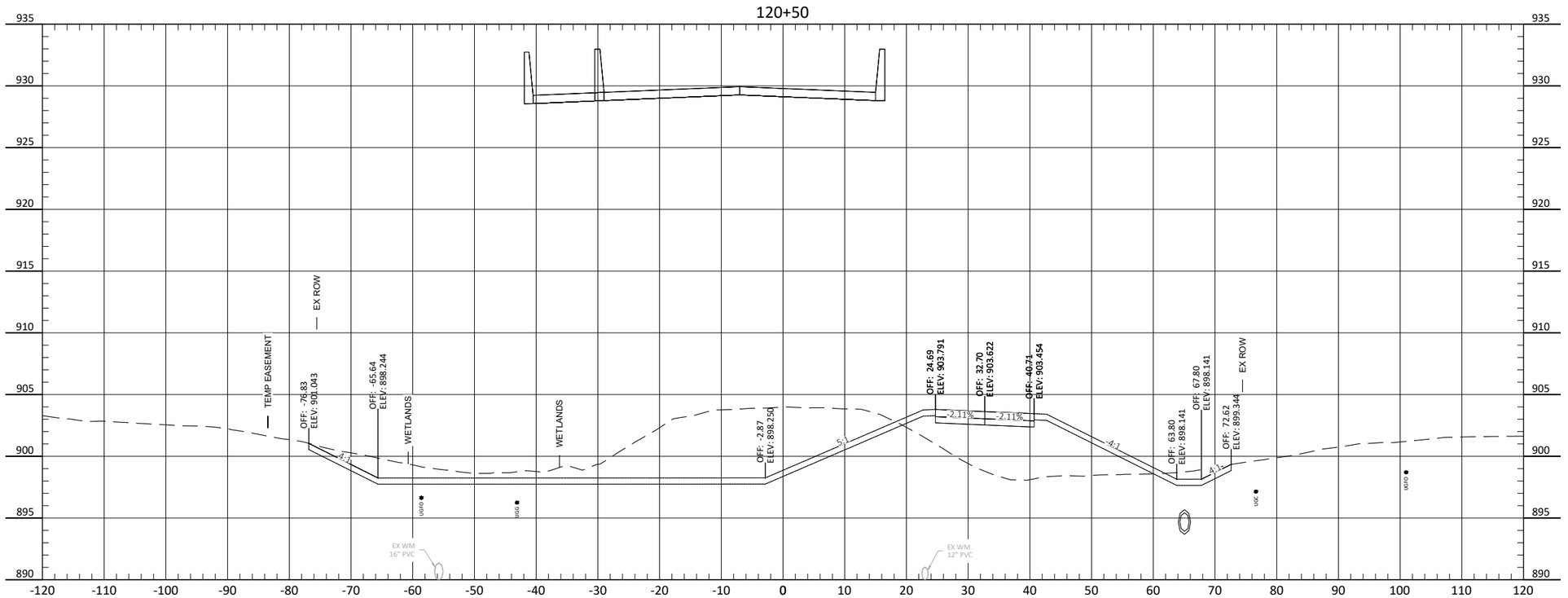
ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

Cross Sections - 9th St NE

9th St NE Grade Separation

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	2293	200	17



PRELIMINARY
NOT FOR CONSTRUCTION

CITY OF WEST FARGO

HOUSTON engineering, inc.

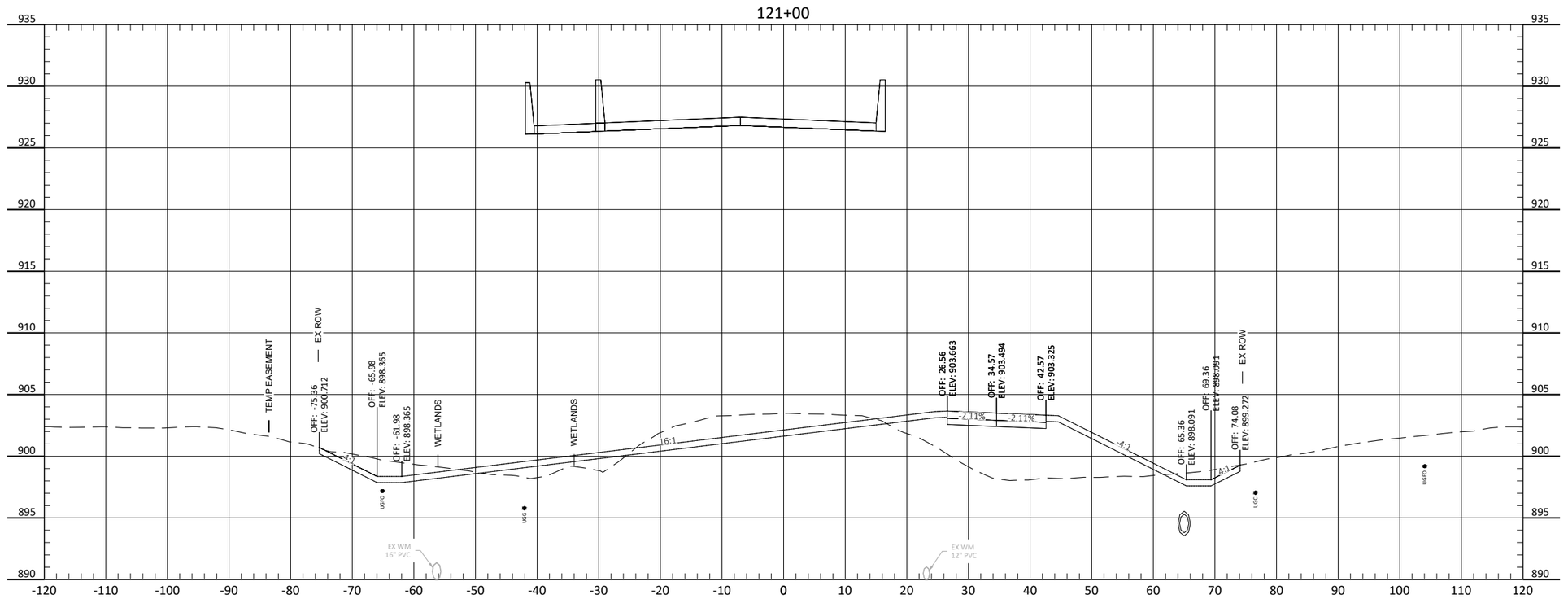
ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

Cross Sections - 9th St NE

9th St NE Grade Separation

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	2293	200	18



PRELIMINARY
NOT FOR CONSTRUCTION

CITY OF WEST FARGO

HOUSTON engineering, inc.

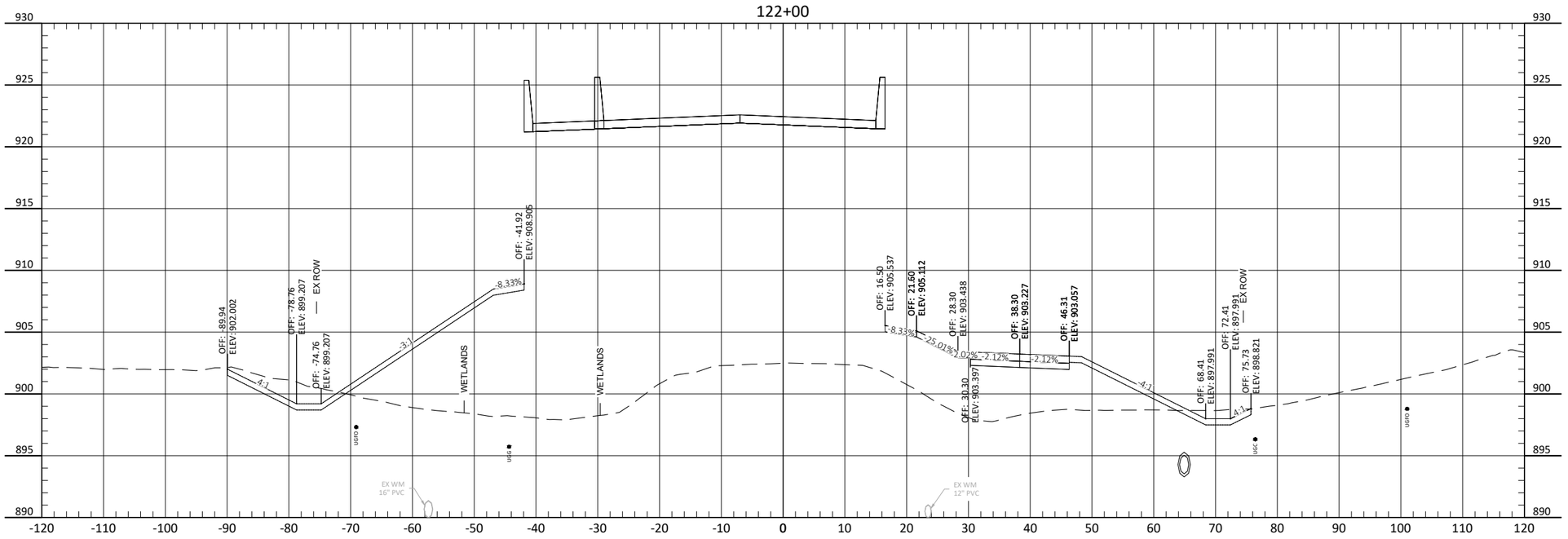
ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

