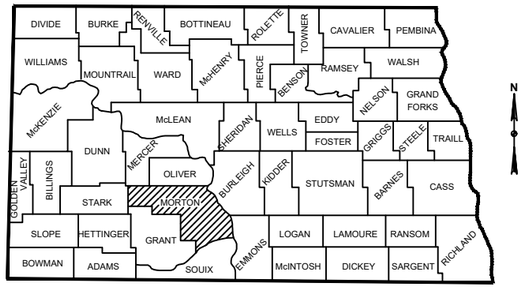
SID 236	STATE	PROJECT NUMBER	PCN	SECTION NUMBER	SHEET NUMBER
C.P. 2019-08	ND	UGP-1-988(052)	24136	1	1

NORTH DAKOTA
DEPARTMENT OF TRANSPORTATION
UGP-1-988(052)
CITY PROJECT NO. 2019-08

DOWNTOWN STREET RECONSTRUCTION - SID 236
1ST ST NW & 5TH AVE NW & 4TH AVE NW, MANDAN, ND

GRADING, AGGREGATE BASE, PCC PAVEMENT, STORM SEWER, WATER MAIN, SANITARY SEWER, CURB & GUTTER, SIDEWALK, SIGNING, PAVEMENT MARKING, LIGHTING, LANDSCAPING



STATE OF NORTH DAKOTA
SHOWING COUNTIES

DESIGN DATA - 1ST ST NW

TRAFFIC		AVERAGE DAILY		
		PASSENGER	TRUCKS	TOTAL
CURRENT TRAFFIC	2025	2335	45	2380
TRAFFIC FORECAST	2045	3450	70	3520

DESIGN SPEED 25 MPH
MINIMUM SIGHT DISTANCE (STOPPING) 155 FEET

DESIGN DATA - 5TH AVE NW

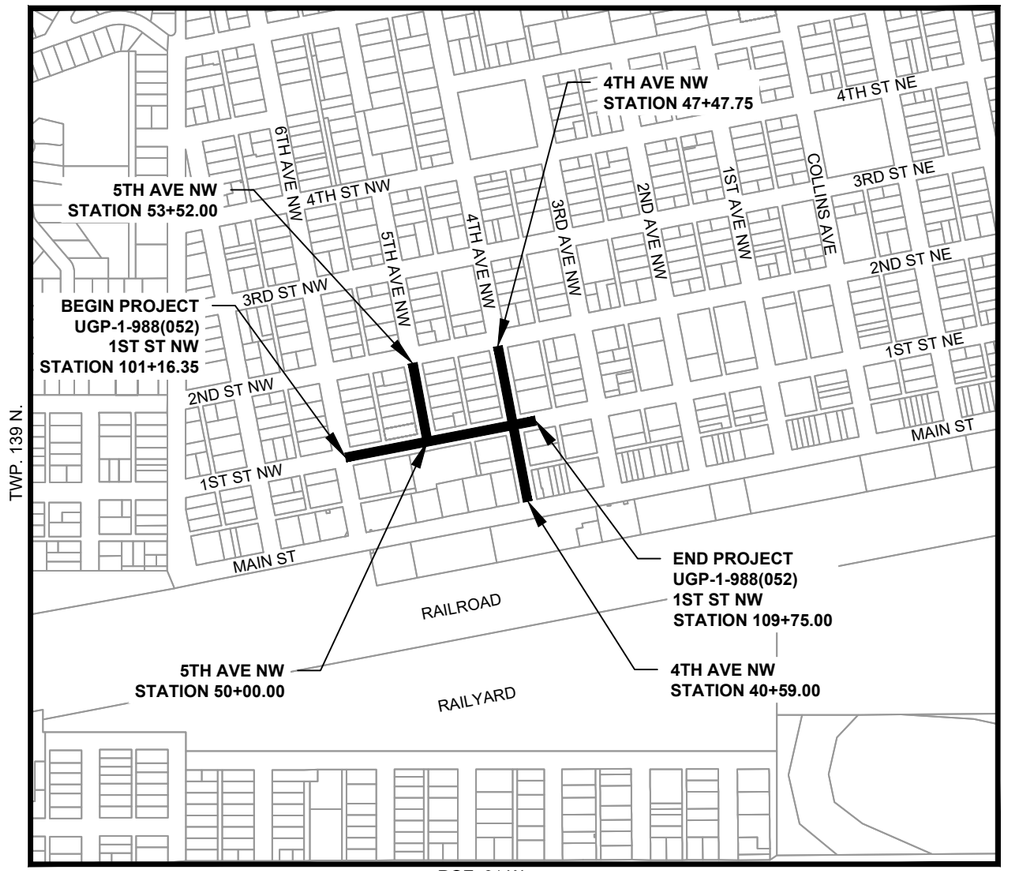
TRAFFIC		AVERAGE DAILY		
		PASSENGER	TRUCKS	TOTAL
CURRENT TRAFFIC	2025	90	5	95
TRAFFIC FORECAST	2045	120	5	125

DESIGN SPEED 25 MPH
MINIMUM SIGHT DISTANCE (STOPPING) 155 FEET

DESIGN DATA - 4TH AVE NW

TRAFFIC		AVERAGE DAILY		
		PASSENGER	TRUCKS	TOTAL
CURRENT TRAFFIC	2025	745	15	760
TRAFFIC FORECAST	2045	950	20	970

DESIGN SPEED 25 MPH
MINIMUM SIGHT DISTANCE (STOPPING) 155 FEET
PAVEMENT DESIGN LIFE 20 YEARS
CLEAR ZONE DISTANCE N/A
MINIMUM LATERAL OFFSET 1.5 FEET



GOVERNING SPECIFICATIONS	Date Published and Adopted by the North Dakota Department of Transportation
Standard Specifications	7/1/2025
Supplemental Specifications	NONE

PROJECT LENGTH: UGP-1-988(052)

PROJECT	GROSS MILES	NET MILES
1ST ST NW	0.163	0.163
5TH AVE NW	0.067	0.067
4TH AVE NW	0.130	0.130
TOTAL	0.360	0.360

PS&E Corrections Made OCT 2025
Surveyed & Designed Date JULY 2025 & AUG 2025

DESIGNER	Andrew Werder, PE
DESIGNER	Emily Barchcenger, PE
DESIGNER	Brent Noonan, PE
DESIGNER	Austin Chmielewski, PE
DESIGNER	Jon Morgenroth, PE
DESIGNER	Sean Kelly, PE
DESIGNER	Zach Vlaminck

Basis of Survey
All coordinates are NAD83 (2011), Morton County Ground Coordinate System. Derived from North Dakota South Zone 3302, GEOID 12B and NAVD 88 (International Feet).

REGISTERED PROFESSIONAL ENGINEER
BRAD KROGSTAD
PE-5786
DATE 12/15/25
NORTH DAKOTA

KLJ
400 EAST BROADWAY AVE, SUITE 600
BISMARCK, ND 58501-4073
(701) 355-8400, FAX (855) 288-8055

SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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LIST OF STANDARD DRAWINGS

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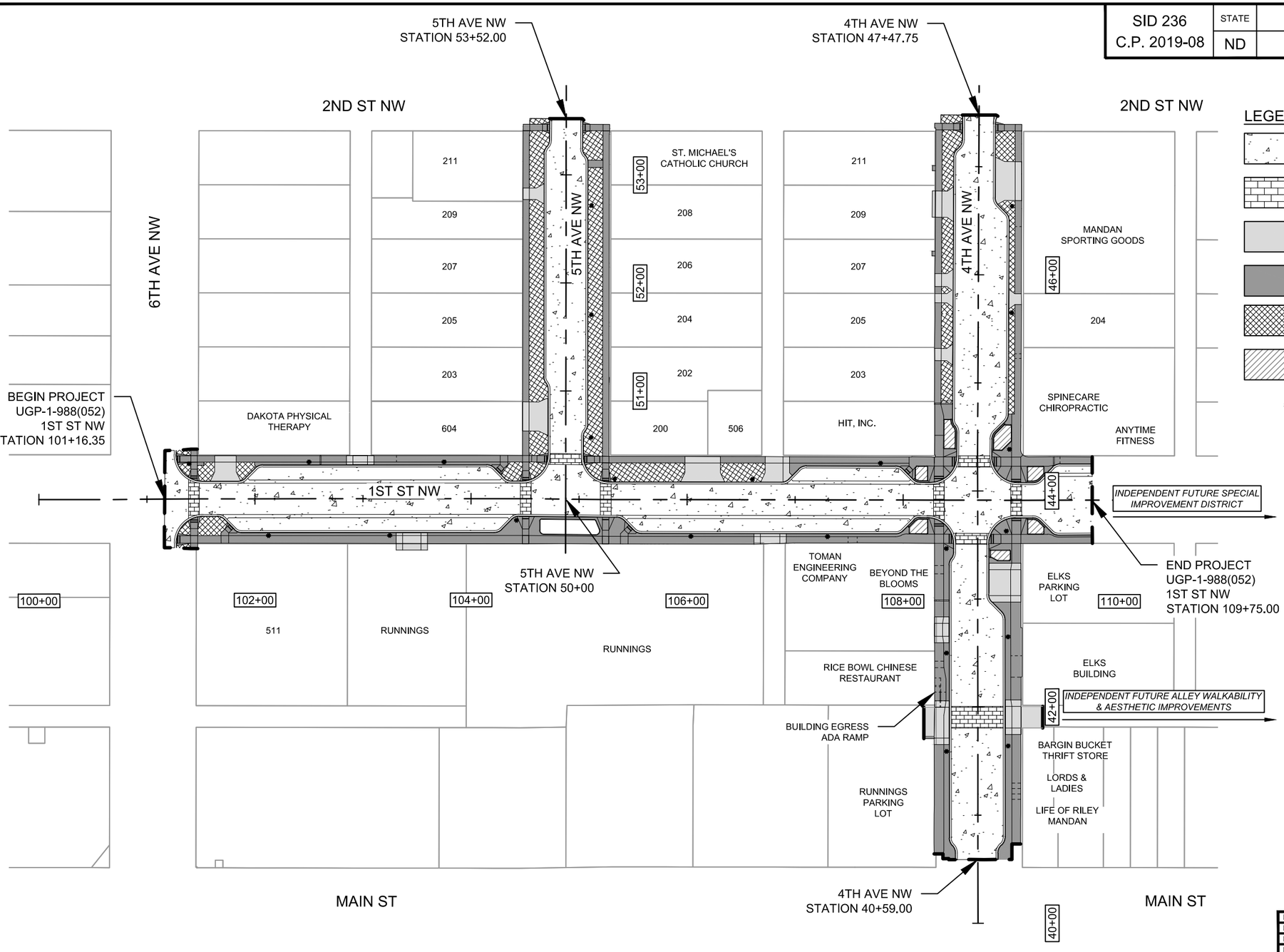

LEGEND:

- 8IN NON-REINF CONCRETE PVMT CL AE-DOWELED
- 8IN NON-REINF CONCRETE PVMT CL AE-COLORED
- DRIVEWAY CONCRETE 6IN REINFORCED (8IN FOR ALLEYS)
- SIDEWALK CONCRETE 4IN (6IN FOR RAMPS & LANDINGS)
- GRASS BOULEVARD
- DECORATIVE CONCRETE PLANTER
- LIGHT POLES

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/04/25
NORTH DAKOTA

Rev'd.
Rev'd.
Rev'd.
Rev'd.

DOWNTOWN STREET RECONSTRUCTION

CITY OF MANDAN, NORTH DAKOTA

1ST STREET NW

KLJ

SCOPE OF WORK

DRWN. BY	CHK'D BY	PROJECT NO.
LM	AC	1904-02191

Dec 04, 2025 - 1:01pm - K:\Projects\City\ND\Mandan\1904-02191-MandanDowntownSID236\CAD\Design\Plans\Sections\001-011\1904-02191_004SW.dwg

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NOTES

100-P01 COORDINATION OF PROJECTS: Prior to commencement of construction, request from Engineer a list of projects scheduled for construction nearby. Engineer will contact the City of Mandan and NDDOT to furnish an updated list of projects for the Contractor.

105-110 PAVEMENT SWEEPING: Sweep paved areas that were used by construction traffic before opening these areas to public traffic. Sweep all newly constructed pavement no more than 24 hours before a scheduled final inspection. Use a vacuum or pick-up type sweeper to perform this work.

106-P01 CONTRACTOR PARKING/STAGING AREA RESTRICTIONS: Parking of personal vehicles, construction equipment, storage of construction materials, or work areas on private property is prohibited without written permission by the property owner.

Staging of construction materials and equipment in the City's right-of-way, outside of the construction work zone, is prohibited.

107-P01 PRIVATE PROPERTY RESTORATION: Repair, replace, and/or restore private property that has been impacted by construction operations to its original or equivalent condition. Items included but not limited to fences, signs, and landscaping. Include all materials, labor, and equipment in the price bid for other items.

The following locations include, but not limited to, known potential impacts to existing fences and signs along the existing right of way:

- 504 1st Street NW – Protect security fence along 10' setback
- 203 5th Avenue NW – Remove and reset chain-link fence along southern property line if necessary
- 208 5th Avenue NW – Protect decorative fence corners, signs, and lights
- 203 4th Avenue NW – Fence to be salvaged by the landowner, protect signs

Make reasonable efforts to avoid impacts and protect the fence and signs located within the property. If the Engineer determines that the Contractor will need to remove and reset these features, coordinate with the property owner the schedule to perform the work.

The following locations include, but not limited to, known potential impacts to existing landscaping along the existing right of way:

- 606 1st Street NW – Remove and reset rock bed along setback if necessary
- 506 1st Street NW – Remove and reset edged rock bed along setback if necessary
- 408 1st Street NW – Protect rock bed and plants along setback
- 203 5th Avenue NW – Protect edged garden
- 205 5th Avenue NW – Remove 3 boulders and protect flower garden
- 211 5th Avenue NW – Protect landscaping and remove stump (salvage landscaping to owner)
- 204 5th Avenue NW – Remove landscaping
- 204 4th Avenue NW – Protect landscaping

Make reasonable efforts to avoid impacts and protect the existing landscaping not designated for removal. Restore the landscaping adjacent to any proposed project improvements to its original or equivalent condition.

107-P02 PROTECTION OF BUILDINGS: Exercise care and use appropriate construction means and methods to minimize disturbance or damage to buildings and canopies located along the project limits. Provide a method of pavement and sidewalk removal that will minimize vibration. No high impact guillotine style drop hammers will be allowed. Restore any damaged items to pre-existing conditions at no cost.

Any historic properties (those determined eligible or listed in the National Register of Historic Places) that are damaged through this Project, must be repaired according to the standards set forth by The Secretary of the Interior's (SOI) Standards for Rehabilitation (36 CFR § 67.7). SOI Standards for the treatment of historic properties are outlined at: https://www.nps.gov/tps/standards/treatment-guidelines-2017.pdf

Historic properties include:

- 208 5th Avenue NW – Welsh House
- Commercial District – 100 Block of 4th Avenue NW

107-P03 MAINTAINING ACCESS: Provide an access plan that maintains access to all businesses for review by the Engineer and the City of Mandan at least one week prior to the preconstruction meeting. This plan is subject to approval by the Engineer and City.

Collaborate with the Engineer about final details on location of access points and construction procedures prior to the start of the project. Coordinate and communicate with adjacent landowners and businesses regarding access control.

107-P04 HAUL ROADS: Streets approved for haul road use include Main Street, 6th Avenue NW, and Collins Avenue. No other streets are approved for haul road use or construction activities without prior approval from the Engineer.

108-100 WEEKLY PLANNING & REPORTING MEETING: A weekly planning and reporting meeting is required. Invite the following:

- City Engineer – Jarek Wigness
- Field Engineer
- Private utility owners affected by the Project
- Police
- Fire
- Ambulance

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/15/25
NORTH DAKOTA

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108-150 PUBLIC RELATIONS COORDINATOR: Provide a public relations and information coordinator. The coordinator cannot be the project superintendent or construction foreman. The coordinator should be knowledgeable in construction operations, be able to develop effective media releases, possess written and verbal communication skills, and be able to organize productive meetings.

Provide the name, work address, and work phone number to the relevant project, community, and media personnel.

The public relations coordinator is responsible for providing the following:

1. Organizing, scheduling, and conducting the meeting specified in Note 108-100, "Weekly Planning/Reporting Meeting".

2. Advise Kari Schmidt and Ashlee Newman, from the City of Mandan, PH: (701) 667-3478, of upcoming construction activities in regard to street closures and traffic detour routes so that city police, emergency services, schools, and other pertinent city agencies may be notified.

3. Provide news releases and necessary drawings to the media before and during construction. News releases should inform the public on construction activities, schedules, street closures, width or height restrictions to traffic, and traffic detour routes. Update news releases regarding construction activities every other week, at a minimum.

4. Be available for media interviews.

5. Work directly with property owners and businesses affected by construction activities. The coordinator must have sufficient knowledge and authority to resolve property owner and business concerns regarding scheduling, maintaining access, and construction operations.

108-P01 BASELINE SCHEDULE: Provide a baseline schedule and submit to the City for review 30 calendar days prior to the preconstruction conference.

108-P02 SCHEDULING: Include the Mandan Progress Organization (701) 751-2983 on the scheduling of work activities related to the timing of these events. The following events are currently scheduled downtown in 2026:

- Buggies-n-Blues – June 12 to 14, 2026
- Art in the Park – July 3 to 4, 2026
- Independence Day Parade – July 4, 2026
- Summer Concerts in Dykshoorn Park – early June to late August 2026

During these times, pedestrian detours should be established in accordance with Section 100 for the respective phase. Sidewalks and/or temporary pedestrian routes within the construction limits should be clear of any debris. Pedestrian street crossings may be closed in active construction areas. Ramp access must remain unobstructed.

108-P03 NOISE ORDINANCE: Construction activities are not permitted between the hours of 11:00 p.m. to 7:00 a.m. unless approved in writing by the Engineer. Request permission a minimum of 14 days prior to the work taking place.

201-P01 REMOVAL OF STUMPS: Remove stumps as indicated on plans or marked for removal by the Engineer. Include all materials, labor, and equipment in the price bid for “Removal of Trees __in”.

201-P02 REMOVAL OF TREES: Do not remove trees unless marked by the Engineer. Provide 48-hour advance notice to Engineer for tree marking. Remove tree material from the project limits and dispose of off-site in accordance with applicable regulations. Remove by cutting the tree down and immediate removal of the stump by routing or exaction to a point 15 inches below the ground line. All tree removal done within clearing and grubbing limits shall be done utilizing a contractor licensed with the City of Mandan’s Engineering Department. The debris associated with the stump removal shall be removed and replaced with compacted suitable material to within 4 inches of the finished surface. Removal of debris and placement and compaction material is incidental to bid item, “Removal of Trees __in”.

202-P01 REMOVAL OF CONCRETE PAVEMENT: Concrete surfacing, concrete pavement, driveway, and sidewalk designated for removal may vary in thickness. There will be no additional compensation for the removal of extra thickness. Removal of trench drain shall be included in “Removal of Concrete Pavement” bid item. Refer to Section 10 for estimated existing thicknesses.

202-P02 REMOVAL OF BITUMINOUS SURFACING: Asphalt surfacing designated for removal may vary in thickness. There will be no additional compensation for the removal of extra thickness. Refer to Section 10 for estimated existing thicknesses.

202-P03 REMOVAL OF AGGREGATE BASE: Removal of aggregate base under pavement is included in removal items including, but not limited to, "Removal of Concrete Pavement”, “Removal of Curb & Gutter”, and “Removal of Bituminous Surfacing”. Refer to Section 10 for estimated existing thicknesses.

202-P04 PIPE REMOVAL: “Removal of Pipe All Types and Sizes” includes watermain, water service lines, sanitary main, and sanitary sewer service lines. Include all costs to remove and dispose of mains and service lines in the price bid for “Removal of Pipe All Types and Sizes”.

“Removal of Sewer Pipe” includes storm sewer. Include all costs to remove and dispose of storm sewer pipe in the price bid for “Removal of Sewer Pipe”.

203-010 SHRINKAGE: 25% additional volume is included for shrinkage in the earth embankment

203-385 AVERAGE HAUL: No average haul has been computed for this project.

203-P01 EXCAVATION: Plan quantity will be used as the measurement for payment of “Common Excavation-Type A” and “Borrow-Excavation”.

NOTES

203-P02 TOPSOIL: Prior to placement, screen all topsoil so that is free of stones, clods, and deleterious materials over ½ inch in greatest dimension, and free from noxious weeds, seeds, roots, and any other deleterious material. Place topsoil at depth of 6 inches. Dispose of all topsoil deemed unsuitable by the Engineer.

Include all costs for disposal of unsuitable topsoil in price bid for “Topsoil - Import”. Provide imported topsoil that consists of loose, fertile, and loamy material having a PH level between 5.5 and 6.5 that is free from roots, vegetation or other debris of such size and quantity that prevents proper placement of the topsoil. Screen topsoil so that it is free of stones and clods over ½ inch in greatest dimension, and free from noxious weeds, seeds, roots, and any other deleterious material. Place topsoil at a depth of 6 inches.

203-P03 UNDERGROUND UTILITY COMPACTION AND DENSITY CONTROL: Compaction control frequency for underground utility trenches are based on one (1) individual compaction test per 300 feet of trench per 36 inches of backfill and a minimum of one (1) test per service line, 2 feet below finish grades or where directed. Locations, depths, and frequency of compaction will be determined and performed by the Engineer during construction.

203-P04 MAINTENANCE OF DRAINAGE: Maintain drainage such that water does not inundate driving lanes or adjacent properties by means of temporary grading, ditches, berms, culverts, and/or pumping. Include all costs associated with Maintenance of Drainage in the bid price for “Removal of Sewer Pipe”.

230-P01 SUBGRADE PREPARATION: Scarify and shape the subgrade to a depth of 12” prior to placing aggregate base or embankment material as specified in Section 230.04 D. Compact as specified in Section 203.04 G.3, Compaction Control, Type B. Complete subgrade preparation after all underground utilities have been installed and before placement of aggregate base course.

251-P01 SEEDING: Provide the specified mix of seed for “Seeding Class II”.

For Restoration of Established Lawns *Application Rate of 250 lbs. / 1 acre*		
Species	% by Weight	% Pure Live Seed
Kentucky Bluegrass	60	85
Perennial Ryegrass	30	85
Creeping Red Fescue or Dural-Hard Fescue	10	85

Apply to all grass setback areas disturbed by construction activities and restore to a condition equal to or better than pre-construction.

550-P01 CONCRETE PAVEMENT COLORED: Identified crosswalks and 4th Avenue NW alleyway crossing will include 8-inch pavement depths. Tests include an integral concrete color mix, either dry or liquid and include a colored stamp release age to be selected upon approved color choice below. Develop a mix design using table specified in Section 802.02 B.2, "Concrete Aggregate Gradations".

Provide a pigment from the list below or provide an approved equal. To be considered an approved equal, pigments must meet the requirements of ASTM C 979.

Red Color Options:

- Davis Colors — Number 1395 Granite Red
- Solomon Colors — Number 489 Light Plum
- Butterfield Uni-Mix — Number U34 Brick Red

Use the same supplier for all colored concrete placed under the contract. Provide uniform color throughout the entire project. As part of the approval process, provide a 2-foot by 2-foot mockup depicting the color option specified above (from only one manufacturer or equal to be chosen by Contractor) for Engineer and Owner to evaluate two weeks prior to final selection. The approved mockup and final color choice will be the standard of which to compare project area concrete for color, texture, imprinting, and finish appearance. Cure and seal concrete using curing compound that meets the requirements of ASTM C 309, Type 1 and include slip resistant additive.

704-510 OBLITERATION OF PAVEMENT MARKINGS: Masking of pavement markings designated for obliteration is allowed. Choose to remove marking as specified in Section 704.04 N, "Obliteration of Pavement Markings" or mask markings. Mask markings using removable, non-reflective preformed tape that is approximately the same color as the pavement surface and that overlaps the marking a minimum of 1 inch on each side.

704-P01 TRAFFIC CONTROL: Maintain access at all times as indicated in plans. Utilize Standard Drawing list and Section 100 plan sheets for all Traffic Control. Any alterations require the Engineer’s approval a minimum of 2 weeks prior to implementation.

704-P02 TRAFFIC CONTROL DEVICES: The required traffic control signs and devices are included in the Traffic Control Devices List and will be measured and paid at the contract unit price for each device used. Each phase has been developed using traffic control sign layouts (shown in Section 100) and Standard Drawings as listed below:

D-704-21: Type I for detour sign layout
D-704-23: Type Q for segment street closures

For streets adjacent to the work zone that include traffic control devices, maintain traffic with a minimum of 11 foot wide lane at all times.

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/15/25
NORTH DAKOTA

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704-P03 TRAFFIC CONTROL PHASING: The traffic control details, as indicated on the plans, have been developed on the basis that this project will be constructed in segments as described below. The segment numbering does not dictate order. A maximum of two blocks may be closed at one time. A segment is considered closed when either vehicle or pedestrian access is restricted.

It is the Contractor's responsibility to determine the phasing of operations to meet the project completion date. Move devices as required for each phase. Changes to order of segments in conflict to what has been provided in the schedule may be submitted to the Engineer in writing for consideration. Any alterations require the Engineer's approval a minimum of 2 weeks prior to implementing.

Work on at-grade utilities, lighting, streetscape, and landscaping located within the boulevard areas may occur during any phase, but without restriction to parking or traveling lanes. Where boulevard elevation differences exceed 2 inches, provide protection using temporary wedges, barrier fencing, or other MUTCD-compliant measures to prevent pedestrian access to hazardous drop-offs.

See Section 100 for Segments.

- Segment 1: Construct 1st Street NW from 6th Avenue NW to 5th Avenue NW
- Segment 2: Construct 5th Avenue NW from 1st Street NW to 2nd Street NW
- Segment 3: Construct 1st Street NW from 5th Avenue NW to 4th Avenue NW
- Segment 4: Construct 4th Avenue NW from 1st Street NW to 2nd Street NW
- Segment 5: Construct 4th Avenue NW from Main Street to 1st Street NW

Do not close Segment 5 until after July 6, 2026.

All Segments: This outline serves only as a guideline, not a prescriptive mandate.

- Install traffic control for the segment. Coordinate with local agencies, emergency services, and transit providers as needed.
- Remove the existing roadway and boulevard. Sidewalks may remain in place to maintain pedestrian access to businesses and residences.
- Remove and install underground utilities. Coordinate closely with utility agencies to prevent delays and meet all applicable requirements.
- Construct the roadway according to the proposed typical section without disrupting access to adjacent properties.
- If needed, route pedestrians onto completed roadway areas to allow construction of boulevards, sidewalks, driveways, and surface utility features.
- Boulevards may remain closed at the Contractor's discretion; if so, provide additional pedestrian control and protection, at no additional cost, subject to Engineer approval.
- Install temporary pavement markings on the new roadway.
- Complete all work described above before opening the segment to traffic.

704-P04 PEDESTRIAN FACILITIES AND ACCESS: Provide pedestrian access routes to all residential dwellings and businesses unless alternative access to the property is approved in writing by the resident or business owner. Coordinate with landowner on schedule to remove and install sidewalk adjacent to building. Upon removal of the sidewalk adjacent to the building accesses, provide temporary pedestrian surfacing to access the building unless written agreement with the landowner is provided.

Provide a temporary delineated path on the roadway, exclusive for pedestrian use, prior to sidewalk removal directly adjacent to buildings.

708-P01 INLET PROTECTION: Provide a pre-assembled protection device designed for drop inlet protection.

Provide a device that consists of a reusable, open topped receptacle that rests inside a storm sewer inlet casting allowing the grating to be reinstalled in the casting. If needed incorporate a rear deflector plate into the unit to protect open back castings from sediment. Provide a receptacle that has a filtration system to filter storm water with an overflow large enough to minimize/eliminate street flooding during rain events. Approved manufacturers are Wimco, Lange IPD, Flexstorm, or approved equal.

When existing inlets are removed relay the inlet protection to the new structure. The inlet protection will not be paid for a second time. Additional inlet protection for new structures has been included in the total quantity for locations where there are no existing inlets. Include all costs for furnishing, installing, maintaining (cleaning), replacing damaged devices, and resetting to proposed structures after existing has been removed in the bid price for "Inlet Protection-Special". Keep all installed devices in place until the turf has been established. If the turf has not been established by November 1st, remove all installed devices and provide alternative erosion controls.

709-P01 GEOSYNTHETIC MATERIAL TYPE G: Prior to the placement of the aggregate base course, install a geogrid meeting the requirements of Tensar HX5.5, Mirafi RS380i, or approved equal over the finished subgrade.

REGISTERED PROFESSIONAL ENGINEER
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DATE 12/15/25
NORTH DAKOTA

NOTES

710-P01 TEMPORARY BYPASS SEWER SYSTEM: Maintain existing flows of the existing sanitary sewer at all times during construction. If temporary bypass pumping of the sanitary sewer is required to maintain sewer service during any part of the work. Submit a copy of the bypass pumping plan to the Engineer 14 days before the beginning operation of the bypass.

Provide the pump and bypass conduit that is of adequate size and capacity to handle the flow and that does not allow the effluent level in the bypass pumping manhole to rise more than 1 foot above the crown of the incoming sewer pipe.

Determine the static head and additional headloss imparted by the pumping arrangement based on the locations, elevations and material of the bypass pumping system and is responsible for ensuring that the required flow rate is provided at the determined system headloss. Computations of the system headloss and corresponding pump curves should be provided to the Engineer for review.

Electrically driven or gas operated pumps are allowed during bypass pumping. In lieu of a bypass pumping arrangement, legal and permitted liquid waste haulers may be used to transport sewage if adequate liquid waste hauling capacity is demonstrated to the Engineer.

Include all labor, materials and equipment necessary to provide temporary bypass of the sanitary sewer system for both Sta. 102+99.66, 28.1 RT and Sta. 106+80.44, 0.0 in the lump sum price bid for “Temporary Bypass-Site I” and “Temporary Bypass-Site II” respectively.

710-P02 TEMPORARY BYPASS DRAINAGE SYSTEM: Maintain storm water runoff flow of the existing storm sewer during construction. Temporary bypass connections between the proposed and existing storm sewer will allow proper drainage without excessive surcharging the storm sewer pipes.

Submit a bypass plan to the Engineer for review at least 14 days prior to temporary connections. Indicate locations where bypass or temporary connections will occur, diameter and pipe material for temporary connections, and means and methods to be used to maintain drainage during construction. For electrically driven or gas operated pumping systems, indicate pumping system configuration and provide headloss and pump curve calculations.

Include all labor, materials and equipment necessary to connect and remove new storm sewer into an existing manhole or pipe in the price bid for “Pipe Conc Reinf (_)IN CL III-Storm Drain”.

714-P01 STORM PIPE BACKFILL: Install backfill and bedding material according to Standard Drawing D-714-27 for all storm drain. Use bedding and haunch requirements for “Pipes Not Under Roadway”.

Include all labor, material, and equipment necessary for installation of backfill and bedding material in the price bid “Pipe Conc Reinf (_)IN CL III-Storm Drain”.

714-P02 PIPE BEDDING: Provide bedding material that is consist of granular material in accordance with the requirements for gradation shown in the following table:

Square Mesh Sieve Size	Percent by Weight Passing
2”	100%
1”	90-100%
¾”	80-100%
No. 4	30-90%
No. 30	10-60%
No. 100	0-15%

Install backfill and bedding material according to detail shown in Section 20 for all water and sanitary sewer. Include all labor, material, and equipment necessary for installation f back fill and bedding material in price bid "WATER SERVICE LINE (_)IN", "WATERMAIN (_)IN PVC"," (_)IN SANITARY SEWER PIPE", AND "(_)IN SEWER SERVICE PIPE"

714-P03 REINFORCED CONCRETE PIPE: Provide tongue and groove joints sealed with butyl mastic and wrapped joints for reinforced concrete pipe culverts.

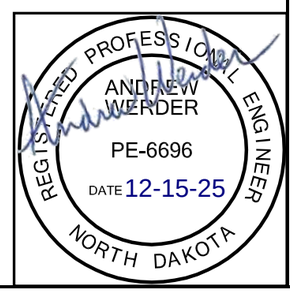
Tie all joints on reinforced concrete pipe runs from drainage structure (i.e. inlet, manhole, etc.) to end section. Pipe ties are not required for concrete pipe placed from drainage structure to drainage structure.

714-P04 UNDERGROUND UTILITY COMPACTION AND DENSITY CONTROL: Compaction control frequency for underground utility trenches is based on 1 individual compaction test per 300 feet of trench per 36 inches of backfill and a minimum of 1 test per service line, 2 feet below finish grades or where directed. Locations, depths, and frequency of compaction will be determined and performed by the Engineer during construction.

The compaction may be obtained by any approved method or equipment which will produce a uniform density meeting the requirement to obtain not less than 95 percent maximum dry density at optimum moisture made in accordance with ASTM D698 (standard Proctor) with a moisture content falling within 3 percent of the optimum moisture. Exercise care to not displace the pipe or damage the pipe during the compaction operations.

722-P01 STORM DRAIN INLETS AND MANHOLES: Inlets and manholes have been designed with 4.0-foot minimum risers. Fill the bottom of the inlet or manhole with concrete up to the elevation that will accommodate the lowest invert elevation. Place and shape the concrete fill to form an invert to eliminate trapping of debris and/or sediment. Obtain Engineer approval of embankment material prior to backfilling.

Seal all barrel-to-barrel joints with a P2 gasketed joint for 48-inch manholes, or a CX-4 joint for all other sizes of manholes. Provide an exterior seal by Press-Seal Gasket Corporation EZ Wrap and EZ Stik No. 4 primer for all sizes of manholes. Do not install steps in manholes or inlets. Include all costs to accomplish this work in the price bid for the respective inlet or manhole.



NOTES

722-P02 INLET AND MANHOLE CASTINGS: Provide Neenah Foundry Company R-3067 with Type V grates and 3030 Style open curb box, East Jordan Iron Works Number 7030 with Type M6 grates and Type T2 Backs, or approved equivalent for all “Inlet-Type 2”. Provide Neenah Foundry Company R-3295-2 with Type V grates and 3030 Style open curb box, East Jordan Iron Works Number 7031 with Type M4 grates and Type T5 Backs, or approved equivalent for all “Inlet-Type 2 Double”.

Provide Neenah Foundry Company R-3362 with Type L concave down grates, East Jordan Iron Works Number 7567M, or approved equivalent for all “Inlet Mountable Curb -Type B”.

Provide Neenah Foundry Company R-1955-1 floating casting or East Jordan Iron Works Number 3025 with concealed pick holes and self-sealing platen lid, or approved equivalent for all new or existing manholes that lie within the limits of new roadway. Place flush all castings to within 1/8 inch below the pavement that lie within the roadway. See Standard Drawing D-722-5A “FLOATING MANHOLE CASTING.”

Provide Neenah Foundry Company R-1733, East Jordan Iron Works Number 1205, or Municipal Castings, Inc. Number 301 with concealed pick holes and self-sealing platen lid, or approved equivalent for all other manholes outside of the roadway.

Include all labor, materials, and equipment necessary for casting installation and adjustment in the price bid for the respective inlet or manhole.

722-P03 POLYMER ADJUSTMENT RINGS: Provide polymer adjustment rings that are injection molded High Density Polyethylene (HDPE) as manufactured by Ladtech, Inc, IPEX Inc, or approved equivalent conforming to ASTM D-4976. Provide polymer adjusting rings that have an internal dimension that does not restrict the opening size of the manhole or inlet casting. Rings must be 2 to 6 inches thick, cross slope adjusting rings may be allowed with approval by Engineer.

Include all labor, materials, and equipment necessary for the concrete adjustment rings in the price bid for the respective inlet or manhole.

722-P04 INFILTRATION AND INFLOW (I&I) BARRIER: Outfit all new, adjusted, or repaired manholes with an APM Permaform infiltration and inflow (I&I) barrier manufactured by Strike Products or approved equivalent, installed and field tested according to the manufacturers’ specifications. Set the manhole cover with the adjusting rings and casting around the I&I barrier.

Provide a watertight seal to the top of manhole barrel using butyl sealant, or approved equivalent, as specified by the manufacturer of the I&I Barrier. Before applying the sealant and the I&I barrier, ensure the top of the manhole is free of dust and debris. Sufficient quantity of sealant, per manufacturer, must be used to accommodate flaws in the top of manhole barrel.

If deemed necessary by the Engineer, to check the seal of the I&I barrier, fill the excavated area around the I&I barrier with water to a level above the joint between the I&I barrier and the top of manhole barrel. If any leakage or moisture is present in the area inside the manhole around the seal, remove the I&I barrier and reseal at no additional cost.

Do not seal the bottom ring placed on the I&I barrier to the I&I barrier to allow infiltrated water to escape. Seal all successive rings above the bottom ring together per manufacturer’s recommendations. Extend the bottom of the I&I barrier a minimum of 2 inches above the top ring. If a floating manhole casting is used, trim the I&I barrier extending above the top ring so that the I&I barrier does not interfere with the manhole casting’s ability to function. Outfit all pressure-reducing valve and air release valve manholes with a Cap ‘N Seal as manufactured by Strike Products, MMG Solutions, or approved equivalent.

Include all labor, materials, and equipment necessary for the I&I Barrier in the price bid for the respective manhole.

722-P05 MANHOLE REPAIR: Include salvaging existing casting, furnish and adjustment of new casting on existing manhole to the elevation, grade, or dimensions as indicated on the Drawings or as ordered by the Engineer. The structures are assumed to be clean prior to the beginning of the adjustment construction unless otherwise agreed to with the Engineer.

Salvage existing castings and deliver to the Owner at City of Mandan Public Works Department: 411 6th Ave SW, Mandan, North Dakota 58554.

Carefully salvage existing casting and install new castings as indicated in the Plans. If the height of a rectangular casting is to be increased, the addition may be of solid concrete block or precast concrete riser section. Use solid concrete block to increase the height of circular castings. Replace all weak and faulty parts of the existing structure and complete the extension. Where the casting, grating, I & I barrier, or cover is to be lowered, remove the masonry or concrete to sufficient depth so that a seat of proper dimensions may be reconstructed to receive the casting, grating, I & I barrier, or cover at the new grade. Set castings in full mortar beds or otherwise secured as shown on the plans.

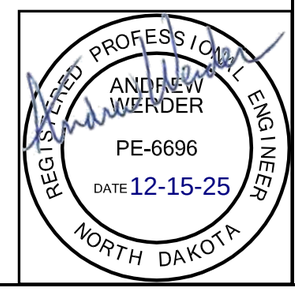
Use mortar containing a compound of 1-part Portland cement to 2-parts of sand by volume to which lime may be added not to exceed 10 percent of the cement by weight. Accurately set casting to correct elevation and line so that no subsequent adjustment will be necessary. If necessary, use tapered or sloped adjusting risers.

Adjust pipe inverts by cutting the opening and grouting in the connecting pipe. Fill sumps with concrete to accommodate lowest invert elevation unless otherwise indicated on the plans. Place and shape the concrete fill to form an invert to eliminate trapping of debris and/or sediment. Provide suitable backfill for repaired manholes.

Include all costs to salvage and delivery of existing casting, raise or lower existing manholes, including any additional structure riser sections or adjustment rings, and adjusting pipe inverts in the price bid for “MANHOLE REPAIR”.

722-P06 ADJUST MANHOLE: This bid item provides for the salvaging of various existing castings and furnish and adjustment of new castings to the proper grade. A maximum of six rings will be allowed. “Adjust Manhole” shall be used when adjustments can be made by adding or removing adjusting rings. Bid items “Adjust Manhole” and “Manhole Repair” may interchange based on field findings.

Salvage existing castings and deliver to the Owner at City of Mandan Public Works Department: 411 6th Ave SW, Mandan, North Dakota 58554.



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Include all labor, materials, and equipment necessary to complete the salvaging of existing casting, furnishing a new casting, and adjustment in the price bid for “Adjust Manhole”.

722-P07 SANITARY MANHOLE: Include the riser height as indicated in the plans for the “Manhole Sanitary” bid item. Do not install steps in sanitary manholes.

722-P08 CLEANOUT: Construct cleanout according to the detail in Section 20 and conform to the following criteria. Furnish a pipe that is polyvinyl chloride sewer (PVC) pipe. For pipe that is 15 inches or smaller provide a pipe that conforms to the requirements of ASTM D3034 for TYPE PSM, PVC sewer pipe and fittings and have an SDR of 35, all of which is stamped on the pipe. For polyvinyl chloride sewer pipe 18 inches or larger provide a pipe that conforms to the requirements of ASTM F679-PS46. For PVC sewer main line pipe and PVC sewer service pipe provide an elastomeric gasket-type joint that has a watertight seal. A solvent cement-type joint will not be allowed. Provide PVC wye branches that are of the "factory-assembled type." The top of the pipe shall have a PVC threaded clean out adapter with a PVC threaded plug placed under a Neenah No. R-1976 or East Jordan Iron Works No. 1578 or approved equivalent cover set in concrete.

Include all labor and materials in the detail in the bid item, “Sanitary Sewer Cleanout” and “Storm Sewer Cleanout”.

724-P01 WATERMAIN GENERAL: Notify the Fire Department of any loss of service of a fire hydrant or ability to use a fire hydrant one day before the occurrence. Provide notification when hydrant is back in service. Existing gate valves can only be operated by City of Mandan representatives. The Contractor can operate newly installed valves until the project is accepted. Existing valves may not close tight enough to get a watertight closure. The Contractor may have to work without a total water shut off with no extra charge to the City of Mandan. In the event extra valves have to be shut down to slow the flow of water, there shall be no extra charge to the City of Mandan by the Contractor for the time, up to 2 hours, to accomplish the water shutdown. Provide 24-hour notice for any shut downs of existing lines with the City of Mandan Utility Shop (701) 667-3240.

724-P02 WATERMAIN MATERIALS GENERAL: All products (treatment chemicals and materials) that may come into contact with water intended for use in a potable water system are required to meet American National Standards Institute (ANSI)/National Sanitation Foundation (NSF) International Standards 60 & 61, as appropriate, a product will be considered as meeting these standards if so certified by NSF, the underwriters laboratories, or other organizations accredited by ANSI to test and certify such products.

724-P03 WATERMAIN PIPE AND FITTINGS: Provide watermain that is Polyvinyl Chloride (PVC). Provide PVC pipe meeting the requirements of AWWA C900 or C905 or C909 or the latest revision thereof and furnished in Cast Iron Pipe equivalent outside diameters with elastomeric joints. Furnish PVC pipe with a pressure class of PC150 with a DR of 18 and PC235.

Utilize a pipe material supplier that is ISO 9001 or 9002 registered.

Minimum depth of cover for all watermain and water service lines is 7.5 feet.

Provide all hydrants and fittings, including tees, bends 22½ degrees and larger, tapping saddles 3 inches and larger, and reducers of two pipe sizes or more with suitable reaction blocking to prevent movement of fittings and hydrants when the pipe is under pressure. Utilize concrete thrust blocking between the fitting and against an undisturbed vertical trench wall and allow pipe and fitting joints to be accessible for repair according to details shown in Section 20 and NDDOT D-724-1. Include the costs for all in the bid item for “(_)IN Watermain”.

Provide restrained joints for vertical adjustments or areas where adequate reaction blocking is not feasible as shown in the Plans. Obtain approval for all restraining systems for Polyvinyl Chloride pipe include Certa-Lok, Yellowmine, and EBAA Iron Inc. Furnish ductile Iron fittings manufactured in accordance with AWWA/ANSI C153/A21.53 or AWWA/ANSI C110/A21.10. Furnish ductile Iron fittings that have a working pressure of 350 pounds per square inch conforming with AWWA/ANSI C153/A21.53 or AWWA/ANSI C110/A21.10. Provide all Cast Iron and Ductile Iron fittings as cement mortar lined and contain an exterior bituminous seal conforming with AWWA/ANSI C104/A21.4. Install all fittings utilizing mechanical restrained in addition to thrust blocking. Include all fittings in the price bid for “(_)IN Watermain”.