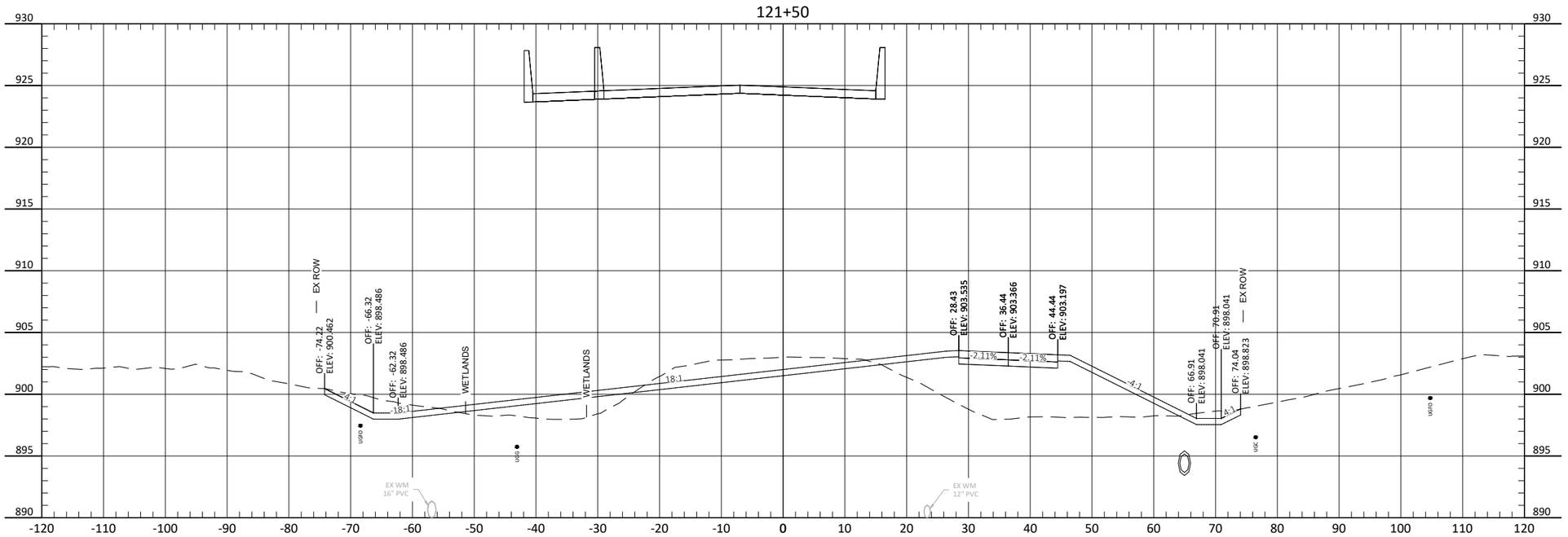
Cross Sections - 9th St NE

9th St NE Grade Separation

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	2293	200	19





PRELIMINARY
NOT FOR CONSTRUCTION

CITY OF WEST FARGO

HOUSTON engineering, inc.

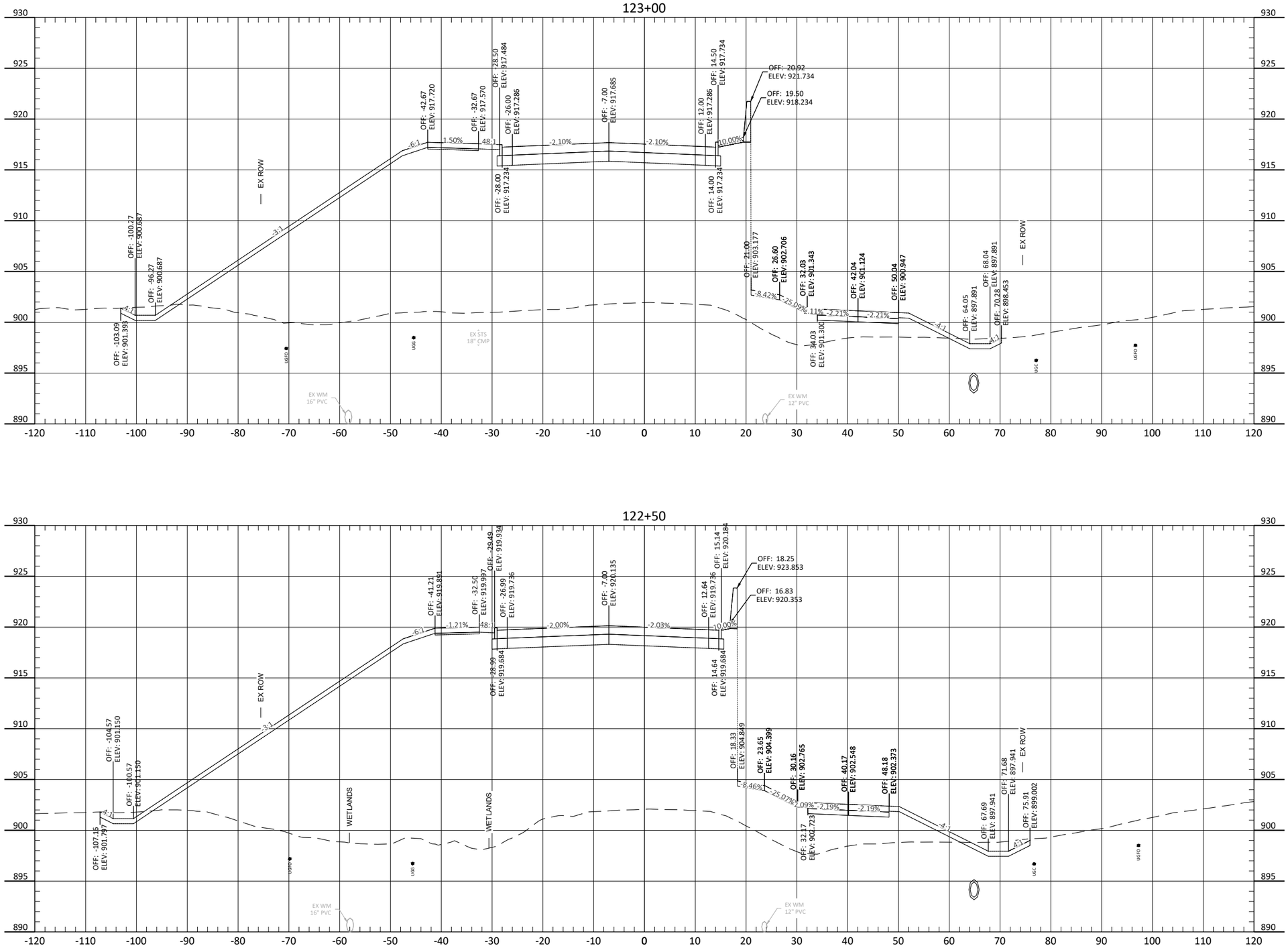
ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

Cross Sections - 9th St NE

9th St NE Grade Separation

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	2293	200	20



PRELIMINARY
NOT FOR CONSTRUCTION

CITY OF WEST FARGO

HOUSTON engineering, inc.

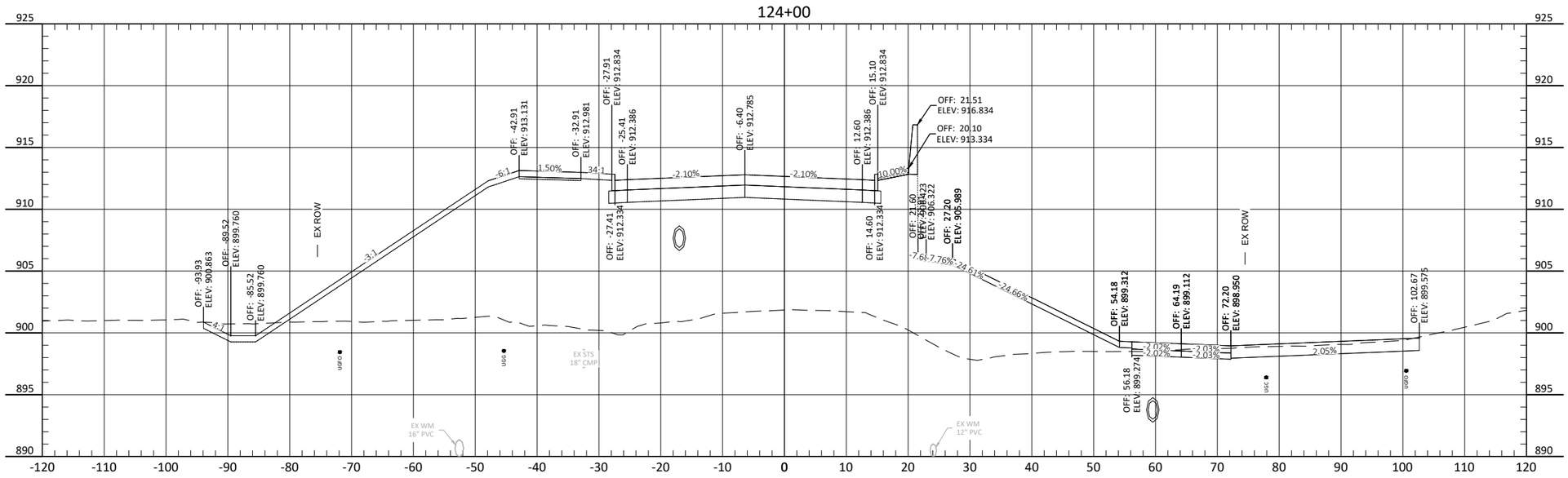
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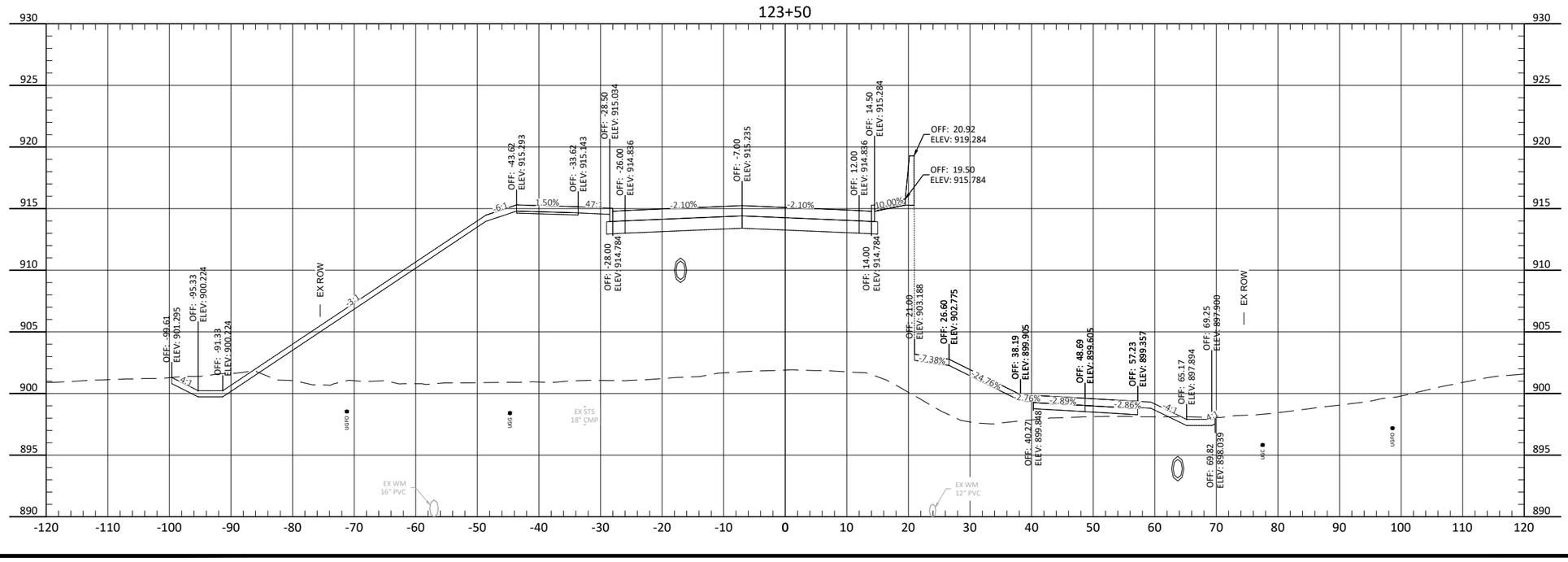
Cross Sections - 9th St NE

9th St NE Grade Separation

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	2293	200	21





PRELIMINARY
NOT FOR CONSTRUCTION

CITY OF WEST FARGO

HOUSTON engineering, inc.

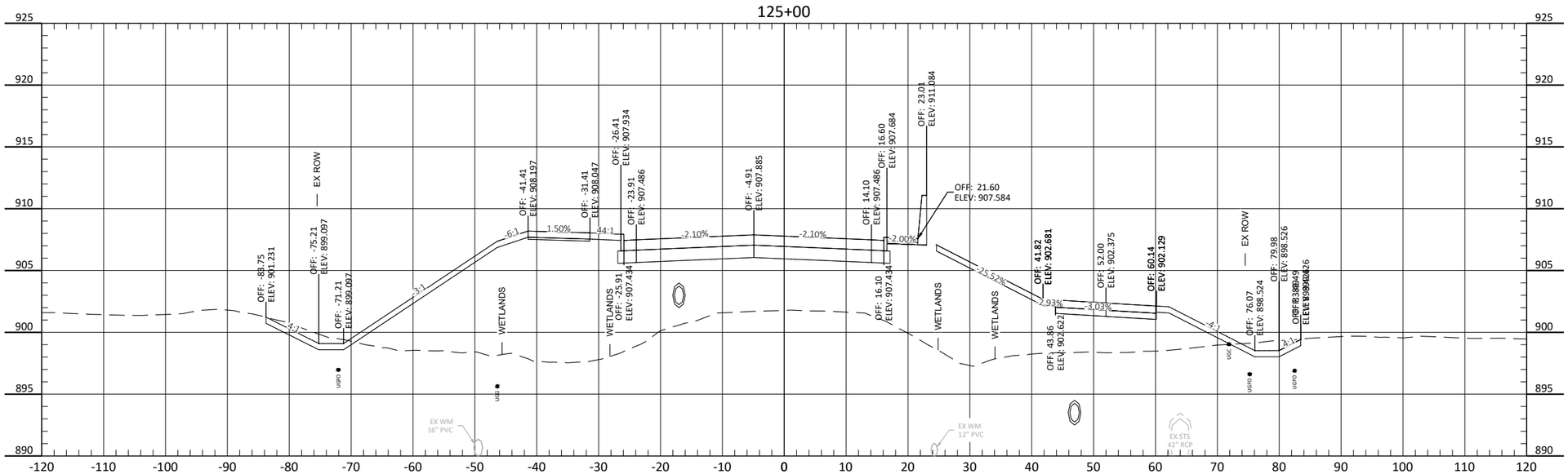
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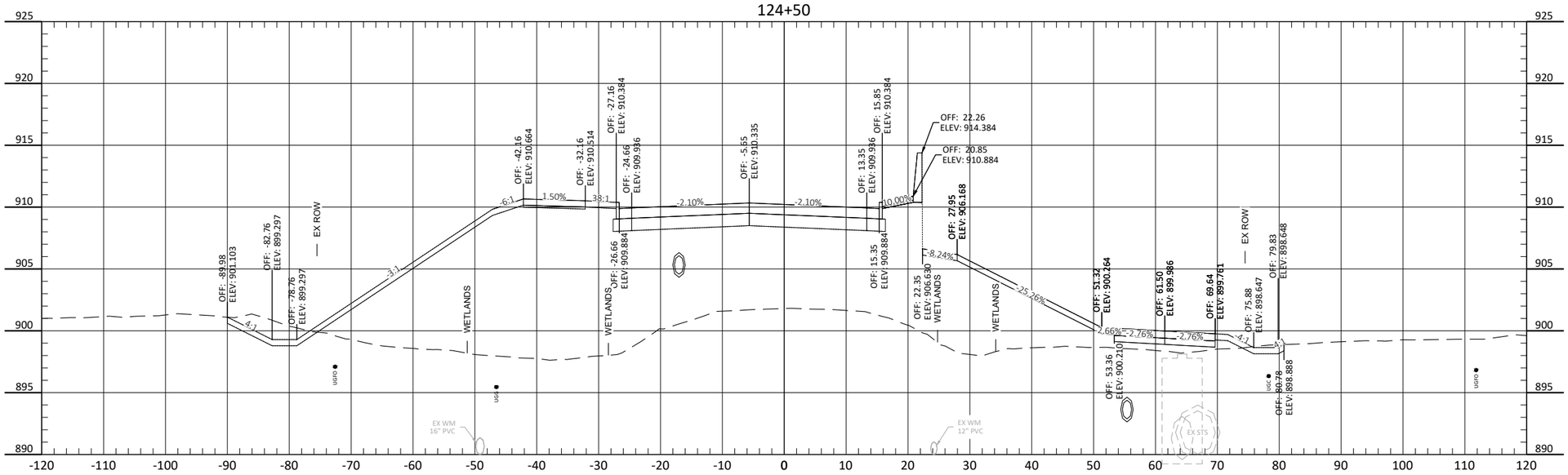
Cross Sections - 9th St NE

9th St NE Grade Separation

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	2293	200	22





PRELIMINARY
NOT FOR CONSTRUCTION

CITY OF WEST FARGO

HOUSTON engineering, inc.

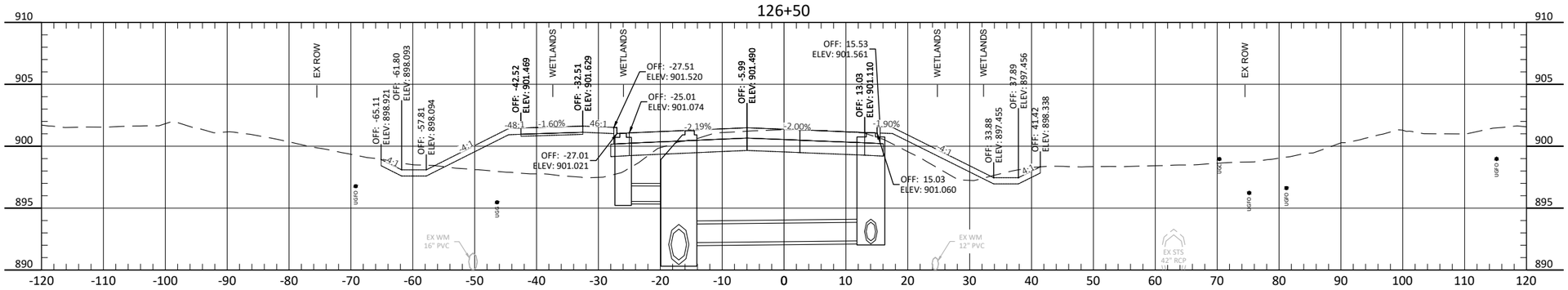
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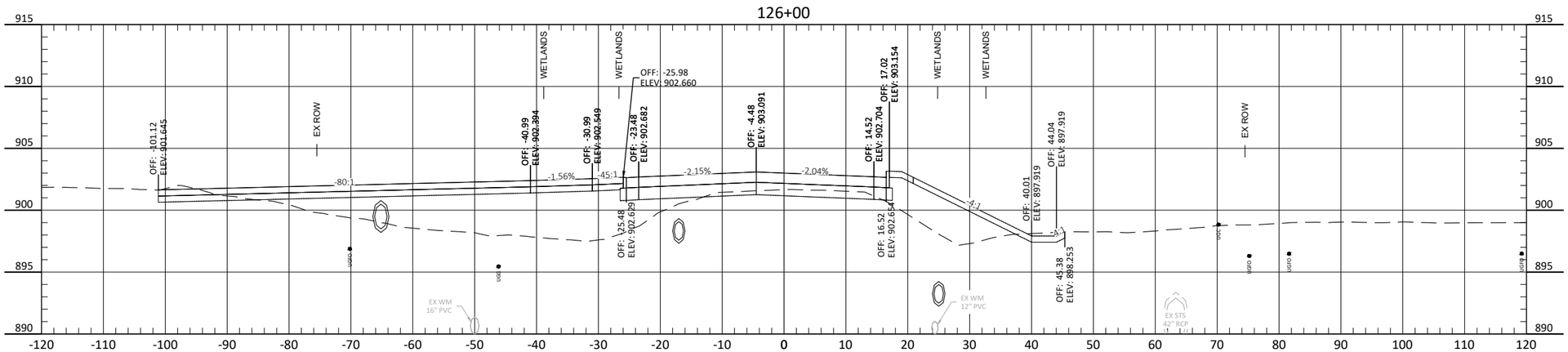
Cross Sections - 9th St NE