Furnish and install marking tape located 2 feet above the top of all watermain installed under the contract. Provide tape that is of the non-detectable type and that has a minimum width of 5 inches. Provide a tape that is blue in color with the words "CAUTION WATER LINE BELOW" imprinted on the tape in black capital letters. Provide marking tape that is equal to that manufactured by Presco standard grade. Provide trace wire that is high-strength copper clad steel (CCS) wire, 450-lb min rated break strength, 30mil HDPE insulation. Color per APWA uniform standards. Make splices with sealant-filled connectors designed for direct bury. Approved Manufacturers: Copperhead Ind., Kris- Tech Wire or approved equal. Attach to pipe and provide ground rods per manufactures recommendations. Provide terminal boxes as called for on plan. Coordinate testing and verification with owners’ equipment.

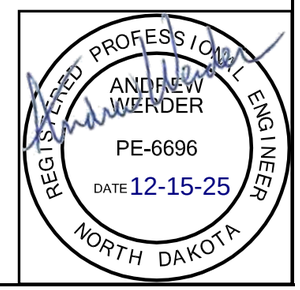
Encase all ductile iron and cast iron valves, fittings, and hydrants with 8-mil linear low-density (LLD) polyethylene film in accordance with ANSI/AWWA C105/A21.5. Include the cost of all encasements in the price bid for “Watermain (_)IN” and “Gate Valve & Box (_)IN”.

Alternate bolts for mechanical joint fittings, valves, and hydrants with one-half stainless steel and one-half low alloy steel. Provide stainless steel bolts that are Grade 304.

724-P04 WATER SERVICE MATERIALS GENERAL:

Provide polyethylene water service line of iron pipe size (IPS) manufactured from ultra-high molecular weight polyethylene (average molecular weight of 1,750,000) of virgin materials and meeting the requirements of Type III Class "C" Category 5-P34 polyethylene as defined in ASTM D1248. Provide pipe designated UHMWPE 3408, with a design stress of 630 pounds per square inch (630 psi) and a working pressure of 150 pounds per square inch (150 psi) for water at 73.4°F. Provide pipe that conforms to ASTM D2239 with a standard dimension ratio (SDR) of 7. Provide pipe that is permanently imprinted with the manufacturer's brand name, pipe size, identification of the National Sanitation Foundation (NSF) approval, ASTM specification, recommended working pressure, and production date code. Provide connection fittings that are compression fittings (gasket type), stab fitting with O-ring seal (Mueller Insta-Tite or approved equivalent), or an insert type 1209 - 2 Rev. December 2019 fitting (Ford Pack Joint Coupling Series 66, or approved equivalent, for 1½-inch and 2- inch polyethylene only).

Furnish and install marking tape located 2 feet above the top of all watermain installed under the contract. Provide tape that is of the



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non-detectable type and that has a minimum width of 5 inches. Provide tape that is blue in color with the words "CAUTION WATER LINE BELOW" imprinted on the tape in black capital letters. Provide marking tape that is equal to that manufactured by Presco standard grade. Provide trace wire that is high-strength copper clad steel (CCS) wire, 450-lb min rated break strength, 30mil HDPE insulation. Color per APWA uniform standards. Make splices with sealant-filled connectors designed for direct bury. Approved Manufacturers: Copperhead Ind., Kris- Tech Wire or approved equal. Attach to pipe and provide ground rods per manufactures recommendations. Provide terminal boxes as called for on plan. Coordinate testing and verification with owners' equipment.

Provide corporation stops that are Mueller No. H-15000 or McDonald No. 74701 or Ford F600 or FB600 for copper water pipe, or approved equivalent.

Provide curb stops that are Mueller No. B-25154, Mueller No. H15154, Mueller No.V-25226, McDonald No. 76104, McDonald No. 76104-22, FORD B22, Ford B66, or Ford B77, without drain, having a Minneapolis Pattern, or approved equivalent. Install curb stops using the proper tools as recommended by the manufacturer.

Provide curb boxes that are McDonald No. 5614 or Mueller No. H10302 (1 1/4-inch diameter upper section), Mueller No. H-88703 or McDonald No. 5660, for 1¼-inch or smaller curb stops. Furnish curb boxes that are Mueller No. H-10304 or McDonald No. 5615 (2-inch diameter upper section) for 1½-inch or larger curb stops, or approved equivalent. Install stationary rods with curb stop boxes. Extend the length of the curb box by 8 feet. Install curb stops on a 6" square by 4-inch thick concrete or brick pad. Encase all curb boxes with 8-mil linear low-density (LLD) polyethylene film in accordance with ANSI/AWWA C105/A21.5. Include the price for all encasement in the bid item for the pipe.

Provide concrete for pipe cradles and saddles that conforms to the requirements of Section 501.

724-P05 ABANDON WATERMAIN/SERVICE LINE: Plug and abandon pipes at the locations designated in the plans. Plug all exposed ends of the watermain to be abandoned with concrete. Pump the pipe full of controlled density backfill to prevent any future collapse or failure of the abandoned pipe. Controlled density backfill consists of cement, water, fly ash and fine aggregate at the ratio specified below. Place controlled density backfill as shown in the plans. Mix the material continuously during pumping or placement to keep the solution from separating. Include all costs for labor, materials, and equipment in the bid price for "Abandon Watermain/Service Line".

Controlled Density Backfill Mix Design	
Material	Weight
Cement	70 lb
Fly Ash	125 lb
Fine Aggregate	2,600 lb
Water	50 Gal

724-P06 REMOVE GATE VALVE BOX: Remove gate valve box bid item as intended includes the removal of the gate valve box and abandoning the existing valve in place. Confirm that all existing valves to be abandoned are closed prior to removal of box.

724-P07 WATER SERVICE LINE 1IN: Include all costs of connecting the proposed 1-inch water service connection to the existing connection size.

724-P08 WATER SERVICE LINE 2IN: Include all costs of connecting the proposed 2-inch water service connection to the existing connection size.

724-P09 WATER SERVICE CONNECTION 1IN: Include all costs of connecting the 1 inch proposed water service connection to the existing connection size.

724-P10 CONNECTION TO EXISTING MAIN: Connection to existing main bid item is intended for areas where it is not feasible to install a tapping sleeve and valve; resulting in the need to shut down the existing main to cut in the proposed tee, gate valve, or appurtenance as indicated in the plans to make the connection to the existing water main. Coordinate with and receive permission from the City of Mandan Public Works Department at least one week prior to undertaking connections that will result in water main shutdowns. Protect existing infrastructure against deleterious substances and damage.

Plan in advance to have all required equipment, materials, and labor on hand at the time of undertaking the connections so that work can proceed continuously (around the clock) if necessary or if requested by City of Mandan Public Works Department to complete connections in the minimum time. Coordinate operation of existing valves and other appurtenances with the Citty of Mandan Public Works Department.

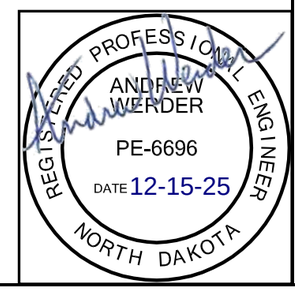
If a water service interruption affects a customer, who for legitimate reasons cannot be without service for the time in question, either reschedule the work to a time the customer can be without service or arrange to supply temporary service for said customer.

Include all costs for materials, labor, and equipment necessary to furnish and install connections as shown on the plans in the price bid for "Connection to Existing Main".

724-P11 GATE VALVES: Provide gate valves manufactured by American Flow Control or American AVK Company or approved equal under the minimum requirements in design, material, and workmanship conforming to the latest AWWA Standard C515. The metals used shall be in accordance with AWWA and ASTM Standards. Install all gate valves with a non-rising stem, O-ring stem seals, 2-inch operating nuts, and open counterclockwise. Provide all gate valves with a resilient synthetic rubber coating seat attached to the wedge, manufactured and designed in accordance with the latest AWWA Standard C515. Provide a resilient-seated gate valve body and bonnet that is coated, inside and out, with a fusion bonded epoxy in accordance with AWWA C550. Confirm the waterway has a full unobstructed flow without recesses in the bottom. Provide bonnet bolts that are stainless steel. Install all gate valves with mechanical restraint.

Place all valves on a minimum 6" thick pad of sufficient dimensions for valve size. Provide a stem extension for all valves that fastens to the operating nut with a SS set screw. Provide an operating nut that is drilled or otherwise indented to accept the set screw and provide a secure connection that will prevent an extension from coming loose during operation.

Provide valve boxes that are of a quality equal to that manufactured by Tyler Pipe Model 6860, Star Pipe Products Cast



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Iron Heavy Duty Model "G" or approved equal with bases and dimensions of each section to be as follows:

No. 6 round base for 16-inch and smaller gate valves.
No. 160 oval base for 24-inch or larger.
Covers marked "Water."
Top Section 25 1/2 inches long.
Extension pieces as required.

Provide valve box debris plugs as manufactured by Infact Corporation or an approved equivalent for new and reset valve boxes.

Provide gate valve adaptors manufactured by Adaptor, Inc. or approved equivalent. Provide an adaptor that is ¼-inch steel with a UV protective coating and a ¾-inch gasket attached to the adaptor.

Provide a valve box that is capable of a minimum 6-inch top adjustment in either direction, up or down, to or from, the finished grades shown in the plans.

Include the cost of valve box extensions, adaptors, debris plugs, and installation in the price bid for “Gate Valve & Box (_)IN”.

724-P12 TAPPING SLEEVE WITH TAPPING VALVE: For pipe sizes of 6 inches to 24 inches, provide a tapping sleeve that is stainless steel with a stainless steel flange and bolts and conforms to the “Smith Blair” Type 663 or “Romac” Type SST, “Power Seal” 3480AS or approved equivalent. Provide a tapping valve that conforms to City of Mandan Standard Specification 901-2.5 for Gate Valves. Tapping 901 - 6 Rev. May 2024 saddles and install according to manufacturer’s installation instructions. Torque the tapping saddle bolts using a calibrated torque wrench with a handle at least 12 inches in length.

Hydrostatically pressure test the tapping saddles with valves on the main prior to requesting a tap. Administer a test that is minimum 125 pounds per square inch for a duration of 30 minutes.

The City of Mandan Public Works will inspect the tap of the watermain. Give Mandan Public Works 48-hour notice of tapping of a watermain.

724-P13 REMOVE GATE VALVE & BOX: Remove and salvage existing gate valves at locations shown on the plans. Deliver salvaged gate valves to the Owner at City of Mandan Public Works Department: 411 6th Ave SW, Mandan, North Dakota 58554.

Include all costs for removal and salvage of existing gate valves and delivery of salvage gate valves in the price bid for “Remove Gate Valve & Box”.

724-P14 HYDRANTS: Manufacture hydrants in accordance with the requirements of AWWA C502. Equip hydrants with break-a-way type traffic flanges and two (2) 2½-inch hose connections with National Standard Threads and one (1) 4 1/2-inch pumper connection with National Standard Threads. Provide a 5¼-inch Waterous Pacer Model WB-67-250 as manufactured by American Flow Control or 5¼-inch American Darling Model B-62-B as manufactured by American Flow Control or an approved equal for all 6-inch and 8-inch hydrants.

Have a minimum of 24 inches between the 2½-inch hose connection and the nominal ground line groove for all new or reset hydrants. Provide a bury depth of 8½ feet from the ground line groove to bottom of hydrant base unless otherwise called for in the plans. Provide brass, Class 304 or 316 stainless steel, or have an epoxy coating as such to prevent corrosion for the life of the fire hydrant for all metal internal moving parts below ground. Provide stainless steel for all washers and barrel bolts below ground level. Provide hydrant lower rod with Class 304 or 316 stainless steel or have an epoxy coating as such to prevent corrosion for the life of the fire hydrant. Install according to detail shown in Section 20.

Provide gravel drainage rock that consists of granular material in accordance with the requirements of gradation shown in the following table:

Square Mesh Sieve Size	Percent By Weight Passing
2”	100%
No. 4	0-10%

Furnish and install all new hydrants with a 48-inch Red FH800 American Series Fire Hydrant Marker manufactured by Flexstake Inc. of Fort Myers Florida, or an approved equal.

Mechanically restrain all non-terminal hydrants temporarily placed for future watermain extensions to tee.

Furnish and install hydrant extensions, as needed per plans, per manufacturer’s recommendations. Maximum extension length will be three vertical feet. Do not stack multiple extensions. Extensions are considered incidental to the price bid for “8in Hydrant”.

724-P15 REMOVE HYDRANT: Remove existing hydrant at locations shown on the plans by:

- Remove and salvage existing fire hydrants
- Remove and dispose of existing watermain piping for the hydrant lead.
- Cap existing mainline tee if necessary.
- Deliver salvaged hydrants to the City of Mandan Public Works Department.

Include all costs of removal and salvage hydrants, removal and disposal of hydrant watermain lead, capping the mainline tee, and delivery of salvaged hydrants in the price bid for “Remove Hydrant”.

724-P16 REMOVE CURB BOX RISER: Remove existing curb stop, curb stop box, curb stop riser, and all other components of the curb stop and box system at all locations shown on the plans unless specifically noted otherwise.

Include all costs for removal in the price bid for “Remove Curb Stop Riser”

724-P17 WATERMAIN PRESSURE TESTING: Provide hydrostatic pressure test under the supervision of the Engineer in accordance with AWWA C605 after the pipe has been laid for all new pipe or any valve sections. Fill the test section with water and gradually increase the pressure to 150 pounds per square inch and hold for at least two hours with no leakage.
If defects are found, immediately make the necessary repairs, at no additional cost to the Owner. Furnish all tools, equipment,

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ANDREW WERDER
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temporary caps or plugs, and material necessary to make the pressure test. The City of Mandan will provide the water for filling the pipe.

Include all costs for material and pressure testing in the price bid for “Watermain (_)IN” or “Water Service Line (_)IN.”

724-P18 DISINFECTION AND BACTERIOLOGICAL TESTING: After the new mains, replacement mains, and valved extensions have been tested, they shall be flushed until all foreign material has been removed.

Make chlorination applications under supervision of the Engineer in accordance with AWWA C651. Feed water into the new line with chlorine applied in amounts to maintain a chlorine residual of 50 milligrams per liter for 24 hours or chlorine residual of 200 milligrams per liter for three (3) hours.

Operate all valves and hydrants in the treated section during this to disinfect the appurtenance. Do not allow heavily chlorinated water to remain in prolonged contact (maximum of 48 hours) with the watermain pipe. Flush chlorine from the main through hydrants and taps until all excess chlorine has been removed. Repair all grass, new or existing, damaged by the chlorination and flushing process. No chlorination water will be permitted in the watermain trench.

Furnish all tools, equipment, materials, and chlorine to complete the chlorination process, incidental to other bid items. Obtain permission from the Engineer prior to discharging chlorinated water into any drainage way. Provide chlorination taps so at least one set of samples may be collected from every segment of the new watermain at 1,200 feet maximum intervals, with one set from the end of the line and at least one set from each branch exceeding 50 feet in length.

After final flushing each 1,200-foot maximum segment and branches greater than 50 L.F., and before the new watermain is connected to the distribution system, collect two consecutive sets of acceptable samples, per 1,200-foot maximum main segment or 50-foot branch, taken at least 24 hours apart, from the new main. Perform all sampling in the presence of the Engineer.

Record the locations where samples were taken. Perform sampling with due care to prevent contamination using sterile bottles provided by the testing laboratory. It is not recommended that samples be collected from hoses or fire hydrants. Deliver all samples for laboratory analysis at a State of North Dakota certified testing laboratory for bacteriological quality to demonstrate the absence of coliform organisms. Repeat flushing, chlorination, sampling, and testing until passing results are obtained. Do not allow super chlorinated water from the disinfection of a potable distribution system to reach waters of the state until the total residual chlorine level has become non-detectable. Any sample result less than 0.05 mg/l will be considered “non-detectable.”

Supply written records of all test results to the Engineer as soon as possible. To expedite construction progress, it is necessary that the test results be furnished as soon as testing is completed.

If trench water has entered the new main during construction or, if in the opinion of the Engineer, excessive quantities of dirt or debris have entered the new main, after removing dirt and debris to the satisfaction of the Engineer, take bacteriological samples at intervals of approximately 200 feet or as directed by Engineer. Record location of all sample locations. Take samples of water that has stood in the new main for at least 16 hours after final flushing has been completed.

Direct the testing laboratory to test for coliforms and e-coli using the "Colilert" or other Engineer approved equivalent test. The "Colilert" test is a pass/fail test that does not quantify the amount of bacteria. A failed test is indicated by any presence of coliforms or e-coli.

If the initial disinfection fails to produce satisfactory bacteriological results, the new main may be re-flushed and resampled. If check samples also fail to produce acceptable results, re-chlorinate the watermain by the continuous-feed or slug method of chlorination until satisfactory results are obtained.

Take bacteriological samples after repairs or short connection pieces are completed to provide a record for determining the procedure's effectiveness. If the direction of flow is unknown, take samples on each side of the repair or connection. If positive bacteriological samples are recorded, evaluate the situation to determine corrective action, and continue daily sampling until two (2) consecutive negative samples are recorded.

Include all costs for disinfection and bacteriological testing, including taps, in the price bid for “Watermain (_)IN.”

724-P19 SPRINKLER RELOCATION: Adjacent properties have underground sprinkler systems that will be impacted by the project. Locations are shown in Section 40. Coordinate with each property owner to determine the quantity of sprinkler heads and hoses that will be impacted prior to construction. Replace the sprinkler heads and hoses with new materials matching the existing in locations that will provide sufficient water coverage.

If the work to replace the sprinkler heads and hoses requires access outside of the right-of-way or temporary construction easement, gain written access from the landowner to complete the work and submit a copy of the agreement to the Engineer.

The following locations have known impacts on existing private sprinkler systems:

- 604 1st Street NW
- 408 1st Street NW
- 211 5th Avenue NW

Include all costs for materials, labor, and equipment in the bid price for “Sprinkler Relocation”.

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724-P20 SANITARY SEWER PIPE AND FITTINGS: For sanitary sewer less than 18”, provide and install pipe and fittings meeting PVC ASTM D3034 requirements for type Plastic Sewer Main (PSM) having an SDR of 26, stamped on the pipe. Install elastomeric gasket-type joint providing a watertight seal conforming to ASTM D3212 for all PVC sewer main line pipe and PVC sewer service pipe.

Furnish and install marking tape located 2 feet above the top of all sanitary sewer mains installed under the contract. Provide tape that is the non-detectable type and has a minimum width of 5 inches. Provide tape that is green in color with the words "CAUTION SEWER LINE BELOW" imprinted on the tape in black capital letters. Provide marking tape that is equal to that manufactured by Presco standard grade. Provide trace wire that is high-strength copper clad steel (CCS) wire, 450-lb min rated break strength, 30mil HDPE insulation. Color per APWA uniform standards. Make splices with sealant-filled connectors designed for direct bury. Approved Manufacturers: Copperhead Ind., Kris- Tech Wire or approved equal. Attach to pipe and provide ground rods per manufactures recommendations. Provide terminal boxes as called for on plan. Coordinate testing and verification with owners’ equipment.

Perform mandrel testing in all sanitary sewer 8-inches in diameter or larger no less than 30-days following installation, backfilling, and receiving passing compaction tests. Ensure circular deflections do not exceed the maximum allowable deflection requirements herein by more than 5 percent. Furnish pipe that has maximum average inside pipe diameter equal to the average outside diameter per applicable ASTM Standards minus 2 minimum wall thicknesses per applicable ASTM Standards. Use a rigid, nonadjustable, 9-leg minimum mandrel having an effective length not less than its nominal diameter, fabricated of steel or aluminum with pull rings at either end, and stamped or engraved to indicate the pipe material specification, nominal size, and outside diameter. Pull the mandrel through the pipe by hand, if it fails to pass through the pipe, it will be deemed to be over-deflected. Uncover any over-deflected pipe and, if not damaged, remove and reinstall. Remove damaged pipe from the work site and replace with new pipe. Provide re-testing, if required, at no additional cost.

Perform hydrostatic or low air pressure testing of all sanitary sewer. For hydrostatic testing, perform an exfiltration or infiltration test with a minimum positive head of 2 feet. Prevent exfiltration or infiltration from exceeding 100 gallons per inch of internal pipe diameter, per mil, per day. For Air testing, conduct an air test, as a minimum, conforming to the test procedure as described in ASTM F1417 for plastic pipe.

Flush all sanitary sewer pipe and manholes with clean water.

Furnish rubber gaskets for PVC sewer pipe joints that are of the elastomeric type providing a watertight seal and that conform to ASTM D3212.

Furnish wye branches that are of the same material as the main line sanitary sewer pipe.

Include all costs for labor, materials and equipment necessary for the installation including: pipe, fittings, plugs, bedding material, marking tape, flushing, circular deflection and leakage testing and retesting in the price bid for “(__)IN Sanitary Sewer Pipe”.

724-P21 CONNECT TO EXISTING SEWER MAIN: Whenever a wye branch is not available for a sewer service connection, provide a connection to the sewer main that is one of the following: (a) A “factory assembled” wye branch may be cut into an existing PVC sewer main using gasketed repair couplings to the existing PVC sewer main. (b) A “factory assembled” wye branch may be cut into an existing VC sewer main using Shear Guard couplings, or approved equivalent, to the existing VC sewer main. (c) PVC, VC, or RC sewer main may be connected to the existing VC sewer main service using an Inserta Tee as manufactured by Inserta Fittings Co., or approved equivalent. Make the tap into the existing PVC, VC, or RC sewer main. Call the Mandan Public Works to schedule an inspection of the tap.

724-P22 TELEVISE STORM AND SANITARY SEWER MAIN: Provide television inspection for all newly constructed storm sewer and sanitary sewer mains meeting the following requirements:

- Flush all storm and sanitary sewer main and manholes with clean water.
- Engage a subcontractor normally involved in this type of work.
- Provide a high-quality digital video with a report for each section of sewer main televised clearly marked as to the project number and recording number, utilize visual footage counter showing the distance of the camera from the manhole.
- Provide recordings and report to the Engineer for acceptance.
- Immediately replace or repair any sewer failing inspection.
- Reinspect all repaired sections.

The cost for televising the storm sewer and sanitary sewer mains is included in the price bid for “Pipe Conc Reinf (_)IN CL III-Storm Drain” or “(_)IN Sanitary Sewer Pipe”.

744-P01 INSULATION BOARD: Furnish and install the insulation meeting the requirements of AASHTO M230 required to protect the water main at the locations and dimensions shown in Section 57, and the detail shown in Section 20.

Provide and install a minimum of 4-inches thick insulation centered over the watermain. Offset the insulation board joints between each layer. Install pipe bedding material between pipe and insulation.

Include all costs for insulation board in the price bid for “Polystyrene Insulation Board”.

REGISTERED PROFESSIONAL ENGINEER
ANDREW WERDER
PE-6696
DATE 12-15-25
NORTH DAKOTA

SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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NOTES

748-P01 CURB-TYPE I: Engineer will determine after removal of existing concrete if CURB-TYPE 1 is required to protect any exposed foundation. No payment will be made for curb that is not installed.

748-P02 CURB: This bid item is intended for concrete landscaping curb for the planters and rock beds. Provide concrete that is 4,000 psi strength concrete with tooled joints spaced evenly at 3'-4' centers. Construct the curb style as mower edge – 4" depth by 6" width. Provide a color that is standard gray concrete. Provide a landscape fabric for the planters that is DeWitt Weed-Barrier 20 Year (4.1 OZ), Typar 3401, or an equivalent.

Include all costs for labor, equipment, and material necessary for the concrete planter curb and fabric in this bid item.

750-P01 DRIVEWAY CONCRETE REINFORCED: Install reinforced driveways with No. 4 bars @ 24" on center both ways, placed mid-depth in the slab. All driveways are to be tied to curb and gutter or sidewalk by No. 4 x 12" dowel bars placed mid depth at 24" on center. All joints are to be sawed.

Include all costs for the labor, equipment, and material necessary to construct the driveways in the price bid for "Driveway Concrete _in Reinforced".

750-P02 SIDEWALK CONCRETE: Tie all sidewalk adjacent to existing concrete with No. 4 x 12" Def Tie Bars placed mid depth at a max spacing of 18". Include all labor, equipment, and materials required to install the tie bars in the price bid for "Sidewalk Concrete _in".

750-P03 SIDEWALK JOINTING: Saw a centerline longitudinal joint on concrete sidewalk greater than 7.5 feet in width. Do not exceed a 1.0 to 1.5 length to width ratio. Saw all longitudinal and transverse contraction joints. Saw joints in a timely manner to prevent any uncontrolled random cracking. If random cracking occurs, remove and replace all damaged panels at the Contractor's expense.

Include all costs for the labor, equipment, and material necessary to construct the sidewalks in the price bid for "Sidewalk Concrete _in".

750-P04 DETECTABLE WARNING PANELS: Use yellow painted ductile cast iron plates.

750-P05 SIDEWALK TRENCH DRAINS: Install sidewalk trench drains to the dimensions shown in Section 20. Take care not to damage existing roof drains while replacing sidewalk. Adjust as needed. All costs of labor, materials, and equipment to install sidewalk trench drains are included in the price for "Sidewalk Trench Drain."

750-P06 ENTRANCE RAMP: Construct the concrete retaining wall, stairway, and ramp prior to installing the adjacent sidewalk. Include all costs for the labor, equipment, and material necessary to construct the retaining wall, stairway, and ramp in the price bid for "Steps Concrete". Refer to Section 20 for details and incidental quantities.

754-P01 SIGNS: Salvage street signs, sign panels, and surface mounted breakaway bases. Sign removals for parking restrictions may be disposed of. Deliver to the Mandan Public Works Shop at 411 6th Ave SW. Coordinate delivery with City of Mandan Street Superintendent Brian Dirk at 701-667-3240 a minimum of 24 hours in advance of delivery.

Include all costs to remove, salvage, and deliver signs and supports in the price bid for "Flat Sheet for Signs-Type __ Refl Sheeting" and "Steel Galv Posts-Telescoping Perforated Tube".

762-P01 PAVEMENT MARKING: Re-establish permanent double yellow centerline striping within 7 days of opening 6th Avenue NW to traffic.

766-P01 RESET MAILBOX: Coordinate with United States Postal Service for resetting drop boxes identified in Section 40. Include all costs to remove, relocate, and install drop boxes in the price bid for "Reset Mailbox".

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 11/06/25
NORTH DAKOTA

NOTES

770-P01 LIGHT STANDARD 6FT MA 30FT MT HT BREAKAWAY: Provide a steel, galvanized davit type, breakaway light standard with transformer bases and factory installed internal vibration dampeners. Face hand holes in the opposite direction of roadway. Duct seal all conduit stubs in the concrete foundation. Install double locknut washers on all anchor bolts. Provide a shaft with one longitudinal weld and a minimum yield strength of 50,000 psi. Construct davit type mast arm of same material and by the same method as the shaft. Provide a tenon adaptor in the mast arm for luminaire mounting. Provide grounding lug inside of the hand hold.

Verify anchor bolt spacing in the field prior to construction. Notify the Engineer at least 24 hours prior to pouring concrete foundations such that the form with the anchor bolt placement, rebar, conduit stub-ins and ground rod can be inspected. Finish the foundation with a 4" thick, 30"x30" square top with 1" chamfer around all sides.

Include all materials, labor and equipment necessary to furnish and install the light standard in the price bid for "LT STD 6FT MA 30FT MT HT"

770-P02 ORNAMENTAL LIGHT STANDARD: Provide the ornamental light standards as shown in the plans. Provide PEMCO PLB-112-4-12-F-0.125-T300-N-BK lighting standards. Mount the light standards on a round concrete foundation.

Luminaires for the Ornamental Light Standard shall be Cooper Lighting ACN-080-LED-E-U-33-X-4-2-BK.

Provide poles with the following accessories:

- Low Profile Duplex GFCI Receptacle with in-use cover,
- 2-Single Banner Arms Model Number: BA-24-1-BBA-F-2EB-BK
- 1 Decorative Planter Arms with planter rings (PSC31)

Post wiring shall be No. 10 AWG stranded copper with ground, Type THHN-600 volt cable of the same type specified for the underground distribution circuits. Post wiring fuses shall be a type FNM 5 ampere fuse with a Buss type HEB in line fuse holder.

Include all materials, labor and equipment necessary to furnish and install the Ornamental Light Standard and Luminaire in the price bid for "Ornamental LT STD 12FT MT HT" and "LED Luminaire".

770-P03 REVISE LIGHTING FEED POINT: Revise the feed point at the location indicated in the plans. See NDDOT standard drawing D770-02 for additional requirements. Coordinate with the electric utility, Mandan Public Works, for connection to the electrical service and meter Coordinate with Utility a minimum of 30 days before the installation of service. Run conduit through the feed point foundation to the inside of the cabinet. Provide all the necessary breakers, wires, conduit, and equipment as shown in the detail and panel schedule. Duct seal all conduit stubs in concrete foundation.

Include all materials, labor and equipment necessary to furnish and revise the feed point in the locations shown in the price bid for "Modify Existing Feed Point".

770-P04 LIGHTING SYSTEM REMOVALS: Stockpile salvaged light standards and luminaire items determined by the Engineer. Include all costs to remove, salvage, and dispose of existing lighting elements in the price bid for "Remove Light Standard".

Deliver to the Mandan Public Works Shop at 411 6th Ave SW. Coordinate delivery with City of Mandan Street Superintendent Brian Dirk at 701-667-3240 a minimum of 24 hours in advance of delivery.

770-P05 SPLICE CONNECTORS: Provide Penn-Union IPBNA2/0XS splice connectors at pole hand holes. Provide Homac, Type RAB-X-URD-BUSS submersible insulated subsurface terminal splice connectors at pull boxes.

770-P06 MARKER TAPE: Install marker tape 5" below finished grade in cable trenches above underground conductors. Provide 6-inch wide, red plastic tape marked "Caution – Buried Electric Cable."

770-P07 CONDUIT INSTALLATION: Bore conduits in areas where existing sidewalks, driveway or concrete pavement are to remain. Include all costs to bore, trench and transition from boring to trenching in the price bid for "2in Diameter Rigid Conduit".

770-P08 CONCRETE FOUNDATION HIGHWAY LIGHTING: Provide light standard foundations according to Standard Drawing D-770-01 and the following dimensions:

- 12FT Standards with 24-inch diameter and 6-feet deep
- 30FT Standards with 24-inch diameter and 7-feet deep

Verify bolt circle and projection. Include spare conduit and cap end at all foundations located at the end of a circuit. Include all materials, labor and equipment necessary to furnish and install in the price bid for "Concrete Foundation-Highway Lighting".

REGISTERED PROFESSIONAL ENGINEER
SEAN P. KELLY
PE-28883
DATE 12/04/25
NORTH DAKOTA

NOTES

970-P01 TREES:

Extend plant establishment period for a period of 1 year commencing on date of acceptance by Engineer/City Forester/City Arborist.

Notify the City of Mandan Forestry Department (701) 667-3240 for an inspection of all plant material 1 week prior to installation.

Do not install plant material when ambient temperatures may drop below 35 degrees F or rise above 90 degrees F. Do not install plant material when wind velocity exceeds 30 mph. Acceptable planting dates are as follows:

Spring: April 15 – June 15
Fall: September 15 – October 15
June 15 – September 15, upon written approval by Engineer.

Properly care for all trees from the time of planting until the contract plant establishment period expires. Proper care consists of supplemental watering, weeding, pruning, spraying, tightening/adjusting tree tie straps and other work as necessary to keep the trees in a neat appearance and in a healthy growing condition.

Planting: Remove subsoil excavated in each planting hole and backfill all tree pits with planting soil mixture (See note below.). Install trees as shown in the details. Trees that are installed too deep or too shallow will not be accepted.

Furnish and install planting soil mixture in the tree pits as shown in the detail. Provide planting soil mixture which consists of a mixture of peat moss, topsoil, and sand in a ration of 1:1:1 by volume. Provide peat moss with:

- 75% minimum of partially decomposed stems and leaves of sphagnum, hypnum, polytrichum, and other mosses in which the fibrous and cellular structure is still recognizable. It shall be nearly free of decomposed colloidal residue, wood, and other foreign matter, and shall be brown to black in color. Humus peat will not be acceptable.
- a moisture content not exceeding 60% by weight.
- ash content not exceeding 20%, based on the oven dry weight of the material.
- pH value not less than 3.2 nor greater than 7.0 at 25° C.
- water holding capacity not less than 400% by weight, on an oven dry basis.

Furnish a certificate stating the type of peat moss, brand name, and the country or place of origin. If packed in bales, provide certificate from marking on bales.

Provide sand that 100% passes a 3/8" sieve.

Install fertilizer planting tablets: AgSafe 20-10-5 Mycorrhizae BioFertilizer Tablets or otherwise approved by Engineer; slow-release nonburning, polymer coated – Install one 21gram tablet for every 1/2 inch of caliper.

Include all work required to furnish, prepare, deliver, and install planting soil mixture in the tree pits in the price bid for individual tree.

Water all trees within 2 hours of being planted to thoroughly saturate backfill and eliminate voids.

Perform complete watering at 5 to 7-day intervals, which may be adjusted when weather conditions and soil moisture permit. Additional watering may be ordered by the Engineer at any time during the plant establishment period should conditions require such watering. Furnish and install a 15-gallon slow release supplemental water bag for each tree planted.

Place a sufficient amount of water in each supplemental water bag at the time of each watering to keep plants in a moist condition, and to keep the plant in a healthy growing condition.

Supplemental water bags will become the property of the City of Mandan following acceptance of trees. The City of Mandan will remove all supplemental water bags after the growing season and will remove all bracing and guying materials.

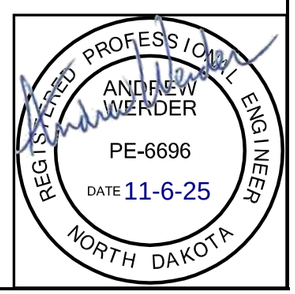
Within 24 hours of installation, stake trees and install pea gravel in accordance with details.

Replace all trees that die, show evidence of dying, or disease, during the plant establishment period at the earliest appropriate planting time after this condition becomes apparent. Replacements are to be of the same size and species as originally specified.

Near the end of the applicable plant establishment period an inspection of the trees will be made and only those found to be in a healthy growing condition will be accepted. Those trees not in a healthy growing condition will be replaced by the Contractor at the Contractor's expense. Replacements are to be of the same size and species as originally specified.

Include all costs for maintenance, warranty, watering, supplemental water bags, pea gravel, fertilizer planting tablets, tree guy anchoring/staking systems, planting soil mixture, and other items necessary for completion of the tree plantings in the price bid for individual tree.

Payment for trees will be made at specific intervals. Fifty percent (50%) will be distributed after initial planting, twenty five percent (25%) on July 1, 2027 upon acceptance of proper plant care maintenance, and twenty five percent (25%) on September 15, 2027 upon acceptance of proper plant care maintenance and final acceptance. Keep detailed records of maintenance activities and notify the Engineer 24 hours in advance of maintenance activities in order to receive full payment for each period. Submit maintenance records to the Engineer prior to the partial payment dates listed above to receive payment.



NOTES

970-P02 TREE GRATES: Furnish and install 60” square KBI Porous Flexi-Pave, Dark Brown Color, Cypress Color, or approved equivalent. Tree grates are not to have openings greater than 1/2" wide. Install tree grates per the manufacturer’s recommendations and standard details, final locations will be approved by the Engineer. Include all costs to furnish and install and other items necessary to complete the tree grate installation in the price bid for “Tree Grate”. Approved manufacturers are as follows:

Atlantic Power & Infrastructure Corp.
Product: KSI Flexi-Pave
Size: 60” x 60”
Color: Granite
Tree Opening Size: 16” diameter

Capitol Flexi-Pave
Product: Flexi-Pave AS2000
Size: 60” x 60”
Color: Salt & Pepper Granite
Tree Opening Size: 16” diameter

970-P03 TRASH RECEPTACLE: Furnish and install steel trash receptacles, where indicated and shown on plans. All trash receptacles shall be surface mounted to the concrete pavement at the proposed locations per manufacturer’s recommendations and standard details. Install the following trash receptacle that matches existing trash receptacles installed in Downtown Mandan.

Dumor
Trash receptacle, Model: 102-32SH
Color: Black
Installation: Surface mount

Victor Stanley
Trash receptacle, Model: FC-12
Color: Black
Installation: Surface mount

Include all costs to furnish and install trash receptacles in the price bid for “Trash Receptacle”.

970-P04 BENCH: Furnish and install 6’ metal benches, where indicated and shown on plans. All benches shall be surface mounted to the concrete pavement at the proposed locations per manufacturer’s recommendations and standard details. Install the following bench that matches existing benches installed in Downtown Mandan.

Dumor
Bench without backrest, 6-foot, Model: 92-60
Options: End armrests
Color: Black
Installation: Surface Mount

Victor Stanley
Bench without backrest, 6-foot, Model: CR-296
Options: End armrests
Color: Black
Installation: Surface Mount

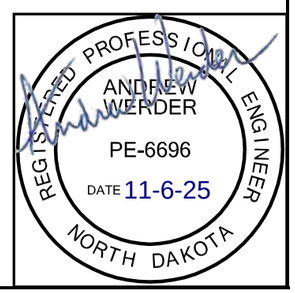
Include all costs to furnish and install benches in the price bid for “BENCH”.

970-P05 LANDSCAPE PREPARTATION: This bid item is intended for cost of rock mulch. Provide mulching material that is 1 ½” crushed landscape rock and include the cost in this bid item.

990-P01 GUARD POST-PERMANENT: Install bollard per the manufacturer’s recommendations and standard details, final locations will be approved by the Engineer. Include all labor, materials, and equipment necessary to complete the work in the price bid for “Guard Post-Permanent”. Approved manufacturers are as follows:

Victor Stanley
Product: Street Sentry
Model: L-214
Size: 4.5” X 36”
Color: Powder Coated Black with Two White Reflective Strips
Installation: Ground Mount

Reliance Foundry
Product: Fixed Steel Bollard
Model: R-8400
Size: 4.5” X 36”
Color: Powder Coated Black with Two White Reflective Strips
Installation: Ground Mount



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Estimated Quantities

SPEC	CODE	ITEM DESCRIPTION	UNIT	UGP: Funding A	100% City: Funding B					TOTAL
103	0100	CONTRACT BOND	L SUM	0.65	0.35					1
201	0370	REMOVAL OF TREES 10IN	EA	6						6
201	0380	REMOVAL OF TREES 18IN	EA	1						1
202	0114	REMOVAL OF CONCRETE PAVEMENT	SY	9074						9074
202	0130	REMOVAL OF CURB & GUTTER	LF	2697						2697
202	0132	REMOVAL OF BITUMINOUS SURFACING	SY	5013						5013
202	0173	REMOVAL OF SEWER PIPE	LF		2455					2455
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES	LF		2091					2091
202	0210	REMOVAL OF MANHOLES	EA		6					6
202	0230	REMOVAL OF INLETS	EA		8					8
202	0235	REMOVAL OF CATCH BASIN	EA		10					10
203	0101	COMMON EXCAVATION-TYPE A	CY	1238						1238
203	0109	TOPSOIL	CY	311						311
203	0119	TOPSOIL-IMPORTED	CY	48						48
203	0140	BORROW-EXCAVATION	CY	442						442
216	0100	WATER	M GAL	173						173
230	0165	SUBGRADE PREPARATION-TYPE A-12IN	STA	17.8						17.8
251	0200	SEEDING CLASS II	ACRE	0.45						0.45
253	0201	HYDRAULIC MULCH	ACRE	0.9						0.9
302	0121	AGGREGATE BASE COURSE CL 5	CY	3406						3406
550	0300	8IN NON-REINF CONCRETE PVMT CL AE-DOWELED	SY	8198						8198
550	0330	NON-REINF CONCRETE PVMT CL AE-DOWELED-COLORED	SY	375						375
702	0100	MOBILIZATION	L SUM	0.65	0.35					1
704	1000	TRAFFIC CONTROL SIGNS	UNIT	1081						1081
704	1052	TYPE III BARRICADE	EA	21						21
704	1054	SIDEWALK BARRICADE	EA	8						8
704	1058	PEDESTRIAN WALKWAY	LF	2151						2151
704	1060	DELINEATOR DRUMS	EA	30						30
704	1067	TUBULAR MARKERS	EA	19						19
704	1500	OBLITERATION OF PAVEMENT MARKING	SF	254						254
704	2108	TEMPORARY CURB RAMP	EA	12						12
708	1540	INLET PROTECTION-SPECIAL	EA	19						19
708	1541	REMOVE INLET PROTECTION-SPECIAL	EA	19						19
709	0100	GEOSYNTHETIC MATERIAL TYPE G	SY	10107						10107
710	0210	TEMPORARY BYPASS-SITE I	EA		1					1
710	0220	TEMPORARY BYPASS-SITE II	EA		1					1
714	0210	PIPE CONC REINF 15IN CL III-STORM DRAIN	LF		836					836
714	0315	PIPE CONC REINF 18IN CL III-STORM DRAIN	LF		199					199
714	0620	PIPE CONC REINF 24IN CL III-STORM DRAIN	LF		251					251
714	0825	PIPE CONC REINF 30IN CL III-STORM DRAIN	LF		741					741
714	7025	PIPE PVC 8IN	LF		46					46
714	9000	STORM SEWER CLEANOUT	LF		1					1
722	0100	MANHOLE 48IN	EA		2					2
722	0110	MANHOLE 60IN	EA		5					5
722	0300	MANHOLE SANITARY	EA		1					1
722	3410	MANHOLE REPAIR	EA		2					2
722	3510	INLET-TYPE 2	EA		3					3

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Estimated Quantities

SPEC	CODE	ITEM DESCRIPTION	UNIT	UGP: Funding A	100% City: Funding B				TOTAL
722	3520	INLET-TYPE 2 DOUBLE	EA		9				9
722	4060	INLET MOUNTABLE CURB-TYPE B	EA		4				4
722	6200	ADJUST MANHOLE	EA		2				2
724	0270	REMOVE GATE VALVE & BOX	EA		7				7
724	0290	GATE VALVE & BOX 4IN	EA		6				6
724	0300	GATE VALVE & BOX 6IN	EA		12				12
724	0310	GATE VALVE & BOX 8IN	EA		7				7
724	0314	GATE VALVE & BOX 12IN	EA		5				5
724	0412	8IN HYDRANT	EA		3				3
724	0430	REMOVE HYDRANT	EA		2				2
724	0611	WATER SERVICE LINE 1IN	LF		651				651
724	0621	WATER SERVICE LINE 2IN	LF		107				107
724	0629	WATER SERVICE LINE 4IN	LF		189				189
724	0636	WATER SERVICE LINE 6IN	LF		413				413
724	0830	WATERMAIN 8IN PVC	LF		1101				1101
724	0850	WATERMAIN 12IN PVC	LF		865				865
724	0905	CURB STOP & BOX 1IN	EA		15				15
724	0910	CURB STOP & BOX 2IN	EA		11				11
724	0944	CONNECTION TO EXISTING MAIN	EA		11				11
724	0955	WATER SERVICE CONNECTION 1IN	EA		16				16
724	0960	WATER SERVICE CONNECTION 2IN	EA		11				11
724	0962	WATER SERVICE CONNECTION 2 1/2IN	EA		1				1
724	0970	WATER LINE CONNECTION 4IN	EA		1				1
724	0975	WATER LINE CONNECTION 6IN	EA		2				2
724	1035	SPRINKLER RELOCATION	L SUM	1					1
724	1110	8IN SANITARY SEWER PIPE	LF		13				13
724	1117	12IN SANITARY SEWER PIPE	LF		80				80
724	1120	6IN SEWER SERVICE PIPE	LF		79				79
724	6031	ABANDON WATER MAIN/SERVICE LINE	LF		1829				1829
724	7014	REMOVE GATE VALVE BOX	EA		7				7
724	7053	REMOVE CURB BOX RISER	EA		30				30
724	9002	SANITARY SEWER CLEANOUT	EA		2				2
744	0100	POLYSTYRENE INSULATION BOARD	BD FT		5664				5664
748	0140	CURB & GUTTER-TYPE I	LF	3642					3642
748	0520	CURB-TYPE I	LF	185					185
748	0540	CURB	LF	133					133
748	1020	VALLEY GUTTER 36IN	SY	315					315
750	0115	SIDEWALK CONCRETE 4IN	SY	2717					2717
750	0140	SIDEWALK CONCRETE 6IN	SY	542					542
750	0150	SIDEWALK TRENCH DRAIN	EA	4					4
750	0300	STEPS CONCRETE	L SUM	1					1
750	1016	DRIVEWAY CONCRETE 6IN REINFORCED	SY	673					673
750	1021	DRIVEWAY CONCRETE 8IN REINFORCED	SY	305					305
750	2115	DETECTABLE WARNING PANELS	SF	348					348
754	0110	FLAT SHEET FOR SIGNS-TYPE XI REFL SHEETING	SF	119					119
754	0112	FLAT SHEET FOR SIGNS-TYPE IV REFL SHEETING	SF	85					85
754	0206	STEEL GALV POSTS-TELESCOPING PERFORATED TUBE	LF	386					386