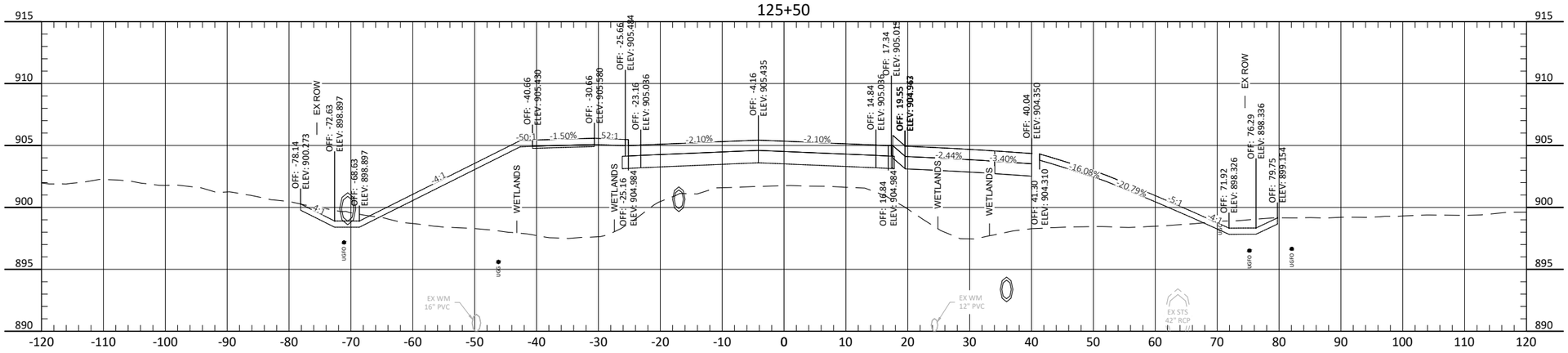
9th St NE Grade Separation

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	2293	200	23







PRELIMINARY
NOT FOR CONSTRUCTION

CITY OF WEST FARGO

HOUSTON engineering, inc.

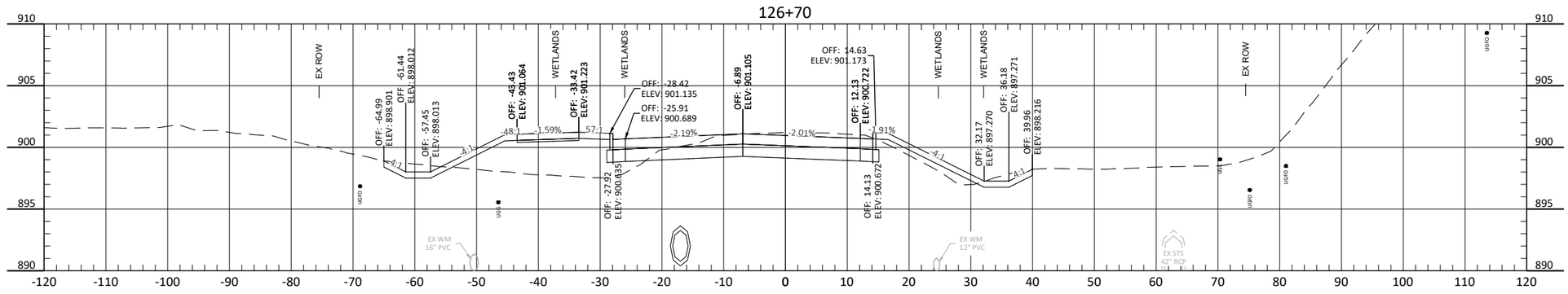
ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

Cross Sections - 9th St NE

9th St NE Grade Separation

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	2293	200	24



PRELIMINARY
NOT FOR CONSTRUCTION

CITY OF WEST FARGO

HOUSTON engineering, inc.

ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

Cross Sections - 9th St NE

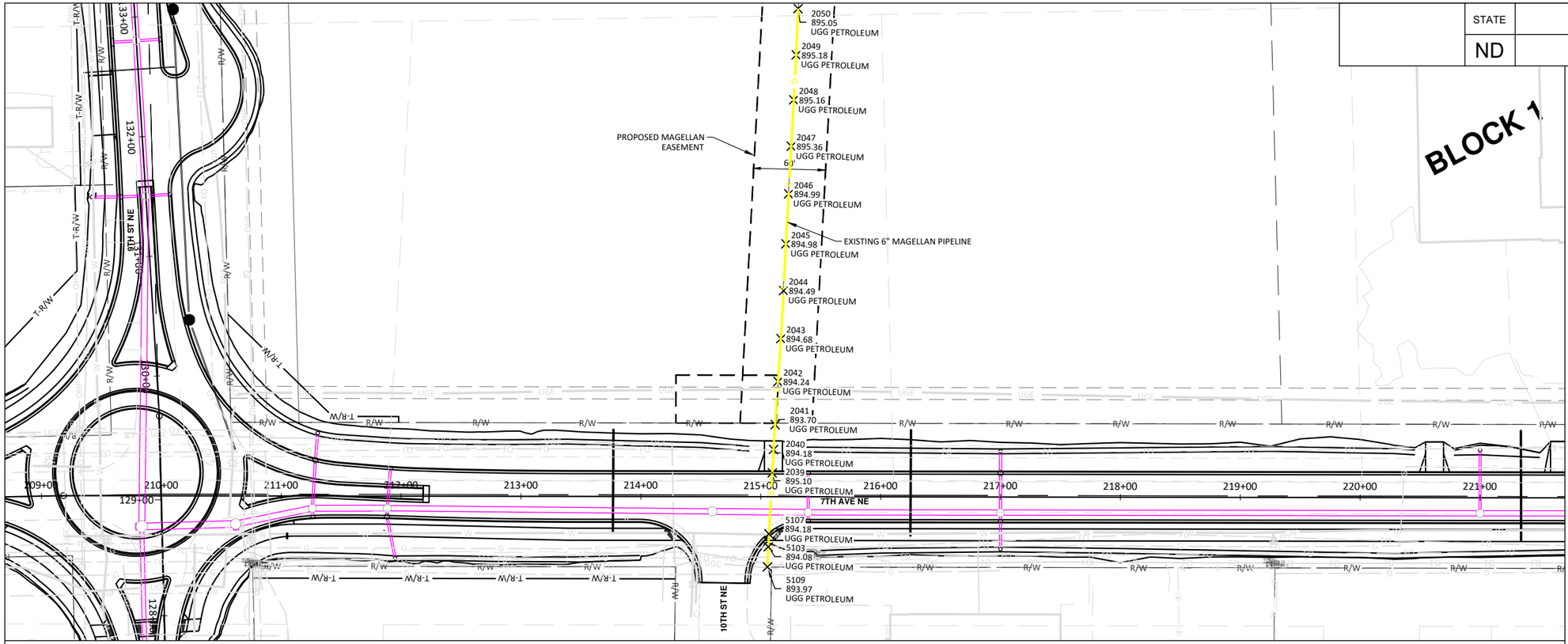
9th St NE Grade Separation

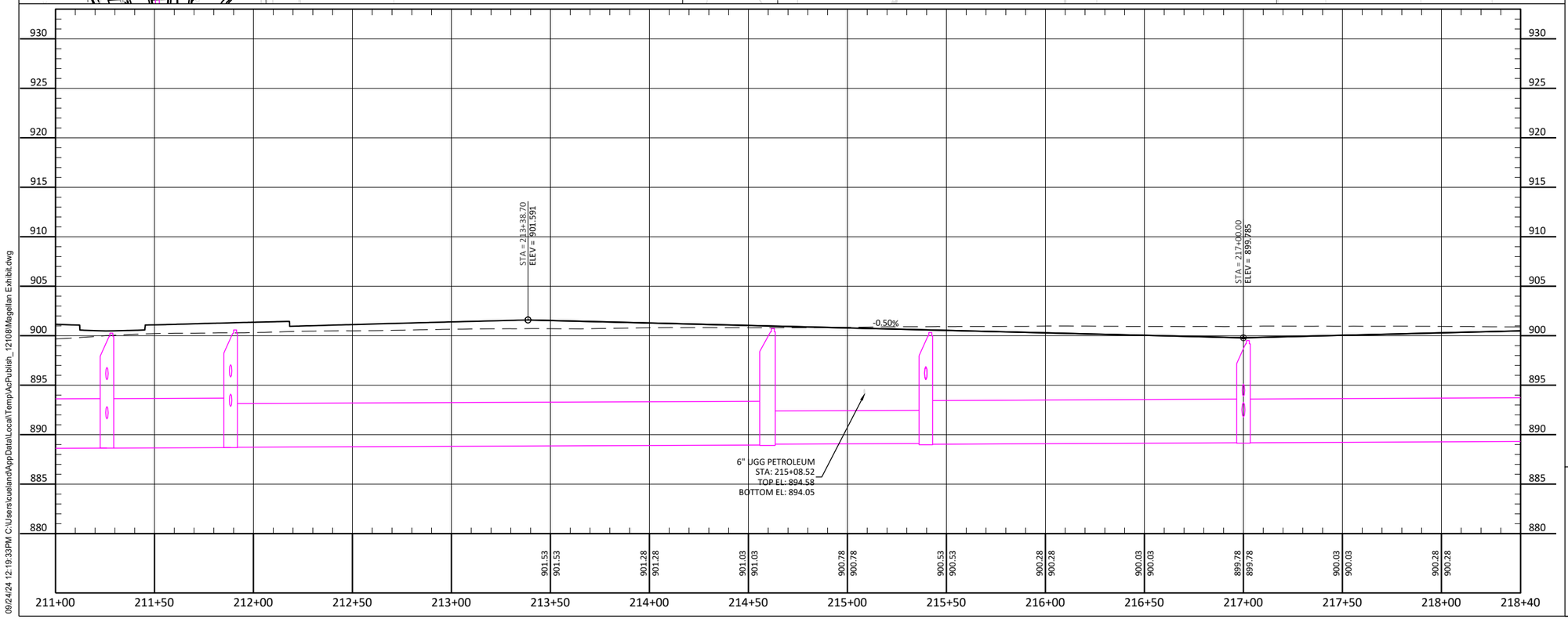
H:\JBN\8600\8654\8654_0004 9th St\CADD\0_RAISE GRANT\Plans\200 - 9th St Cross Sections_Main to 7th Ave.dwg-XS-24-7/17/2025 8:22 AM-(cueland)