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Estimated Quantities

SPEC	CODE	ITEM DESCRIPTION	UNIT	UGP: Funding A	100% City: Funding B					TOTAL
762	0103	PVMT MK PAINTED-MESSAGE	SF	60						60
762	0110	EPOXY PVMT MK 4IN LINE-GROOVED	LF	3372						3372
762	0131	EPOXY PVMT MK 6IN LINE-GROOVED	LF	922						922
762	0135	EPOXY PVMT MK 24IN LINE-GROOVED	LF	116						116
762	1104	PVMT MK PAINTED 4IN LINE	LF	650						650
762	1140	PVMT MK PAINTED CURB TOP & FACE	LF	80						80
766	0120	RESET MAILBOX	EA	2						2
770	0020	CONCRETE FOUNDATION-HIGHWAY LIGHTING	EA	23						23
770	0100	PULL BOX	EA	2						2
770	0330	2IN DIAMETER RIGID CONDUIT	LF	2585						2585
770	0505	UNDERGROUND CONDUCTOR NO6-TYPE RHW	LF	12672						12672
770	0605	UNDERGROUND CONDUCTOR NO6-TYPE THW	LF	2807						2807
770	1066	LT STD 6FT MA 30FT MT HT	EA	6						6
770	4086	ORNAMENTAL LT STD 12FT MT HT	EA	17						17
770	4210	LED LUMINAIRE	EA	17						17
770	4542	RELOCATE LUMINAIRE	EA	6						6
770	4560	REMOVE LIGHT STANDARD	EA	13						13
770	4582	REMOVE CONCRETE FOUNDATION	EA	13						13
770	9270	MODIFY EXISTING FEED POINT	EA	1						1
970	0008	LANDSCAPE PREPARATION	SY	89						89
970	0200	DECORATIVE CONCRETE PLANTER	EA	7						7
970	0300	BENCH	EA	3						3
970	0320	TRASH RECEPTACLE	EA	2						2
970	0601	TREE GRATE	EA	4						4
970	1000	TREES	EA	28						28
990	0220	GUARD POST-PERMANENT	EA	12						12

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SPEC	CODE	BID ITEM	QTY	UNIT
203	0101	COMMON EXCAVATION-TYPE A	1,238	CY
203	0109	TOPSOIL	311	CY
203	0119	TOPSOIL-IMPORTED	48	CY
203	0140	BORROW-EXCAVATION	442	CY
216	0100	WATER	173	M GAL
230	0165	SUBGRADE PREPARATION-TYPE A-12IN	17.8	STA
724	1035	SPRINKLER RELOCATION	1	L SUM
750	0300	STEPS CONCRETE	1	L SUM
762	1104	PVMT MK PAINTED 4IN LINE	512	LF
990	0220	GUARD POST-PERMANENT	12	EA

	EARTHWORK SUMMARY			
LOCATION	EXCAVATION	EMBANKMENT[1]	203 0101 COMMON EXCAVATION - TYPE A	203-0140 BORROW-EXCAVATION
	(CY)	(CY)	(CY)	(CY)
	A	B	C = A	D = B - A
UGP-1-988(052)	1,238	1,680	1,238	442

[1] ADDITIONAL 25% VOLUME INCLUDED FOR SHRINKAGE

216-0100 WATER			
MATERIAL	BASIS	BASIS QUANTITY	QUANTITY (MGAL)
AGGREGATE BASE COURSE CL 5	40 GAL/CY	3,428	138
EMBANKMENT	10 GAL/CY	1,680	17
DUST PALLIATIVE	25 M GAL/MILE	0.34	9
SUBGRADE PREPARATION	25 M GAL/MILE	0.34	9
		TOTAL =	173

LOCATION	TOPSOIL REMOVED	TOPSOIL PROPOSED	C = B - A
	A	B	C
	203-0109 TOPSOIL (CY)	TOPSOIL (CY)	203-0119 TOPSOIL - IMPORTED (CY)
UGP-1-988(052)	311	359	48

LOCATION	BEGIN STATION	END STATION	230-0165 SUBGRADE PREPARATION TYPE A-12IN (STA)
	A	B	C = B - A
1ST ST NW	101+16	109+75	8.6
5TH AVE NW	50+40	53+52	3.1
4TH AVE NW	40+59	43+52	2.9
4TH AVE NW	44+32	47+47	3.2
		TOTAL =	17.8

LOCATION	ALIGNMENT	STATION	OFFSET	724-1035 SPRINKLER RELOCATION (L SUM)	750-0300 STEP CONCRETE (L SUM)	762-1104 PVMT MK PAINTED 4IN LINE (LF)
1ST ST NW	OCL_1STST	101+06	175' LT - 165' RT	-	-	512
1ST ST NW	OCL_1STST	104+48	40' LT	0.5	-	-
4TH AVE NW	OCL_4THAVE	42+14	34' LT	-	1	-
4TH AVE NW	OCL_4THAVE	42+14	34' LT	0.5	-	-
			TOTAL =	1	1	512

STATION	OFFSET	990-0220 GUARD POST-PERMANENT (EA)	STATION	OFFSET	990-0220 GUARD POST-PERMANENT (EA)
NW QUADRANT			NE QUADRANT		
108+23	17.4' LT	1	109+23	17.7' LT	1
44+57	20.5' LT	1	109+31	24.3' LT	1
44+66	24.4' LT	1	44+37	14.4' RT	1
SW QUADRANT			SE QUADRANT		
104+64	18.7' RT	1	109+15	17.4' RT	1
105+15	18.4' RT	1	43+39	11.2' RT	1
108+05	24.3' RT	1			
108+12	17.7' RT	1			
				TOTAL =	12

EXISTING PAVEMENT DEPTHS [1]						
LOCATION	ALIGNMENT	BEGIN STATION	END STATION	CONCRETE (IN)	ASPHALT (IN)	AGGREGATE BASE (IN)
1ST ST NW	OCL_1STST	101+16	105+71	10.0	-	8.0
1ST ST NW [2]	OCL_1STST	105+71	107+84	8.8	2.0	-
1ST ST NW	OCL_1STST	107+84	109+75	8.0	-	12.0
5TH AVE NW	OCL_5THAVE	50+51	53+52	-	3.0	3.0
4TH AVE NW	OCL_4THAVE	40+59	43+32	6.0	6.0	6.0
4TH AVE NW	OCL_4THAVE	44+52	47+48	-	7.8	3.0
SIDEWALKS				4.0	-	4.0
DRIVEWAYS				6.0	-	4.0

[1] DEPTHS APPROXIMATED BY BORING LOCATIONS AND 1998 AS-BUILTS

[2] SECTION BORING ONLY APPLIES TO DRIVING LANES. PARKING AREA BASED ON AS-BUILT 8-IN CONCRETE WITH 12-IN AGGREGATE BASE

REMOVAL OF PAVEMENT:
- CONCRETE @ 2.0 TON/CY
- BITUMINOUS PAVEMENT @ 2.0 TON/CY

PROPOSED ITEMS:
- AGGREGATE BASE COURSE (MEASURED IN PLACE COMPACTED CY)

GRADING:
- TOPSOIL: REMOVE TOPSOIL FROM THE ENTIRE CONSTRUCTION AREA AT AN ASSUMED DEPTH OF 6 INCHES. REMOVAL, STOCKPILING, AND REPLACING TOPSOIL FROM EXCAVATION AND EMBANKMENT AREAS WILL BE PAID FOR AS "TOPSOIL". RESPREAD TOPSOIL AT A DEPTH OF 6 INCHES MINIMUM.
- SEEDING: SEED THE ENTIRE AREA OUTSIDE OF THE GRADED ROADWAY, DRIVEWAYS, SIDEWALKS, STREET/LANDSCAPED AREAS DISTURBED BY CONSTRUCTION ACTIVITIES. THE ENGINEER WILL DETERMINE THE EXACT LIMITS IN THE FIELD.

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/08/25
NORTH DAKOTA

Rev'd.
Rev'd.
Rev'd.
Rev'd.

DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

KLJ

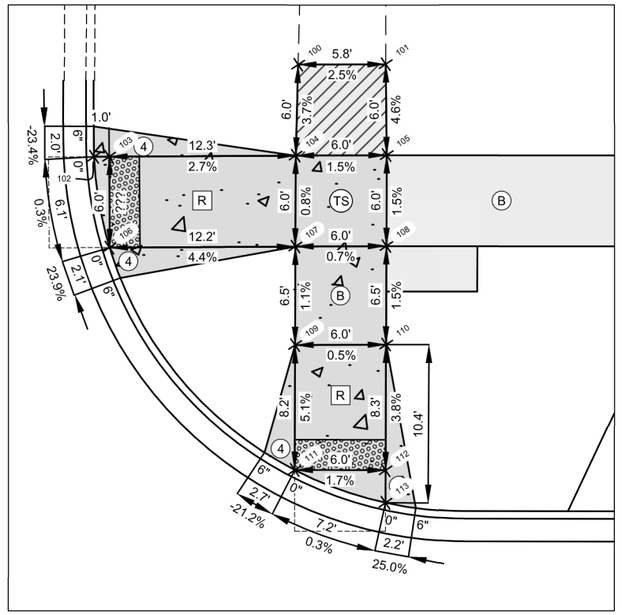
BASIS OF ESTIMATE

DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

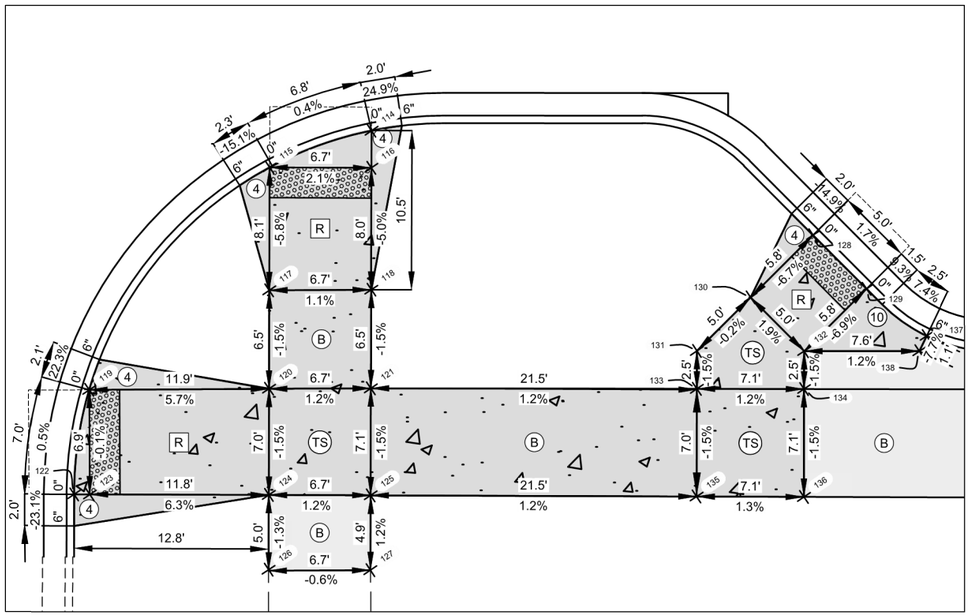
SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	20	1

POINT TABLE

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
100	423258.06	1868945.62	1651.00	ADA
101	423259.20	1868951.28	1651.15	ADA
102	423249.49	1868933.58	1650.18	ADA
103	423249.69	1868934.55	1650.45	ADA
104	423252.14	1868946.61	1650.78	ADA
105	423253.33	1868952.50	1650.87	ADA
106	423243.81	1868935.73	1650.20	ADA
107	423246.25	1868947.75	1650.74	ADA
108	423247.44	1868953.63	1650.78	ADA
109	423239.86	1868948.99	1650.67	ADA
110	423241.06	1868954.88	1650.68	ADA
111	423231.77	1868950.55	1650.27	ADA
112	423232.91	1868956.44	1650.37	ADA
113	423230.80	1868956.85	1650.29	ADA
114	423197.46	1868963.84	1650.16	ADA
115	423193.78	1868957.71	1650.13	ADA
116	423195.06	1868964.30	1650.28	ADA
117	423185.82	1868959.25	1650.60	ADA
118	423187.16	1868965.85	1650.68	ADA
119	423177.09	1868948.86	1650.03	ADA
120	423179.46	1868960.49	1650.70	ADA
121	423180.77	1868967.07	1650.78	ADA
122	423170.14	1868949.22	1650.00	ADA
123	423170.32	1868950.23	1650.06	ADA
124	423172.58	1868961.83	1650.81	ADA
125	423173.85	1868968.43	1650.88	ADA
126	423167.73	1868962.77	1650.87	ADA
127	423169.00	1868969.36	1650.83	ADA
128	423196.32	1868993.76	1650.61	ADA
129	423193.53	1868997.90	1650.69	ADA
130	423191.50	1868990.51	1651.00	ADA
131	423187.35	1868987.71	1651.01	ADA
132	423188.70	1868994.65	1651.10	ADA
133	423184.89	1868988.19	1651.05	ADA
134	423186.25	1868995.13	1651.13	ADA
135	423177.92	1868989.54	1651.15	ADA
136	423179.26	1868996.49	1651.23	ADA
137	423191.24	1869002.39	1651.10	ADA
138	423190.16	1869002.11	1651.19	ADA



NE CORNER
1ST ST NW & 6TH AVE NW



SE CORNER
1ST ST NW & 6TH AVE NW

NOTES:
1. ATTAIN ENGINEER APPROVAL ON FORM GRADES PRIOR TO PLACING CONCRETE.
2. DIMENSIONS SHOWN MAY VARY FROM ACTUAL. FIELD ADJUST IF MAXIMUM SLOPES CANNOT MEET DIMENSIONS GIVEN.
3. PROVIDE FLARE TRANSITION RATE OF 4:1 UNLESS OTHERWISE NOTED.

LEGEND:

: 4' LONG X WIDTH OF PEDESTRIAN ACCESS ROUTE OF 4' MINIMUM
CLEAR SPACE OUTSIDE TRAFFIC LANES OF TRAVEL
1.5% PREFERRED CROSS SLOPE
2.1% MAXIMUM CROSS SLOPE
4.7% PREFERRED RUNNING AND COUNTER SLOPE
5.0% MAXIMUM RUNNING AND COUNTER SLOPE

(TS) : TURNING SPACE
USE AT TOP OF RAMP OR WHEN CHANGING DIRECTIONS
1.5% PREFERRED SLOPE (2.1% MAXIMUM) ALL DIRECTIONS.

[R] : PREFFERED RAMP GRADE = 5.0% TO 7.5%
MAXIMUM CONSTRUCTED GRADE = 8.3%
PREFERRED CROSS SLOPE = 1.5%
MAXIMUM CONSTRUCTED CROSS SLOPE = 2.1%.

(B) : 1.5% PREFFERED CROSS SLOPE
2.1% MAXIMUM CONSTRUCTED CROSS SLOPE
RUNNING SLOPE
4.7% PREFERRED MAX COUNTER SLOPE
5.0% MAX CONSTRUCTED COUNTER SLOPE

(10) : 10:1 MAXIMUM CONSTRUCTED SLOPE.

(4) : 4:1 MAXIMUM CONSTRUCTED SLOPE.

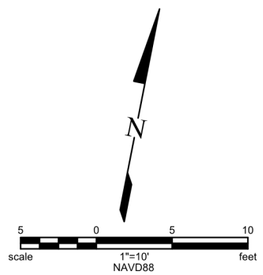
0", 3", OR 6" : CURB HEIGHT.

DETECTABLE WARNING PANELS

SIDEWALK CONCRETE 6IN (6IN AGGR CL 5)

SIDEWALK CONCRETE 4IN (6IN AGGR CL 5)

TRANSITION PANEL
SIDEWALK CONCRETE 4IN (6IN AGGR CL 5)



REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 11/06/25
NORTH DAKOTA

Rev'd.
Rev'd.
Rev'd.
Rev'd.

DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

KLJ

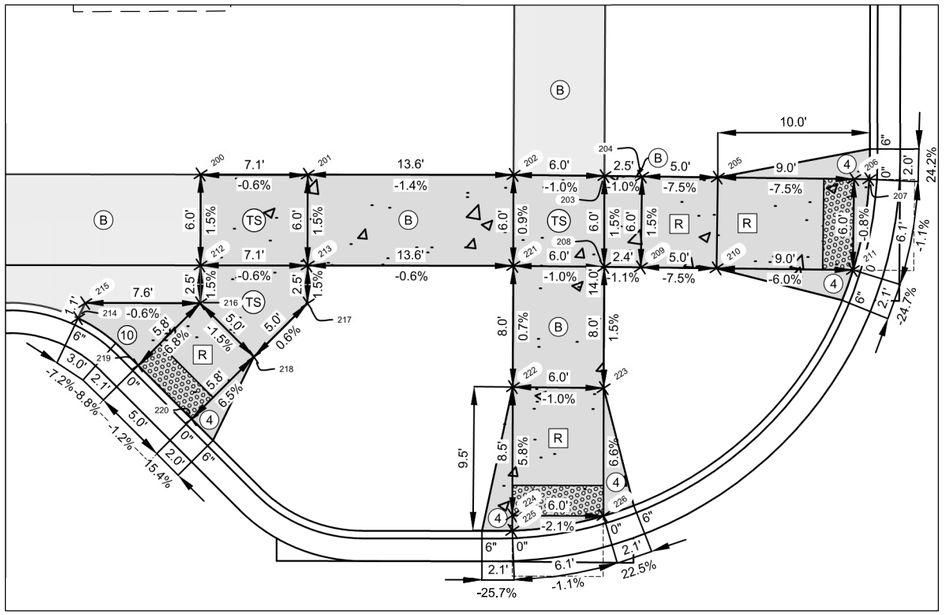
ADA RAMP
1ST ST NW/6TH AVE NW

DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

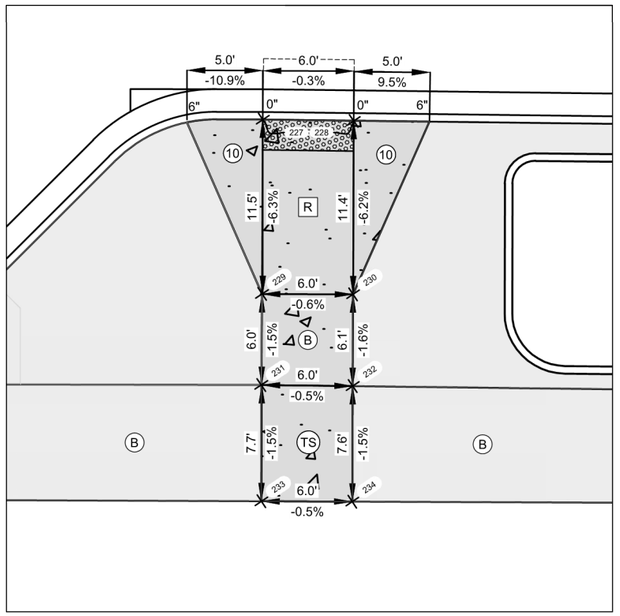
SID 236 C.P. 2019-08	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	UGP-1-988(052)	20	2

POINT TABLE

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
200	423307.01	1869227.71	1650.03	ADA
201	423308.36	1869234.65	1649.99	ADA
202	423310.96	1869247.99	1649.79	ADA
203	423312.04	1869253.89	1649.84	ADA
204	423312.48	1869256.32	1649.82	ADA
205	423313.38	1869261.24	1649.44	ADA
206	423315.02	1869270.09	1648.77	ADA
207	423315.20	1869271.07	1648.74	ADA
208	423306.15	1869255.02	1649.75	ADA
209	423306.59	1869257.40	1649.73	ADA
210	423307.49	1869262.32	1649.35	ADA
211	423309.12	1869271.16	1648.81	ADA
212	423301.11	1869228.86	1649.94	ADA
213	423302.47	1869235.80	1649.90	ADA
214	423296.13	1869221.61	1649.90	ADA
215	423297.20	1869221.88	1649.95	ADA
216	423298.65	1869229.32	1649.90	ADA
217	423300.02	1869236.28	1649.86	ADA
218	423295.87	1869233.49	1649.83	ADA
219	423293.85	1869226.10	1649.51	ADA
220	423291.05	1869230.26	1649.45	ADA
221	423305.07	1869249.13	1649.75	ADA
222	423297.21	1869250.64	1649.69	ADA
223	423298.30	1869256.54	1649.63	ADA
224	423288.90	1869252.24	1649.20	ADA
225	423287.90	1869252.44	1649.14	ADA
226	423290.02	1869258.14	1649.07	ADA
227	423255.48	1869258.69	1649.15	ADA
228	423256.55	1869264.59	1649.13	ADA
229	423244.19	1869260.87	1649.87	ADA
230	423245.33	1869266.76	1649.83	ADA
231	423238.29	1869261.97	1649.96	ADA
232	423239.39	1869267.90	1649.93	ADA
233	423230.76	1869263.46	1650.07	ADA
234	423231.90	1869269.35	1650.04	ADA



NW CORNER
1ST ST NW & 5TH AVE NW



SW CORNER
1ST ST NW & 5TH AVE NW

NOTES:
1. ATTAIN ENGINEER APPROVAL ON FORM GRADES PRIOR TO PLACING CONCRETE.
2. DIMENSIONS SHOWN MAY VARY FROM ACTUAL. FIELD ADJUST IF MAXIMUM SLOPES CANNOT MEET DIMENSIONS GIVEN.
3. PROVIDE FLARE TRANSITION RATE OF 4:1 UNLESS OTHERWISE NOTED.

LEGEND:

: 4' LONG X WIDTH OF PEDESTRIAN ACCESS ROUTE OF 4' MINIMUM
CLEAR SPACE OUTSIDE TRAFFIC LANES OF TRAVEL
1.5% PREFERRED CROSS SLOPE
2.1% MAXIMUM CROSS SLOPE
4.7% PREFERRED RUNNING AND COUNTER SLOPE
5.0% MAXIMUM RUNNING AND COUNTER SLOPE

(TS) : TURNING SPACE
USE AT TOP OF RAMP OR WHEN CHANGING DIRECTIONS
1.5% PREFERRED SLOPE (2.1% MAXIMUM) ALL DIRECTIONS.

[R] : PREFFERED RAMP GRADE = 5.0% TO 7.5%
MAXIMUM CONSTRUCTED GRADE = 8.3%
PREFERRED CROSS SLOPE = 1.5%
MAXIMUM CONSTRUCTED CROSS SLOPE = 2.1%.

(B) : 1.5% PREFFERED CROSS SLOPE
2.1% MAXIMUM CONSTRUCTED CROSS SLOPE
RUNNING SLOPE
4.7% PREFERRED MAX COUNTER SLOPE
5.0% MAX CONSTRUCTED COUNTER SLOPE

(10) : 10:1 MAXIMUM CONSTRUCTED SLOPE.

(4) : 4:1 MAXIMUM CONSTRUCTED SLOPE.

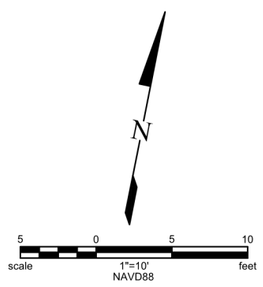
0", 3", OR 6" : CURB HEIGHT.

DETECTABLE WARNING PANELS

SIDEWALK CONCRETE 6IN (6IN AGGR CL 5)

SIDEWALK CONCRETE 4IN (6IN AGGR CL 5)

TRANSITION PANEL
SIDEWALK CONCRETE 4IN (6IN AGGR CL 5)



REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 11/06/25
NORTH DAKOTA

Rev'd.
Rev'd.
Rev'd.
Rev'd.

DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

KLJ

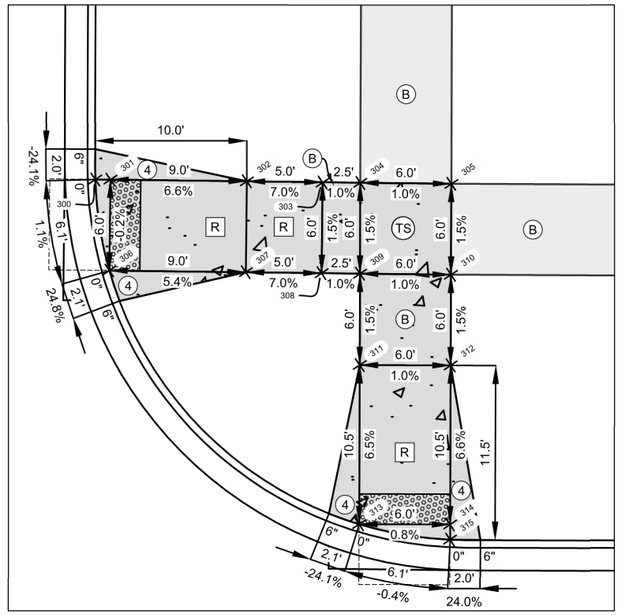
ADA RAMP
1ST ST NW/5TH AVE NW

DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

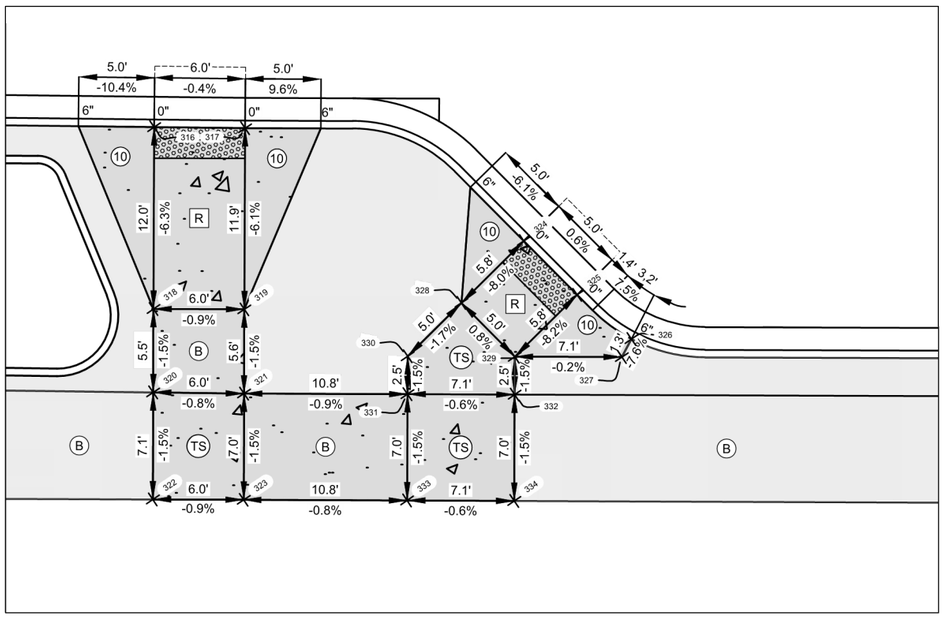
SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	20	3

POINT TABLE

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
300	423321.18	1869303.57	1648.69	ADA
301	423321.36	1869304.56	1648.75	ADA
302	423322.98	1869313.40	1649.34	ADA
303	423323.87	1869318.32	1649.69	ADA
304	423324.33	1869320.77	1649.71	ADA
305	423325.43	1869326.67	1649.78	ADA
306	423315.46	1869305.64	1648.76	ADA
307	423317.09	1869314.49	1649.25	ADA
308	423317.99	1869319.41	1649.60	ADA
309	423318.45	1869321.91	1649.63	ADA
310	423319.53	1869327.81	1649.69	ADA
311	423312.53	1869323.05	1649.53	ADA
312	423313.66	1869328.94	1649.60	ADA
313	423302.22	1869325.04	1648.85	ADA
314	423303.35	1869330.93	1648.90	ADA
315	423302.37	1869331.12	1648.83	ADA
316	423268.86	1869331.47	1648.85	ADA
317	423269.95	1869337.37	1648.82	ADA
318	423257.08	1869333.75	1649.60	ADA
319	423258.22	1869339.64	1649.55	ADA
320	423251.68	1869334.79	1649.68	ADA
321	423252.76	1869340.69	1649.63	ADA
322	423244.75	1869336.12	1649.79	ADA
323	423245.88	1869342.02	1649.74	ADA
324	423266.20	1869356.86	1648.96	ADA
325	423263.40	1869361.00	1648.99	ADA
326	423261.22	1869365.08	1649.35	ADA
327	423259.93	1869364.69	1649.45	ADA
328	423261.40	1869353.61	1649.42	ADA
329	423258.60	1869357.75	1649.46	ADA
330	423257.26	1869350.80	1649.50	ADA
331	423254.80	1869351.28	1649.54	ADA
332	423256.14	1869358.22	1649.50	ADA
333	423247.92	1869352.60	1649.65	ADA
334	423249.26	1869359.55	1649.61	ADA



NE CORNER
1ST ST NW & 5TH AVE NW



SE CORNER
1ST ST NW & 5TH AVE NW

NOTES:
1. ATTAIN ENGINEER APPROVAL ON FORM GRADES PRIOR TO PLACING CONCRETE.
2. DIMENSIONS SHOWN MAY VARY FROM ACTUAL. FIELD ADJUST IF MAXIMUM SLOPES CANNOT MEET DIMENSIONS GIVEN.
3. PROVIDE FLARE TRANSITION RATE OF 4:1 UNLESS OTHERWISE NOTED.

LEGEND:

: 4' LONG X WIDTH OF PEDESTRIAN ACCESS ROUTE OF 4' MINIMUM
CLEAR SPACE OUTSIDE TRAFFIC LANES OF TRAVEL
1.5% PREFERRED CROSS SLOPE
2.1% MAXIMUM CROSS SLOPE
4.7% PREFERRED RUNNING AND COUNTER SLOPE
5.0% MAXIMUM RUNNING AND COUNTER SLOPE

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[R] : PREFFERED RAMP GRADE = 5.0% TO 7.5%
MAXIMUM CONSTRUCTED GRADE = 8.3%
PREFERRED CROSS SLOPE = 1.5%
MAXIMUM CONSTRUCTED CROSS SLOPE = 2.1%.

(B) : 1.5% PREFFERED CROSS SLOPE
2.1% MAXIMUM CONSTRUCTED CROSS SLOPE
RUNNING SLOPE
4.7% PREFERRED MAX COUNTER SLOPE
5.0% MAX CONSTRUCTED COUNTER SLOPE

(10) : 10:1 MAXIMUM CONSTRUCTED SLOPE.

(4) : 4:1 MAXIMUM CONSTRUCTED SLOPE.

0", 3", OR 6" : CURB HEIGHT.

DETECTABLE WARNING PANELS

SIDEWALK CONCRETE 6IN (6IN AGGR CL 5)

SIDEWALK CONCRETE 4IN (6IN AGGR CL 5)

TRANSITION PANEL
SIDEWALK CONCRETE 4IN (6IN AGGR CL 5)

N

5 0 5 10
scale 1"=10' feet
NAVD88

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 11/06/25
NORTH DAKOTA

Rev'd.
Rev'd.
Rev'd.
Rev'd.

DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

KLJ

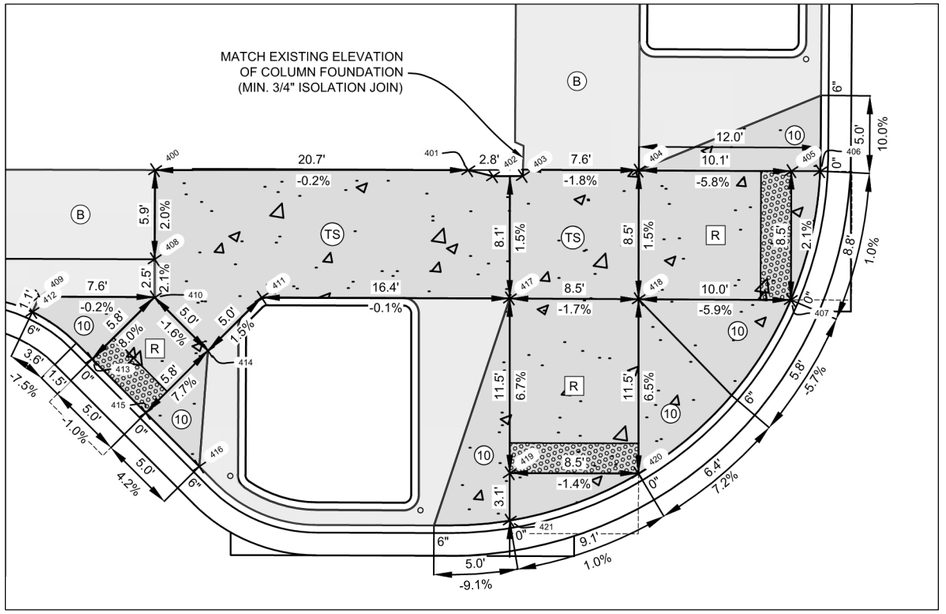
ADA RAMP
1ST ST NW/5TH AVE NW

DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

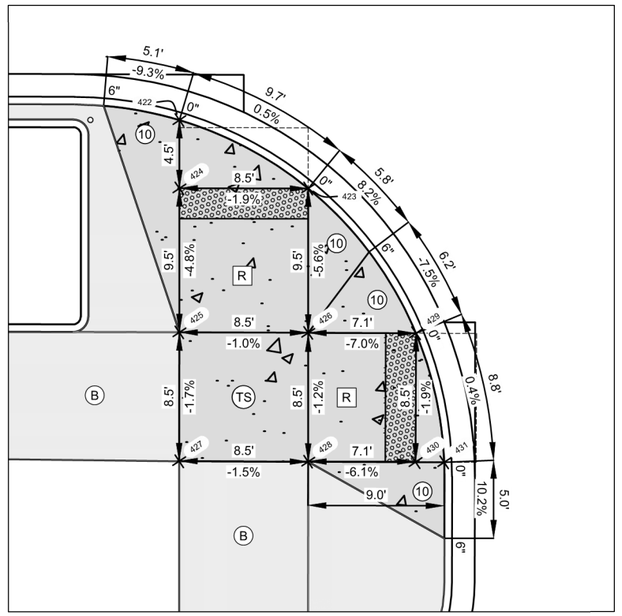
SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	20	4

POINT TABLE

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
400	423377.86	1869599.46	1648.92	ADA
401	423381.84	1869619.74	1648.87	ADA
402	423381.76	1869621.42	1648.85	ADA
403	423382.16	1869623.35	1648.82	ADA
404	423383.99	1869630.78	1648.70	ADA
405	423385.90	1869640.68	1648.11	ADA
406	423386.26	1869642.55	1648.07	ADA
407	423377.55	1869642.28	1647.98	ADA
408	423372.09	1869600.57	1648.80	ADA
409	423368.22	1869593.59	1648.76	ADA
410	423369.62	1869601.07	1648.74	ADA
411	423370.97	1869607.98	1648.74	ADA
412	423367.12	1869593.32	1648.65	ADA
413	423364.84	1869597.78	1648.27	ADA
414	423366.84	1869605.19	1648.67	ADA
415	423362.03	1869601.95	1648.22	ADA
416	423359.23	1869606.09	1648.43	ADA
417	423374.07	1869624.07	1648.72	ADA
418	423375.67	1869632.42	1648.57	ADA
419	423362.75	1869626.29	1647.94	ADA
420	423364.36	1869634.63	1647.83	ADA
421	423359.68	1869626.89	1647.73	ADA
422	423325.99	1869633.50	1647.72	ADA
423	423323.20	1869642.71	1647.77	ADA
424	423321.56	1869634.37	1647.93	ADA
425	423312.25	1869636.20	1648.39	ADA
426	423313.85	1869644.54	1648.30	ADA
427	423303.90	1869637.83	1648.53	ADA
428	423305.51	1869646.18	1648.40	ADA
429	423315.20	1869651.53	1647.80	ADA
430	423306.85	1869653.14	1647.97	ADA
431	423307.21	1869655.00	1647.85	ADA



NW CORNER
1ST ST NW & 4TH AVE NW



SW CORNER
1ST ST NW & 4TH AVE NW

NOTES:
1. ATTAIN ENGINEER APPROVAL ON FORM GRADES PRIOR TO PLACING CONCRETE.
2. DIMENSIONS SHOWN MAY VARY FROM ACTUAL. FIELD ADJUST IF MAXIMUM SLOPES CANNOT MEET DIMENSIONS GIVEN.
3. PROVIDE FLARE TRANSITION RATE OF 4:1 UNLESS OTHERWISE NOTED.

LEGEND:

: 4' LONG X WIDTH OF PEDESTRIAN ACCESS ROUTE OF 4' MINIMUM
CLEAR SPACE OUTSIDE TRAFFIC LANES OF TRAVEL
1.5% PREFERRED CROSS SLOPE
2.1% MAXIMUM CROSS SLOPE
4.7% PREFERRED RUNNING AND COUNTER SLOPE
5.0% MAXIMUM RUNNING AND COUNTER SLOPE

(TS) : TURNING SPACE
USE AT TOP OF RAMP OR WHEN CHANGING DIRECTIONS
1.5% PREFERRED SLOPE (2.1% MAXIMUM) ALL DIRECTIONS.

[R] : PREFFERED RAMP GRADE = 5.0% TO 7.5%
MAXIMUM CONSTRUCTED GRADE = 8.3%
PREFERRED CROSS SLOPE = 1.5%
MAXIMUM CONSTRUCTED CROSS SLOPE = 2.1%.

(B) : 1.5% PREFFERED CROSS SLOPE
2.1% MAXIMUM CONSTRUCTED CROSS SLOPE
RUNNING SLOPE
4.7% PREFERRED MAX COUNTER SLOPE
5.0% MAX CONSTRUCTED COUNTER SLOPE

(10) : 10:1 MAXIMUM CONSTRUCTED SLOPE.

(4) : 4:1 MAXIMUM CONSTRUCTED SLOPE.

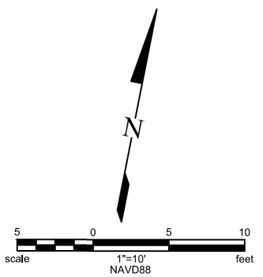
0", 3", OR 6" : CURB HEIGHT.

DETECTABLE WARNING PANELS

SIDEWALK CONCRETE 6IN (6IN AGGR CL 5)

SIDEWALK CONCRETE 4IN (6IN AGGR CL 5)

TRANSITION PANEL
SIDEWALK CONCRETE 4IN (6IN AGGR CL 5)



REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 11/06/25
NORTH DAKOTA

Rev'd.
Rev'd.
Rev'd.
Rev'd.

DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

KLJ

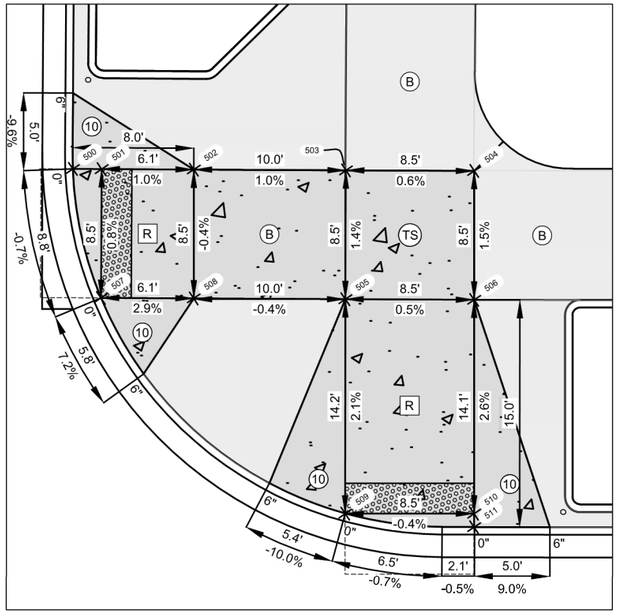
ADA RAMP
1ST ST NW/4TH AVE NW

DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

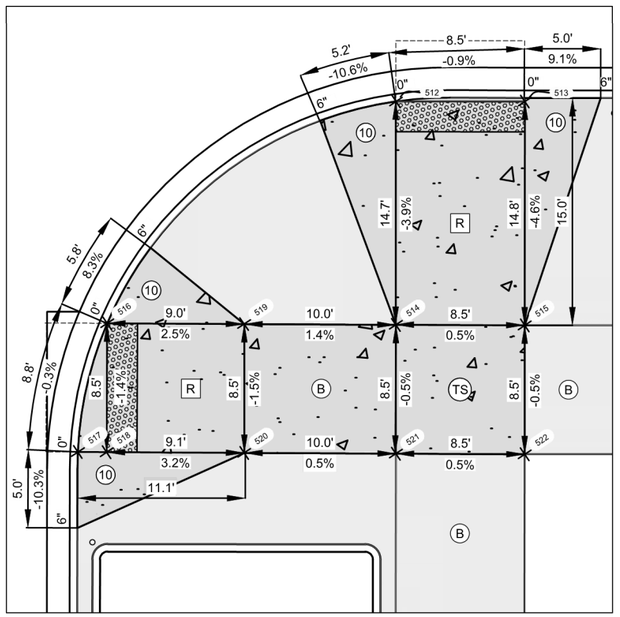
SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	20	5

POINT TABLE

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
500	423392.47	1869675.00	1648.05	ADA
501	423392.83	1869676.86	1648.08	ADA
502	423393.97	1869682.83	1648.14	ADA
503	423395.86	1869692.70	1648.24	ADA
504	423397.45	1869701.01	1648.30	ADA
505	423387.51	1869694.29	1648.13	ADA
506	423389.10	1869702.64	1648.17	ADA
507	423384.48	1869678.46	1647.99	ADA
508	423385.63	1869684.47	1648.17	ADA
509	423373.62	1869697.02	1647.83	ADA
510	423375.26	1869705.36	1647.80	ADA
511	423374.39	1869705.53	1647.77	ADA
512	423340.14	1869703.59	1647.73	ADA
513	423341.78	1869711.93	1647.66	ADA
514	423325.69	1869706.42	1648.30	ADA
515	423327.28	1869714.77	1648.34	ADA
516	423322.11	1869687.72	1647.94	ADA
517	423313.40	1869687.46	1647.97	ADA
518	423313.76	1869689.32	1648.00	ADA
519	423323.80	1869696.58	1648.16	ADA
520	423315.47	1869698.24	1648.29	ADA
521	423317.35	1869708.06	1648.34	ADA
522	423318.94	1869716.41	1648.39	ADA



NE CORNER
1ST ST NW & 4TH AVE NW



SE CORNER
1ST ST NW & 4TH AVE NW

NOTES:
1. ATTAIN ENGINEER APPROVAL ON FORM GRADES PRIOR TO PLACING CONCRETE.
2. DIMENSIONS SHOWN MAY VARY FROM ACTUAL. FIELD ADJUST IF MAXIMUM SLOPES CANNOT MEET DIMENSIONS GIVEN.
3. PROVIDE FLARE TRANSITION RATE OF 4:1 UNLESS OTHERWISE NOTED.

LEGEND:

: 4' LONG X WIDTH OF PEDESTRIAN ACCESS ROUTE OF 4' MINIMUM
CLEAR SPACE OUTSIDE TRAFFIC LANES OF TRAVEL
1.5% PREFERRED CROSS SLOPE
2.1% MAXIMUM CROSS SLOPE
4.7% PREFERRED RUNNING AND COUNTER SLOPE
5.0% MAXIMUM RUNNING AND COUNTER SLOPE

(TS) : TURNING SPACE
USE AT TOP OF RAMP OR WHEN CHANGING DIRECTIONS
1.5% PREFERRED SLOPE (2.1% MAXIMUM) ALL DIRECTIONS.

[R] : PREFFERED RAMP GRADE = 5.0% TO 7.5%
MAXIMUM CONSTRUCTED GRADE = 8.3%
PREFERRED CROSS SLOPE = 1.5%
MAXIMUM CONSTRUCTED CROSS SLOPE = 2.1%.

(B) : 1.5% PREFFERED CROSS SLOPE
2.1% MAXIMUM CONSTRUCTED CROSS SLOPE
RUNNING SLOPE
4.7% PREFERRED MAX COUNTER SLOPE
5.0% MAX CONSTRUCTED COUNTER SLOPE

(10) : 10:1 MAXIMUM CONSTRUCTED SLOPE.

(4) : 4:1 MAXIMUM CONSTRUCTED SLOPE.

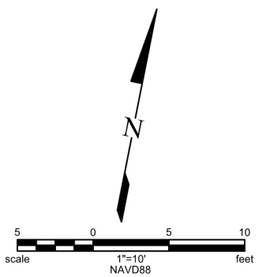
0", 3", OR 6" : CURB HEIGHT.

DETECTABLE WARNING PANELS

SIDEWALK CONCRETE 6IN (6IN AGGR CL 5)

SIDEWALK CONCRETE 4IN (6IN AGGR CL 5)

TRANSITION PANEL
SIDEWALK CONCRETE 4IN (6IN AGGR CL 5)



REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 11/06/25
NORTH DAKOTA

Rev'd.
Rev'd.
Rev'd.
Rev'd.

DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

KLJ

ADA RAMP
1ST ST NW/4TH AVE NW

DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

SID 236 C.P. 2019-08	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	UGP-1-988(052)	20	6

POINT TABLE

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
600	423611.86	1869190.21	1653.01	ADA
601	423613.00	1869196.13	1652.92	ADA
602	423615.22	1869207.62	1652.74	ADA
603	423616.45	1869214.00	1652.34	ADA
604	423605.89	1869191.09	1652.97	ADA
605	423607.11	1869197.26	1652.87	ADA
606	423609.32	1869208.75	1652.70	ADA
607	423610.56	1869215.14	1652.29	ADA
608	423622.32	1869244.44	1652.37	ADA
609	423623.55	1869250.82	1652.71	ADA
610	423625.82	1869262.60	1652.89	ADA
611	423626.85	1869268.75	1652.98	ADA
612	423616.43	1869245.58	1652.29	ADA
613	423617.66	1869251.96	1652.67	ADA
614	423619.93	1869263.74	1652.87	ADA
615	423621.02	1869269.94	1652.97	ADA

NOTES:
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LEGEND:

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2.1% MAXIMUM CROSS SLOPE
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5.0% MAXIMUM RUNNING AND COUNTER SLOPE

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PREFERRED CROSS SLOPE = 1.5%
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2.1% MAXIMUM CONSTRUCTED CROSS SLOPE
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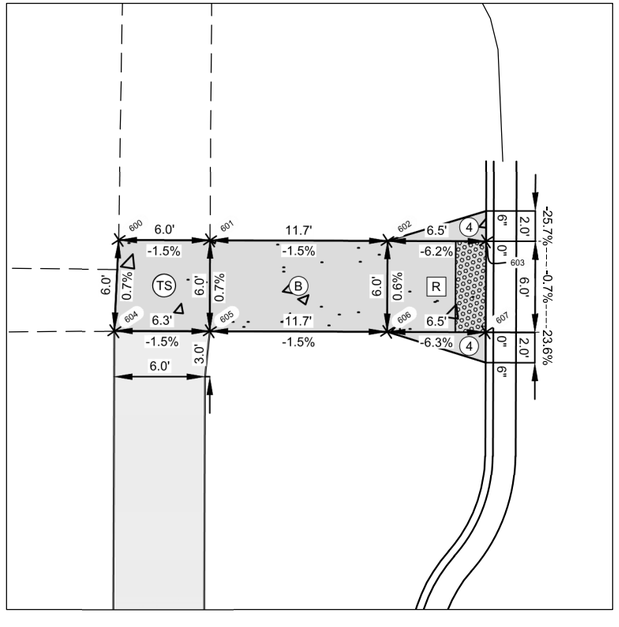
0", 3", OR 6" : CURB HEIGHT.

DETECTABLE WARNING PANELS

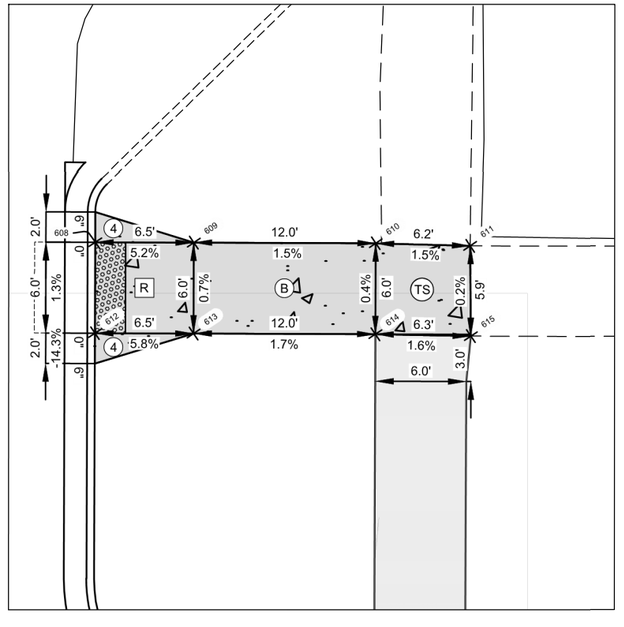
SIDEWALK CONCRETE 6IN (6IN AGGR CL 5)

SIDEWALK CONCRETE 4IN (6IN AGGR CL 5)

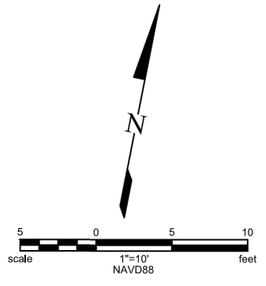
TRANSITION PANEL
SIDEWALK CONCRETE 4IN (6IN AGGR CL 5)



SW CORNER
2ND ST NW & 5TH AVE NW



SE CORNER
2ND ST NW & 5TH AVE NW



REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 11/06/25
NORTH DAKOTA

Rev'd.
Rev'd.
Rev'd.
Rev'd.

DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
5TH AVENUE NW

KLJ

ADA RAMP
2ND ST NW/5TH AVE NW

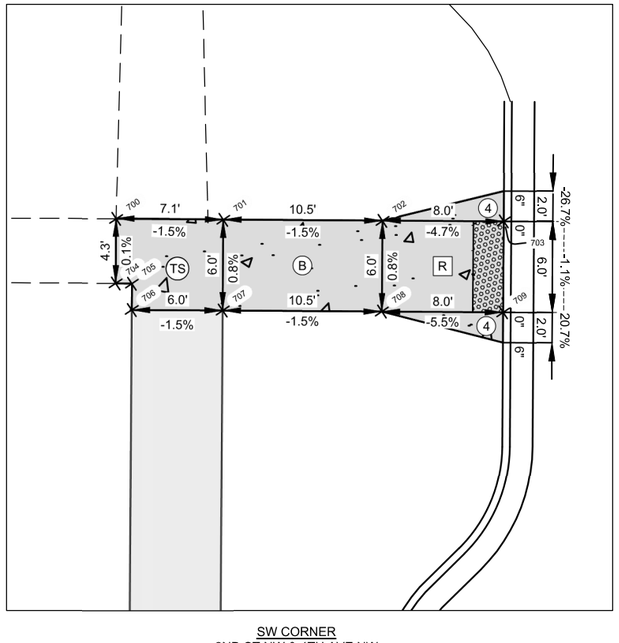
DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

Nov 05, 2025 - 5:04pm - K:\Projects\City\ND\Mandan\1904-02191-MandanDowntownSID236\CAD\Design\Plans\Sections\020\1904-02191_020GD_ADA.dwg

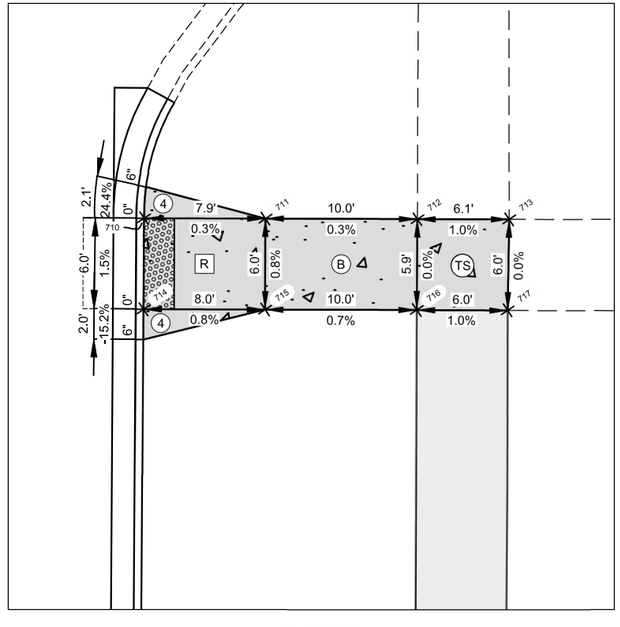
SID 236 C.P. 2019-08	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	UGP-1-988(052)	20	7

POINT TABLE

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
700	423685.28	1869563.86	1650.84	ADA
701	423686.58	1869570.80	1650.75	ADA
702	423688.54	1869581.12	1650.59	ADA
703	423690.05	1869588.97	1650.21	ADA
704	423681.09	1869564.65	1650.83	ADA
705	423681.29	1869565.70	1650.82	ADA
706	423679.58	1869566.02	1650.79	ADA
707	423680.70	1869571.92	1650.70	ADA
708	423682.66	1869582.23	1650.54	ADA
709	423684.15	1869590.09	1650.10	ADA
710	423695.15	1869619.56	1650.06	ADA
711	423696.67	1869627.41	1650.08	ADA
712	423698.57	1869637.26	1650.11	ADA
713	423699.73	1869643.20	1650.17	ADA
714	423689.26	1869620.68	1649.97	ADA
715	423690.78	1869628.55	1650.03	ADA
716	423692.69	1869638.37	1650.11	ADA
717	423693.82	1869644.26	1650.17	ADA



SW CORNER
2ND ST NW & 4TH AVE NW



SE CORNER
2ND ST NW & 4TH AVE NW

NOTES:
1. ATTAIN ENGINEER APPROVAL ON FORM GRADES PRIOR TO PLACING CONCRETE.
2. DIMENSIONS SHOWN MAY VARY FROM ACTUAL. FIELD ADJUST IF MAXIMUM SLOPES CANNOT MEET DIMENSIONS GIVEN.
3. PROVIDE FLARE TRANSITION RATE OF 4:1 UNLESS OTHERWISE NOTED.

LEGEND:

: 4' LONG X WIDTH OF PEDESTRIAN ACCESS ROUTE OF 4' MINIMUM
CLEAR SPACE OUTSIDE TRAFFIC LANES OF TRAVEL
1.5% PREFERRED CROSS SLOPE
2.1% MAXIMUM CROSS SLOPE
4.7% PREFERRED RUNNING AND COUNTER SLOPE
5.0% MAXIMUM RUNNING AND COUNTER SLOPE

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USE AT TOP OF RAMP OR WHEN CHANGING DIRECTIONS
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2.1% MAXIMUM CONSTRUCTED CROSS SLOPE
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(4) : 4:1 MAXIMUM CONSTRUCTED SLOPE.

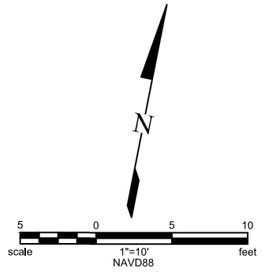
0", 3", OR 6" : CURB HEIGHT.

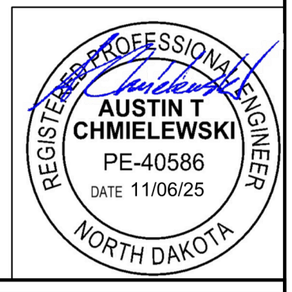
DETECTABLE WARNING PANELS

SIDEWALK CONCRETE 6IN (6IN AGGR CL 5)

SIDEWALK CONCRETE 4IN (6IN AGGR CL 5)

TRANSITION PANEL
SIDEWALK CONCRETE 4IN (6IN AGGR CL 5)





Rev'd.
Rev'd.
Rev'd.
Rev'd.

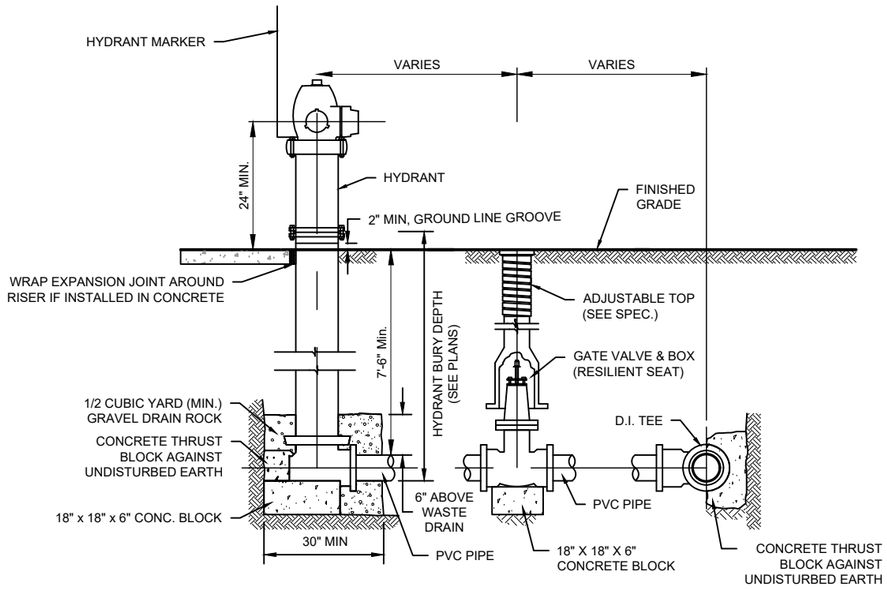
DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
4TH AVENUE NW

ADA RAMP
2ND ST NW/4TH AVE NW

DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

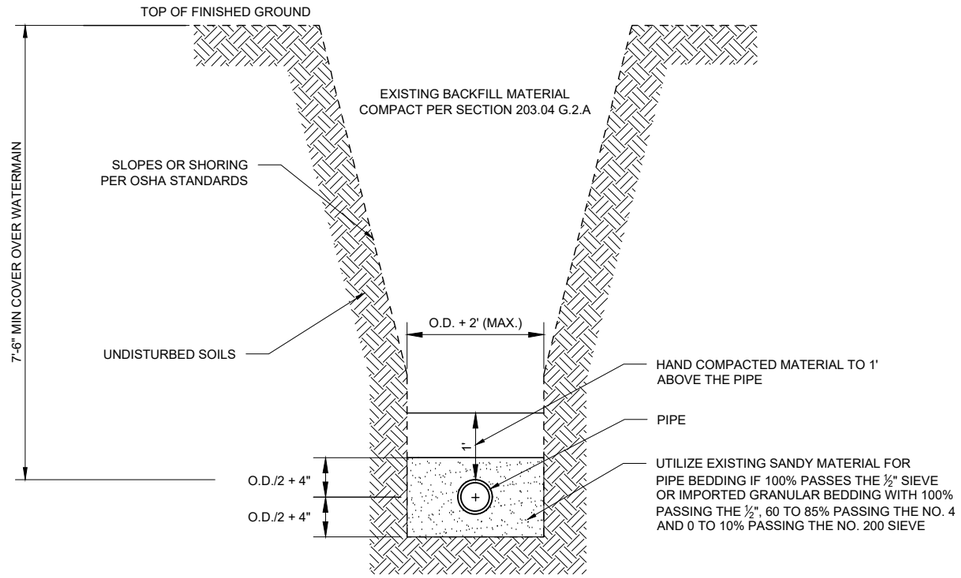
Nov 05, 2025 - 5:04pm - K:\Projects\City\ND\Mandan\1904-02191-MandanDowntownSID236\CAD\Design\Plans\Sections\020\1904-02191_020GD_ADA.dwg

SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	20	8

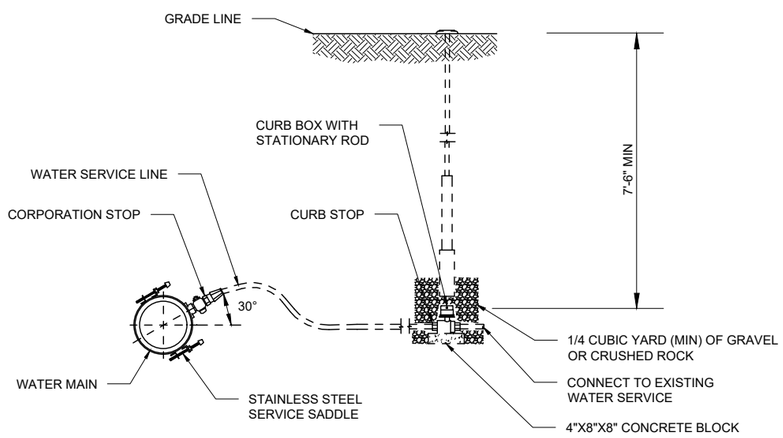


NOTES:
1. WRAP ALL DUCTILE AND CAST IRON FITTINGS, VALVES, AND HYDRANTS IN 8 MIL POLY. TAPE ENDS AND SECTIONS.

1/20-8 **TYPICAL VALVE & HYDRANT SETTING DETAIL**
SCALE - NONE

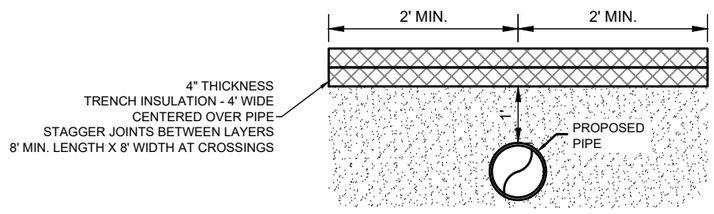


2/20-8 **WATERMAIN AND SERVICE TRENCH BACKFILL**
SCALE - NONE



NOTES:
1. REFER TO D-724-1 FOR WATER SERVICE BRACING & SUPPORT.

3/20-8 **WATER SERVICE DETAILS**
SCALE - NONE



4/20-8 **WATER PIPE INSULATION DETAIL**
SCALE - NONE

REGISTERED PROFESSIONAL ENGINEER
ANDREW WERDER
PE-6696
DATE 12-8-25
NORTH DAKOTA

Rev'd.
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Rev'd.

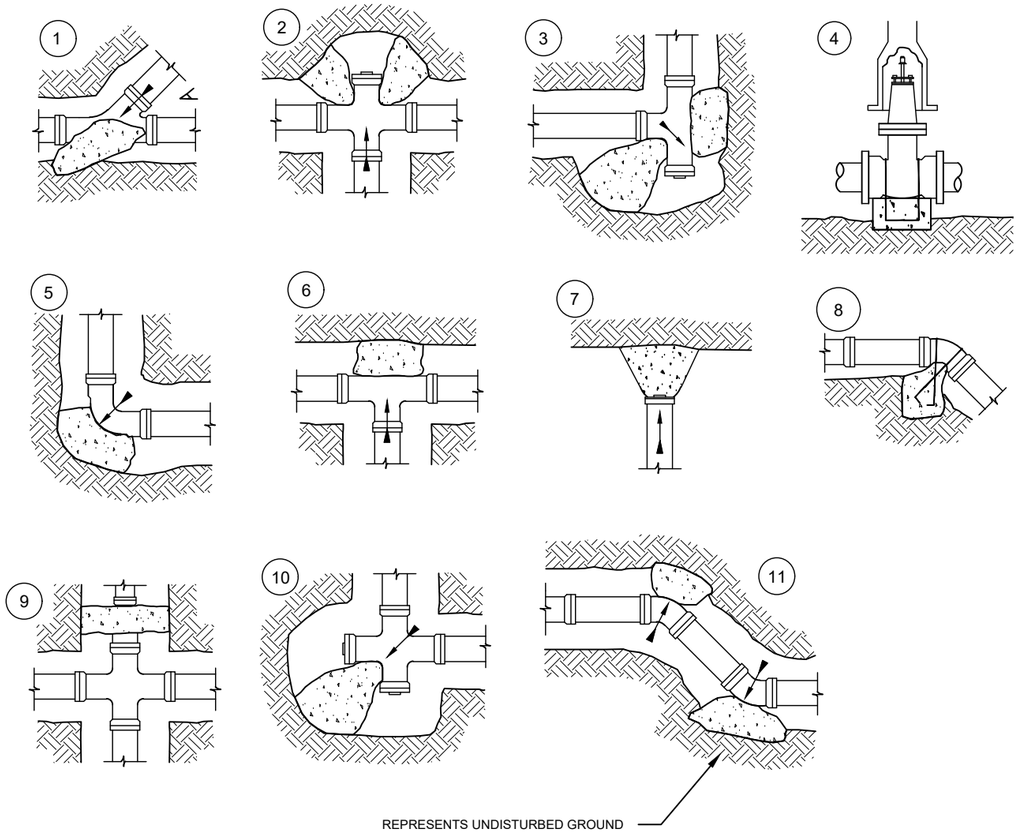
DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA

KLJ

GENERAL DETAILS WATER

DRWN. BY	CHK'D BY	PROJECT NO.
EB	AW	1904-02191

SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	20	9

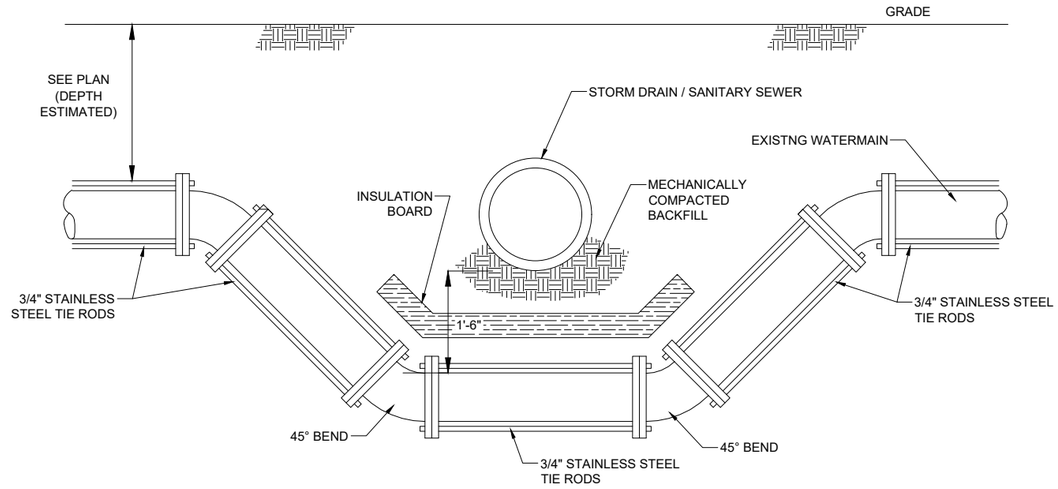


KEY:
1. THRU LINE CONNECTION, WYE
2. THRU LINE CONNECTION, CROSS USED AS TEE
3. DIRECTION CHANGE, TEE USED AS ELBOW
4. VALVE ANCHOR
5. DIRECTION CHANGE, ELBOW
6. THRU LINE CONNECTION, TEE
7. BLOCKING OF PLUG, TO INCLUDE BOND BREAKER
8. DIRECTION CHANGE VERTICAL, BEND ANCHOR
9. CHANGE LINE SIZE, REDUCER
10. DIRECTION CHANGE, CROSS USED AS ELBOW
11. DIRECTION CHANGE

NOTES:
1. PROVIDE ALL HYDRANTS, TEES AND BENDS GREATER THAN 22.5° WITH SUITABLE REACTION BLOCKING PER D-724-1 TO PREVENT MOVEMENT OF PIPES UNDER PRESSURE.

1
20-9

THRUST BLOCKS
SCALE - NONE



NOTES:
1. MEGA-LUGS ARE ALLOWED IN PLACE OF TIE RODS.
2. INSULATION BOARD IS REQUIRED AND WILL BE PAID FOR SEPARATELY.

2
20-9

TYPICAL WATERMAIN LOWERING
SCALE - NONE

REGISTERED PROFESSIONAL ENGINEER
ANDREW WERDER
PE-6696
DATE 12-8-25
NORTH DAKOTA

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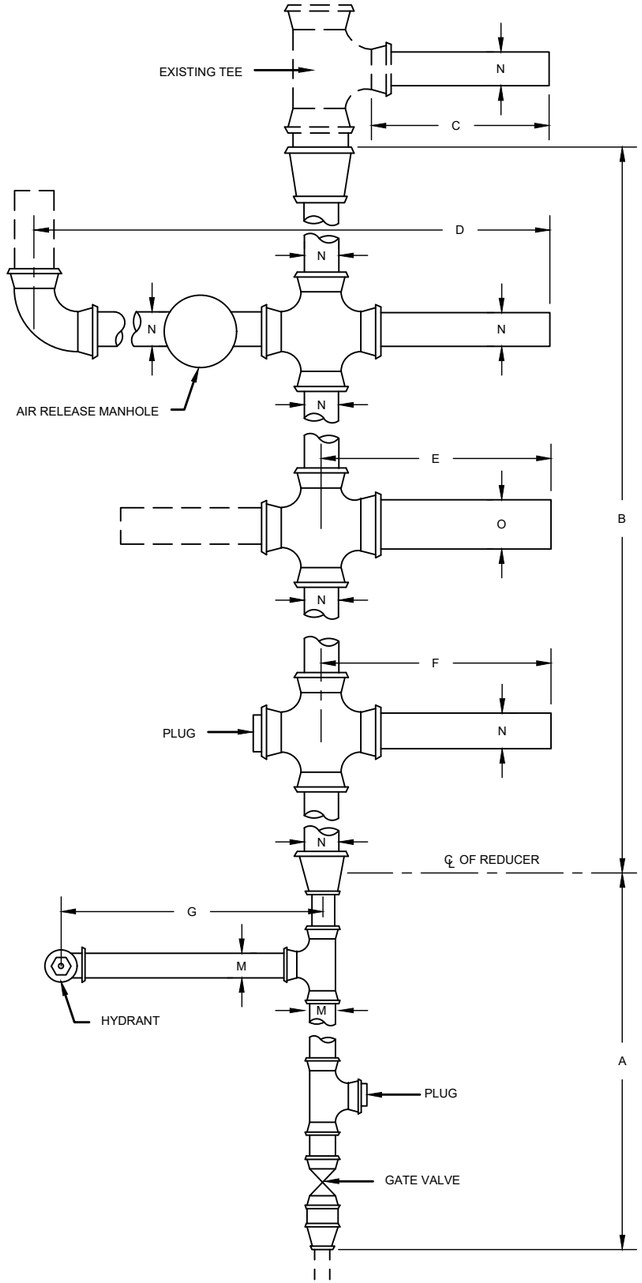
DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA

KLJ

GENERAL DETAILS WATER

DRWN. BY	CHK'D BY	PROJECT NO.
EB	AW	1904-02191

SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	20	10



1
20-10

WATERMAIN PAYMENT DIAGRAM
SCALE - NONE

WATERMAIN IS MEASURED AND PAID FOR AS FOLLOWS:

A & G LINEAR FEET OF PIPE OF DIAMETER "M".

B,C,D & F LINEAR FEET OF PIPE OF DIAMETER "N".

E LINEAR FEET OF PIPE OF DIAMETER "O".

2
20-10

STORM SEWER PIPE BEDDING SCHEDULE

	RCP	
PIPE SIZE	UNDER ROADWAY	NOT UNDER ROADWAY
(INCH)	(CY PER LIN. FT)	(CY PER LIN. FT)
15	0.68	0.33
18	0.75	0.39
24	0.90	0.50
30	1.06	0.62

NOTE:
1. The pipe backfill shall be compacted in layers not to exceed 6 inches using a hand-held vibratory plate compactor or a hand-held mechanical tamper to the top of the pipe and within a distance of 2 feet on either side of the pipe.

2. This schedule is a quantification of Standard Detail D-714-27 and is for information purposes only.

REGISTERED PROFESSIONAL ENGINEER
ANDREW WERDER
PE-6696
DATE 12-8-25
NORTH DAKOTA

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA

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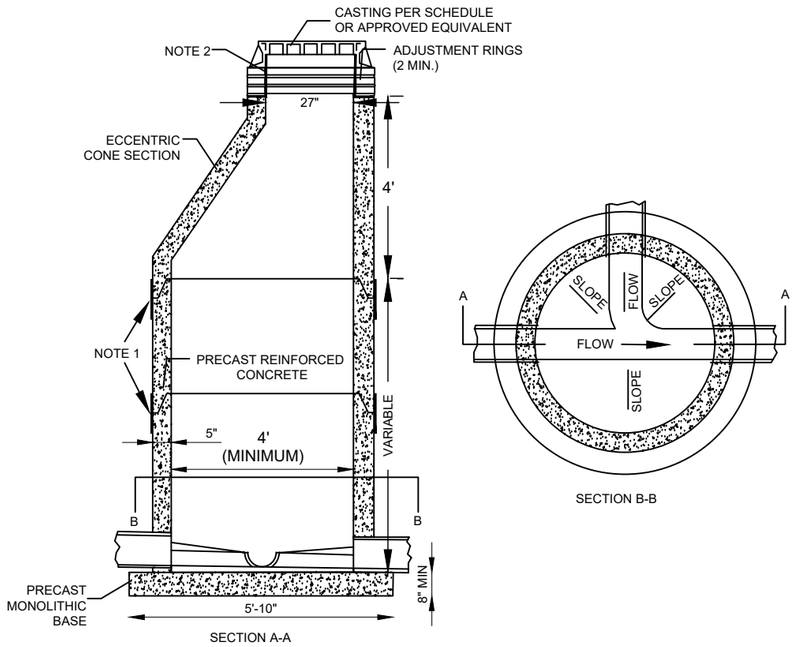
GENERAL DETAILS
WATER & STORM

DRWN. BY	CHK'D BY	PROJECT NO.
EB	AW	1904-02191

SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	20	11



SECTION A-A

SECTION B-B

NOTES:
1. SINGLE OFFSET GASKETED JOINT FOR 48" MANHOLES, CONFINED GASKETED JOINT FOR ALL OTHER SIZES OF MANHOLES OR EXTERIOR SEAL BY PRESS-SEAL GASKET CORP. EZ WRAP AND EZ STIK NO. 4 PRIMER, MAR MAC CONSTRUCTION PRODUCTS "MAC WRAP", OR AN APPROVED EQUAL.
2. I/I BARRIER AS MANUFACTURED BY STRIKE PRODUCTS OR AN APPROVED EQUAL.
3. STEPS SHALL NOT BE PLACED IN SANITARY SEWER MANHOLES.

1
20-11

SANITARY SEWER MANHOLE DETAIL

SCALE - NONE

REGISTERED PROFESSIONAL ENGINEER
ANDREW WERDER
PE-6696
DATE 12-8-25
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CITY OF MANDAN, NORTH DAKOTA

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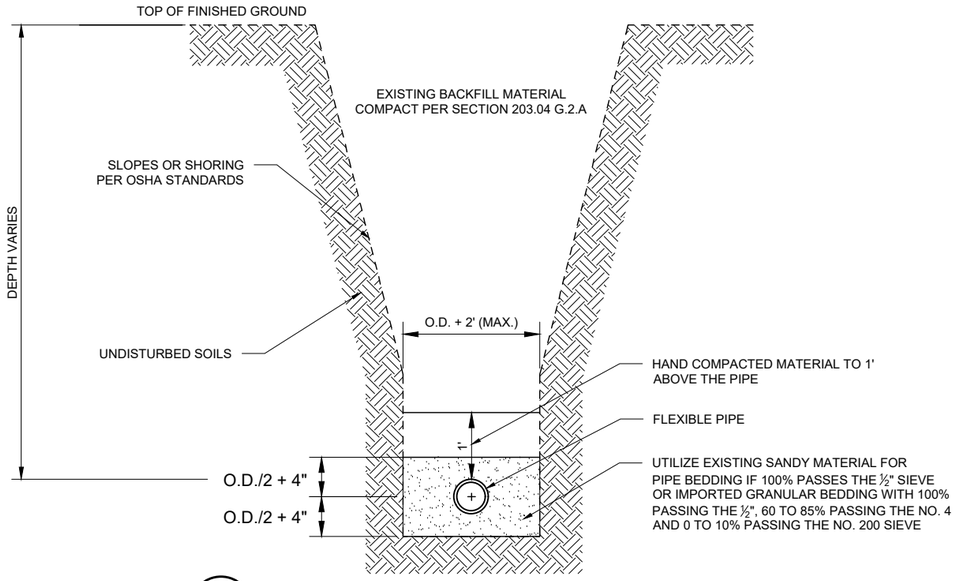
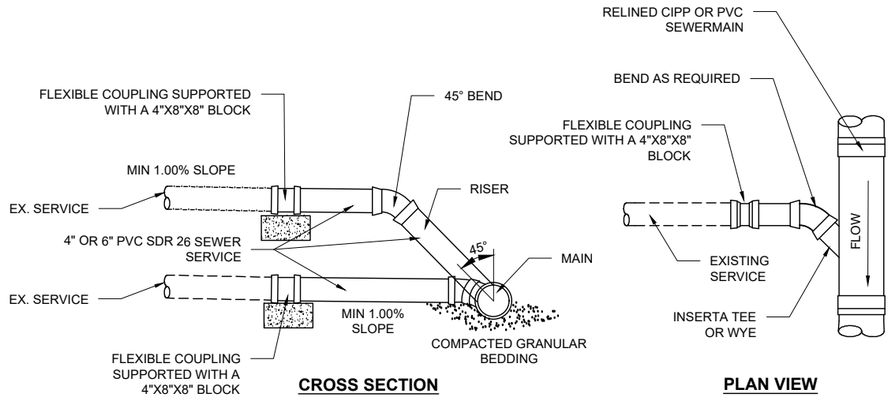
GENERAL DETAILS
SANITARY MANHOLE

DRWN. BY	CHK'D BY	PROJECT NO.
EB	AW	1904-02191

SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	20	12

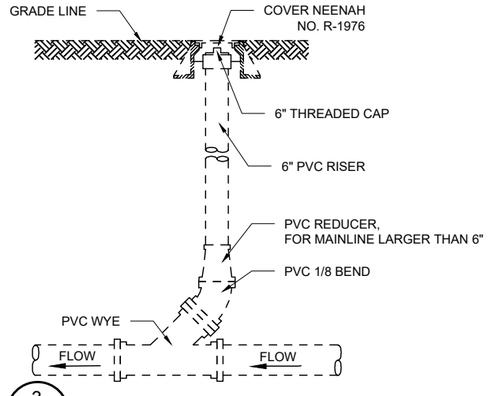


1 / 20-12 **SANITARY MAIN AND SERVICE TRENCH BACKFILL**
SCALE - NONE

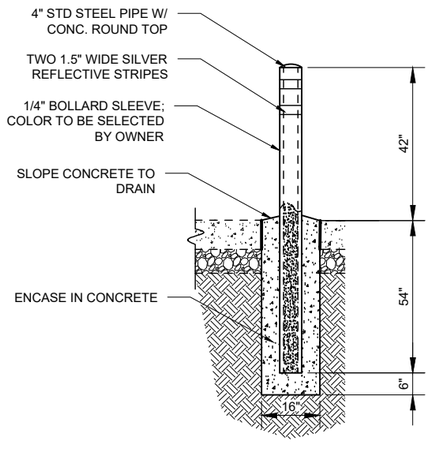


NOTES:
1. USE RISER WHEN SEWER MAIN IS DEEPER THAN 12 FEET OR AS DETERMINED BY THE ENGINEER.

2 / 20-12 **TYPICAL SERVICE CONNECTION DETAIL**
SCALE - NONE



3 / 20-12 **INLINE CLEANOUT DETAIL**
SCALE - NONE



4 / 20-12 **PIPE BOLLARD**
SCALE - NONE

REGISTERED PROFESSIONAL ENGINEER
ANDREW WERDER
PE-6696
DATE 12-8-25
NORTH DAKOTA

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA

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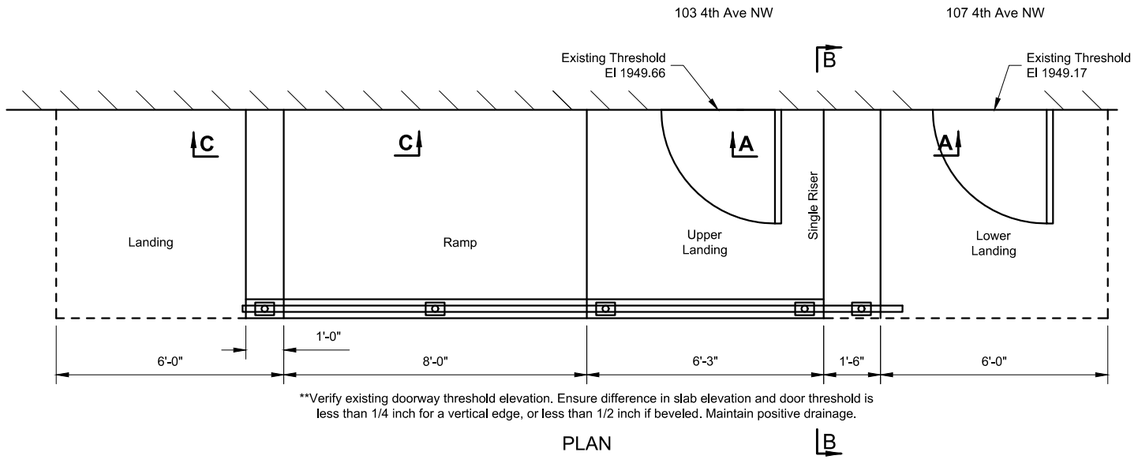
GENERAL DETAILS
SANITARY AND
STORM SEWER

DRWN. BY	CHK'D BY	PROJECT NO.
EB	AW	1904-02191

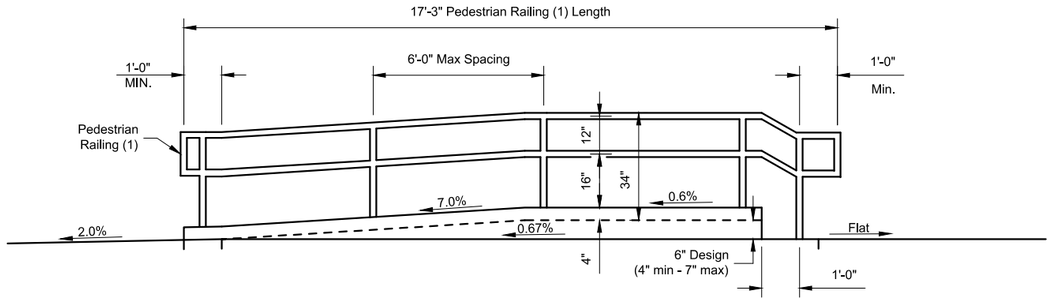
Dec 08, 2025 - 3:46pm - K:\Projects\City\ND\Mandan\1904-02191-MandanDowntownSID236\CAD\Design\Plans\Sections\020\1904-02191_020GD_Muncipal.dwg

SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	20	13

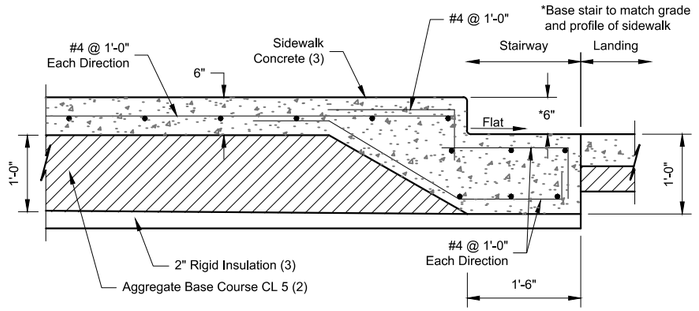


**Verify existing doorway threshold elevation. Ensure difference in slab elevation and door threshold is less than 1/4 inch for a vertical edge, or less than 1/2 inch if beveled. Maintain positive drainage.

PLAN



ELEVATION



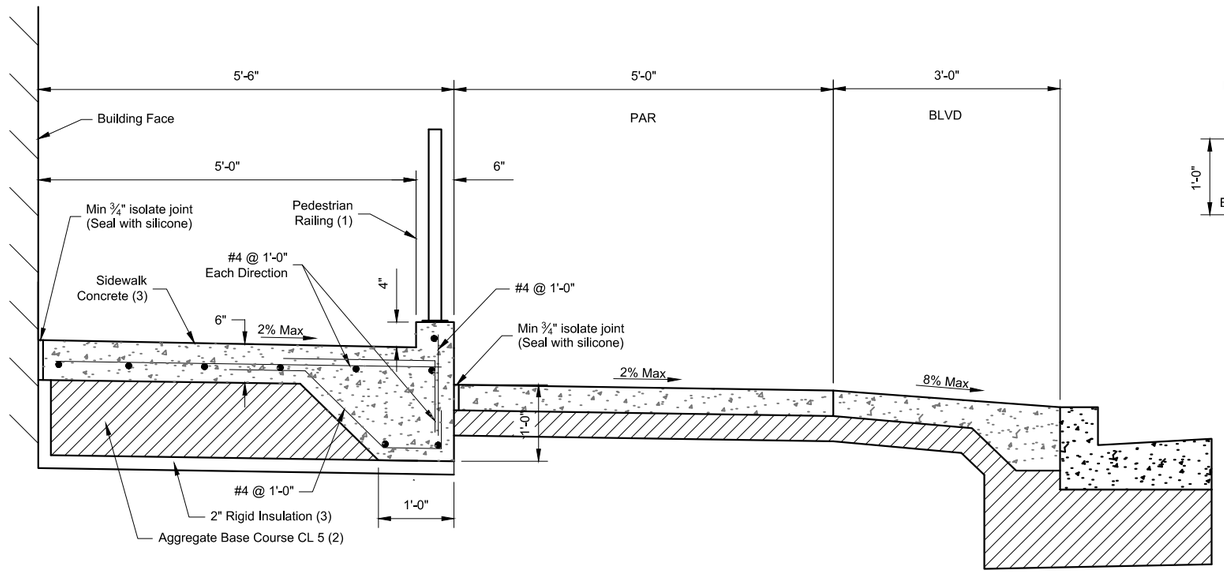
SECTION A-A

NOTES

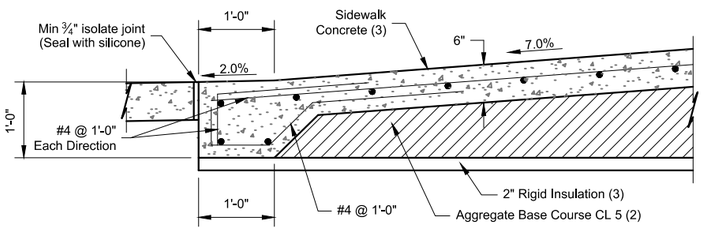
1. Pedestrian railing pay limits as shown on elevation detail. Provide 2″ O.D. x 3/16" thick steel tubing for the pedestrian railing. Mount the railing using a minimum baseplate of 6″x4″x¼″ and anchor the railing into the concrete using a minimum of four stainless steel 3/8″ adhesive anchors drilled to a depth of 6". Powder coat the pedestrian railings and mounting plates after fabrication. Use the paint color black, No. 17038 of the Federal Standard No. 595B colors. Include all costs associated with fabrication, assembly, painting, and installation of the railings in the unit price bid for "Steps Concrete". Submit work drawings of railing and mounting system which include rail layout and field verification of fitment and elevations for approval by Engineer prior to fabrication.