Appendix C – Utility Pothole Report

Authored By: Houston Engineering Inc

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-992(045)	-	1





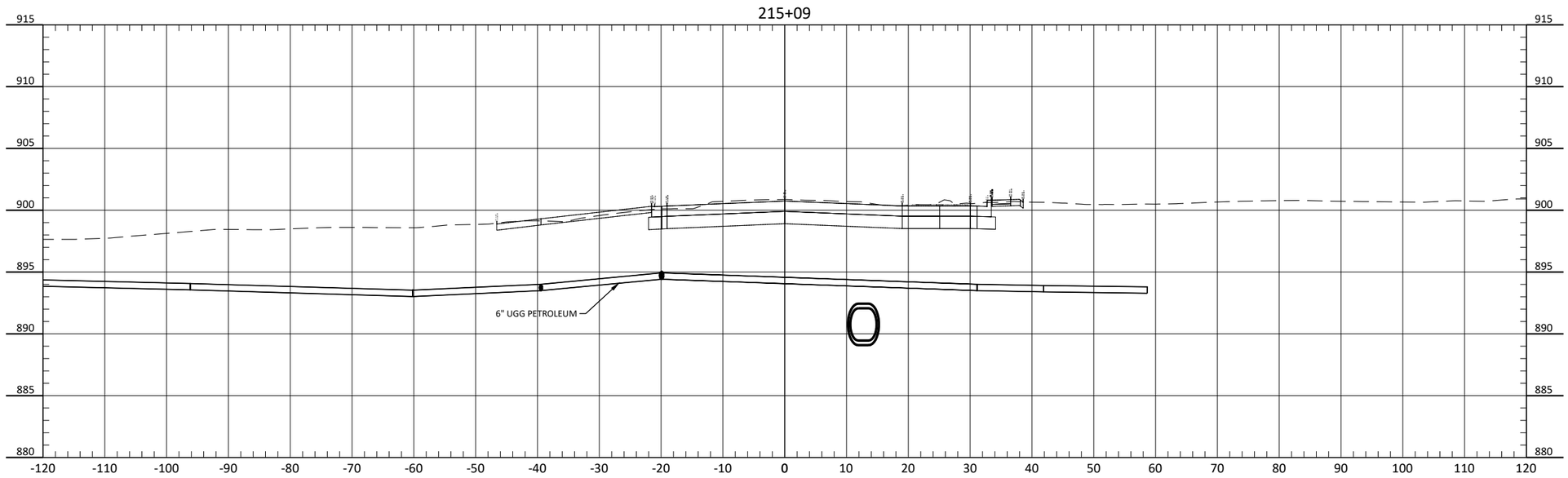
ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

PLAN & PROFILE
MAGELLAN EXHIBIT

9th St NE - Main Ave E to 12th Ave NE
7th Ave NE - 9th St NE to Near 45th St N
Sta 211+00 to 218+00

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	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	SU-8-992(045)	-	1



HOUSTON engineering, inc.

ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

CROSS SECTION
MAGELLAN EXHIBIT

9th St NE - Main Ave E to 12th Ave NE
7th Ave NE - 9th St NE to Near 45th St N

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NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

TEMPORARY PEDESTRIAN FACILITIES

PROJECT 8-992(045) – PCN 23537

DESCRIPTION

This work consists of constructing temporary pedestrian facilities for use while permanent facilities are impacted by the project work.

MATERIALS

A. Pedestrian Channelization.

Provide pedestrian channelization that meets the following requirements:

- Interlocked with a 1” maximum gap between devices;
- Upper rail with a smooth continuous guide handrail positioned 32 to 38 inches above the walkway;
- A smooth lower edge on the pedestrian side of the wall to allow sight impaired cane tapping positioned based on the following requirements:
  - The bottom edge is less than 2 inches above the walkway; and
  - The top edge a minimum of 6 inches above the walkway
- Openings in the bottom of the wall to allow for water passage;
- Support legs that do not impede the clear walkway;
- In compliance with NCHRP Report 350 or MASH Test Level 3 (TL3);
- Channelization portions are orange or white, or a combination of orange and white, in color.

B. Temporary Pedestrian Surfacing.

Compacted aggregate is not an acceptable surface.

CONSTRUCTION REQUIREMENTS

A. General.

Provide surfaces for temporary pedestrian facilities with the following characteristics:

- Stable;
- Firm;
- Weather resistant; and
- Non-slip.

B. Pedestrian Walkway.

1. General

Pedestrian walkways consist of two components; pedestrian channelization and temporary pedestrian surfacing.

Move and reset the pedestrian walkway as needed for multiple phases of construction.

2. **Pedestrian Channelization.**
   Install pedestrian channelization as follows:
   - Place pedestrian channelization to delineate a clear, temporary pedestrian walkway directing pedestrians through the work area;
   - Provide a minimum, continuous, clear width of 48 inches;
   - Where the clear width of a temporary pedestrian walkway is less than 60 inches, provide passing spaces at maximum intervals of 200 feet that have minimum dimension of 60 × 60 inches.

3. **Temporary Pedestrian Surfacing.**
   Place temporary surfacing to match the widths detailed in Section 2, “Pedestrian Channelization” in the Construction Requirements portion of this special provision.

   Place temporary surfacing with a maximum cross slope of 2 percent and maximum running slope of 5 percent. Construct and maintain the surface with no vertical discontinuities greater than 0.25 inches, and free of barriers to wheelchair use.

C. Temporary Curb Ramp.
Construct curb ramps with a clear width of 48 inches. Construct ramps with a slope of 12:1 or flatter. Maintain a clear turning platform above and below the ramp of at least 48 × 48 inches.

Maintain a maximum curb ramp and turning platform cross-slope of 50:1 (2%) on parallel curb ramps.

Maintain 0.5-inch maximum width lateral joints or gaps between surfaces and maximum 0.5-inch surface height changes.

Maintain water flow in the gutter system.

METHOD OF MEASUREMENT

A. Pedestrian Walkway.
The Engineer will measure “Pedestrian Walkway” along the centerline of the walkway and make 90 degree turns when measuring around corners. If multiple phases of construction cause the walkway to be moved or reset, the Engineer will pay for the greatest length of walkway used at one time.

B. Temporary Curb Ramp.
The Engineer will measure “Temporary Curb Ramp” based on each curb ramp installed and will pay for the maximum number of curb ramps in place at one time.

BASIS OF PAYMENT

The contract item “Temporary Curb Ramp” includes both parallel and perpendicular curb ramps.

Pay Item	Pay Unit
Pedestrian Walkway	Linear Foot
Temporary Curb Ramp	Each

Include all costs to furnish, install, maintain, relocate, replace, and remove pedestrian channelization and temporary pedestrian surfacing in the contract unit price for “Pedestrian Walkway.”

Such payment is full compensation for furnishing all materials, equipment, labor, and incidentals to complete the work as specified.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

PERMITS AND ENVIRONMENTAL CONSIDERATIONS

PROJECT NUMBER: TMA-SU-FXP-8-992(045)

PCN: 23537

This Special Provision incorporates USACE 408 Authorization. The project as proposed will include reconstruction of 9th Ave NE from Main Ave north to 12th Ave N and 7th Ave NE from 9th St NE east to 45th St NW in West Fargo and Fargo, North Dakota.

The Contractor shall be responsible for complying with all the terms and conditions as contained in the permit(s) attached hereto. Bidders shall become familiar with all standard conditions and special conditions of the permit(s) and submit their bid for the construction of this project based on the following:

- **USACE 408 Authorization**
  The USACE 408 Authorization authorizes the construction of the project.

The contractor shall be responsible for obtaining permits for impacts not authorized by the attached permits. The Contractor shall obtain a NDPDES – Storm Water Permit prior to beginning work.

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, ST. PAUL DISTRICT
332 MINNESOTA STREET, SUITE E1500
ST. PAUL, MN 55101-1323

CEMVP-ECG February 21, 2025

MEMORANDUM FOR RECORD

SUBJECT: 7th Avenue NE Road Improvements through levee section in West Fargo, North Dakota

This is regarding the request to improve the 7th Ave NE corridor that passes through the levee embankment, located in West Fargo, North Dakota. The existing 7th Ave NE crossing consisted of a two-lane road passing through a levee embankment closure structure. The new alignment will also contain a two-lane road plus a new shared use path. The proposed work will involve the slight realignment and paving of 7th Ave NE. The shared use path will be added to the south of the road and will be 10-feet wide. The new road surface will be sloped to drain at 0.021 ft/ft and the path will be sloped to drain at 0.015 ft/ft. The roadway reconstruction will match the existing bottom of aggregate base elevation.