2. Include all costs associated with Aggregate Base Course CL 5 in the unit price bid for "Steps Concrete".

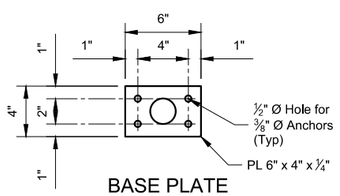
3. Construct the concrete retaining wall, stairway, steps and ramp prior to installing the adjacent sidewalk. Use EPS Type IX or XPS Type IV/V rigid insulation with a minimum compressive strength of 25 psi, minimum R-4 per inch, and rated for below-grade use. Include all costs for the labor, equipment, and materials necessary to construct the retaining wall, stairway, steps and ramp in the lump sum price bid for "Steps Concrete".



SECTION B-B



SECTION C-C



BASE PLATE

REGISTERED PROFESSIONAL ENGINEER
MATTHEW L ISLEY
PE-10095
DATE 11/06/25
NORTH DAKOTA

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA

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GENERAL DETAILS
CONCRETE ADA RAMP
& STEP DETAIL

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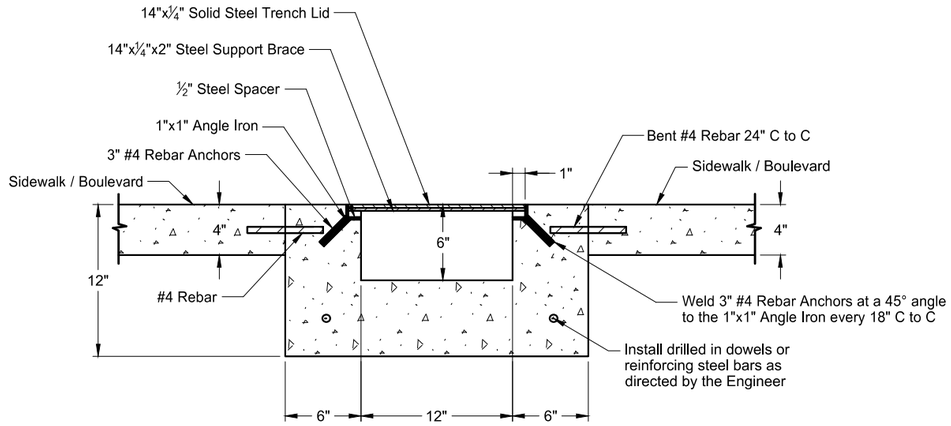
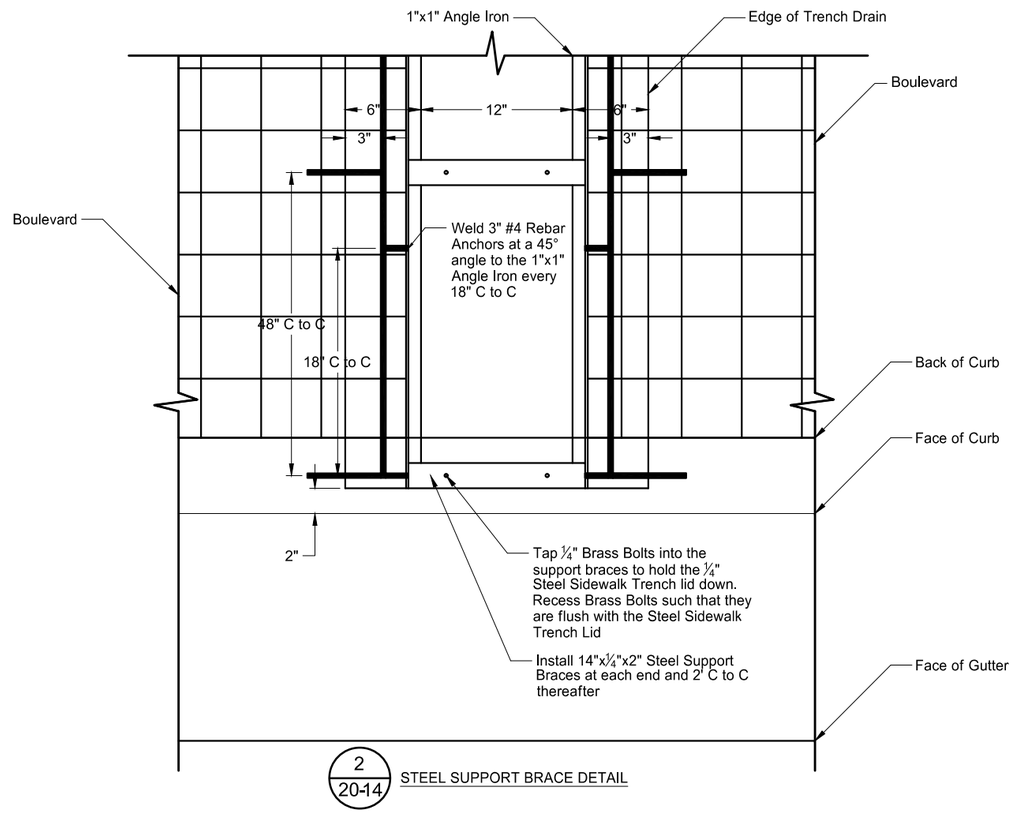
KD	MI	1904-02191

SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	20	14

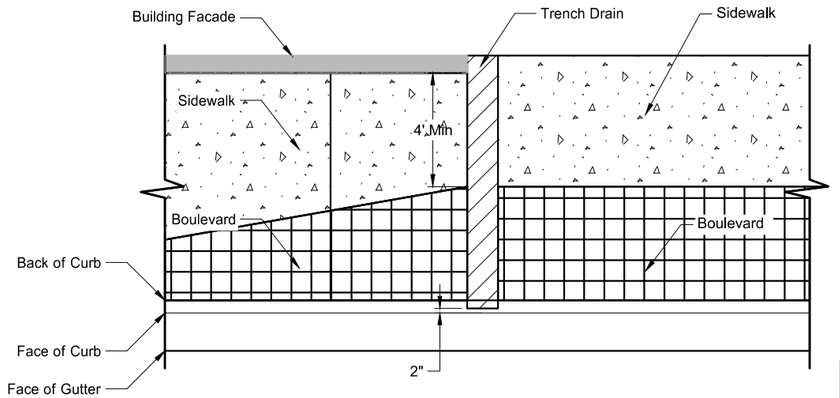


1 / 20-14 SIDEWALK TRENCH DRAIN DETAIL

Note: Weld ¼"x2" Steel Support Braces and ½" Steel Spacers to the 1"x1" Angle Iron



2 / 20-14 STEEL SUPPORT BRACE DETAIL



3 / 20-14 TRENCH DRAIN LAYOUT

Note: Begin Trench Drains at property line or building facade and extend to 2" from the face of the curb.

NOTES

1. See Section 90 for locations
2. Verify exact length required in the field prior to fabrication.
3. Sidewalk Trench Drain as shown, or approved equal

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 11/06/25
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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA

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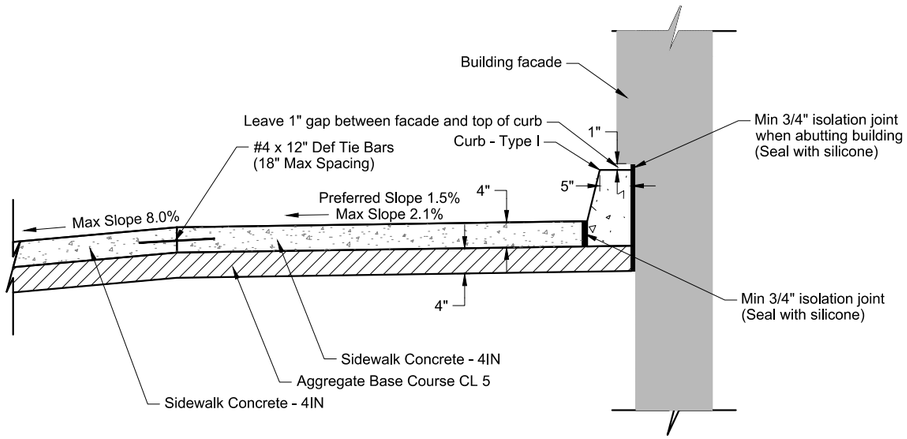
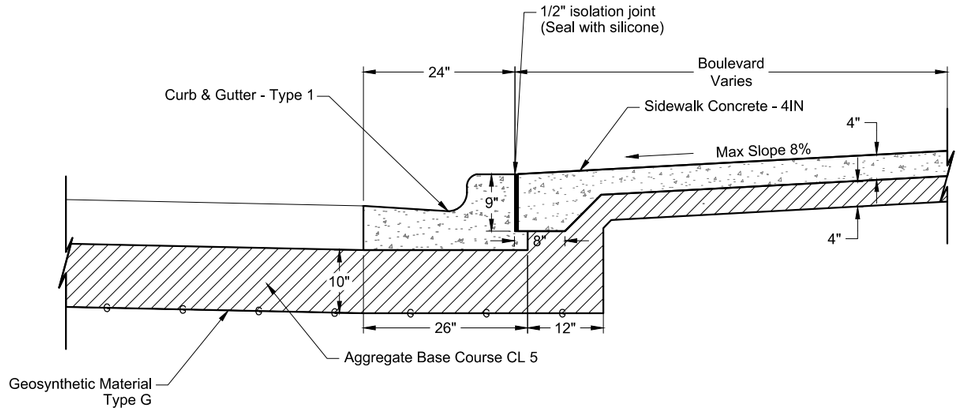
GENERAL DETAILS
SIDEWALK TRENCH DRAIN

DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

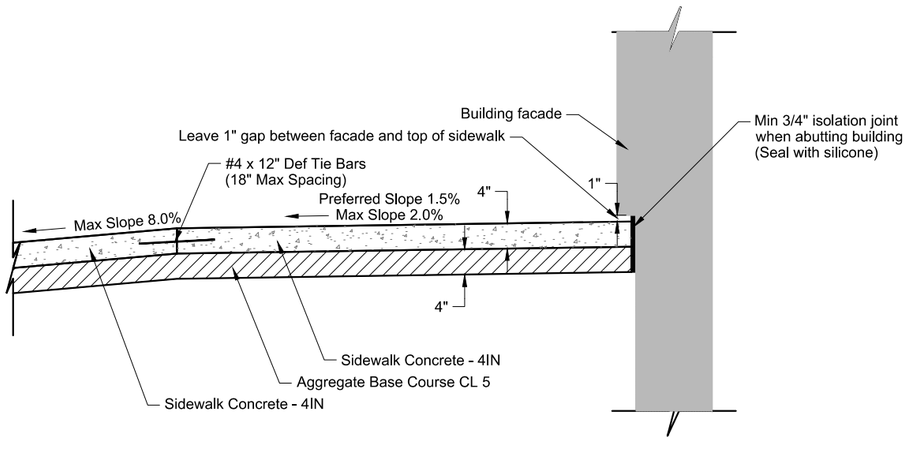
SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	20	15



1 / 20-15 **SIDEWALK WITH CURB DETAIL (ADJACENT TO BUILDING FACE)**
SCALE - NONE



2 / 20-15 **CURB DETAIL**
SCALE - NONE



3 / 20-15 **SIDEWALK DETAIL (ADJACENT TO BUILDING FACE)**
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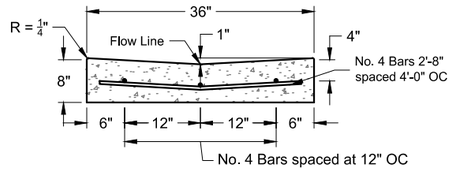

4 / 20-15 **36" CONCRETE VALLEY GUTTER DETAIL**
SCALE - NONE

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 11/06/25
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CITY OF MANDAN, NORTH DAKOTA

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GENERAL DETAILS
CURB & GUTTER SIDEWALK & VALLEY GUTTER

DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

Nov 05, 2025 - 5:05pm - K:\Projects\City\ND\Mandan\1904-02191-MandanDowntownSID236\CAD\Design\Plans\Sections\020\1904-02191_020GD_Transpo.dwg

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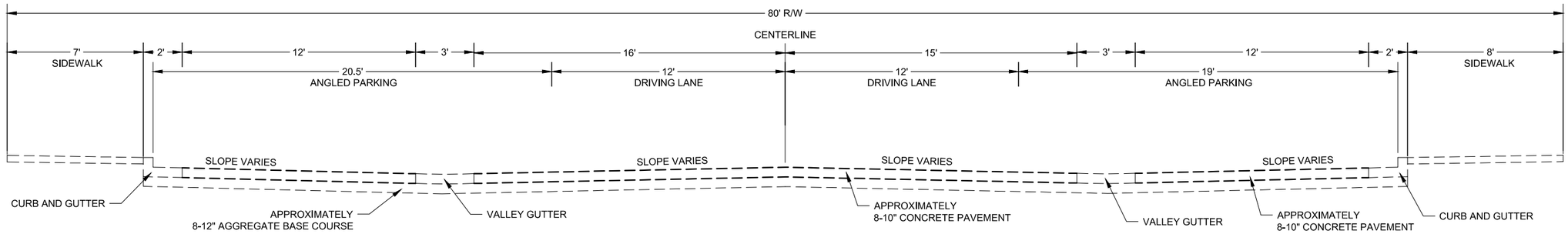
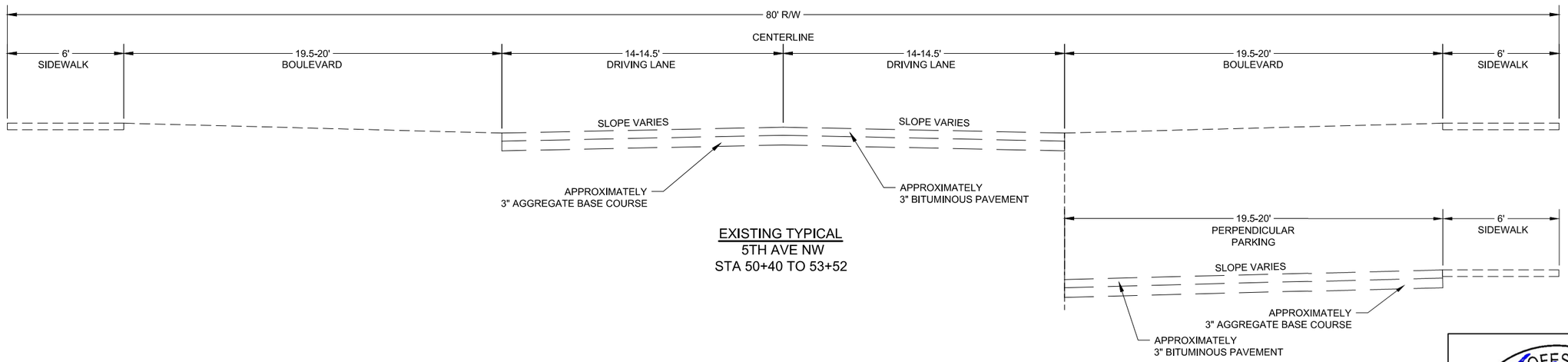
C.P. 2019-08	ND	UGP-1-988(052)	30	1



EXISTING TYPICAL
1ST ST NW
STA 101+16 to STA 109+75



EXISTING TYPICAL
5TH AVE NW
STA 50+40 TO 53+52

STA 52+50 TO 53+40

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 11/06/25
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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

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TYPICAL SECTIONS EXISTING

DRWN. BY	CHK'D BY	PROJECT NO.
JP	AC	1904-02191

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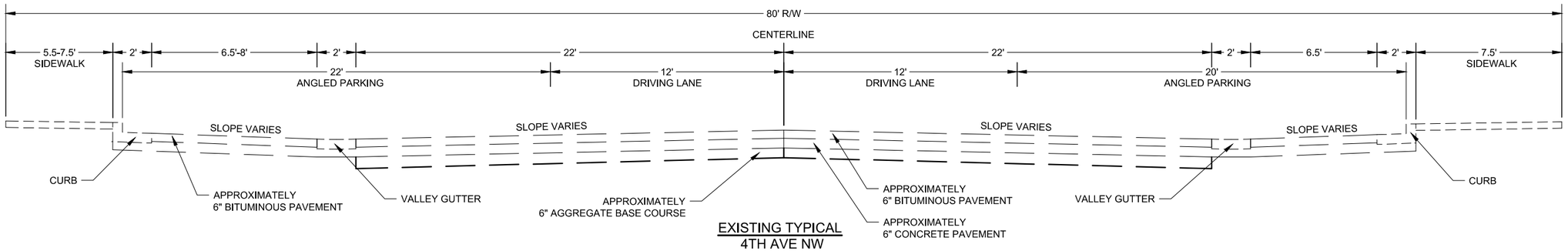
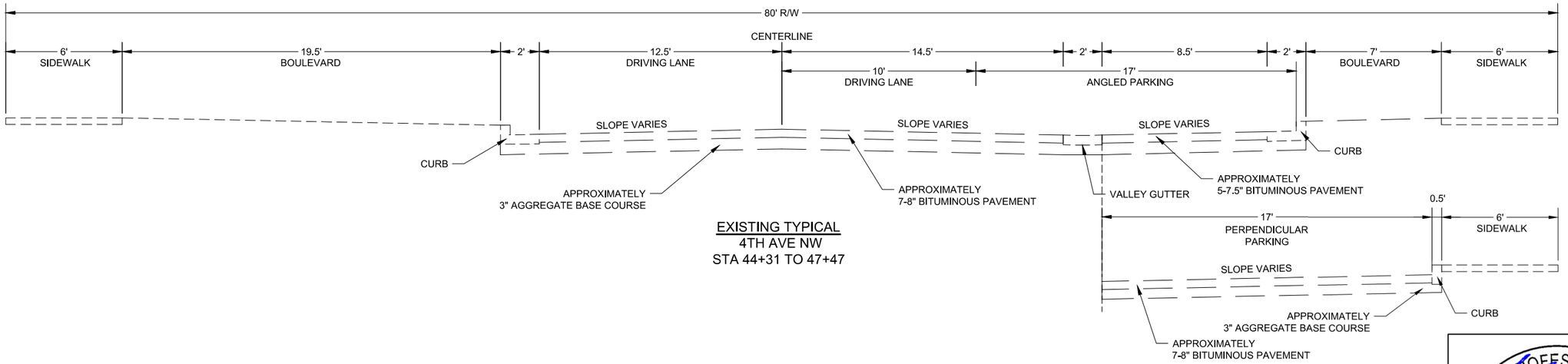
C.P. 2019-08	ND	UGP-1-988(052)	30	2



EXISTING TYPICAL
4TH AVE NW
STA 40+59 TO 43+51



EXISTING TYPICAL
4TH AVE NW
STA 44+31 TO 47+47

STA 45+75 to 47+30

REGISTERED PROFESSIONAL ENGINEER
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DATE 11/06/25
NORTH DAKOTA

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

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TYPICAL SECTIONS EXISTING

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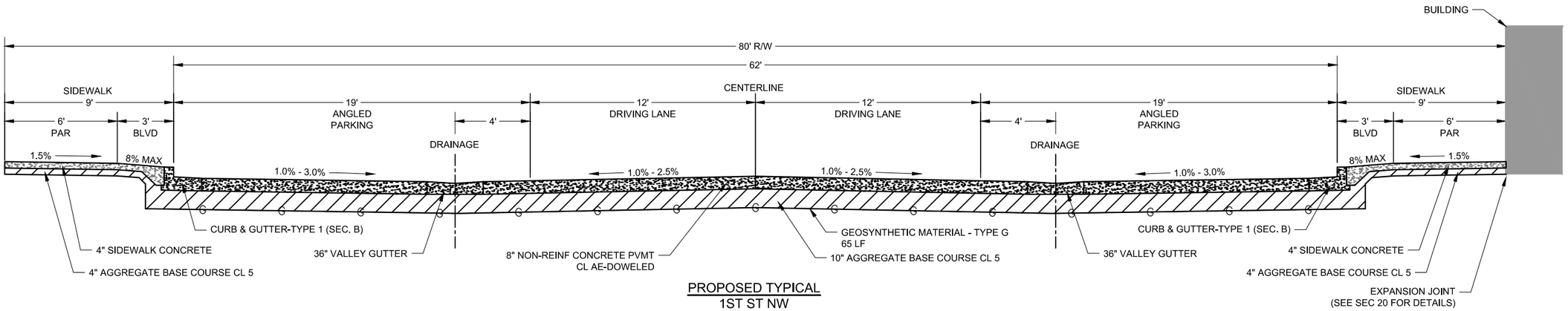
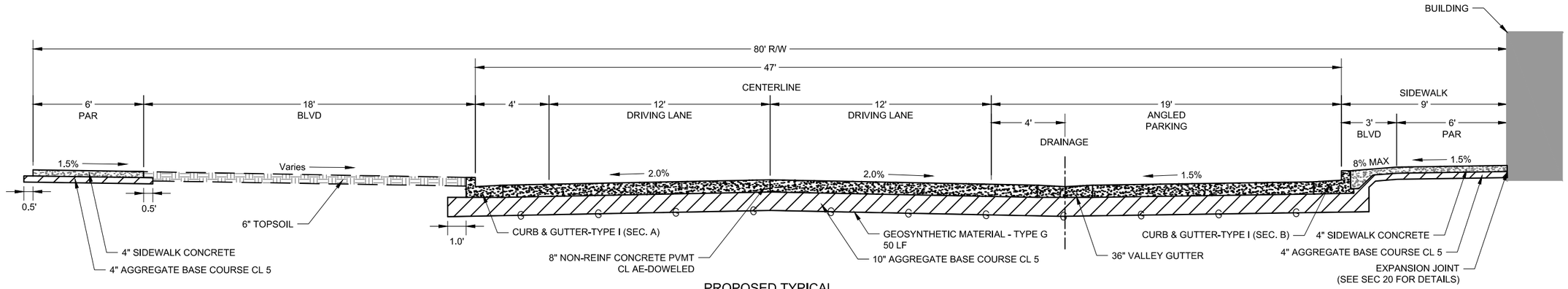
JP	AC	1904-02191

SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	30	3



PROPOSED TYPICAL
1ST ST NW
STA 102+08 TO STA 104+14
STA 107+10 TO STA 107+93



PROPOSED TYPICAL
1ST ST NW
STA 105+58 TO STA 106+87

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

KLJ

TYPICAL SECTIONS PROPOSED

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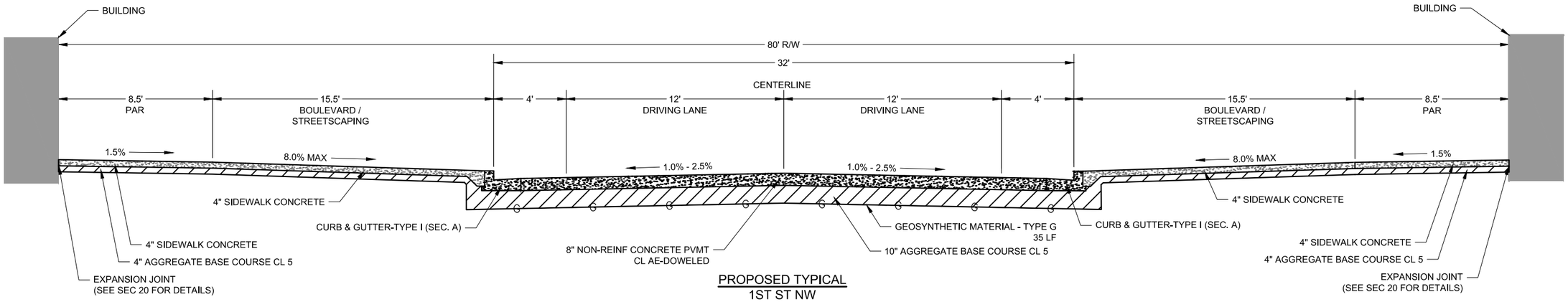
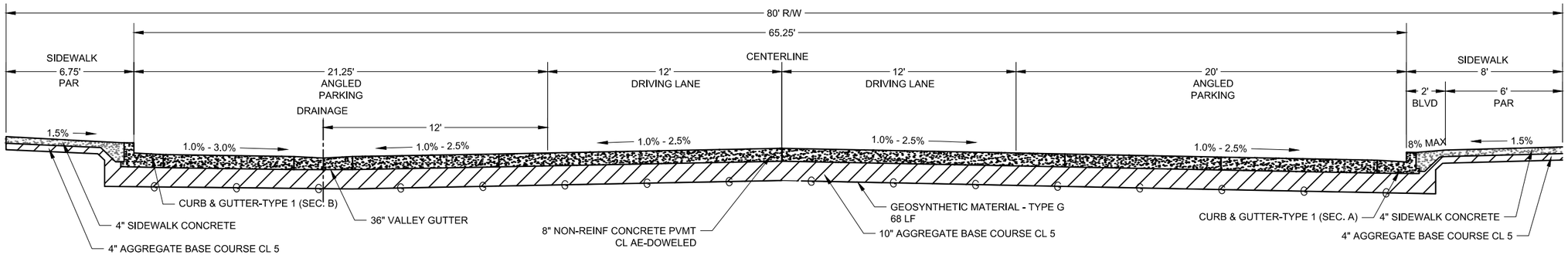
JP	AC	1904-02191

SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	30	4



PROPOSED TYPICAL
1ST ST NW
STA 108+16 TO STA 109+20



PROPOSED TYPICAL SECTION
1ST ST NW
STA 109+45 TO STA 109+75

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PE-40586
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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

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TYPICAL SECTIONS PROPOSED

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SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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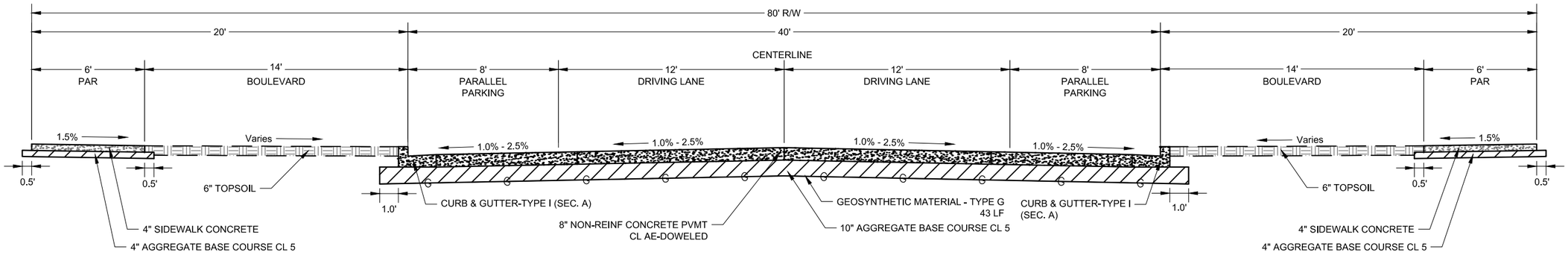

PROPOSED TYPICAL
5TH AVE NW
STA 51+13 TO STA 53+11

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 11/06/25
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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
5TH AVENUE NW

KLJ

TYPICAL SECTIONS PROPOSED

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JP	AC	1904-02191

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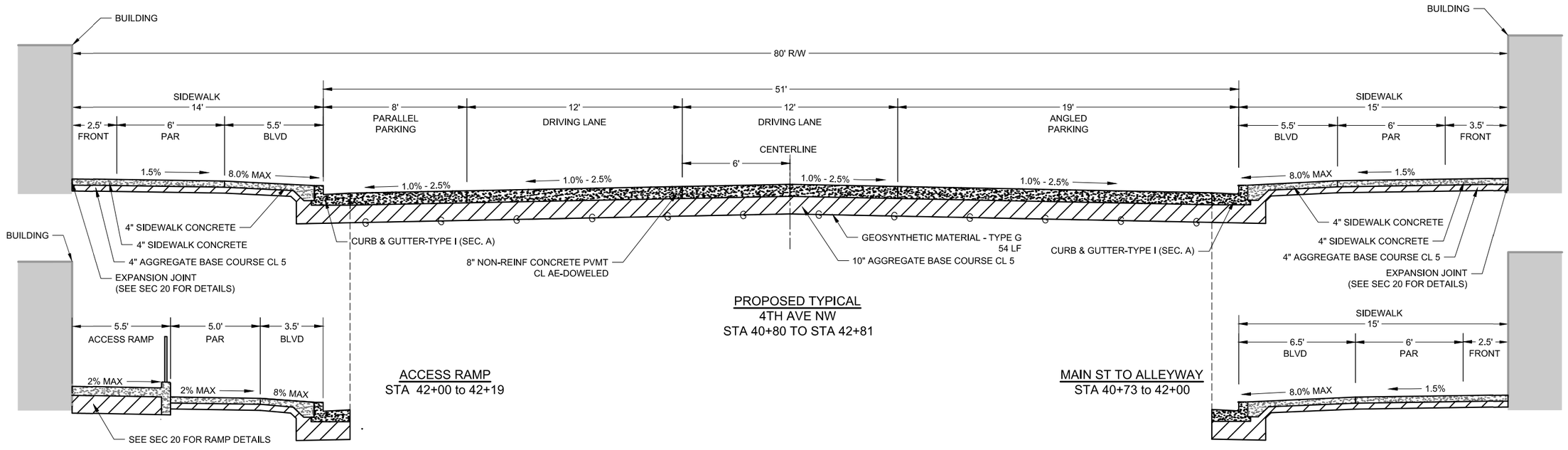
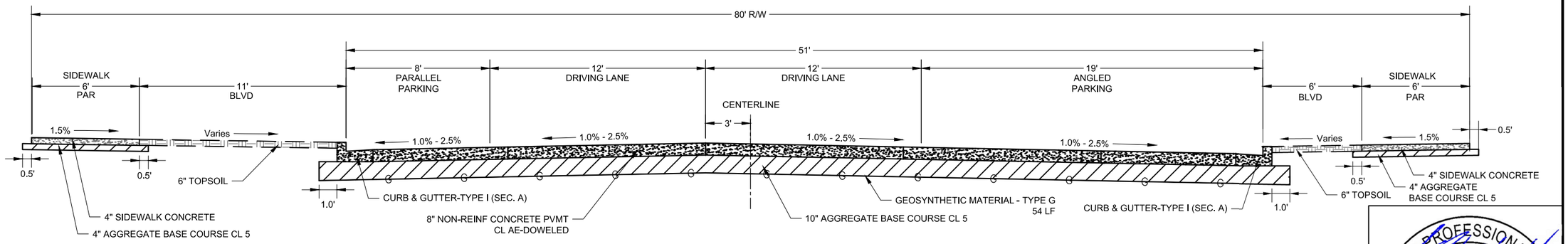
SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	30	6



PROPOSED TYPICAL
4TH AVE NW
STA 40+80 TO STA 42+81

ACCESS RAMP
STA 42+00 to 42+19

MAIN ST TO ALLEYWAY
STA 40+73 to 42+00



PROPOSED TYPICAL
4TH AVE NW
STA 44+71 TO STA 46+50

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 11/06/25
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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
4TH AVENUE NW

TYPICAL SECTIONS PROPOSED

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JP	AC	1904-02191

SID 236 C.P. 2019-08	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
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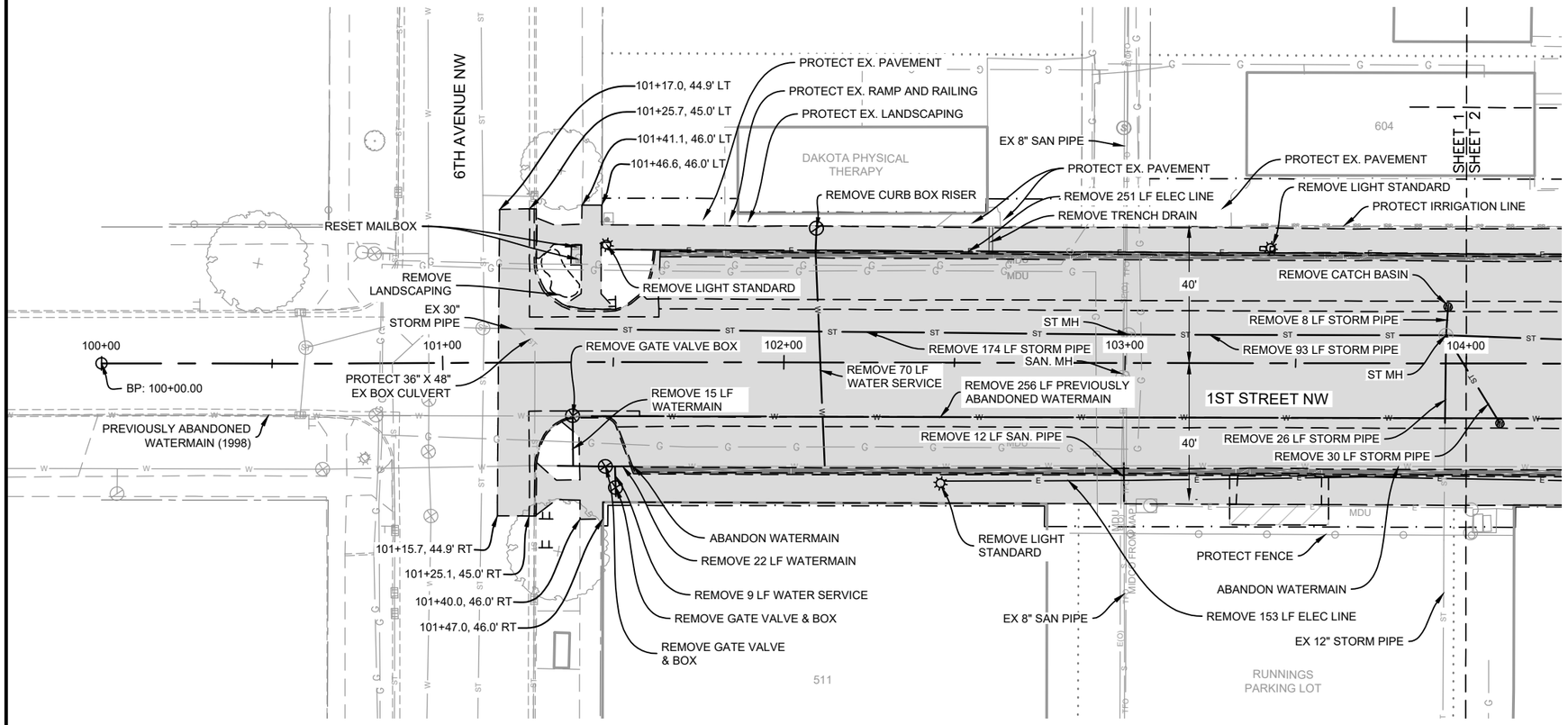


SPEC	CODE	BID ITEM	QTY	UNIT
202	0114	REMOVAL OF CONCRETE PAVEMENT		
		STA 101+15 TO STA 104+00	2,387	SY
202	0130	REMOVAL OF CURB & GUTTER		
		STA 101+27 TO STA 104+00	613	LF
202	0132	REMOVAL OF BITUMINOUS SURFACING		
		STA 103+30 TO STA 103+60	20	SY
202	0173	REMOVAL OF SEWER PIPE		
		STA 101+27, 10' LT TO STA 103+01, 8' LT	174	LF
		STA 103+01, 8' LT TO STA 103+94, 8' LT	93	LF
		STA 103+94, 8' LT TO STA 103+94, 17' LT	8	LF
		STA 103+94, 8' LT TO STA 103+94, 18' RT	26	LF
		STA 103+94, 8' LT TO STA 104+10, 18' RT	30	LF
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES - WATER		
		STA 101+38, 16' RT TO STA 101+38, 30' RT	15	LF
		STA 101+34, 30' RT TO STA 101+56, 31' RT	22	LF
		STA 101+44, 16' RT TO STA 104+00, 16' RT	256	LF
		STA 101+51, 31' RT TO STA 101+51, 39' RT	9	LF
		STA 102+10, 39' LT TO STA 102+12, 30' RT	70	LF
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES - SANITARY		
		STA 103+00, 29' RT TO STA 103+00, 41' RT	12	LF
202	0235	REMOVAL OF CATCH BASIN		
		STA 103+95, 17' LT	1	EA
710	0210	TEMPORARY BYPASS-SITE I		
		STA 103+00, 29' RT TO STA 103+00, 41' RT	1	EA
724	0270	REMOVE GATE VALVE & BOX		
		STA 101+48, 31' RT	1	EA
		STA 101+51, 37' RT	1	EA
724	6031	ABANDON WATER MAIN/SERVICE LINE		
		STA 101+56, 31' RT TO STA 104+00, 30' RT	245	LF
724	7014	REMOVE GATE VALVE BOX		
		STA 101+38, 16' RT	1	EA
724	7053	REMOVE CURB BOX RISER		
		STA 102+10, 39' LT	1	EA
766	0120	RESET MAILBOX		
		STA 101+39, 34' LT	1	EA
		STA 101+40, 30' LT	1	EA
770	4560	REMOVE LIGHT STANDARD		
		STA 101+48, 34' LT	1	EA
		STA 102+46, 35' RT	1	EA
		STA 102+43, 34' LT	1	EA

LEGEND:

- REMOVAL OF BITUMINOUS PAVEMENT
- REMOVAL OF CONCRETE
- REMOVAL OF CURB & GUTTER
- REMOVAL OF TREES
- REMOVAL OF TREE STUMP
- REMOVAL OF PIPE (S, W, ST)
- REMOVAL OF ELECTRICAL (E)
- REMOVAL OF INLET
- REMOVAL OF CATCH BASIN
- REMOVE VALVE BOX/ABANDON VALVE
- REMOVAL OF CURBSTOP & BOX

NOTE(S):
1. SEE SECTION 10 FOR ASSUMED DEPTHS OF MAINLINE, SIDEWALK AND DRIVEWAY.
2. SIGN REMOVALS SHOWN IN SECTION 110.
3. ENGINEER HAS ASSUMED LOCATION OF EXISTING WATER SERVICES. CONTRACTOR SHALL VERIFY LOCATION.

N

20 0 20 40
scale 1"=40' feet
NAVD88

REGISTERED PROFESSIONAL ENGINEER
ANDREW WERDER
PE-6696
DATE 11-6-25
NORTH DAKOTA

Rev'd.
Rev'd.
Rev'd.
Rev'd.

DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

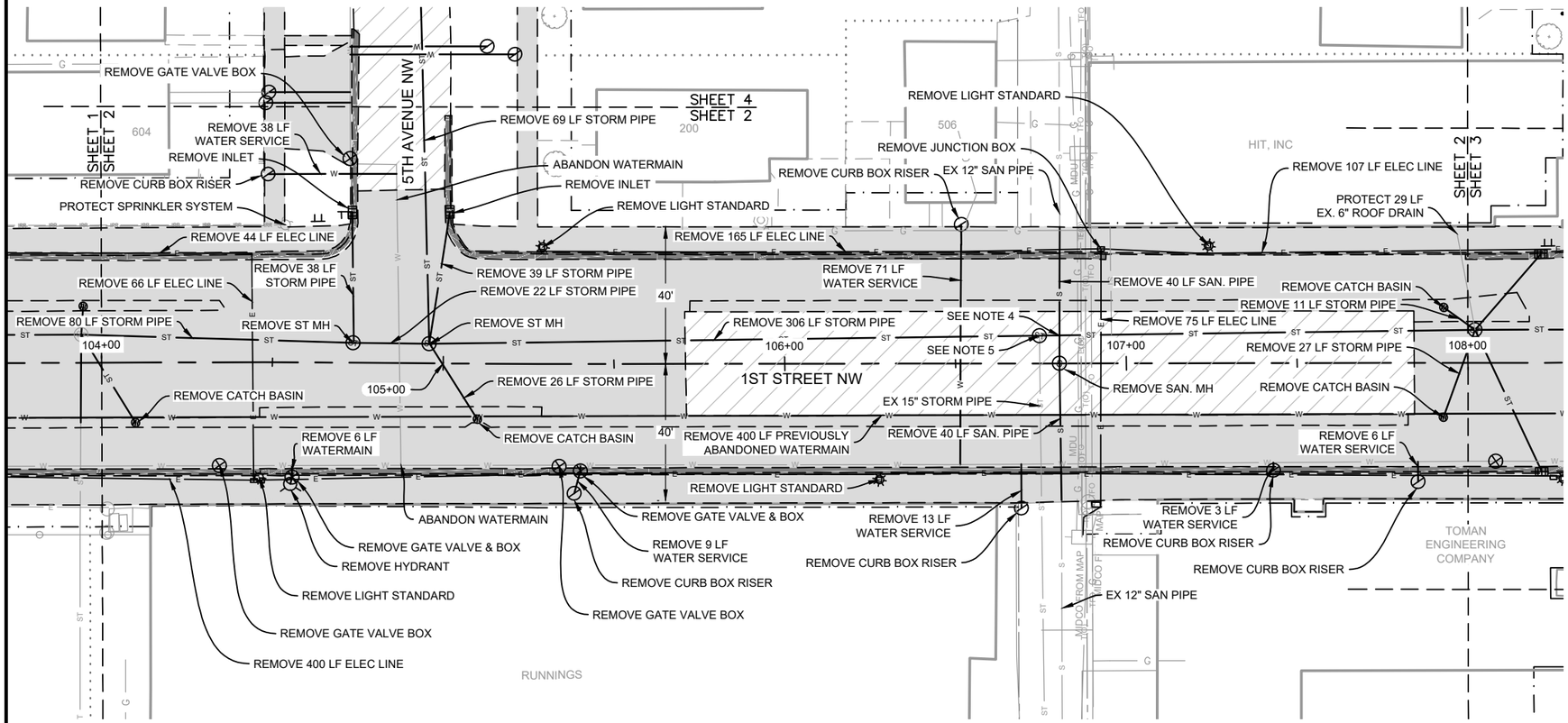
KLJ

REMOVALS STA. 100+00 TO 104+00

DRWN. BY	CHK'D BY	PROJECT NO.
LM	AC	1904-02191

Nov 05, 2025 - 5:08pm - K:\Projects\City\ND\Mandan\1904-02191-MandanDowntownSID236\CAD\Design\Plans\Sections\040\1904-02191_040RM.dwg

SID 236 C.P. 2019-08	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	UGP-1-988(052)	40	2



SPEC CODE	BID ITEM	QTY	UNIT
202 0114	REMOVAL OF CONCRETE PAVEMENT		
	STA 104+00 TO STA 108+00	2,812	SY
202 0130	REMOVAL OF CURB & GUTTER		
	STA 104+00 TO STA 108+00	848	LF
202 0132	REMOVAL OF BITUMINOUS SURFACING		
	STA 104+00 TO STA 108+00	789	SY
202 0173	REMOVAL OF SEWER PIPE		
	STA 103+94, 8' LT TO STA 104+74, 6' LT	80	LF
	STA 104+73, 44' LT TO STA 104+74, 6' LT	38	LF
	STA 104+74, 6' LT TO STA 104+96, 6' LT	22	LF
	STA 104+96, 6' LT TO STA 104+94, 75' LT	69	LF
	STA 104+96, 6' LT TO STA 105+02, 44' LT	39	LF
	STA 104+96, 6' LT TO STA 105+10, 16' RT	26	LF
	STA 104+96, 6' LT TO STA 108+02, 10' LT	306	LF
	STA 107+93, 16' LT TO STA 108+02, 10' LT	11	LF
	STA 107+93, 16' RT TO STA 108+02, 10' LT	27	LF
202 0174	REMOVAL OF PIPE ALL TYPES AND SIZES - WATER		
	STA 104+00, 16' RT TO STA 108+00, 15' RT	400	LF
	STA 104+48, 55' LT TO STA 104+86, 55' LT	38	LF
	STA 104+56, 30' RT TO STA 104+56, 36' RT	6	LF
	STA 105+40, 30' RT TO STA 105+38, 38' RT	9	LF
	STA 106+52, 41' LT TO STA 106+51, 30' RT	71	LF
	STA 106+69, 29' RT TO STA 106+69, 42' RT	13	LF
	STA 107+43, 29' RT TO STA 107+43, 31' RT	3	LF
	STA 107+85, 29' RT TO STA 107+85, 35' RT	6	LF
202 0174	REMOVAL OF PIPE ALL TYPES AND SIZES - SANITARY		
	STA 106+80, 40' LT TO STA 106+80, 0' LT	40	LF
	STA 106+80, 0' LT TO STA 106+81, 40' RT	40	LF
202 0210	REMOVAL OF MANHOLES		
	STA 104+74, 6' LT	1	EA
	STA 104+96, 6' LT	1	EA
	STA 106+80, 0' LT	1	EA
202 0230	REMOVAL OF INLETS		
	STA 104+73, 44' LT	1	EA
	STA 105+02, 44' LT	1	EA
202 0235	REMOVAL OF CATCH BASIN		
	STA 104+10, 18' RT	1	EA
	STA 105+10, 16' RT	1	EA
	STA 107+93, 16' LT	1	EA
	STA 107+93, 16' RT	1	EA
710 0220	TEMPORARY BYPASS-SITE II		
	STA 106+80, 40' LT TO STA 106+81, 40' RT	1	EA

LEGEND:

- REMOVAL OF BITUMINOUS PAVEMENT
- REMOVAL OF CONCRETE
- REMOVAL OF CURB & GUTTER
- REMOVAL OF TREES
- REMOVAL OF TREE STUMP
- REMOVAL OF PIPE (S, W, ST)
- REMOVAL OF ELECTRICAL (E)
- REMOVAL OF INLET
- REMOVAL OF CATCH BASIN
- REMOVE VALVE BOX/ABANDON VALVE
- REMOVAL OF CURBSTOP & BOX

NOTE(S):
1. SEE SECTION 10 FOR ASSUMED DEPTHS OF MAINLINE, SIDEWALK AND DRIVEWAY.
2. SIGN REMOVALS SHOWN IN SECTION 110.
3. ENGINEER HAS ASSUMED LOCATION OF EXISTING WATER SERVICES. CONTRACTOR SHALL VERIFY LOCATION.
4. ENGINEER HAS ASSUMED THE EXISTING SANITARY SEWER @ STA 106+80 CROSSES BELOW THE EXISTING STORM SEWER. CONTRACTOR SHALL EXPOSE THE CROSSING TO VERIFY THAT THERE IS NO CONFLICT PRIOR TO INSTALLATION AT STORM SEWER BETWEEN STA 104+85 AND TO STA 108+00, AND STMH-100. CENTER ONE SECTION OF SANITARY PIPE ACROSS THE STORM SEWER CROSSING.
5. ENGINEER HAS ASSUMED THE EXISTING 15" STORM SEWER PIPE CONNECTS TO THE EXISTING 30" MAINLINE STORM SEWER PIPE THROUGH MANHOLE. VERIFY EXISTENCE OF MANHOLE PRIOR TO REMOVAL..

724 0270	REMOVE GATE VALVE & BOX		
	STA 104+56, 34' RT	1	EA
	STA 105+40, 31' RT	1	EA
724 0430	REMOVE HYDRANT		
	STA 104+56, 36' RT	1	EA
724 6031	ABANDON WATER MAIN/SERVICE LINE		
	STA 104+00, 30' RT TO STA 108+00, 29' RT	400	LF
	STA 104+72, 75' LT TO STA 104+88, 30' RT	119	LF
724 7014	REMOVE GATE VALVE BOX		
	STA 104+34, 30' RT	1	EA
	STA 104+72, 60' LT	1	EA
	STA 105+34, 30' RT	1	EA
724 7053	REMOVE CURB BOX RISER		
	STA 104+48, 55' LT	1	EA
	STA 105+38, 38' RT	1	EA
	STA 106+52, 41' LT	1	EA
	STA 106+69, 42' RT	1	EA
	STA 107+43, 31' RT	1	EA
	STA 107+85, 35' RT	1	EA
770 4560	REMOVE LIGHT STANDARD		
	STA 104+46, 34' RT	1	EA
	STA 105+29, 34' LT	1	EA
	STA 106+28, 34' RT	1	EA
	STA 107+24, 34' LT	1	EA

N

20 0 20 40
scale 1"=40' feet
NAVD88

REGISTERED PROFESSIONAL ENGINEER
ANDREW WERDER
PE-6696
DATE 11-6-25
NORTH DAKOTA

Rev'd.
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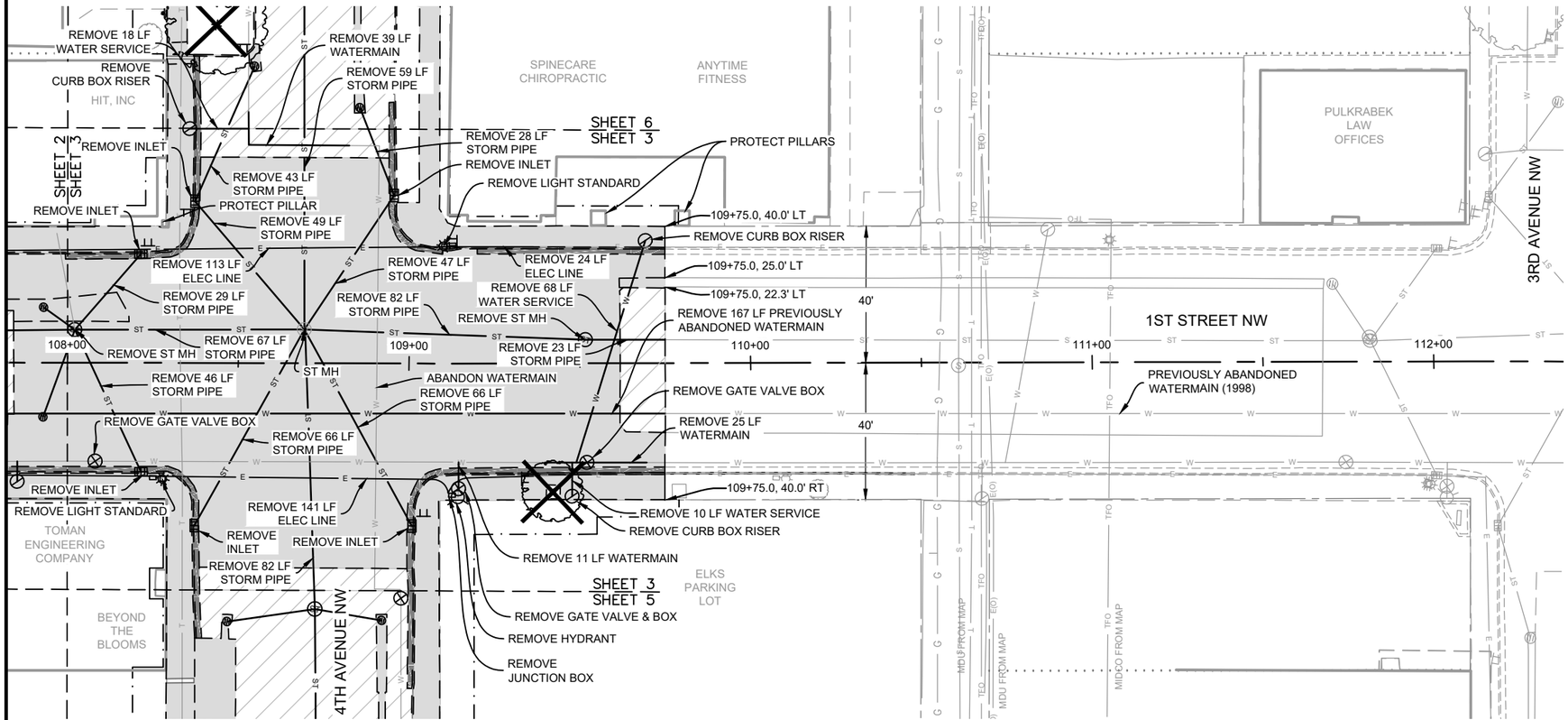
DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

KLJ

REMOVALS
STA. 104+00 TO 108+00

DRWN. BY	CHK'D BY	PROJECT NO.
LM	AC	1904-02191

SID 236 C.P. 2019-08	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	UGP-1-988(052)	40	3



SPEC CODE	BID ITEM	QTY	UNIT
201 0370	REMOVAL OF TREES 10IN		
	STA 109+42, 38' RT	1	EA
202 0114	REMOVAL OF CONCRETE PAVEMENT		
	STA 108+00 TO STA 109+75	1,788	SY
202 0130	REMOVAL OF CURB & GUTTER		
	STA 108+00 TO STA 109+75	353	LF
202 0132	REMOVAL OF BITUMINOUS SURFACING		
	STA 108+00 TO STA 109+75	158	SY
202 0173	REMOVAL OF SEWER PIPE		
	STA 108+02, 10' LT TO STA 108+22, 32' RT	46	LF
	STA 108+02, 10' LT TO STA 108+21, 32' LT	29	LF
	STA 108+02, 10' LT TO STA 108+69, 10' LT	67	LF
	STA 108+37, 47' LT TO STA 108+69, 10' LT	49	LF
	STA 108+37, 47' LT TO STA 108+55, 87' LT	43	LF
	STA 108+37, 48' RT TO STA 108+69, 10' LT	66	LF
	STA 108+69, 69' LT TO STA 108+69, 10' LT	59	LF
	STA 108+69, 10' LT TO STA 108+72, 66' RT	82	LF
	STA 108+69, 10' LT TO STA 108+96, 49' LT	47	LF
	STA 108+69, 10' LT TO STA 109+01, 48' RT	66	LF
	STA 108+85, 75' LT TO STA 108+96, 49' LT	28	LF
	STA 108+69, 10' LT TO STA 109+52, 7' LT	82	LF
	STA 109+52, 7' LT TO STA 109+62, 7' LT	23	LF
202 0174	REMOVAL OF PIPE ALL TYPES AND SIZES - WATER		
	STA 108+00, 15' RT TO STA 109+67, 15' RT	167	LF
	STA 108+36, 69' LT TO STA 108+53, 69' LT	18	LF
	STA 108+53, 74' LT TO STA 108+82, 64' LT	39	LF
	STA 109+14, 29' RT TO STA 109+14, 39' RT	11	LF
	STA 109+40, 29' RT TO STA 109+64, 39' RT	25	LF
	STA 109+48, 29' RT TO STA 109+48, 39' RT	10	LF
	STA 109+49, 29' RT TO STA 109+69, 36' LT	68	LF
202 0210	REMOVAL OF MANHOLES		
	STA 108+02, 10' LT	1	EA
	STA 109+52, 7' RT	1	EA
202 0230	REMOVAL OF INLETS		
	STA 108+21, 32' LT	1	EA
	STA 108+21, 32' RT	1	EA
	STA 108+37, 47' LT	1	EA
	STA 108+37, 48' RT	1	EA
	STA 108+96, 49' LT	1	EA
	STA 109+01, 48' RT	1	EA
724 0270	REMOVE GATE VALVE & BOX		
	STA 109+14, 37' RT	1	EA
724 0430	REMOVE HYDRANT		
	STA 109+14, 39' RT	1	EA
724 6031	ABANDON WATER MAIN/SERVICE LINE		
	STA 108+00, 29' RT TO STA 109+40, 29' RT	140	LF
	STA 108+82, 64' LT TO STA 108+98, 66' RT	147	LF
724 7014	REMOVE GATE VALVE BOX		
	STA 108+08, 29' RT	1	EA
	STA 109+52, 29' RT	1	EA
724 7053	REMOVE CURB BOX RISER		
	STA 108+36, 69' LT	1	EA
	STA 109+48, 39' RT	1	EA
	STA 109+69, 36' LT	1	EA
770 4560	REMOVE LIGHT STANDARD		
	STA 108+28, 34' RT	1	EA
	STA 109+10, 34' LT	1	EA

LEGEND:

- REMOVAL OF BITUMINOUS PAVEMENT
- REMOVAL OF CONCRETE
- REMOVAL OF CURB & GUTTER
- REMOVAL OF TREES
- REMOVAL OF TREE STUMP
- REMOVAL OF PIPE (S, W, ST)
- REMOVAL OF ELECTRICAL (E)
- REMOVAL OF INLET
- REMOVAL OF CATCH BASIN
- REMOVE VALVE BOX/ABANDON VALVE
- REMOVAL OF CURBSTOP & BOX

NOTE(S):
1. SEE SECTION 10 FOR ASSUMED DEPTHS OF MAINLINE, SIDEWALK AND DRIVEWAY.
2. SIGN REMOVALS SHOWN IN SECTION 110.
3. ENGINEER HAS ASSUMED LOCATION OF EXISTING WATER SERVICES. CONTRACTOR SHALL VERIFY LOCATION.

N

scale 20 0 20 40 feet
1"=40'
NAVD88

REGISTERED PROFESSIONAL ENGINEER
ANDREW WERDER
PE-6696
DATE 11-6-25
NORTH DAKOTA

Rev'd.
Rev'd.
Rev'd.
Rev'd.

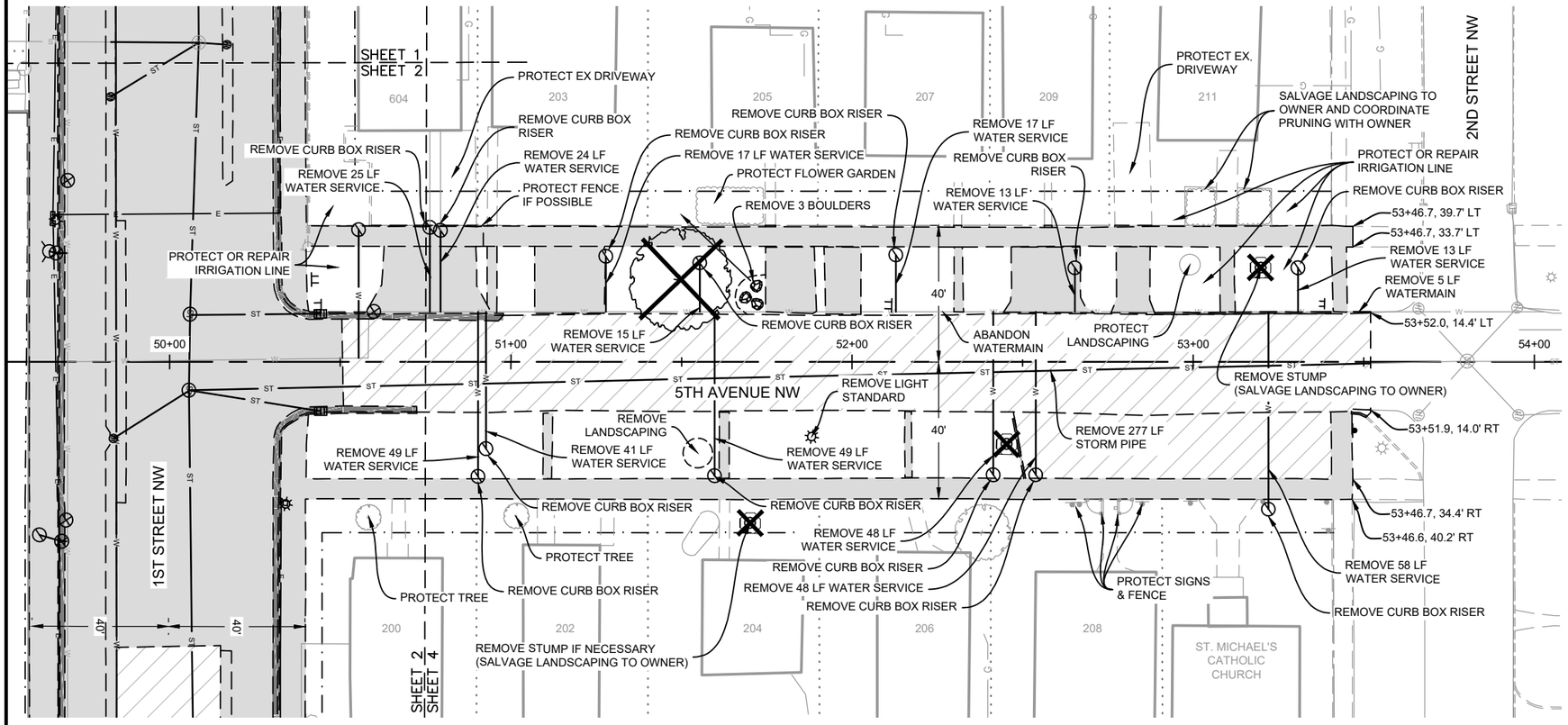
DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

KLJ

REMOVALS
STA. 104+00 TO 112+00

DRWN. BY	CHK'D BY	PROJECT NO.
LM	AC	1904-02191

SID 236 C.P. 2019-08	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	UGP-1-988(052)	40	4



SPEC	CODE	BID ITEM	QTY	UNIT
201	0370	REMOVAL OF TREES 10IN		
		STA 51+50, 24' LT	1	EA
202	0114	REMOVAL OF CONCRETE PAVEMENT		
		STA 50+75 TO STA 53+52	618	SY
202	0130	REMOVAL OF CURB & GUTTER		
		STA 50+75 TO STA 53+52	98	LF
202	0132	REMOVAL OF BITUMINOUS SURFACING		
		STA 50+75 TO STA 53+52	1,070	SY
202	0173	REMOVAL OF SEWER PIPE		
		STA 50+75, T' RT TO STA 53+52, 0' RT	277	LF
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES - WATER		
		STA 50+76, 39' LT TO STA 50+76, 15' LT	25	LF
		STA 50+79, 39' LT TO STA 50+79, 15' LT	24	LF
		STA 50+90, 15' LT TO STA 50+90, 34' RT	49	LF
		STA 50+93, 15' LT TO STA 50+92, 25' RT	41	LF
		STA 51+28, 31' LT TO STA 51+28, 15' LT	17	LF
		STA 51+55, 29' LT TO STA 51+55, 15' LT	15	LF
		STA 51+60, 15' LT TO STA 51+60, 33' RT	49	LF
		STA 52+13, 31' LT TO STA 52+13, 15' LT	17	LF
		STA 52+41, 15' LT TO STA 52+41, 33' RT	48	LF
		STA 52+54, 15' LT TO STA 52+54, 33' RT	48	LF
		STA 52+65, 28' LT TO STA 52+65, 15' LT	13	LF
		STA 53+22, 15' LT TO STA 53+22, 43' RT	58	LF
		STA 53+31, 28' LT TO STA 53+31, 15' LT	13	LF
		STA 53+47, 15' LT TO STA 53+52, 15' LT	5	LF
724	6031	ABANDON WATER MAIN/SERVICE LINE		
		STA 50+75, 15' LT TO STA 53+47, 15' LT	272	LF
724	7053	REMOVE CURB BOX RISER		
		STA 50+76, 39' LT	1	EA
		STA 50+79, 39' LT	1	EA
		STA 50+90, 34' RT	1	EA
		STA 50+92, 25' RT	1	EA
		STA 51+28, 31' LT	1	EA
		STA 51+55, 29' LT	1	EA
		STA 51+60, 33' RT	1	EA
		STA 52+13, 31' LT	1	EA
		STA 52+41, 33' RT	1	EA
		STA 52+54, 33' RT	1	EA
		STA 52+65, 28' LT	1	EA
		STA 53+22, 43' RT	1	EA
		STA 53+31, 28' LT	1	EA
770	4560	REMOVE LIGHT STANDARD		
		STA 51+88, 22' RT	1	EA

LEGEND:

- REMOVAL OF BITUMINOUS PAVEMENT
- REMOVAL OF CONCRETE
- REMOVAL OF CURB & GUTTER
- REMOVAL OF TREES
- REMOVAL OF TREE STUMP
- S / W / ST — REMOVAL OF PIPE
- E — REMOVAL OF ELECTRICAL
- REMOVAL OF INLET
- REMOVAL OF CATCH BASIN
- REMOVE VALVE BOX/ABANDON VALVE
- REMOVAL OF CURBSTOP & BOX

NOTE(S):
1. SEE SECTION 10 FOR ASSUMED DEPTHS OF MAINLINE, SIDEWALK AND DRIVEWAY.
2. SIGN REMOVALS SHOWN IN SECTION 110.
3. ENGINEER HAS ASSUMED LOCATION OF EXISTING WATER SERVICES. CONTRACTOR SHALL VERIFY LOCATION.

N

20 0 20 40
scale 1"=40' feet
NAVD88

REGISTERED PROFESSIONAL ENGINEER
ANDREW WERDER
PE-6696
DATE 11-6-25
NORTH DAKOTA

Rev'd.
Rev'd.
Rev'd.
Rev'd.

DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
5TH AVENUE NW

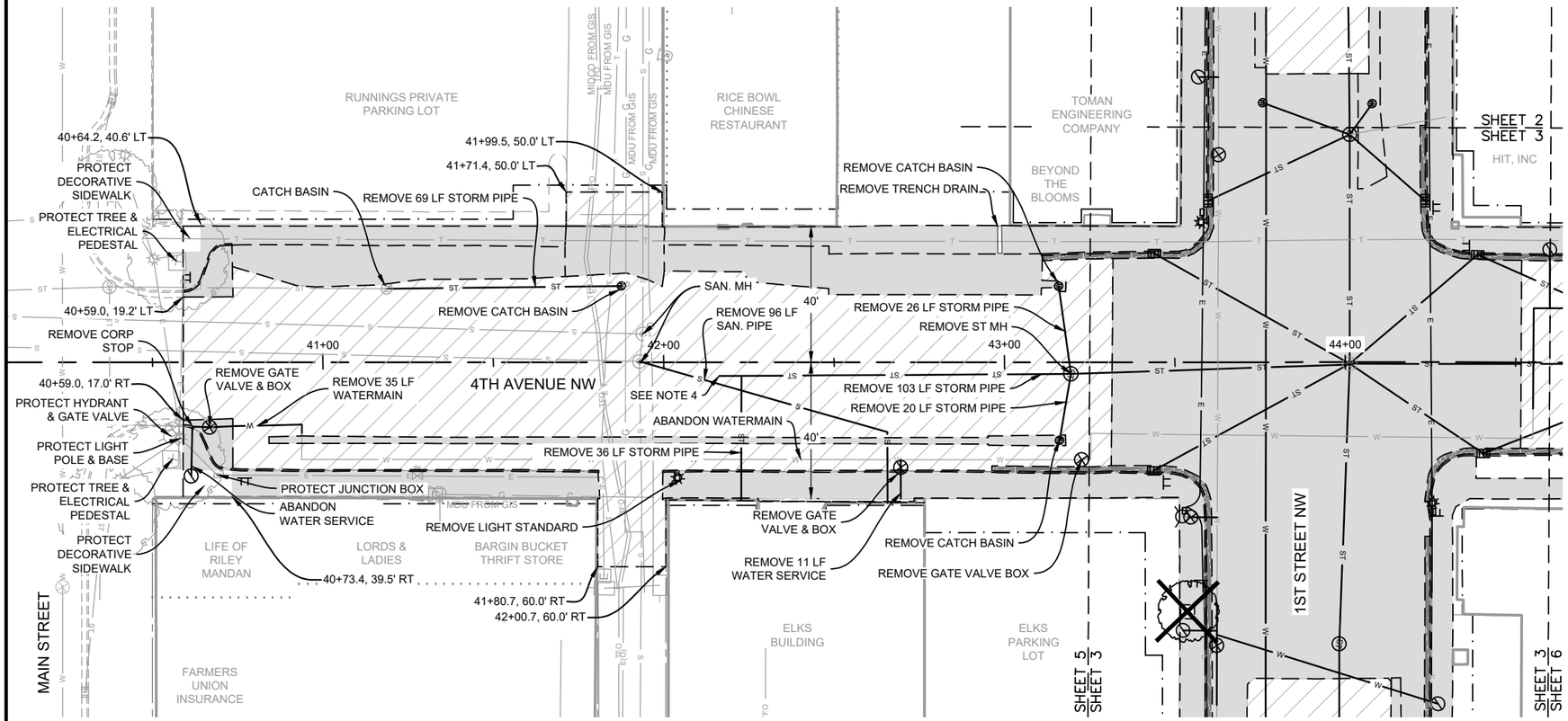
KLJ

REMOVALS
STA. 50+75 TO 54+00

DRWN. BY	CHK'D BY	PROJECT NO.
LM	AC	1904-02191

Nov 05, 2025 - 5:09pm - K:\Projects\City\ND\Mandan\1904-02191-MandanDowntownSID236\CAD\Design\Plans\Sections\040\1904-02191_040RM.dwg

SID 236 C.P. 2019-08	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	UGP-1-988(052)	40	5



SPEC CODE	BID ITEM	QTY	UNIT
202 0114	REMOVAL OF CONCRETE PAVEMENT		
	STA 40+00 TO STA 43+25	774	SY
202 0130	REMOVAL OF CURB & GUTTER		
	STA 40+00 TO STA 43+25	290	LF
202 0132	REMOVAL OF BITUMINOUS SURFACING		
	STA 40+00 TO STA 43+25	1,636	SY
202 0173	REMOVAL OF SEWER PIPE		
	STA 41+19, 22' LT TO STA 41+88, 22' LT	69	LF
	STA 42+16, 4' RT TO 43+20, 3' RT	103	LF
	STA 42+23, 4' RT TO 42+23, 40' RT	36	LF
	STA 43+16, 22' LT TO STA 43+20, 3' RT	26	LF
	STA 43+20, 3' RT TO STA 43+16, 23' RT	20	LF
202 0174	REMOVAL OF PIPE ALL TYPES AND SIZES - WATER		
	STA 40+74, 19' RT TO STA 40+94, 21' RT	35	LF
	STA 42+70, 29' RT TO STA 42+70, 40' RT	11	LF
202 0174	REMOVAL OF PIPE ALL TYPES AND SIZES - SANITARY		
	STA 41+93, 0' LT TO STA 42+66, 41' RT	96	LF
202 0210	REMOVAL OF MANHOLES		
	STA 43+20, 3' RT	1	EA
202 0235	REMOVAL OF CATCH BASIN		
	STA 41+88, 22' LT	1	EA
	STA 43+16, 22' LT	1	EA
	STA 43+16, 23' RT	1	EA
724 0270	REMOVE GATE VALVE & BOX		
	STA 40+66, 19' RT	1	EA
	STA 42+70, 31' RT	1	EA
724 6031	ABANDON WATER MAIN/SERVICE LINE		
	STA 40+94, 21' RT TO STA 43+25, 28' RT	239	LF
724 7014	REMOVE GATE VALVE BOX		
	STA 43+23, 29' RT	1	EA
724 7053	REMOVE CURB BOX RISER		
	STA 40+61, 33' RT	1	EA
770 4560	REMOVE LIGHT STANDARD		
	STA 42+04, 34' RT	1	EA

LEGEND:

- REMOVAL OF BITUMINOUS PAVEMENT
- REMOVAL OF CONCRETE
- REMOVAL OF CURB & GUTTER
- REMOVAL OF TREES
- REMOVAL OF TREE STUMP
- S / W / ST — REMOVAL OF PIPE
- E — REMOVAL OF ELECTRICAL
- REMOVAL OF INLET
- REMOVAL OF CATCH BASIN
- REMOVE VALVE BOX/ABANDON VALVE
- REMOVAL OF CURBSTOP & BOX

NOTE(S):
1. SEE SECTION 10 FOR ASSUMED DEPTHS OF MAINLINE, SIDEWALK AND DRIVEWAY.
2. SIGN REMOVALS SHOWN IN SECTION 110.
3. ENGINEER HAS ASSUMED LOCATION OF EXISTING WATER SERVICES. CONTRACTOR SHALL VERIFY LOCATION.
4. ENGINEER HAS ASSUMED THAT THE EXISTING STORM SEWER WAS CAPPED AT THE LOCATION SHOWN ON THE PLAN. CONTRACTOR SHALL FIELD VERIFY LOCATION OF STORM SEWER EXTENTS AND CAP PRIOR TO COMPLETION O F REMOVAL.

N

20 0 20 40
scale 1"=40' feet
NAVD88

REGISTERED PROFESSIONAL ENGINEER
ANDREW WERDER
PE-6696
DATE 11-6-25
NORTH DAKOTA

Rev'd.
Rev'd.
Rev'd.
Rev'd.

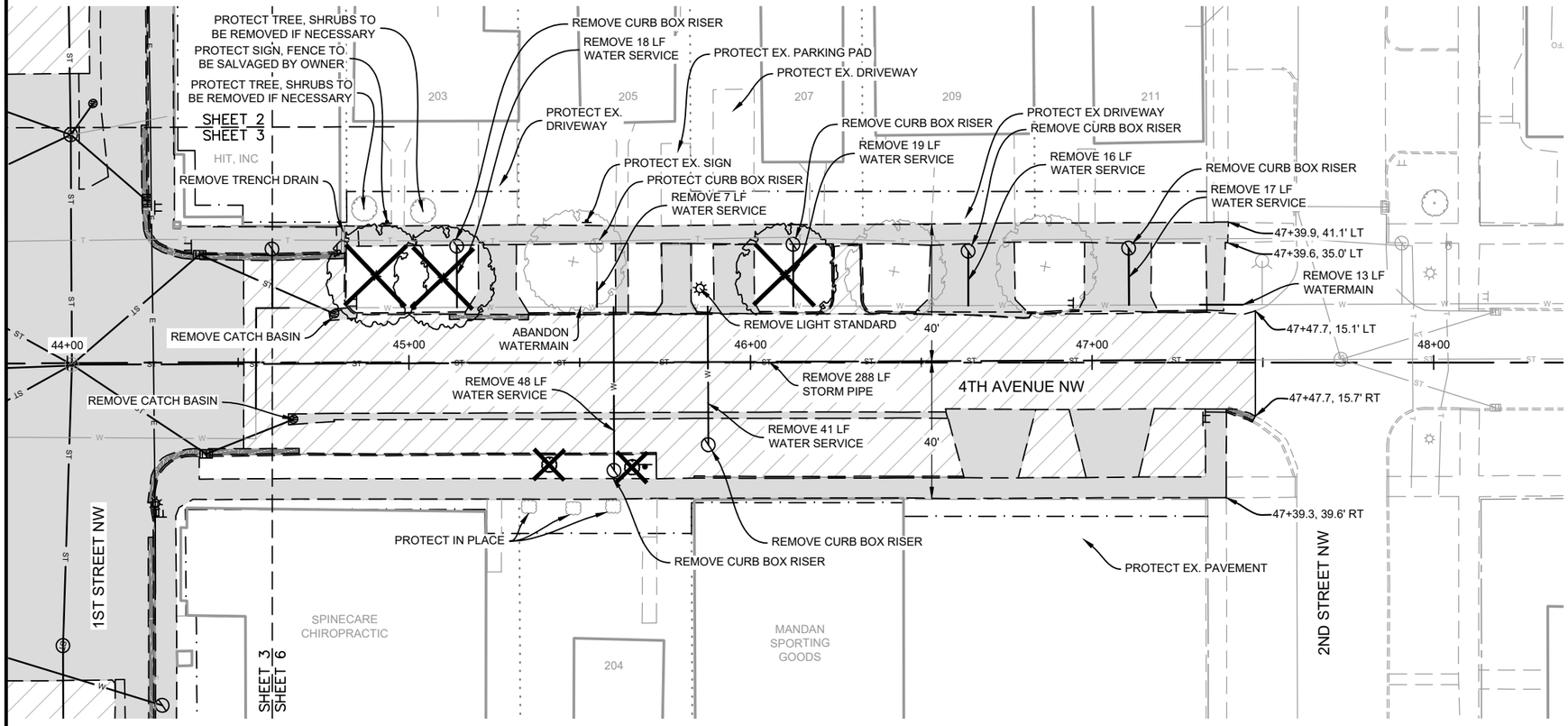
DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
4TH AVENUE NW

KLJ

REMOVALS STA. 40+00 TO 42+75

DRWN. BY	CHK'D BY	PROJECT NO.
LM	AC	1904-02191

SID 236 C.P. 2019-08	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	UGP-1-988(052)	40	6



SPEC	CODE	BID ITEM	QTY	UNIT
201	0370	REMOVAL OF TREES 10IN		
		STA 44+90, 25' LT	1	EA
		STA 45+10, 25' LT	1	EA
		STA 45+41, 30' RT	1	EA
		STA 45+65, 31' RT	1	EA
201	0380	REMOVAL OF TREES 18IN		
		STA 46+10, 26' LT	1	EA
202	0114	REMOVAL OF CONCRETE PAVEMENT		
		STA 44+10 TO STA 47+48	695	SY
202	0130	REMOVAL OF CURB & GUTTER		
		STA 44+10 TO STA 47+48	495	LF
202	0132	REMOVAL OF BITUMINOUS SURFACING		
		STA 44+10 TO STA 47+48	1,340	SY
202	0173	REMOVAL OF SEWER PIPE		
		STA 44+10, 0' RT TO STA 47+48, 1' LT	288	LF
202	0174	REMOVAL OF PIPE ALL TYPES AND SIZES - WATER		
		STA 45+14, 34' LT TO STA 45+14, 16' LT	18	LF
		STA 45+55, 23' LT TO STA 45+55, 16' LT	7	LF
		STA 45+60, 16' LT TO STA 45+60, 32' RT	48	LF
		STA 45+87, 16' LT TO STA 45+88, 24' RT	41	LF
		STA 46+12, 35' LT TO STA 46+13, 16' LT	19	LF
		STA 46+64, 33' LT TO STA 46+64, 17' LT	16	LF
		STA 47+11, 33' LT TO STA 47+11, 17' LT	17	LF
		STA 47+32, 17' LT TO STA 47+44, 17' LT	13	LF
202	0235	REMOVAL OF CATCH BASIN		
		STA 44+66, 17' RT	1	EA
		STA 44+78, 14' LT	1	EA
724	6031	ABANDON WATER MAIN/SERVICE LINE		
		STA 44+65, 16' LT TO STA 47+32, 17' LT	267	LF
724	7053	REMOVE CURB BOX RISER		
		STA 45+14, 34' LT	1	EA
		STA 45+60, 32' RT	1	EA
		STA 45+88, 24' RT	1	EA
		STA 46+12, 35' LT	1	EA
		STA 46+64, 33' LT	1	EA
		STA 47+11, 33' LT	1	EA
770	4560	REMOVE LIGHT STANDARD		
		STA 45+85, 22' LT	1	EA

LEGEND:

- REMOVAL OF BITUMINOUS PAVEMENT
- REMOVAL OF CONCRETE
- REMOVAL OF CURB & GUTTER
- REMOVAL OF TREES
- REMOVAL OF TREE STUMP
- REMOVAL OF PIPE (S, W, ST)
- REMOVAL OF ELECTRICAL (E)
- REMOVAL OF INLET
- REMOVAL OF CATCH BASIN
- REMOVE VALVE BOX/ABANDON VALVE
- REMOVAL OF CURBSTOP & BOX

NOTE(S):
1. SEE SECTION 10 FOR ASSUMED DEPTHS OF MAINLINE, SIDEWALK AND DRIVEWAY.
2. SIGN REMOVALS SHOWN IN SECTION 110.
3. ENGINEER HAS ASSUMED LOCATION OF EXISTING WATER SERVICES. CONTRACTOR SHALL VERIFY LOCATION.

N

20 0 20 40
scale 1"=40' feet
NAVD88

REGISTERED PROFESSIONAL ENGINEER
ANDREW WERDER
PE-6696
DATE 11-6-25
NORTH DAKOTA

Rev'd.
Rev'd.
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Rev'd.

DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
4TH AVENUE NW

KLJ

REMOVALS STA. 44+10 TO 47+50

DRWN. BY	CHK'D BY	PROJECT NO.
LM	AC	1904-02191

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MH No.	EXMH-1 - EX 60"; ADJUST EX RIM 1649.68	Connected Pipes	
Sta. Offset	103+01.03 - 8.3' LT (OCL_1stSt)	(E) 30" Concrete Pipe INV IN = 1639.98	
Rim Elev.	1650.15'	(W) 30" Concrete Pipe INV OUT = 1639.94	

MH No.	EXMH-2 - EX 60"; ADJUST EX RIM 1649.40	Connected Pipes	
Sta. Offset	103+94.06 - 8.2' LT (OCL_1stSt)	(E) 30" Concrete Pipe INV IN = 1639.95	
Rim Elev.	1649.56'	(S) 18" Concrete Pipe INV IN = 1641.61	
		(N) 15" Concrete Pipe INV IN = 1645.31	
		(W) 30" Concrete Pipe INV OUT = 1639.93	

Inlet No.	I-2(A)		
Type	INLET MOUNTABLE CURB - TYPE B		
Grate Style	Type L		
Sta. Offset	103+94.06 - 16.0' LT (OCL_1stSt)	Connected Pipes	
Grate Elev.	1649.40	(S) 15" Concrete Pipe INV OUT = 1645.39	
Top Base Elev.	1644.49		
Invert Elev.	1645.39'		
H' Length	4.0 Ft.		

Inlet No.	I-2(B)		
Type	INLET MOUNTABLE CURB - TYPE B		
Grate Style	Type L		
Sta. Offset	103+93.84 - 16.0' RT (OCL_1stSt)	Connected Pipes	
Grate Elev.	1649.41	(S) 12" PVC Pipe Existing INV IN = 1642.23	
Top Base Elev.	1642.09	(N) 18" Concrete Pipe INV OUT = 1642.09	
Invert Elev.	1642.09'		
H' Length	6.4 Ft.		

MH No.	STMH-3 - 60" (FLOATING CASTING)	Connected Pipes	
Sta. Offset	104+87.42 - 5.5' LTT (OCL_1stSt)	(S) 15" Concrete Pipe INV IN = 1643.26	
Rim Elev.	1649.24'	(E) 30" Concrete Pipe INV IN = 1640.42	
Top Base Elev.	1640.32	(N) 18" Concrete Pipe INV IN = 1642.63	
Invert Elev.	1640.32'	(W) 30" Concrete Pipe INV OUT = 1640.32	
Riser Height	6.9 Ft.		

Inlet No.	I-3(C)		
Type	INLET TYPE - 2		
Grate Style	Type V		
Sta. Offset	104+87.42 - 15.5' RT (OCL_1stSt)	Connected Pipes	
Grate Elev.	1649.01	(N) 15" Concrete Pipe INV OUT = 1644.24	
Top Base Elev.	1644.24		
Invert Elev.	1644.24'		
H' Length	4.0 Ft.		

MH No.	STMH-4 - 48" (FLOATING CASTING)	Connected Pipes	
Sta. Offset	104+87.16 - 50.0' LTT (OCL_1stSt)	(N) 15" Concrete Pipe INV IN = 1643.15	
Rim Elev.	1648.92'	(W) 15" Concrete Pipe INV IN = 1643.30	
Top Base Elev.	1643.04	(E) 15" Concrete Pipe INV IN = 1643.30	
Invert Elev.	1643.05'	(S) 18" Concrete Pipe INV OUT = 1643.05	
Riser Height	4.0 Ft.		

Inlet No.	I-4(A)		
Type	INLET TYPE - 2 DOUBLE		
Grate Style	Type V		
Sta. Offset	104+71.66 - 49.9' LT (OCL_1stSt)	Connected Pipes	
Grate Elev.	1648.72	(E) 15" Concrete Pipe INV OUT = 1643.91	
Top Base Elev.	1643.91		
Invert Elev.	1643.91'		
H' Length	4.1 Ft.		

Inlet No.	I-4(B)		
Type	INLET TYPE - 2 DOUBLE		
Grate Style	Type V		
Sta. Offset	105+02.66 - 50.1' LT (OCL_1stSt)	Connected Pipes	
Grate Elev.	1648.67	(W) 15" Concrete Pipe INV OUT = 1643.92	
Top Base Elev.	1643.92		
Invert Elev.	1643.92'		
H' Length	4.0 Ft.		

MH No.	STMH-100 - 60" (FLOATING CASTING)	Connected Pipes	
Sta. Offset	106+74.57 - 8.1' LT (OCL_1stSt)	(E) 30" Concrete Pipe INV IN = 1641.37	
Rim Elev.	1648.51'	(S) 12" PVC Pipe Existing INV IN = 1641.37 (Contractor To Verify)	
Top Base Elev.	1641.37	(W) 30" Concrete Pipe INV OUT = 1641.37	
Invert Elev.	1641.37'		
Riser Height	5.1 Ft.		

MH No.	STMH-5 - 60" (FLOATING CASTING)	Connected Pipes	
Sta. Offset	108+02.12 - 9.6' LT (OCL_1stSt)	(S) 18" Concrete Pipe INV IN = 1642.45	
Rim Elev.	1647.98'	(N) 18" Concrete Pipe INV IN = 1642.45	
Top Base Elev.	1641.37	(E) 30" Concrete Pipe INV IN = 1641.45	
Invert Elev.	1641.37'	(W) 30" Concrete Pipe INV OUT = 1641.37	
Riser Height	4.6 Ft.		

Inlet No.	I-5(A)		
Type	INLET MOUNTABLE CURB - TYPE B		
Grate Style	Type L		
Sta. Offset	108+02.12 - 16.0' LT (OCL_1stSt)	Connected Pipes	
Grate Elev.	1647.90	(E) 15" Concrete Pipe INV IN = 1642.77	
Top Base Elev.	1642.52	(NW) 6" PVC Pipe Existing INV IN = 1643.49 (Verify)	
Invert Elev.	1642.52'	(S) 18" Concrete Pipe INV OUT = 1642.52	
H' Length	4.5 Ft.		

Inlet No.	I-5(B)		
Type	INLET MOUNTABLE CURB - TYPE B		
Grate Style	Type L		
Sta. Offset	108+02.13 - 16.0' RT (OCL_1stSt)	Connected Pipes	
Grate Elev.	1647.90	(E) 15" Concrete Pipe INV IN = 1642.76	
Top Base Elev.	1642.66	(N) 18" Concrete Pipe INV OUT = 1642.66	
Invert Elev.	1642.66'		
H' Length	4.3 Ft.		

Inlet No.	I-5(A.1)		
Type	INLET TYPE - 2 DOUBLE		
Grate Style	Type V		
Sta. Offset	108+20.00 - 15.5' LT (OCL_1stSt)	Connected Pipes	
Grate Elev.	1647.70	(W) 15" Concrete Pipe INV OUT = 1642.95	
Top Base Elev.	1642.95		
Invert Elev.	1642.95'		
H' Length	4.0 Ft.		

Inlet No.	I-5(B.1)		
Type	INLET TYPE - 2 DOUBLE		
Grate Style	Type V		
Sta. Offset	108+18.58 - 15.5' RT (OCL_1stSt)	Connected Pipes	
Grate Elev.	1647.68	(W) 15" Concrete Pipe INV OUT = 1642.92	
Top Base Elev.	1642.92		
Invert Elev.	1642.92'		
H' Length	4.0 Ft.		

MH No.	EXMH-6 - EX 84"; ADJUST EX RIM 1648.54	Connected Pipes	
Sta. Offset	108+69.36 - 9.9' LT (OCL_1stSt)	(E) 24" Concrete Pipe INV IN = 1641.58	
Rim Elev.	1648.52'	(N) 18" Concrete Pipe INV IN = 1642.80	
		(S) 24" Concrete Pipe INV IN = 1642.05	
		(W) 30" Concrete Pipe INV OUT = 1641.58	

MH No.	STMH-7 - 60" (FLOATING CASTING)	Connected Pipes	
Sta. Offset	109+32.56 - 6.9' LTT (OCL_1stSt)	(E) 24" Concrete Pipe INV IN = 1641.69	
Rim Elev.	1647.74'	(S) 15" Concrete Pipe INV IN = 1642.18	
Top Base Elev.	1641.69	(N) 15" Concrete Pipe INV IN = 1642.44	
Invert Elev.	1641.69'	(W) 24" Concrete Pipe INV OUT = 1641.69	
Riser Height	4.0 Ft.		

Inlet No.	I-7(A)		
Type	INLET TYPE - 2 DOUBLE		
Grate Style	Type V		
Sta. Offset	109+32.57 - 23.7' LT (OCL_1stSt)	Connected Pipes	
Grate Elev.	1647.56	(S) 15" Concrete Pipe INV OUT = 1642.81	
Top Base Elev.	1642.81		
Invert Elev.	1642.81'		
H' Length	4.0 Ft.		

Inlet No.	I-7(B)		
Type	INLET TYPE - 2 DOUBLE		
Grate Style	Type V		
Sta. Offset	109+30.62 - 21.8' RT (OCL_1stSt)	Connected Pipes	
Grate Elev.	1647.45	(N) 15" Concrete Pipe INV OUT = 1642.72	
Top Base Elev.	1642.70		
Invert Elev.	1642.72'		
H' Length	4.0 Ft.		

MH No.	STMH-31 - 48" (FLOATING CASTING)	Connected Pipes	
Sta. Offset	108+65.81 - 83.6' LT (OCL_1stSt)	(N) 15" Concrete Pipe INV IN = 1643.20	
Rim Elev.	1648.44'	(W) 15" Concrete Pipe INV IN = 1643.20	
Top Base Elev.	1642.56	(E) 15" Concrete Pipe INV IN = 1643.20	
Invert Elev.	1643.10'	(S) 18" Concrete Pipe INV OUT = 1643.10	
Riser Height	4.0 Ft.		