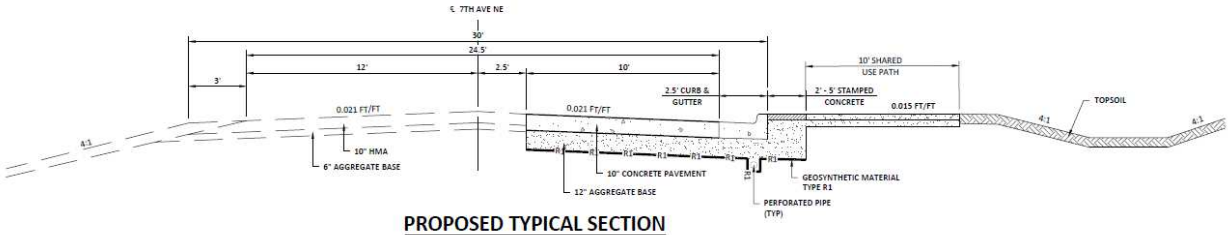
An aerial view of the levee and 7th Ave NE is shown below. Additionally, cross sections and plan views of the proposed work are also included.



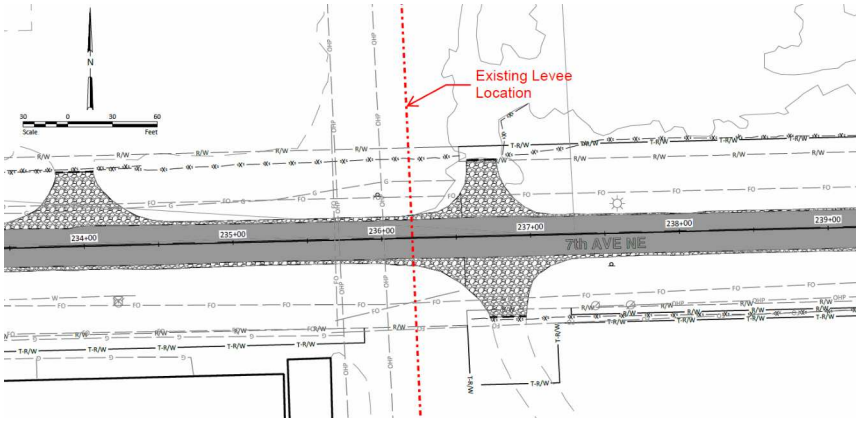


PROPOSED TYPICAL SECTION
NOT TO SCALE
STA 236+00.00 TO 238+00.00

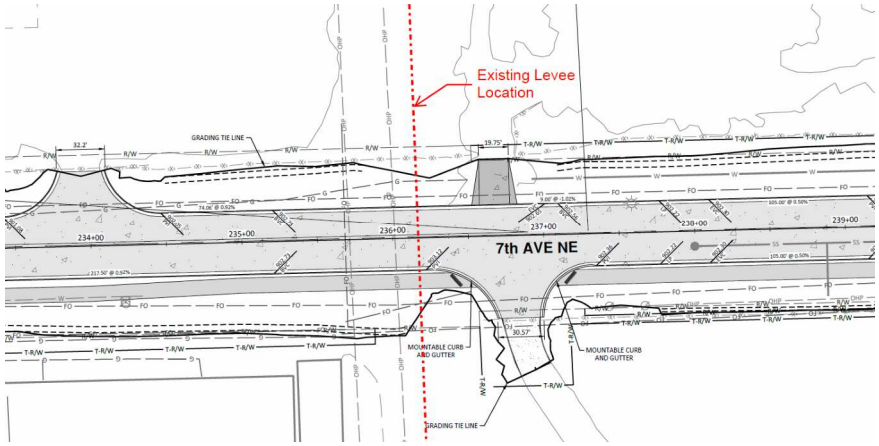
Existing Levee Crossing
Reconstruction to Match Existing Bottom of Aggregate Base Elevation



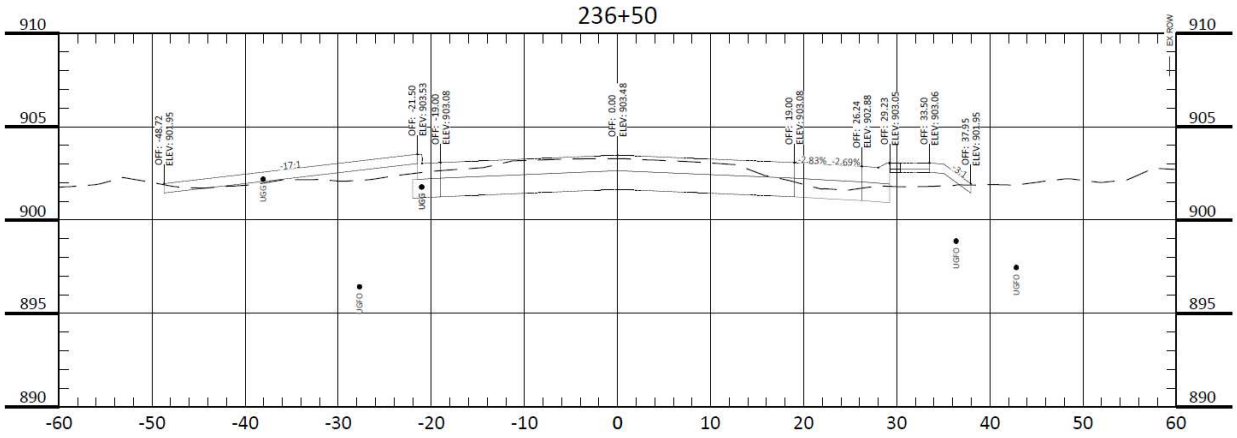
PROPOSED TYPICAL SECTION
NOT TO SCALE
STA 249+77.77 TO STA 257+36.58



Existing Configuration of levee crossing



Proposed Configuration of levee crossing

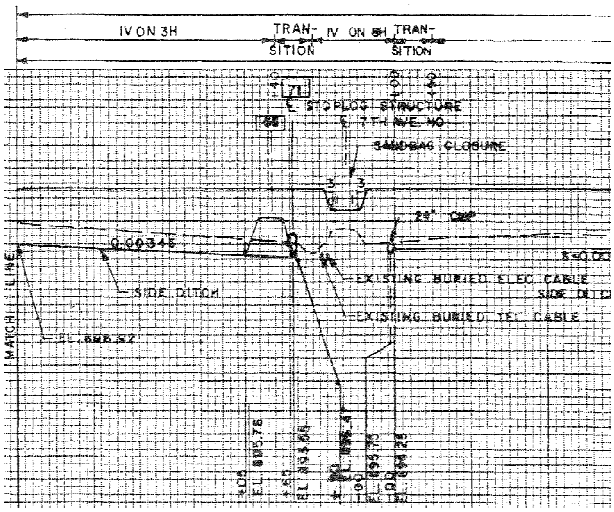


Existing Levee Crossing
Reconstruction to Match Existing Bottom of Aggregate Base Elevation

Based on the design information provided by Houston Engineering (on behalf of the City of West Fargo), the proposed work is acceptable to USACE.

USACE Levee Safety acknowledges that the road/path work will not impact future operation and maintenance, inspection, and potential flood fighting/emergency operations. Additionally, the proposed modifications do not impact the functionality of the federally authorized project features and do not increase the risk of poor performance during future high-water events.

Based on a review of the project drawings, the federally authorized project contains a sandbag closure across 7th Ave. NE, but the accompanying road raise was done by others. The work proposed by the proposed plans do not fundamentally alter any project design features but would largely take place within the existing sandbag closure opening. Road work and improvements through the sandbag closure corridor are considered to be routine operation and maintenance and do not require any additional alteration permissions.



West Fargo/Riverside Diversion As-Built Dwg. R23-P-64/30

The as-builts indicate that buried utilities are present near the levee crossing and USACE would recommend that all utilities should be located prior to road/path work through this corridor.

Construction shall not be undertaken if the river is at any flood stage or if high water is expected. Even temporary excavation could exacerbate seepage related concerns behind the levee.

Upon completion of the work, please provide as-built drawings to the St. Paul District so that they can be kept with this system's program files.

If unforeseen conditions arise during construction that could impact the integrity of the existing federal project or required modification of the design during construction, the Corps levee safety staff must be notified immediately.

The USACE points of contact for conditions of the letter is Mr. Eric Wittine. He can be contacted at (651) 290-5590 (email at eric.a.wittine@usace.army.mil).

WITTINE.ERIC.A.1241987210 Digitally signed by WITTINE.ERIC.A.1241987210 Date: 2025.02.24 10:17:30 -06'00'

Eric Wittine, PE
Levee Safety Program Manager

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
SPECIAL PROVISION

FUEL COST ADJUSTMENT CLAUSE
Revision Date: 9/8/2006

Introduction

This Special Provision provides for price adjustments to the Contract when significant changes in the cost of motor fuels and burner fuels occur while completing the Contract work. Participation in fuel cost adjustment program is not mandatory. A Contractor is not required to notify the Department at the time of submitting bids whether the Contractor will or will not participate in the fuel cost adjustment provision.

The North Dakota Department of Transportation (NDDOT) will send the low responsible bidder a "Fuel Cost Adjustment Affidavit" (SFN 58393) with the proposed Contract. The Contractor shall return a completed Fuel Adjustment Affidavit with the signed Contract as specified in Standard Specification Section 103.06, Execution and Approval of the Contract. The affidavit shall be returned on all Contracts with this provision even if the Contractor elects not to participate in the provision.

Compensation adjustments for motor fuels and burner fuels consumed in prosecuting the Contract shall be determined by the Engineer in accordance with the provisions set forth herein. Compensation adjustments will be assessed monthly for the cost of the motor fuels and burner fuels whenever the Current Fuel Index (CFI) is outside the given threshold of the Base Fuel Index (BFI) for the Contract.

If the Contractor has a fixed price for fuel for motor or burner fuels to complete the work, no fuel cost adjustments will be made for that fuel type. If there is no fixed fuel price for motor or burner fuels, participation in the Fuel Adjustment provision is the decision of the prime Contractor.

If the prime Contractor decides not to participate, no fuel cost adjustments will be made to the Contract for the Contractor or any subcontractors. If the prime Contractor elects to participate in the fuel cost adjustment provision, the prime Contractor shall include the anticipated fuel cost of subcontractors who wish to participate. If fuel cost adjustments are made to the Contract, the prime Contractor shall ensure that participating subcontractors including second and lower tier, are included in the adjustments in proportion to the percentage of work and anticipated fuel cost by that subcontractor.

Fuel Indexes

Each month, NDDOT will record the average wholesale price for No. 2 diesel fuel and the average wholesale price for unleaded gasoline (87 octane). The monthly average will be the average of the daily rack prices for the month as reported by DTN Energy for Fargo ND.

The burner fuel index will be the No. 2 diesel fuel index regardless of the type of burner fuel actually used.

The Base Fuel Index (BFI) price for motor fuels and burner fuel to be used in the Contract will be the average wholesale price for the month prior to the bid opening.

The Current Fuel Index (CFI) price for motor fuels and burner fuel to be used for each monthly adjustment will be the average wholesale price for the month prior to the adjustment month.

Fuel Ratio

For motor fuels diesel and unleaded gas, the fuel ratio of the Contract will be determined by dividing the Contractor's affidavit costs for each motor fuel by the original Contract amount.

For burner fuels, the fuel ratio of the contract will be determined by dividing the Contractor's affidavit cost for burner fuels by the original Contract amount of plant-mixed hot bituminous pavement paid by the ton. Asphalt cement, binders and other miscellaneous bituminous items shall not be included.

The fuel ratio of the contract for motor and burner fuels will remain the same throughout the length of the contract. The sum of the affidavit fuel costs shall not exceed 15% of the original Contract amount.

The fuel ratio for the three fuel types will be determined by the following equation:

$$\textbf{Fuel Ratio}_{(x, y, z)} = \textbf{Affidavit Cost}_{(x, y, z)} / \textbf{Original Contract Amount}_{(x, y, z)}$$

(x)	=	Motor Fuel (Diesel)
(y)	=	Motor Fuel (Unleaded)
(z)	=	Burner Fuel
$\text{Fuel Ratio}_{(x, y, z)}$	=	Fuel ratio of the contract for each respective fuel type
$\text{Affidavit Cost}_{(x, y, z)}$	=	Fuel costs from Fuel Adjustment Affidavit (SFN 58393)
$\text{Original Contract Amount}_{(x, y)}$	=	Total of the original contract amount excluding lane rental, and Part B of the bid (when A+B bidding is used), if applicable.
$\text{Original Contract Amount}_{(z)}$	=	Total original contract amount for all hot bituminous pavement bid items combined, excluding bid items for asphalt cement, sawing and sealing joints, coring, etc. Only hot bituminous pavement bid items measured by the Ton will be included in the calculation.

Cost Change

The monthly change in fuel costs will be determined by the following equation:

$$\textbf{Cost Change}_{(x, y, z)} = (\textbf{CFI}_{(x, y, z)} - \textbf{BFI}_{(x, y, z)}) / \textbf{BFI}_{(x, y, z)}$$

(x)	=	Motor Fuel (Diesel)
(y)	=	Motor Fuel (Unleaded)
(z)	=	Burner Fuel (use diesel prices)
$\text{Cost Change}_{(x, y, z)}$	=	The relative change in the current CFI and the BFI for each fuel type
$\text{CFI}_{(x, y, z)}$	=	Current Fuel Index for each fuel type
$\text{BFI}_{(x, y, z)}$	=	Base Fuel Index for each fuel type

Contract Adjustments

Contract adjustments will be made for the cost of motor and burner fuels whenever the cost change exceeds a ±0.10 threshold. No fuel cost adjustment will be made for work done under liquidated damages. Adjustments will be determined for Motor Fuel (diesel), Motor Fuel (unleaded), and Burner Fuel (burner) separately and shall be computed on a monthly basis.

When the cost change is greater than 0.10, the rebate to the Contractor for each fuel type shall be computed according to the following formulas:

$$\mathbf{FCA_{(x,\,y,\,z)} = Fuel\ Ratio_{(x,\,y,\,z)} \times Estimate_{(x,\,y,\,z)} \times (Cost\ Change_{(x,\,y,\,z)} - 0.10)}$$

(x)	=	Motor Fuel (Diesel)
(y)	=	Motor Fuel (Unleaded)
(z)	=	Burner Fuel
$FCA_{(x,\,y,\,z)}$	=	Fuel Cost Adjustment for each of the fuel types
$Fuel\ Ratio_{(x,\,y,\,z)}$	=	Fuel Ratio for each of the fuel types
$Estimate_{(x,\,y)}$	=	The monthly total of work done on estimates issued in the current month excluding incentive or disincentive payments, pay factor adjustments and any work completed under liquidated damages.
$Estimate_{(z)}$	=	The monthly total of hot bituminous pavement work done on estimates issued in the current month, excluding bid items for asphalt cement, sawing and sealing joints, coring, etc. Only hot bituminous pavement bid items measured by the Ton will be included in the calculation. Hot bituminous pavement work completed under liquidated damages will not be included.
$Cost\ Change_{(x,\,y,\,z)}$	=	The monthly change in fuel costs for each of the fuel types

When the cost change is less than -0.10, the credit to the Department for each fuel type shall be computed according to the following formulas:

$$\mathbf{FCA_{(x,\,y,\,z)} = Fuel\ Ratio_{(x,\,y,\,z)} \times Estimate_{(x,\,y,\,z)} \times (Cost\ Change_{(x,\,y,\,z)} + 0.10)}$$

(x)	=	Motor Fuel (Diesel)
(y)	=	Motor Fuel (Unleaded)
(z)	=	Burner Fuel
$FCA_{(x,\,y,\,z)}$	=	Fuel Cost Adjustment for each of the fuel types
$Fuel\ Ratio_{(x,\,y,\,z)}$	=	Fuel Ratio for each of the fuel types
$Estimate_{(x,\,y)}$	=	The monthly total of work done on estimates issued in the current month excluding any incentive or disincentive payments, pay factor adjustments and any work completed under liquidated damages.
$Estimate_{(z)}$	=	The monthly total of hot bituminous pavement work done on estimates issued in the current month, excluding bid items for asphalt cement, sawing and sealing joints, coring, etc. Only hot bituminous pavement bid items measured by the Ton will be included in the calculation. Hot bituminous pavement work completed under liquidated damages will not be included.
$Cost\ Change_{(x,\,y,\,z)}$	=	The monthly change in fuel costs for each of the fuel types

Payments

Adjustments will be determined by the Engineer monthly. Adjustments will be made under the following spec and code for each fuel type:

109 0100	Motor Fuels (Diesel)
109 0200	Motor Fuels (Unleaded)
109 0300	Burner Fuel

When significant payment adjustments are made on final estimates to account for final in-place measured quantities, the Engineer may prorate the adjustments back to the months when the work was done.

Attachments

For informational purposes, a ‘Fuel Cost Adjustment Affidavit’ (SFN 58393) is included as Attachment A.

FUEL COST ADJUSTMENT AFFIDAVIT

North Dakota Department of Transportation, Construction Services
SFN 58393 (8-2017)

Attachment A

PCN	Project Number

The Contractor is not required to notify the Department at the time of submitting bids whether he will or will not participate in the fuel cost adjustment program. The Contractor shall return the affidavit on all Contracts with this Provision even if the Contractor elects not to participate.

Check the box for each fuel type that has a fixed price. No adjustments in fuel price will be made for the boxes that are checked.

☐ Diesel ☐ Unleaded ☐ Burner

Does your company elect to participate in a fuel adjustment for this contract for the fuels that do not have a fixed price? No adjustments in fuel prices will be made if **No** is checked . ☐ Yes ☐ No

If yes, provide the total dollars for each of the applicable fuels:

Diesel (D)	
Unleaded (U)	
Burner Fuel (B)	
Sum (D+U+B)	% of Original Contract Amount *

*The sum of the D, U, and B may not exceed 15% of the original contract amount.

Under the penalty of law for perjury of falsification, the undersigned,

Name (print or type)	Title (print or type)

Contractor (print or type)

hereby certifies that the documentation is submitted in good faith, that the information provided is accurate and complete to the best of their knowledge and belief, and that the monetary amount identified accurately reflects the cost for fuel, and that they are duly authorized to certify the above documentation on behalf of the company.

I hereby agree that the Department or its authorized representative shall have the right to examine and copy all Contractor records, documents, work sheets, bid sheets and other data pertinent to the justification of the fuel costs shown above.

Signature	Date

Acknowledgement

State of

County of

Signed and sworn to (or affirmed) before me on this day _____
(month, day, year)

Name of Notary Public or other Authorized Officer (Type or Print)	Affix Notary Stamp
Signature of Notary Public or other Authorized Officer	
Commission Expiration Date (if not listed on stamp)	

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

THIS AGREEMENT is by and between City of West Fargo ("Owner") and _____ ("Contractor").

Owner and Contractor hereby agree as follows:

ARTICLE 1 – WORK

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

ND DOT Project No. TMA-SU-FXP-8-992(045)

City of West Fargo Improvement District No. 2265 – 9th St NE from Main Ave to 12th Ave and 7th Ave NE from 9th St NE to 45th St N

ARTICLE 2 – THE PROJECT

2.01 The Project, of which the Work under the Contract Documents is a part, is generally described as follows: Improvement District No. 2265 – 9th St NE from main Ave to 12th Ave and 7th Ave NE from 9th St NE to 45th St N

ARTICLE 3 – ENGINEER

3.01 The Project has been designed by Houston Engineering, Inc (Consultant). Owner assumes all duties and responsibilities and the rights and authority to assign an Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 – CONTRACT TIMES

4.01 *Starting Work*

A. A Notice to Proceed will be issued to the Contractor indicating the date of commencement of Contract Times.

4.02 *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.

4.03 *Contract Times: Dates*

A. The Work will be substantially completed on or before **October 17, 2026,** in accordance with Section 108.07.B.2 of the NDDOT Standard Specifications, and completed and ready for final

payment in accordance with Section 105.15 in the NDDOT Standard Specifications on or before **May 30, 2027**.

B. Milestones: None

4.04 *Liquidated Damages*

A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.02 above and that Owner will suffer financial and other losses if the Work is not completed within the times specified in Paragraph 4.03 above, plus any extensions thereof allowed in accordance with the Contract. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):

1. Substantial Completion: If substantial completion date is not met, liquidated damages shall be applied in accordance to NDDOT Standard Specification 108.07.B.1 for each day that expires after the time (as duly adjusted pursuant to the Contract) specified in Paragraph 4.02.A above for Substantial Completion until the Work is substantially complete.

2. Completion of Remaining Work: After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time (as duly adjusted pursuant to the Contract) for completion and readiness for final payment, liquidated damages shall be applied in accordance to NDDOT Standard Specification 108.07.B.1 for each day that expires after such time until the Work is completed and ready for final payment.

3. Liquidated damages for failing to timely attain Substantial Completion and Final Completion are not additive and will not be imposed concurrently.

ARTICLE 5 – CONTRACT PRICE

5.01 The North Dakota Department of Transportation (NDDOT) shall pay Contractor for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the sum of the amounts determined pursuant to Paragraph 5.01.A below:

A. For all Unit Price Work, an amount equal to the sum of the established unit price for each separately identified item of Unit Price Work times the actual quantity of that item as indicated in the Bid Proposal. The Bid prices for Unit Price Work set forth in the bid proposal, as of the Effective Date of the Agreement are based on estimated quantities.

5.02 NDDOT payment process is outlined in NDDOT Standard Specifications for Road and Bridge Construction.

ARTICLE 6 – CONTRACTOR'S REPRESENTATIONS

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

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

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

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

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

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

F. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.

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

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

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

J. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

ARTICLE 7 – CONTRACT DOCUMENTS

7.01 *Contents*

A. The Contract Documents consist of the following:

1. This Agreement (pages 1 to 6, inclusive).
2. Performance bond (pages 1 to 3, inclusive).
3. Payment bond (pages 1 to 3, inclusive).
4. Specifications
    a. Provided in Request for Proposal

b. NDDOT 2024 Edition of the Standard Specifications for Road and Bridge Construction and Supplemental Specifications.

c. Special Provisions

5. The NDDOT Request for Proposal

6. Drawings (not attached but incorporated by reference) consisting of 362 sheets with each sheet bearing the following general title: TMA-SU-FXP-8-992(045) City Improvement District No. 2265.

7. Addenda (numbers __ to ___, inclusive).

8. Exhibits to this Agreement (enumerated as follows):

a. Contractor's Bid (pages 1 to ___, inclusive).

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

a. Notice to Proceed.

b. Work Change Directives.

c. Change Orders.

d. Field Orders.

B. The documents listed in Paragraph 7.01.A are attached to this Agreement (except as expressly noted otherwise above).

C. There are no Contract Documents other than those listed above in this Article 7.

ARTICLE 8 – MISCELLANEOUS

8.01 *Assignment of Contract*

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

8.02 *Successors and Assigns*

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

8.03 *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.

8.04 *Contractor's Certifications*

A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 8.05:

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

2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and

4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

8.05 *Other Provisions*

A. None

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement.

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

OWNER:	CONTRACTOR:
City of West Fargo	
By:	By:
Title: President of the Board of City Commissioners	Title:
	(If Contractor is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)
Attest:	Attest:
Title: City Administrator	Title:
Address for giving notices:	Address for giving notices:
City of West Fargo	
800 4th Avenue East	
West Fargo, ND 58078	
	License No.: *(where applicable)*

EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

PAYMENT BOND

CONTRACTOR *(name and address)*:

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

OWNER *(name and address):*
City of West Fargo
800 4th Ave E
West Fargo, ND 58078

CONSTRUCTION CONTRACT

Effective Date of the Agreement:
Amount: **$**
Description *(name and location)*: Improvement District No. 2265 – 9th St NE from main Ave to 12th Ave and 7th Ave NE from 9th St NE to 45th St N

BOND

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

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

CONTRACTOR AS PRINCIPAL

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

By: _____
Signature

_____
Print Name

_____
Title

Attest: _____
Signature

_____
Title

SURETY

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

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

_____
Print Name

_____
Title

Attest: _____
Signature

_____
Title

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

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1. The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to the Owner to pay for labor, materials, and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.

2. If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies, and holds harmless the Owner from claims, demands, liens, or suits by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.

3. If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Paragraph 13) of claims, demands, liens, or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials, or equipment furnished for use in the performance of the Construction Contract, and tendered defense of such claims, demands, liens, or suits to the Contractor and the Surety.

4. When the Owner has satisfied the conditions in Paragraph 3, the Surety shall promptly and at the Surety's expense defend, indemnify, and hold harmless the Owner against a duly tendered claim, demand, lien, or suit.

5. The Surety's obligations to a Claimant under this Bond shall arise after the following:

   5.1 Claimants who do not have a direct contract with the Contractor,

      5.1.1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and

      5.1.2 have sent a Claim to the Surety (at the address described in Paragraph 13).

   5.2 Claimants who are employed by or have a direct contract with the Contractor have sent a Claim to the Surety (at the address described in Paragraph 13).

6. If a notice of non-payment required by Paragraph 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Paragraph 5.1.1.

7. When a Claimant has satisfied the conditions of Paragraph 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:

   7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and

   7.2 Pay or arrange for payment of any undisputed amounts.

   7.3 The Surety's failure to discharge its obligations under Paragraph 7.1 or 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Paragraph 7.1 or 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

8. The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Paragraph 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

9. Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

10. The Surety shall not be liable to the Owner, Claimants, or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to or give notice on behalf of Claimants, or otherwise have any obligations to Claimants under this Bond.

11. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

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12. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Paragraph 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

13. Notice and Claims to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.

14. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

15. Upon requests by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

16. **Definitions**

16.1 **Claim:** A written statement by the Claimant including at a minimum:

1. The name of the Claimant;
2. The name of the person for whom the labor was done, or materials or equipment furnished;
3. A copy of the agreement or purchase order pursuant to which labor, materials, or equipment was furnished for use in the performance of the Construction Contract;
4. A brief description of the labor, materials, or equipment furnished;
5. The date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
6. The total amount earned by the Claimant for labor, materials, or equipment furnished as of the date of the Claim;
7. The total amount of previous payments received by the Claimant; and
8. The total amount due and unpaid to the Claimant for labor, materials, or equipment furnished as of the date of the Claim.

16.2 **Claimant:** An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials, or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms of "labor, materials, or equipment" that part of the water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

16.3 **Construction Contract:** The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

16.4 **Owner Default**: Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

16.5 **Contract Documents:** All the documents that comprise the agreement between the Owner and Contractor.

17. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

18. Modifications to this Bond are as follows:

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EJCDC
ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

PERFORMANCE BOND

CONTRACTOR *(name and address)*:

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

OWNER *(name and address)*:
City of West Fargo
800 4th Ave E
West Fargo, ND 58078

CONSTRUCTION CONTRACT

Effective Date of the Agreement:

Amount: **$**

Description *(name and location)*: Improvement District No. 2265 – 9th St NE from main Ave to 12th Ave and 7th Ave NE from 9th St NE to 45th St N

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**
_____ *(seal)*	_____ *(seal)*
Contractor's Name and Corporate Seal	Surety's Name and Corporate Seal
By: _____	**By:** _____
Signature	Signature *(attach power of attorney)*
_____	_____
Print Name	Print Name
_____	_____
Title	Title
Attest: _____	**Attest:** _____
Signature	Signature
_____	_____
Title	Title

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

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

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

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

3.1 The Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor, and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Paragraph 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor, and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;

3.2 The Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and

3.3 The Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

4. Failure on the part of the Owner to comply with the notice requirement in Paragraph 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

5. When the Owner has satisfied the conditions of Paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owners concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Paragraph 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:

5.4.1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or

5.4.2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

6. If the Surety does not proceed as provided in Paragraph 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Paragraph 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

7. If the Surety elects to act under Paragraph 5.1, 5.2, or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication for:

7.1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;

7.2 additional legal, design professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 5; and

7.3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

8. If the Surety elects to act under Paragraph 5.1, 5.3, or 5.4, the Surety's liability is limited to the amount of this Bond.

9. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors, and assigns.

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10. The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders, and other obligations.

11. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum periods of limitations available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to the Surety, the Owner, or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

14. Definitions

14.1 Balance of the Contract Price: The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made including allowance for the Contractor for any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

14.2 Construction Contract: The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

14.3 Contractor Default: Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

14.4 Owner Default: Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

14.5 Contract Documents: All the documents that comprise the agreement between the Owner and Contractor.

15. If this Bond is issued for an agreement between a contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

16. Modifications to this Bond are as follows:

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