Inlet No.	I-31(A)		
Type	INLET TYPE - 2 DOUBLE		
Grate Style	Type V		
Sta. Offset	108+46.31 - 83.6' LT (OCL_1stSt)	Connected Pipes	
Grate Elev.	1647.99	(E) 15" Concrete Pipe INV OUT = 1643.34	
Top Base Elev.	1643.24		
Invert Elev.	1643.34'		
H' Length	4.0 Ft.		

Inlet No.	I-31(B)		
Type	INLET TYPE - 2 DOUBLE		
Grate Style	Type V		
Sta. Offset	108+96.31 - 83.5' LT (OCL_1stSt)	Connected Pipes	
Grate Elev.	1647.95	(W) 15" Concrete Pipe INV OUT = 1643.42	
Top Base Elev.	1643.20		
Invert Elev.	1643.42'		
H' Length	4.0 Ft.		

SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	50	1

NOTES:

1. CONTRACTOR SHALL FIELD VERIFY SIZE, LOCATION, AND ELEVATION OF ALL EXISTING UTILITY COMPONENTS PRIOR TO CONSTRUCTION.
2. ALL INLETS - TYPE 2 INCLUDE 4" CASTING HEIGHT AND 5" ADJUSTING RINGS. PROVIDE NEENAH FOUNDRY COMPANY R-3295 WITH TYPE V GRATES OR APPROVED EQUIVALENT FOR ALL "TYPE 36" INLETS". PROVIDE NEENAH FOUNDRY COMPANY R-3295-2 WITH TYPE V GRATES OR APPROVED EQUIVALENT FOR ALL "TYPE 72" INLETS".
3. ALL INLET MOUNTABLE CURB - TYPE B INCLUDE 6" CASTING HEIGHT AND 5" ADJUSTING RINGS. PROVIDE ALTERNATE GRATE TYPE L GRATE OR APPROVED EQUIVALENT FOR ALL INLET MOUNTABLE CURB - TYPE B.
4. ALL MANHOLES IN CONCRETE SHALL INCLUDE FLOATING CASTINGS WITH 11.5" CASTING HEIGHT AND 5" ADJUSTING RINGS. PROVIDE NEENAH FOUNDRY COMPANY R-1955-1 FLOATING CASTING OR APPROVED EQUIVALENT FOR ALL NEW OR EXISTING MANHOLES THAT LIE WITHIN THE LIMITS OF NEW ROADWAY OR SIDEWALK. PLACE FLUSH ALL CASTINGS TO WITHIN 1/8 INCH BELOW THE PAVEMENT THAT LIE WITHIN THE ROADWAY.
5. ALL ELEVATIONS REFER TO THE NAVD-88 VERTICAL DATUM.

REGISTERED PROFESSIONAL ENGINEER
ANDREW WERDER
PE-6696
DATE 11-6-25
NORTH DAKOTA

Rev'd.
Rev'd.
Rev'd.
Rev'd.

DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA

KLJ

INLET & MANHOLE SUMMARY

DRWN. BY	CHK'D BY	PROJECT NO.
JP	EB	1904-02191

MH No.	STMH-60 - 60" (FLOATING CASTING)
Sta. Offset	42+55.00 - 0.0' (OCL_4thAve)
Rim Elev.	1648.61'
Top Base Elev.	1642.57
Invert Elev.	1642.87'
Riser Height	4.0 Ft.

Connected Pipes
(W) 18" Concrete Pipe INV IN = 1643.00
(E) 15" Concrete Pipe INV IN = 1643.00
(N) 24" Concrete Pipe INV OUT = 1642.87

Inlet No.	I-60(A)
Type	INLET TYPE - 2
Grate Style	Type V
Sta. Offset	43+03.69 - 25.5' LT (OCL_4thAve)
Grate Elev.	1648.06
Top Base Elev.	1643.31
Invert Elev.	1643.83'
H' Length	4.0 Ft.

Connected Pipes
(S) 15" Concrete Pipe INV OUT = 1643.83

Inlet No.	I-60(B)
Type	INLET TYPE - 2 DOUBLE
Grate Style	Type V
Sta. Offset	42+55.00 - 24.5' RT (OCL_4thAve)
Grate Elev.	1648.11
Top Base Elev.	1643.36
Invert Elev.	1643.50'
H' Length	4.0 Ft.

Connected Pipes
(S) 8" PVC Pipe INV IN = 1644.08
(W) 15" Concrete Pipe INV OUT = 1643.50

Inlet No.	I-60(A.1)
Type	INLET TYPE - 2
Grate Style	Type V
Sta. Offset	42+55.00 - 25.5' LT (OCL_4thAve)
Grate Elev.	1648.20
Top Base Elev.	1643.19
Invert Elev.	1643.19'
H' Length	4.3 Ft.

Connected Pipes
(N) 15" Concrete Pipe INV IN = 1643.30
(E) 18" Concrete Pipe INV OUT = 1643.19

MH No.	EXST-52(A) - EX CB; REPLACE CASTING
Sta. Offset	41+18.76 - 21.6' LT (OCL_4thAve)
Rim Elev.	1648.77'

Connected Pipes
(S) 18" Concrete Pipe Existing INV OUT = 1645.09

MH No.	SSMH - 01 - 48" (FLOATING CASTING)
Sta. Offset	106+80.44 - 0.0' LTT (OCL_1stSt)
Rim Elev.	1648.58'
Top Base Elev.	1640.17
Invert Elev.	1640.17'
Riser Height	6.5 Ft.

Connected Pipes
(N) 12" PVC Pipe INV IN = 1640.26
(S) 12" PVC Pipe INV OUT = 1640.17

SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	50	2

NOTES:

1. CONTRACTOR SHALL FIELD VERIFY SIZE, LOCATION, AND ELEVATION OF ALL EXISTING UTILITY COMPONENTS PRIOR TO CONSTRUCTION.
2. ALL INLETS - TYPE 2 INCLUDE 4" CASTING HEIGHT AND 5" ADJUSTING RINGS. PROVIDE NEENAH FOUNDRY COMPANY R-3295 WITH TYPE V GRATES OR APPROVED EQUIVALENT FOR ALL "TYPE 36" INLETS". PROVIDE NEENAH FOUNDRY COMPANY R-3295-2 WITH TYPE V GRATES OR APPROVED EQUIVALENT FOR ALL "TYPE 72" INLETS".
3. ALL INLET MOUNTABLE CURB - TYPE B INCLUDE 6" CASTING HEIGHT AND 5" ADJUSTING RINGS. PROVIDE ALTERNATE GRATE TYPE L GRATE OR APPROVED EQUIVALENT FOR ALL INLET MOUNTABLE CURB - TYPE B.
4. ALL MANHOLES IN CONCRETE SHALL INCLUDE FLOATING CASTINGS WITH 11.5" CASTING HEIGHT AND 5" ADJUSTING RINGS. PROVIDE NEENAH FOUNDRY COMPANY R-1955-1 FLOATING CASTING OR APPROVED EQUIVALENT FOR ALL NEW OR EXISTING MANHOLES THAT LIE WITHIN THE LIMITS OF NEW ROADWAY OR SIDEWALK. PLACE FLUSH ALL CASTINGS TO WITHIN 1/8 INCH BELOW THE PAVEMENT THAT LIE WITHIN THE ROADWAY.
5. ALL ELEVATIONS REFER TO THE NAVD-88 VERTICAL DATUM.

REGISTERED PROFESSIONAL ENGINEER
ANDREW WERDER
PE-6696
DATE 11-6-25
NORTH DAKOTA

Rev'd.
Rev'd.
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Rev'd.

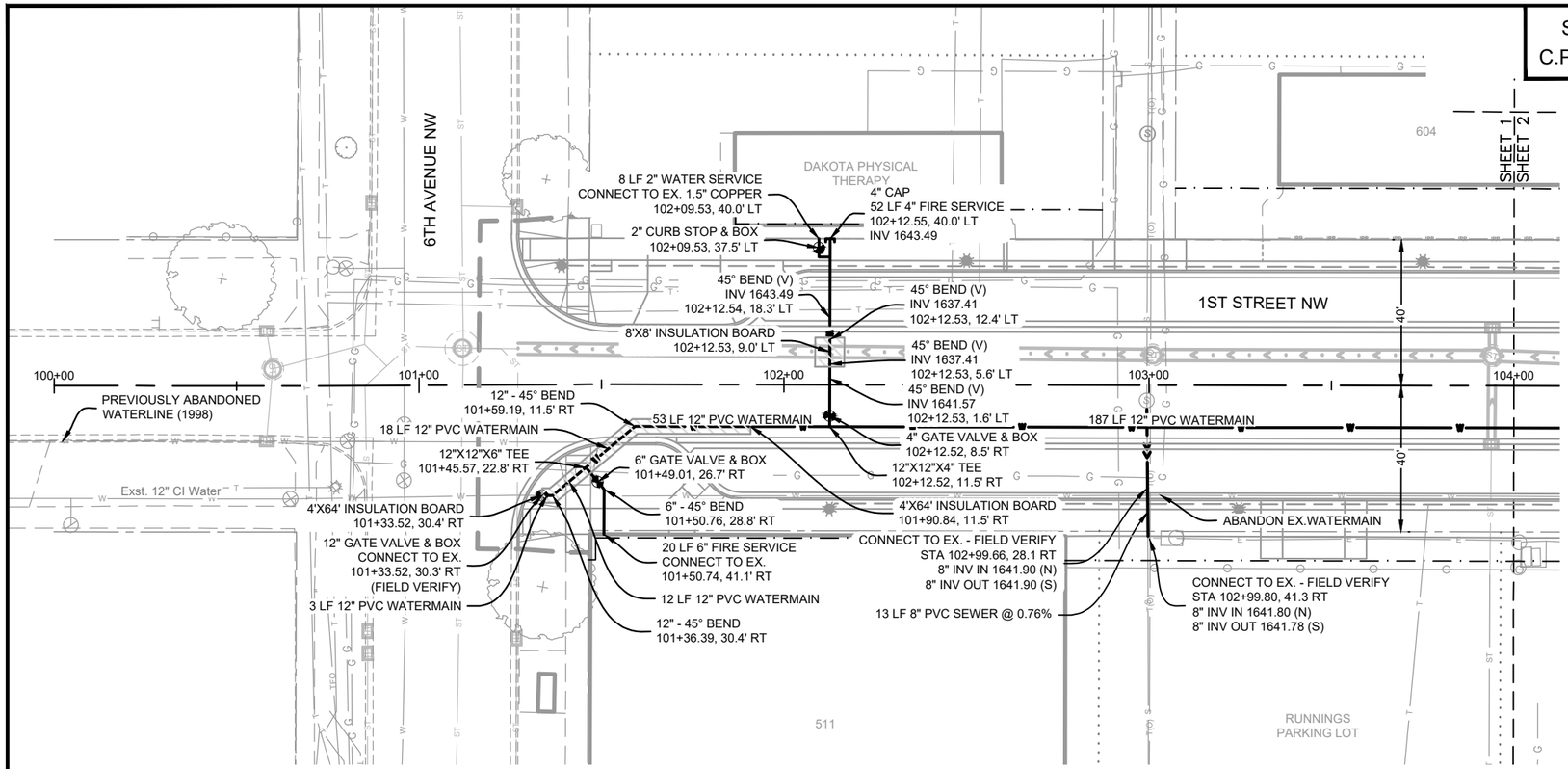
DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA

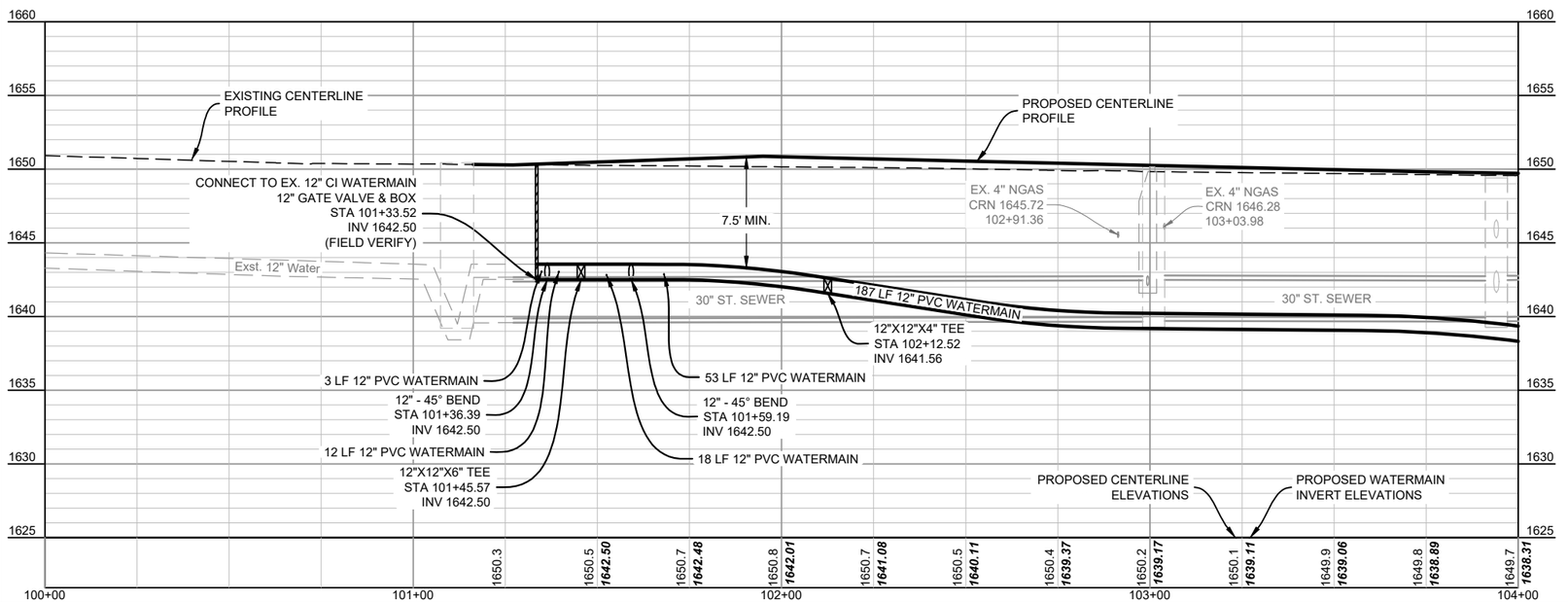
KLJ

INLET & MANHOLE SUMMARY

DRWN. BY	CHK'D BY	PROJECT NO.
JP	EB	1904-02191

SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	57	1





SPEC CODE	BID ITEM	QTY	UNIT
724 0290	GATE VALVE & BOX 4IN		
	STA 102+12.52, 8.5 RT	1	EA
724 0300	GATE VALVE & BOX 6IN		
	STA 101+49.01, 26.7 RT	1	EA
724 0314	GATE VALVE & BOX 12IN		
	STA 101+33.52, 30.3 RT	1	EA
724 0621	WATER SERVICE LINE 2IN		
	STA 102+09.53, 40.0 LT - STA 102+12.55, 35.0 LT	8	LF
724 0629	WATER SERVICE LINE 4IN		
	STA 102+12.52, 11.5 RT - STA 102+12.55, 40.0 LT	52	LF
724 0636	WATER SERVICE LINE 6IN		
	STA 101+45.57, 22.8 RT - STA 101+50.74, 41.1 RT	20	LF
724 0850	WATERMAIN 12IN PVC		
	STA 101+33.52, 30.3 RT - STA 101+36.39, 30.4 RT	3	LF
	STA 101+36.39, 30.4 RT - STA 101+45.57, 22.8 RT	12	LF
	STA 101+45.57, 22.8 RT - STA 101+59.19, 11.5 RT	18	LF
	STA 101+59.19, 11.5 RT - STA 102+12.52, 11.5 RT	53	LF
	STA 102+12.52, 11.5 RT - STA 104+00.00, 11.5 RT	187	LF
724 0910	CURB STOP & BOX 2IN		
	STA 102+09.53, 37.5 LT	1	EA
724 0944	CONNECTION TO EXISTING MAIN		
	STA 101+33.52, 30.3 RT	1	EA
	STA 102+99.66, 28.1 RT	1	EA
	STA 102+99.80, 41.3 RT	1	EA
724 0960	WATER SERVICE CONNECTION 2IN		
	STA 102+09.53, 40.0 LT	1	EA
724 0975	WATER LINE CONNECTION 6IN		
	STA 101+50.74, 41.1 RT	1	EA
724 1110	8IN SANITARY SEWER PIPE		
	STA 102+99.66, 28.1 RT - STA 102+99.80, 41.3 RT	13	LF
744 0100	POLYSTYRENE INSULATION BOARD		
	STA 101+33.52, 30.4' RT TO STA 101+90.84, 11.5' RT	1,024	BD FT
	STA 102+12.53, 9.0' RT	256	BD FT

NOTE(S):

1. ENGINEER HAS ASSUMED SIZE AND TYPE OF PIPE MATERIALS FOR EXISTING WATER SERVICES. CONTRACTOR SHALL VERIFY SIZE AND MATERIALS PRIOR TO ORDERING MATERIALS.
2. ENGINEER HAS ASSUMED THE DEPTH, SIZE AND TYPE OF PIPE MATERIALS BASED ON LIMITED AS BUILT DATA FOR THE EXISTING WATERMAIN. CONTRACTOR SHALL VERIFY DEPTH, SIZE AND MATERIALS PRIOR TO CONSTRUCTION.

N

20 0 20 40
scale 1"=40' feet
NAVD88

REGISTERED PROFESSIONAL ENGINEER
ANDREW WERDER
PE-6696
DATE 12-8-25
NORTH DAKOTA

Rev'd.
Rev'd.
Rev'd.
Rev'd.

DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

KLJ

PLAN & PROFILE
STA. 100+00 TO 104+00

DRWN. BY	CHK'D BY	PROJECT NO.
MM	EB	1904-02191

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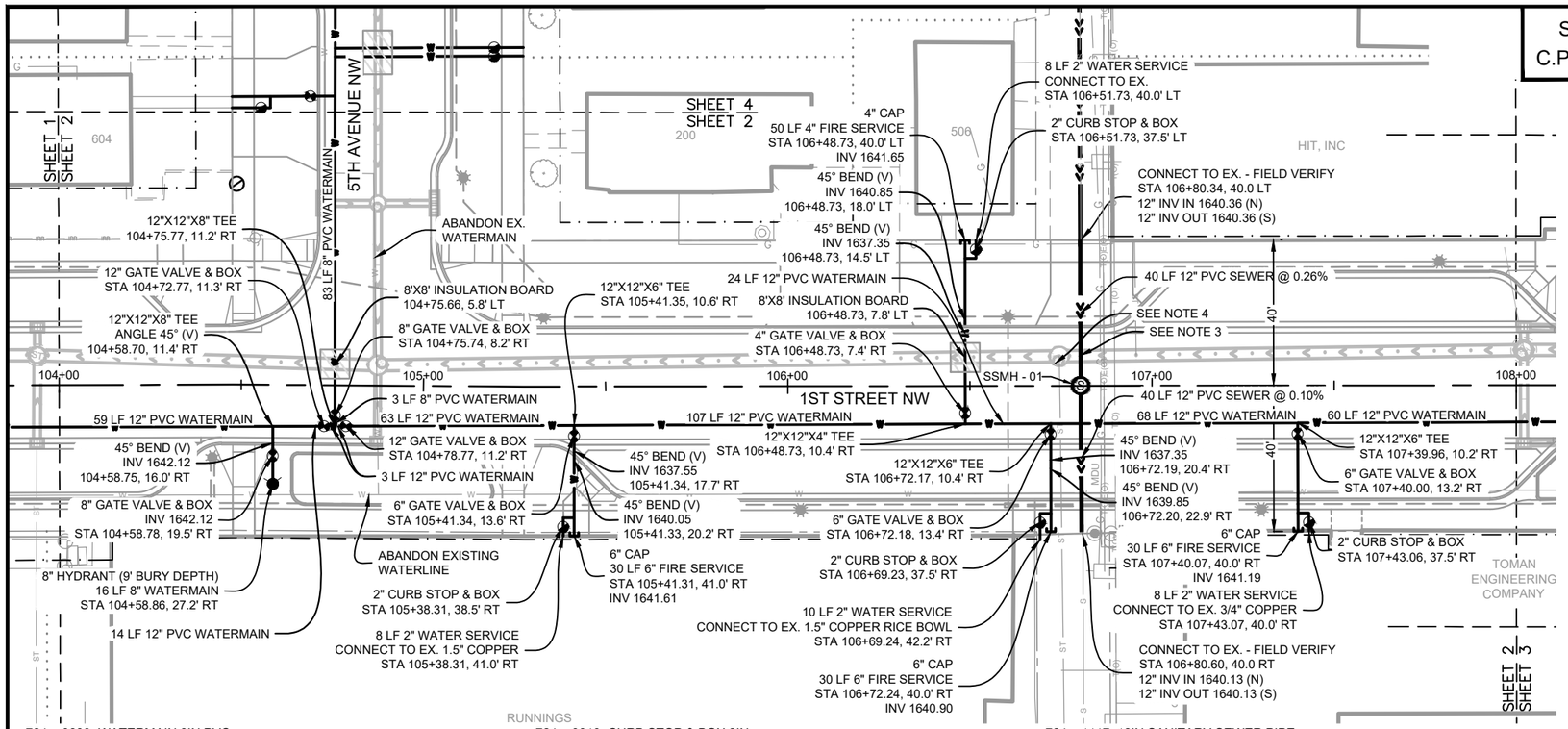
SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	57	2

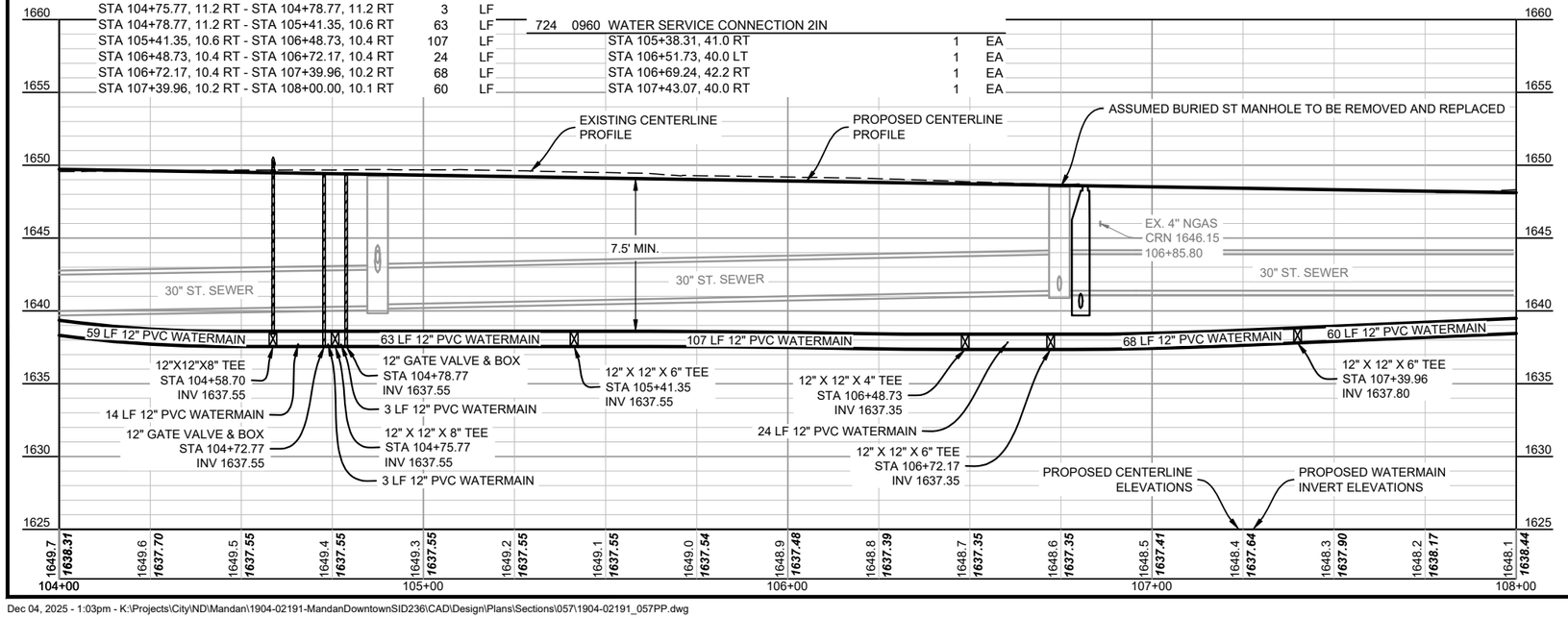


RUNNINGS

724	0830	WATERMAIN 8IN PVC			
		STA 104+58.70, 11.4 RT - STA 104+58.86, 27.2 RT	16	LF	
		STA 104+75.77, 11.2 RT - STA 104+75.74, 8.2 RT	3	LF	
		STA 104+75.74, 8.2 RT - STA 104+75.21, 74.9 LT	83	LF	
724	0850	WATERMAIN 12IN PVC			
		STA 104+00.00, 11.5 RT - STA 104+58.70, 11.4 RT	59	LF	
		STA 104+58.70, 11.4 RT - STA 104+72.77, 11.3 RT	14	LF	
		STA 104+72.77, 11.3 RT - STA 104+75.77, 11.2 RT	3	LF	
		STA 104+75.77, 11.2 RT - STA 104+78.77, 11.2 RT	3	LF	
		STA 104+78.77, 11.2 RT - STA 105+41.35, 10.6 RT	63	LF	
		STA 105+41.35, 10.6 RT - STA 106+48.73, 10.4 RT	107	LF	
		STA 106+48.73, 10.4 RT - STA 106+72.17, 10.4 RT	24	LF	
		STA 106+72.17, 10.4 RT - STA 107+39.96, 10.2 RT	68	LF	
		STA 107+39.96, 10.2 RT - STA 108+00.00, 10.1 RT	60	LF	

724	0910	CURB STOP & BOX 2IN		
		STA 105+38.31, 38.5 RT	1	EA
		STA 106+51.73, 37.5 LT	1	EA
		STA 106+69.23, 37.5 RT	1	EA
		STA 107+43.06, 37.5 RT	1	EA
724	0944	CONNECTION TO EXISTING MAIN		
		STA 106+80.34, 40.0 LT	1	EA
		STA 106+80.60, 40.0 RT	1	EA
724	0960	WATER SERVICE CONNECTION 2IN		
		STA 105+38.31, 41.0 RT	1	EA
		STA 106+51.73, 40.0 LT	1	EA
		STA 106+69.24, 42.2 RT	1	EA
		STA 107+43.07, 40.0 RT	1	EA

724	1117	12IN SANITARY SEWER PIPE		
		STA 106+80.34, 40.0 LT - STA 106+80.44, 0.0 LT	40	LF
		STA 106+80.44, 0.0 LT - STA 106+80.60, 40.0 RT	40	LF
744	0100	POLYSTYRENE INSULATION BOARD		
		STA 104+75.66, 5.8' RT	256	BD FT
		STA 106+48.73, 7.8' RT	256	BD FT



SPEC	CODE	BID ITEM	QTY	UNIT
722	0300	MANHOLE SANITARY		
		STA 106+80.44, 0.0 LT	1	EA
724	0290	GATE VALVE & BOX 4IN		
		STA 106+48.73, 7.4 RT	1	EA
724	0300	GATE VALVE & BOX 6IN		
		STA 105+41.34, 13.6 RT	1	EA
		STA 106+72.18, 13.4 RT	1	EA
		STA 107+40.00, 13.2 RT	1	EA
724	0310	GATE VALVE & BOX 8IN		
		STA 104.58.78, 19.5 RT	1	EA
		STA 104+75.74, 8.2 RT	1	EA
724	0314	GATE VALVE & BOX 12IN		
		STA 104+72.77, 11.3 RT	1	EA
		STA 104+78.77, 11.2 RT	1	EA
724	0412	8IN HYDRANT		
		STA 104+58.86, 27.2 RT	1	EA
724	0621	WATER SERVICE LINE 2IN		
		STA 105+38.31, 41.0 RT - STA 105.41.32, 36.0 RT	8	LF
		STA 106+48.73, 35.0 LT - STA 106.51.73, 40.0 LT	8	LF
		STA 106+69.24, 42.2 RT - STA 106+72.23, 35.0 RT	10	LF
		STA 107+40.05, 35.0 RT - STA 107+43.07, 40.0 RT	8	LF
724	0629	WATER SERVICE LINE 4IN		
		106+48.73, 10.4 RT - STA 106+48.73, 40.0 LT	50	LF
724	0636	WATER SERVICE LINE 6IN		
		STA 105+41.35, 10.6 RT - STA 105+41.31, 41.0 RT	30	LF
		STA 106+72.17, 10.4 RT - STA 106+72.24, 40.0 RT	30	LF
		STA 107+39.96, 10.2 RT - STA 107+40.07, 40.0 RT	30	LF

NOTE(S):

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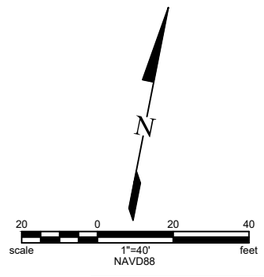
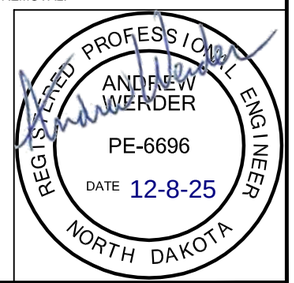
2. ENGINEER HAS ASSUMED THE DEPTH, SIZE AND TYPE OF PIPE MATERIALS BASED ON LIMITED AS BUILT DATA FOR THE EXISTING WATERMAIN. CONTRACTOR SHALL VERIFY DEPTH, SIZE AND MATERIALS PRIOR TO CONSTRUCTION.
3. ENGINEER HAS ASSUMED THE EXISTING SANITARY SEWER @ STA 106+80 CROSSES BELOW THE EXISTING STORM SEWER. CONTRACTOR SHALL EXPOSE THE CROSSING TO VERIFY THAT THERE IS NO CONFLICT PRIOR TO INSTALLATION AT STORM SEWER BETWEEN STA 104+85 TO STA 108+00, STMH -100. CENTER ONE SECTION OF SANITARY SEWER PIPE ACROSS THE STORM SEWER CROSSING.
4. ENGINEER HAS ASSUMED THE EXISTING 15" STORM SEWER PIPE CONNECTS TO THE EXISTING 30" MAINLINE STORM SEWER PIPE THROUGH A BURIED MANHOLE. CONTRACTOR TO VERIFY EXISTENCE OF MANHOLE PRIOR TO REMOVAL.





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DOWNTOWN STREET RECONSTRUCTION

CITY OF MANDAN, NORTH DAKOTA

1ST STREET NW

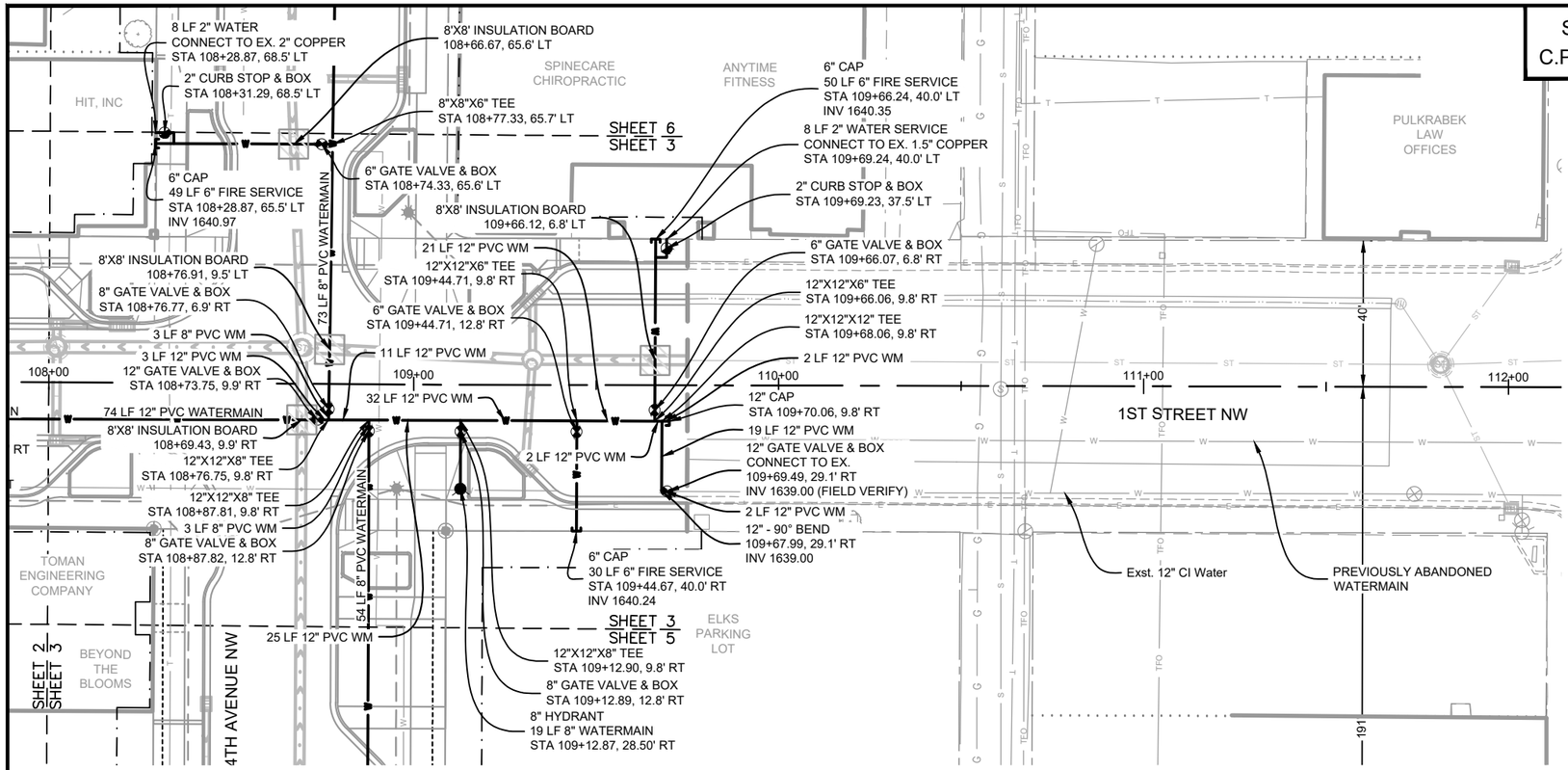
KLJ

PLAN & PROFILE
STA. 104+00 TO 108+00

DRWN. BY	CHK'D BY	PROJECT NO.
MM	EB	1904-02191

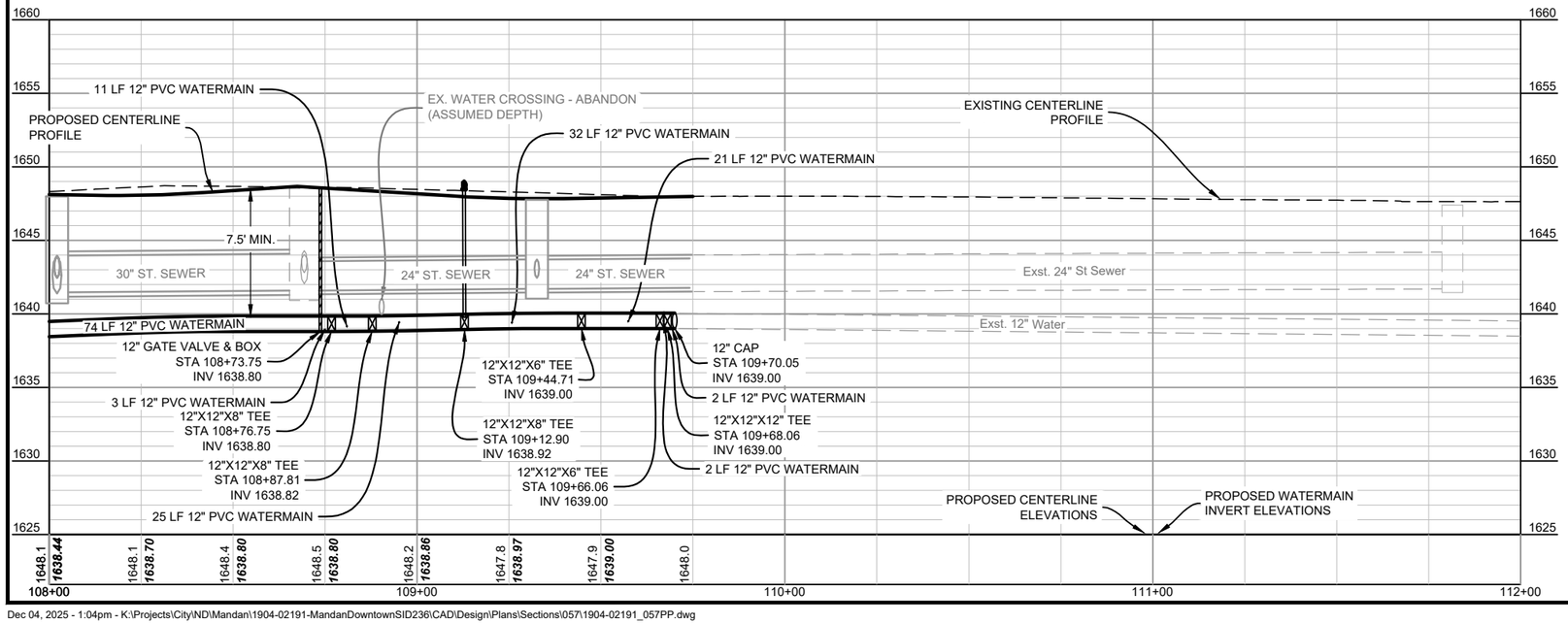
Dec 04, 2025 - 1:03pm - K:\Projects\City\ND\Mandan\1904-02191-MandanDowntownSID236\CAD\Design\Plans\Sections\057\1904-02191_057PP.dwg

SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	57	3



SPEC CODE	BID ITEM	QTY	UNIT
724 0300	GATE VALVE & BOX 6IN		
	STA 108+74.33, 65.6 LT	1	EA
	STA 109+44.71, 12.8 RT	1	EA
	STA 109+66.07, 6.8 RT	1	EA
724 0310	GATE VALVE & BOX 8IN		
	STA 108+76.77, 6.9 RT	1	EA
	STA 108+87.81, 12.8 RT	1	EA
	STA 109+12.89, 12.8 RT	1	EA
724 0314	GATE VALVE & BOX 12IN		
	STA 108+73.75, 9.9 RT	1	EA
	STA 109+69.49, 29.1 RT	1	EA
724 0412	8IN HYDRANT		
	STA 109+12.87, 28.5 RT	1	EA
724 0621	WATER SERVICE LINE 2IN		
	STA 108+28.87, 68.5 LT - STA 108+33.78, 65.5 LT	8	EA
	STA 109+66.22, 35.0 LT - STA 109+69.24, 40.0 LT	8	EA
724 0636	WATER SERVICE LINE 6IN		
	STA 108+28.87, 65.5 LT - STA 108+77.33, 65.7 LT	49	LF
	STA 109+44.71, 9.8 RT - STA 109+44.67, 40.0 RT	30	LF
	STA 109+66.06, 9.8 RT - STA 109+66.24, 40.0 LT	50	LF
724 0830	WATERMAIN 8IN PVC		
	STA 108+76.75, 9.8 RT - STA 108+76.77, 6.9 RT	3	LF
	STA 108+76.77, 6.9 RT - STA 108+77.33, 65.7 LT	73	LF
	STA 108+87.81, 9.8 RT - STA 108+87.82, 12.8 RT	3	LF
	STA 108+87.82, 12.8 RT - STA 108+88.00, 66.5 RT	54	LF
	STA 109+12.90, 9.8 RT - STA 109+12.87, 28.5 RT	19	LF
724 0850	WATERMAIN 12IN PVC		
	STA 108+00.00, 10.1 RT - STA 108+73.75, 9.9 RT	74	LF
	STA 108+73.75, 9.9 RT - STA 108+76.75, 9.8 RT	3	LF
	STA 108+76.75, 9.8 RT - STA 108+87.81, 9.8 RT	11	LF
	STA 108+87.81, 9.8 RT - STA 109+12.90, 9.8 RT	25	LF
	STA 109+12.90, 9.8 RT - STA 109+44.71, 9.8 RT	32	LF
	STA 109+44.71, 9.8 RT - STA 109+66.06, 9.8 RT	21	LF
	STA 109+66.06, 9.8 RT - STA 109+68.06, 9.8 RT	2	LF
	STA 109+68.06, 9.8 RT - STA 109+70.06, 9.8 RT	2	LF
	STA 109+68.06, 9.8 RT - STA 109+67.99, 29.1 RT	19	LF
	STA 109+67.99, 29.1 RT - STA 109+69.49, 29.1 RT	2	LF

SPEC CODE	BID ITEM	QTY	UNIT
724 0910	CURB STOP & BOX 2IN		
	STA 108+31.29, 68.5 LT	1	EA
	STA 109+69.23, 37.5 LT	1	EA
724 0944	CONNECTION TO EXISTING MAIN		
	STA 109+69.49, 29.1 RT	1	EA
724 0960	WATER SERVICE CONNECTION 2IN		
	STA 108+31.29, 68.5 LT	1	EA
	STA 109+69.24, 40.0 LT	1	EA
744 0100	POLYSTYRENE INSULATION BOARD		
	STA 108+66.67, 65.6' LT	256	BD FT
	STA 108+69.43, 9.9' RT	256	BD FT
	STA 108+76.91, 9.5' LT	256	BD FT
	STA 109+66.12, 6.8' LT	256	BD FT



NOTE(S):

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N

20 0 20 40
scale 1"=40' feet
NAVD88

REGISTERED PROFESSIONAL ENGINEER
ANDREW WERDER
PE-6696
DATE 12-8-25
NORTH DAKOTA

Rev'd.
Rev'd.
Rev'd.
Rev'd.

DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

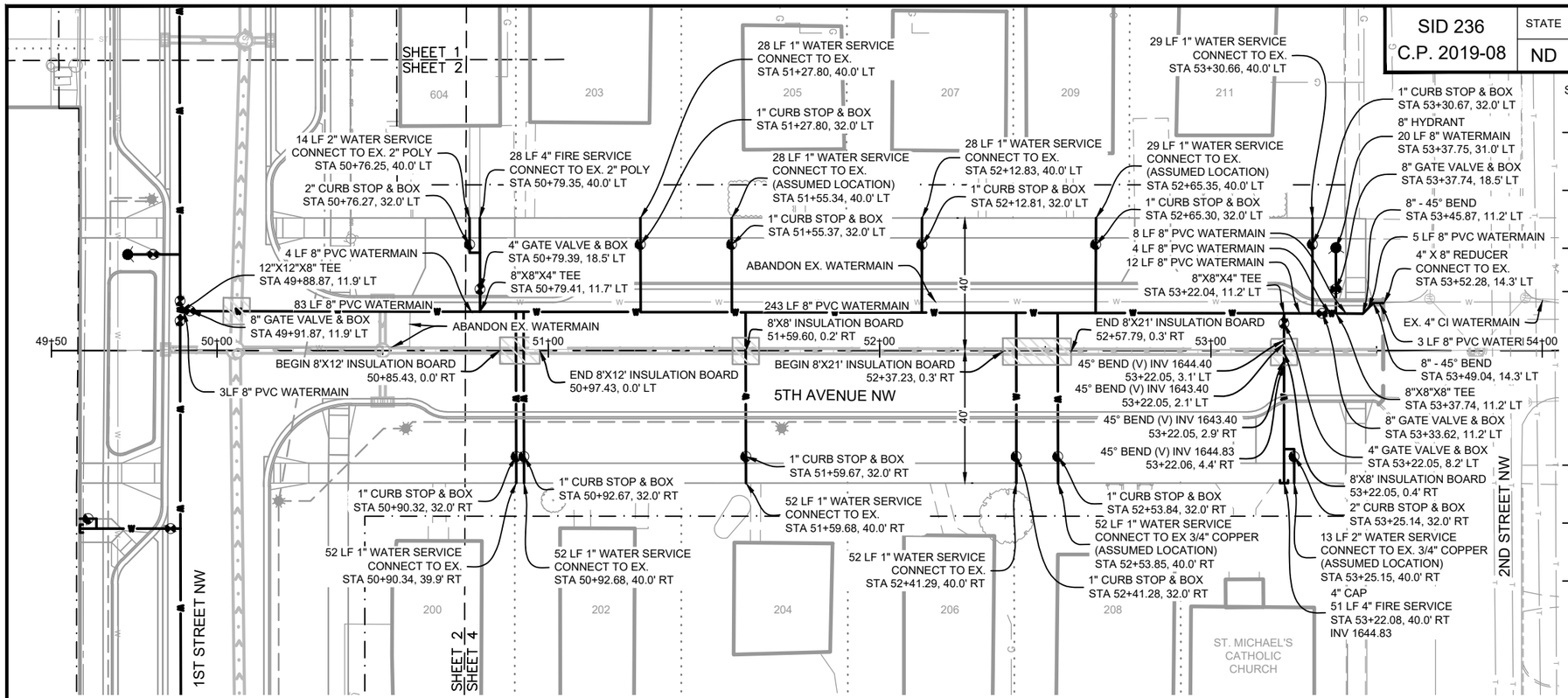
KLJ

PLAN & PROFILE
STA. 108+00 TO 112+00

DRWN. BY	CHK'D BY	PROJECT NO.
MM	EB	1904-02191

Dec 04, 2025 - 1:04pm - K:\Projects\City\ND\Mandan\1904-02191-MandanDowntownSID236\CAD\Design\Plans\Sections\057\1904-02191_057PP.dwg

SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	57	4



SPEC CODE	BID ITEM	QTY	UNIT
724 0290	GATE VALVE & BOX 4IN		
	STA 50+79.39, 18.5 LT	1	EA
	STA 53+22.05, 8.2 LT	1	EA
724 0310	GATE VALVE & BOX 8IN		
	STA 53+33.62, 11.2 LT	1	EA
	STA 53+37.74, 18.5 LT	1	EA
724 0412	8IN HYDRANT		
	STA 53+37.75, 31.0 LT	1	EA
724 0611	WATER SERVICE LINE 1IN		
	STA 50+90.23, 11.7 LT - STA 50+90.34, 39.9 RT	52	LF
	STA 50+92.58, 11.7 LT - STA 50+92.68, 40.0 RT	52	LF
	STA 51+27.80, 40.0 LT - STA 51+27.86, 11.6 LT	28	LF
	STA 51+55.34, 40.0 LT - STA 51+55.40, 11.6 LT	28	LF
	STA 51+59.58, 11.6 LT - STA 51+59.68, 40.00 RT	52	LF
	STA 52+12.83, 40.0 LT - STA 52+12.75, 11.4 LT	28	LF
	STA 52+41.21, 11.4 LT - STA 52+41.29, 40.0 LT	52	LF
	STA 52+53.77, 11.4 LT - STA 52+53.85, 40.0 RT	52	LF
	STA 52+65.35, 40.0 LT - STA 52+65.24, 11.3 LT	29	LF
	STA 53+30.66, 40.0 LT - STA 53+30.69, 11.2 LT	29	LF
724 0621	WATER SERVICE LINE 2IN		
	STA 50+76.25, 40.0 LT - STA 50+79.36, 29.5 LT	14	LF
	STA 53+22.07, 29.7 RT - STA 53+25.15, 40.0 RT	13	LF
724 0629	WATER SERVICE LINE 4IN		
	STA 50+79.35, 40.0 LT - STA 50+79.41, 11.7 LT	28	LF
	STA 53+22.04, 11.2 LT - STA 53+22.08, 40.0 RT	51	LF
724 0830	WATERMAIN 8IN PVC		
	STA 50+75.00, 11.7 LT - STA 50+79.41, 11.7 LT	4	LF
	STA 50+79.41, 11.7 LT - STA 53+22.04, 11.2 LT	243	LF
	STA 53+22.04, 11.2 LT - STA 53+33.62, 11.2 LT	12	LF
	STA 53+33.62, 11.2 LT - STA 53+37.74, 11.2 LT	4	LF
	STA 53+37.74, 11.2 LT - STA 53+45.87, 11.2 LT	8	LF
	STA 53+37.75, 31.0 LT - STA 53+37.74, 11.2 LT	20	LF
	STA 53+45.87, 11.2 LT - STA 53+49.04, 14.3 LT	5	LF
	STA 53+49.04, 14.3 LT - STA 53+52.28, 14.3 LT	3	LF

SPEC CODE	BID ITEM	QTY	UNIT
724 0905	CURB STOP & BOX 1IN		
	STA 50+90.32, 32.0 RT	1	EA
	STA 50+92.67, 32.0 RT	1	EA
	STA 51+27.80, 32.0 LT	1	EA
	STA 51+55.37, 32.0 LT	1	EA
	STA 51+59.67, 32.0 RT	1	EA
	STA 52+12.81, 32.0 LT	1	EA
	STA 52+41.28, 32.0 RT	1	EA
	STA 52+53.84, 32.0 RT	1	EA
	STA 52+65.30, 32.0 LT	1	EA
	STA 53+30.67, 32.0 LT	1	EA
724 0944	CONNECTION TO EXISTING MAIN		
	STA 53+52.28, 14.3 LT	1	EA
724 0955	WATER SERVICE CONNECTION 1IN		
	STA 50+90.34, 39.9 RT	1	EA
	STA 50+92.68, 40.0 RT	1	EA
	STA 51+27.80, 40.0 RT	1	EA
	STA 51+55.34, 40.0 RT	1	EA
	STA 51+59.68, 40.0 RT	1	EA
	STA 52+12.83, 40.0 RT	1	EA
	STA 52+41.29, 40.0 RT	1	EA
	STA 52+53.85, 40.0 RT	1	EA
	STA 52+65.35, 40.0 LT	1	EA
	STA 53+30.66, 40.0 LT	1	EA
724 0960	WATER SERVICE CONNECTION 2IN		
	STA 50+76.25, 40.0 LT	1	EA
	STA 53+25.15, 40.0 RT	1	EA
724 0970	WATER LINE CONNECTION 4IN		
	STA 50+79.35, 40.0 LT	1	EA
744 0100	POLYSTYRENE INSULATION BOARD		
	STA 50+85.43, 0.0' RT TO STA 50+97.43, 0.0' LT	384	BD FT
	STA 51+59.60, 0.2' RT	256	BD FT
	STA 52+37.23, 0.3' RT TO STA 52+57.79, 0.3' RT	672	BD FT
	STA 53+22.05, 0.4' RT	256	BD FT

SPEC CODE	BID ITEM	QTY	UNIT
724 0910	CURB STOP & BOX 2IN		
	STA 50+76.27, 32.0 LT	1	EA
	STA 53+25.14, 32.0 RT	1	EA

NOTE(S):

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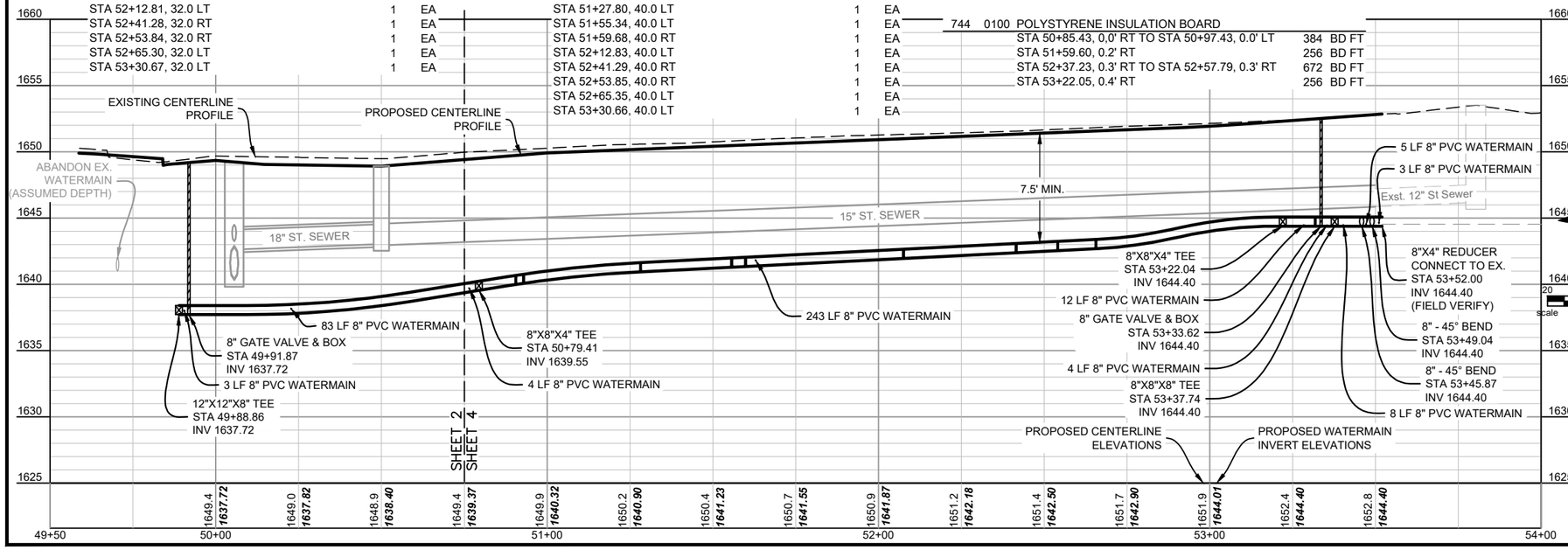

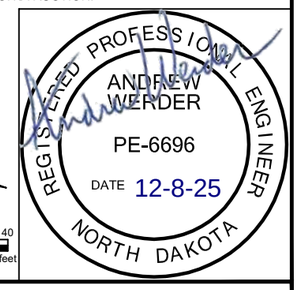

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20 0 20 40
scale 1"=40' feet
NAVD88

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DOWNTOWN STREET RECONSTRUCTION

CITY OF MANDAN, NORTH DAKOTA

5TH AVENUE NW

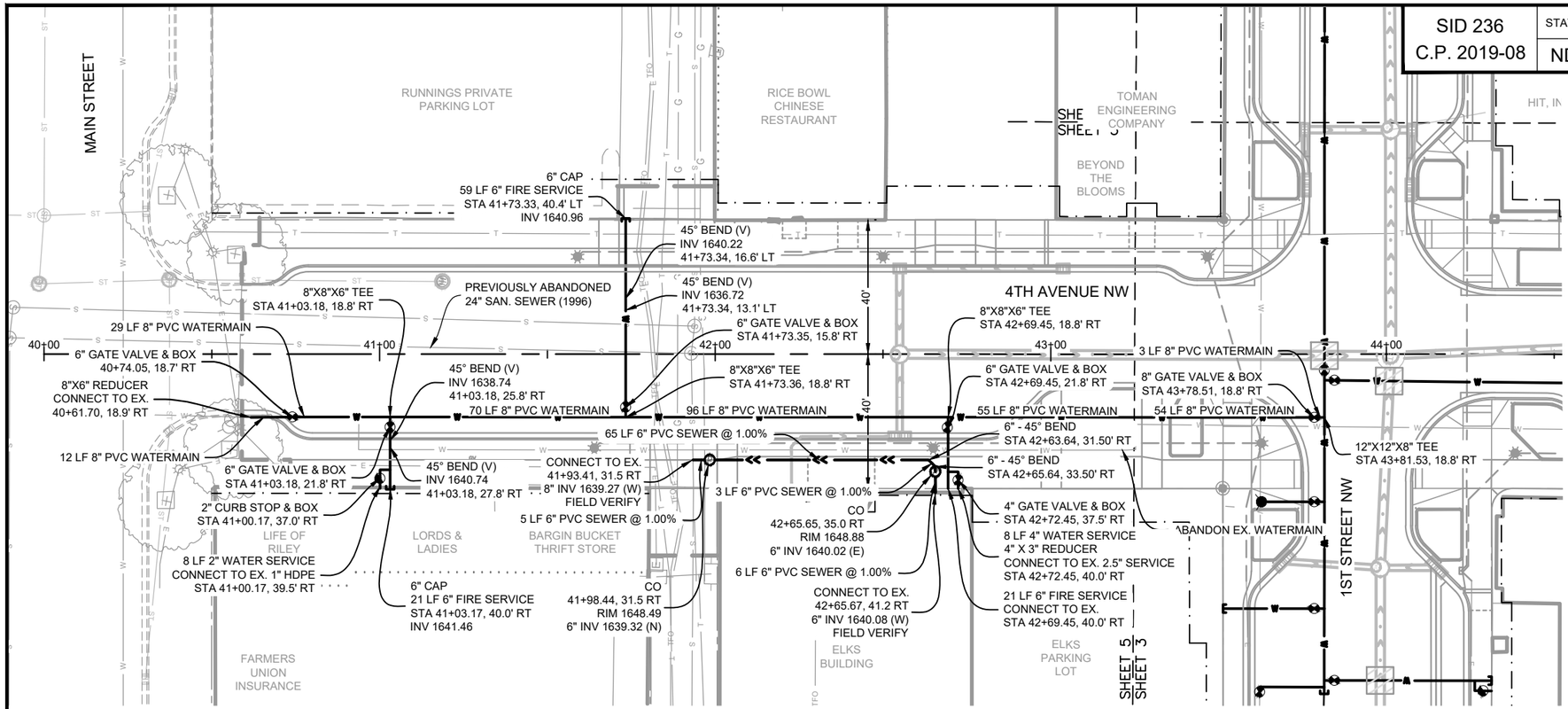
KLJ

PLAN & PROFILE
STA. 50+00 TO 54+00

DRWN. BY	CHK'D BY	PROJECT NO.
MM	EB	1904-02191

Dec 04, 2025 - 1:04pm - K:\Projects\City\ND\Mandan\1904-02191-MandanDowntownSID236\CAD\Design\Plans\Sections\057\1904-02191_057PP.dwg

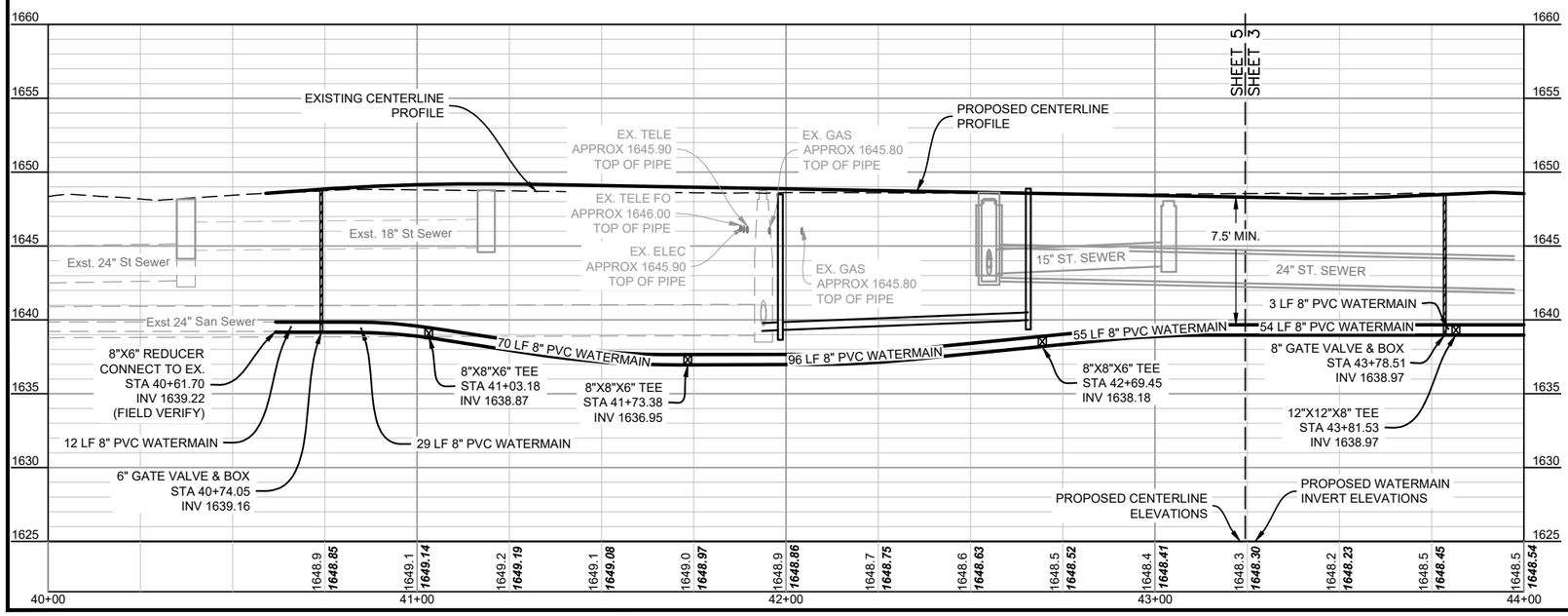
SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	57	5



SPEC CODE	BID ITEM	QTY	UNIT
724 0290	GATE VALVE & BOX 4IN		
	STA 42+72.45, 37.5 RT	1	EA
724 0300	GATE VALVE & BOX 6IN		
	STA 40+74.04, 18.7 RT	1	EA
	STA 41+03.18, 21.8 RT	1	EA
	STA 41+73.35, 15.8 RT	1	EA
	STA 42+69.45, 21.8 RT	1	EA
724 0621	WATER SERVICE LINE 2IN		
	STA 41+00.17, 39.5 RT - STA 41+03.18, 34.5 RT	8	LF
724 0629	WATER SERVICE LINE 4IN		
	STA 42+69.45, 35.0 RT - STA 42+72.45, 40.0 RT	8	LF
724 0636	WATER SERVICE LINE 6IN		
	STA 41+03.18, 18.8 RT - STA 41+03.17, 40.0 RT	21	LF
	STA 41+73.33, 40.4 LT - STA 41+73.36, 18.8 RT	59	LF
	STA 42+69.45, 18.8 RT - STA 42+69.45, 40.0 RT	21	LF
724 0830	WATERMAIN 8IN PVC		
	STA 40+61.70, 18.9 RT - STA 40+74.05, 18.7 RT	12	LF
	STA 40+74.05, 18.7 RT - STA 41+03.18, 18.8 RT	29	LF
	STA 41+03.18, 18.8 RT-STA 41+73.36, 18.8 RT	70	LF
	STA 41+73.36, 18.8 RT - STA 42+69.45, 18.8 RT	96	LF
	STA 42+69.45, 18.8 RT - STA 43+24.90, 18.8 RT	55	LF
724 0910	CURB STOP & BOX 2IN		
	STA 41+00.17, 37.0 RT	1	EA
724 0944	CONNECTION TO EXISTING MAIN		
	STA 40+61.70, 18.9 RT	1	EA
	STA 41+93.41, 34.5 RT	1	EA
	STA 42+65.67, 41.2 RT	1	EA
724 0960	WATER SERVICE CONNECTION 2IN		
	STA 41+00.17, 39.5' RT	1	EA
724 0962	WATER SERVICE CONNECTION 2 1/2IN		
	STA 42+72.45, 40.0 RT	1	EA
724 0975	WATER LINE CONNECTION 6IN		
	STA 42+69.45, 40.0 RT	1	EA

724 1120	6IN SEWER SERVICE PIPE		
	STA 41+93.41, 31.5 RT - STA 41+98.44, 31.5 RT	5	LF
	STA 41+98.44, 31.5 RT - STA 42+63.64, 31.5 RT	65	LF
	STA 42+63.64, 31.5 RT - STA 42+65.65, 35.0 RT	3	LF
	STA 42+65.65, 35.0 RT - STA 42+65.67, 41.2 RT	6	LF

724 9002	SANITARY SEWER CLEANOUT		
	STA 41+98.44, 31.5 RT	1	EA
	STA 42+65.65, 35.0 RT	1	EA



NOTE(S):

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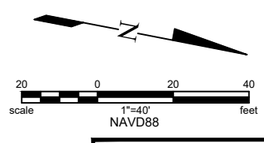
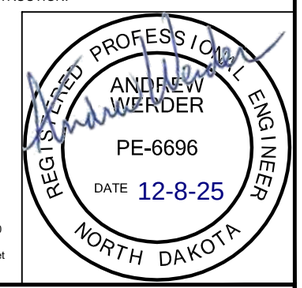
2. ENGINEER HAS ASSUMED THE DEPTH, SIZE AND TYPE OF PIPE MATERIALS BASED ON LIMITED AS BUILT DATA FOR THE EXISTING WATERMAIN. CONTRACTOR SHALL VERIFY DEPTH, SIZE AND MATERIALS PRIOR TO CONSTRUCTION.





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DOWNTOWN STREET RECONSTRUCTION

CITY OF MANDAN, NORTH DAKOTA

4TH AVENUE NW

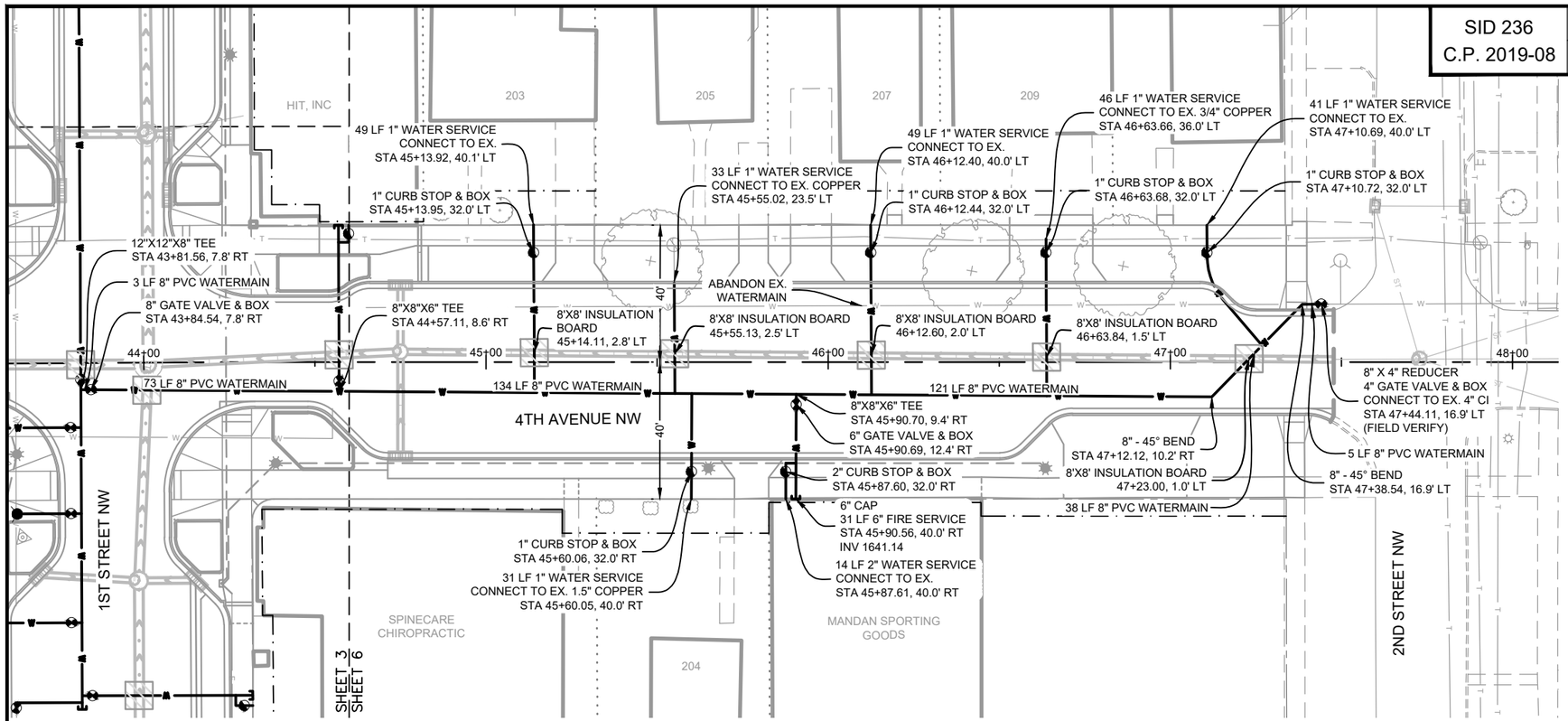
KLJ

PLAN & PROFILE
STA. 40+00 TO 44+00

DRWN. BY	CHK'D BY	PROJECT NO.
MM	EB	1904-02191

Dec 04, 2025 - 1:04pm - K:\Projects\City\ND\Mandan\1904-02191-MandanDowntownSID236\CAD\Design\Plans\Sections\057\1904-02191_057PP.dwg

SID 236 C.P. 2019-08	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	UGP-1-988(052)	57	6

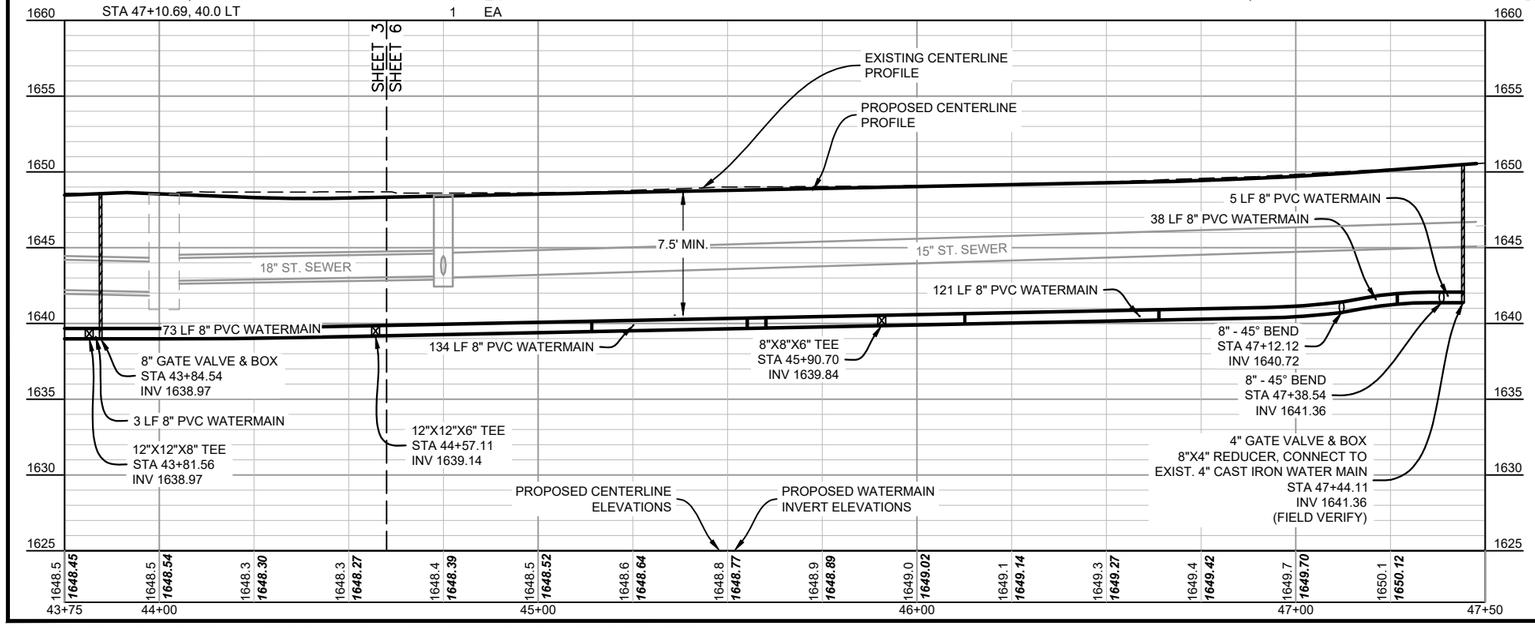


SPEC CODE	BID ITEM	QTY	UNIT
724 0290	GATE VALVE & BOX 4IN		
	STA 47+44.11, 16.9 LT	1	EA
724 0300	GATE VALVE & BOX 6IN		
	STA 45+90.69, 12.4 RT	1	EA
724 0611	WATER SERVICE LINE 1IN		
	STA 45+13.92, 40.1 LT - STA 45+14.17, 8.9 RT	49	LF
	STA 45+55.02, 23.5 LT - STA 45+55.19, 9.2 RT	33	LF
	STA 45+60.13, 9.2 RT - STA 45+60.05, 40.0 RT	31	LF
	STA 46+12.40, 40.0 LT - STA 46+12.66, 9.5 RT	49	LF
	STA 46+63.66, 36.0 LT - STA 46+63.89, 9.9 RT	46	LF
	STA 46+10.69, 40.0 LT - STA 47+26.79, 4.9 LT	41	LF
724 0621	WATER SERVICE LINE 2IN		
	STA 45+87.61, 29.5 RT - STA 45+90.61, 29.5 RT	14	LF
724 0636	WATER SERVICE LINE 6IN		
	STA 45+90.70, 9.4 RT - STA 45+90.56, 40.0 RT	31	LF
724 0830	WATERMAIN 8IN PVC		
	STA 44+57.11, 8.6 LT - STA 45+90.70, 9.4 RT	134	LF
	STA 45+90.70, 9.4 RT - STA 47+12.12, 10.2 RT	121	LF
	STA 47+12.12, 10.2 RT - STA 47+38.54, 16.9 LT	38	LF
	STA 47+38.54, 16.9 LT - STA 47+44.11, 16.9 LT	5	LF
724 0905	CURB STOP & BOX 1IN		
	STA 45+13.95, 32.0 LT	1	EA
	STA 45+60.06, 32.0 RT	1	EA
	STA 46+12.44, 32.0 LT	1	EA
	STA 46+63.68, 32.0 LT	1	EA
	STA 47+10.72, 32.0 LT	1	EA
724 0910	CURB STOP & BOX 2IN		
	STA 45+87.60, 32.0 RT	1	EA
724 0944	CONNECTION TO EXISTING MAIN		
	STA 47+44.11, 16.9 LT	1	EA

724 0955	WATER SERVICE CONNECTION 1IN		
	STA 45+13.92, 40.1 LT	1	EA
	STA 45+54.94, 40.0 LT	1	EA
	STA 45+60.05, 40.0 RT	1	EA
	STA 46+12.40, 40.0 LT	1	EA
	STA 46+63.66, 36.0 LT	1	EA
	STA 47+10.69, 40.0 LT	1	EA

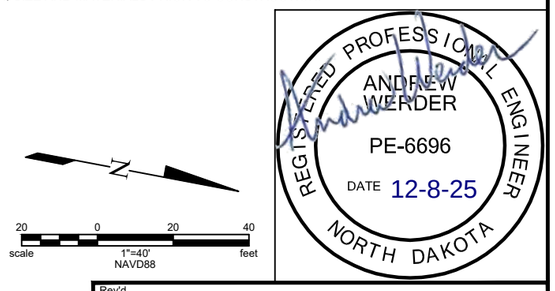
724 0960	WATER SERVICE CONNECTION 2IN		
	STA 45+87.61, 40.0 RT	1	EA

744 0100	POLYSTYRENE INSULATION BOARD		
	STA 45+14.11, 2.8' LT	256	BD FT
	STA 45+55.13, 2.5' LT	256	BD FT
	STA 46+12.60, 2.0' LT	256	BD FT
	STA 46+63.84, 1.5' LT	256	BD FT
	STA 47+23.00, 1.0' LT	256	BD FT



NOTE(S):

1. ENGINEER HAS ASSUMED SIZE AND TYPE OF PIPE MATERIALS FOR EXISTING WATER SERVICES. CONTRACTOR SHALL VERIFY SIZE AND MATERIALS PRIOR TO ORDERING MATERIALS.
2. ENGINEER HAS ASSUMED THE DEPTH, SIZE AND TYPE OF PIPE MATERIALS BASED ON LIMITED AS BUILT DATA FOR THE EXISTING WATERMAIN. CONTRACTOR SHALL VERIFY DEPTH, SIZE AND MATERIALS PRIOR TO CONSTRUCTION.



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20 0 20 40
scale 1"=40' feet
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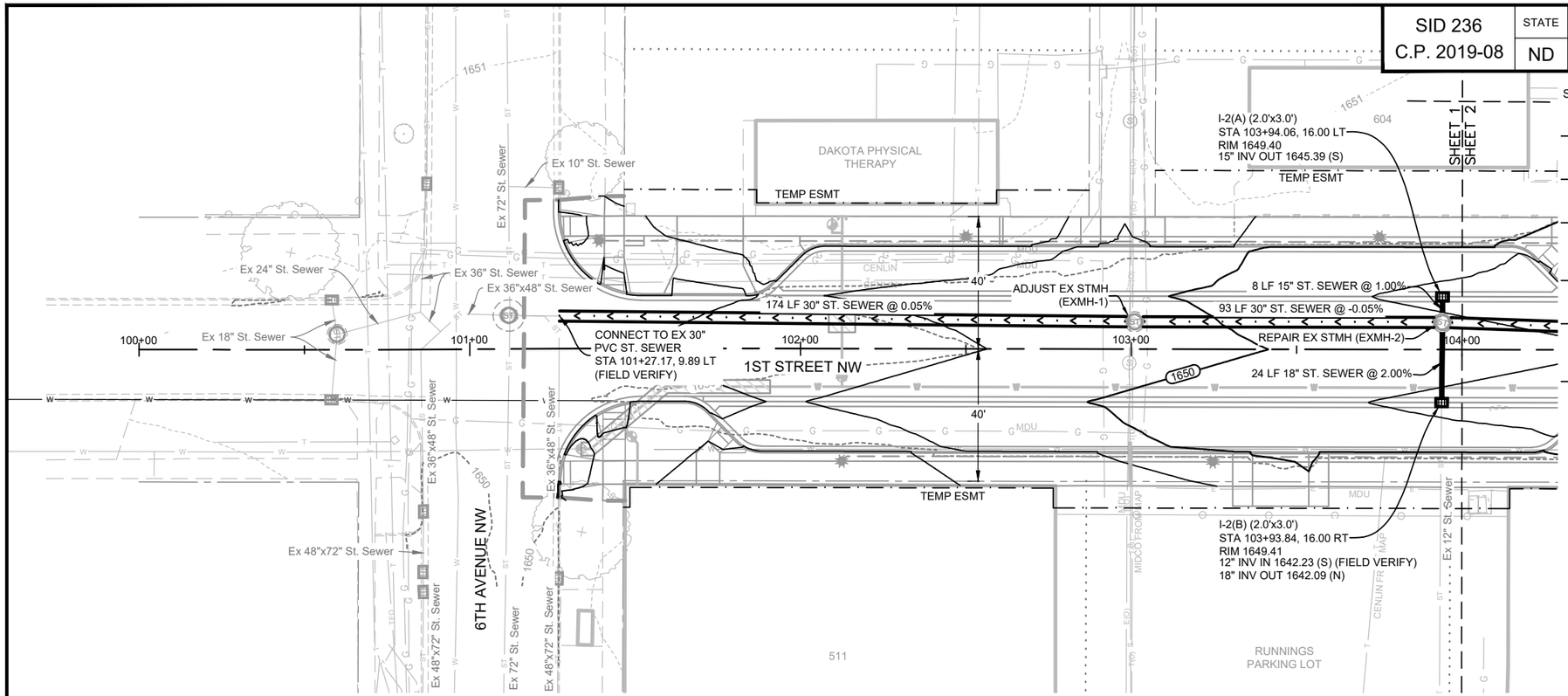
DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
4TH AVENUE NW

KLJ

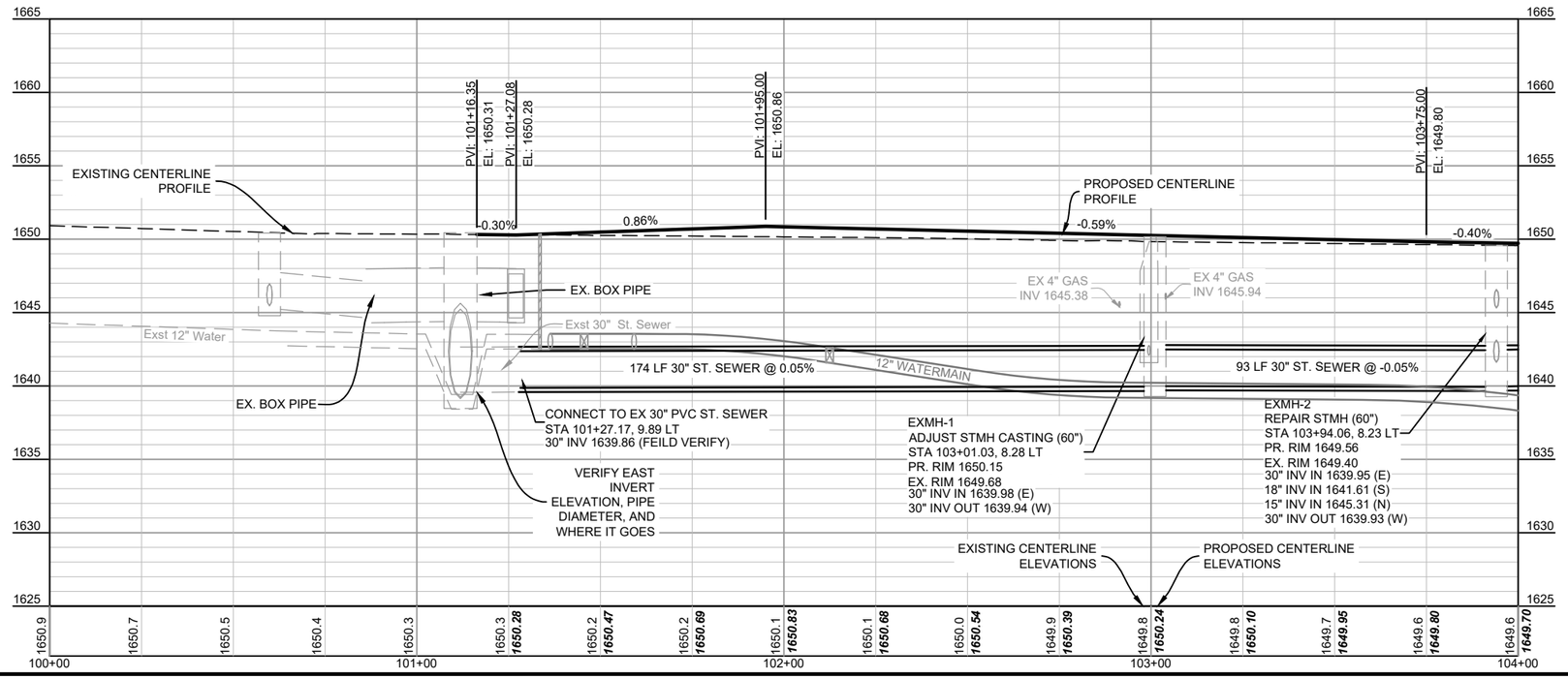
PLAN & PROFILE STA. 44+00 TO 47+50

DRWN. BY	CHK'D BY	PROJECT NO.
MM	EB	1904-02191

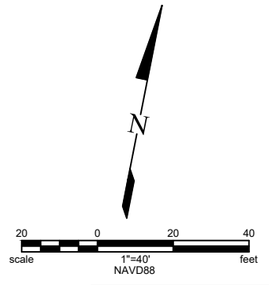
SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	60	1



SPEC CODE	BID ITEM	QTY	UNIT
714 0210	PIPE CONC REINF 15IN CL III-STORM DRAIN		
	STA 103+94.06, 8.2 LT TO I-2 (A)	8	LF
714 0315	PIPE CONC REINF 18IN CL III-STORM DRAIN		
	STA 103+94.06, 8.2 LT TO I-2 (B)	24	LF
714 0825	PIPE CONC REINF 30IN CL III-STORM DRAIN		
	STA 101+27.17, 9.9 LT TO STA 103+01.03, 8.3 LT	174	LF
	STA 103+01.0, 8.3 LT TO STA 103+94.06, 8.2 LT	93	LF
722 3410	MANHOLE REPAIR		
	EXMH-2	1	EA
722 4060	INLET MOUNTABLE CURB-TYPE B		
	I-2 (A)	1	EA
	I-2 (B)	1	EA
722 6200	ADJUST MANHOLE		
	EXMH-1	1	EA



NOTE(S):
1. EXISTING CONTOURS SHOWN AT 1' INTERVALS.
2. PROPOSED CONTOURS SHOWN AT 0.5' INTERVALS.



REGISTERED PROFESSIONAL ENGINEER
ANDREW WERDER
PE-6696
DATE 12-8-25
NORTH DAKOTA

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

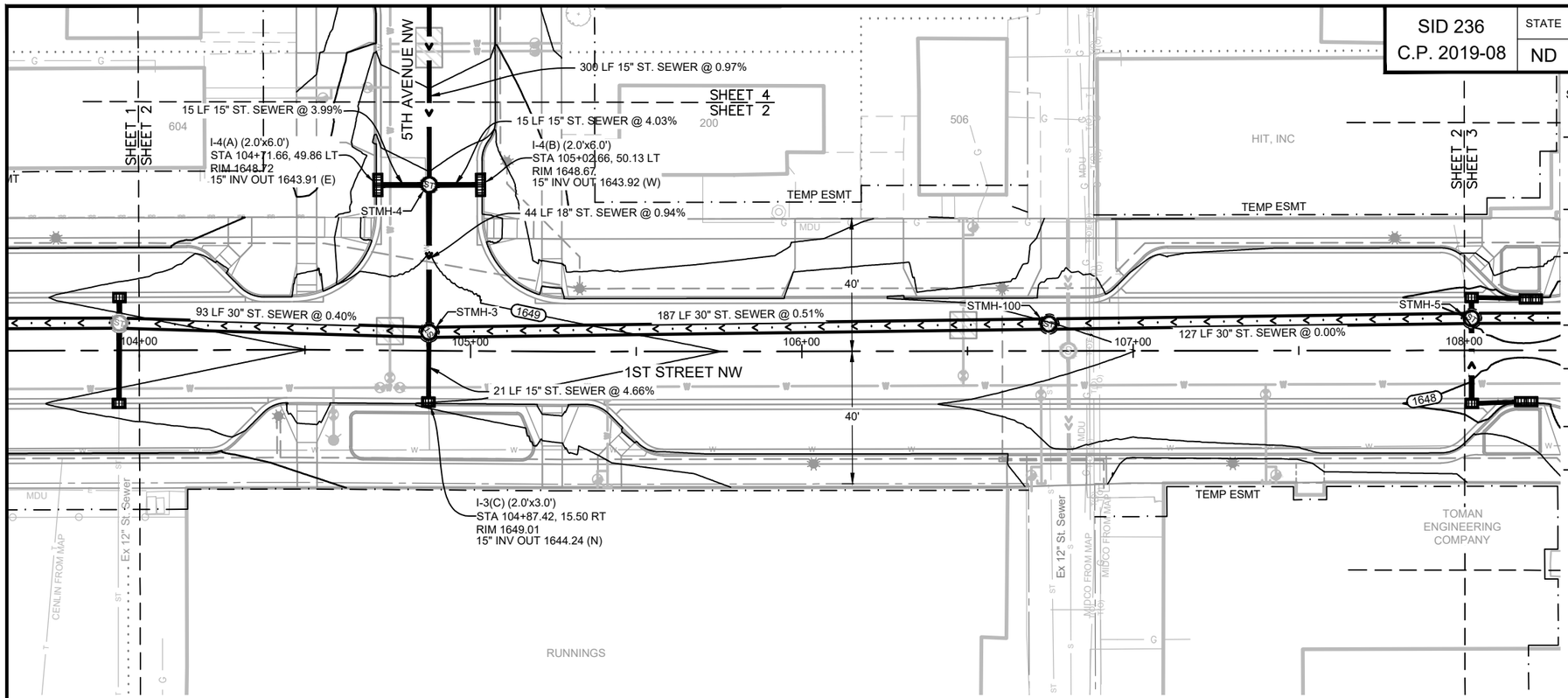
KLJ

PLAN & PROFILE
STA. 100+00 TO 104+00

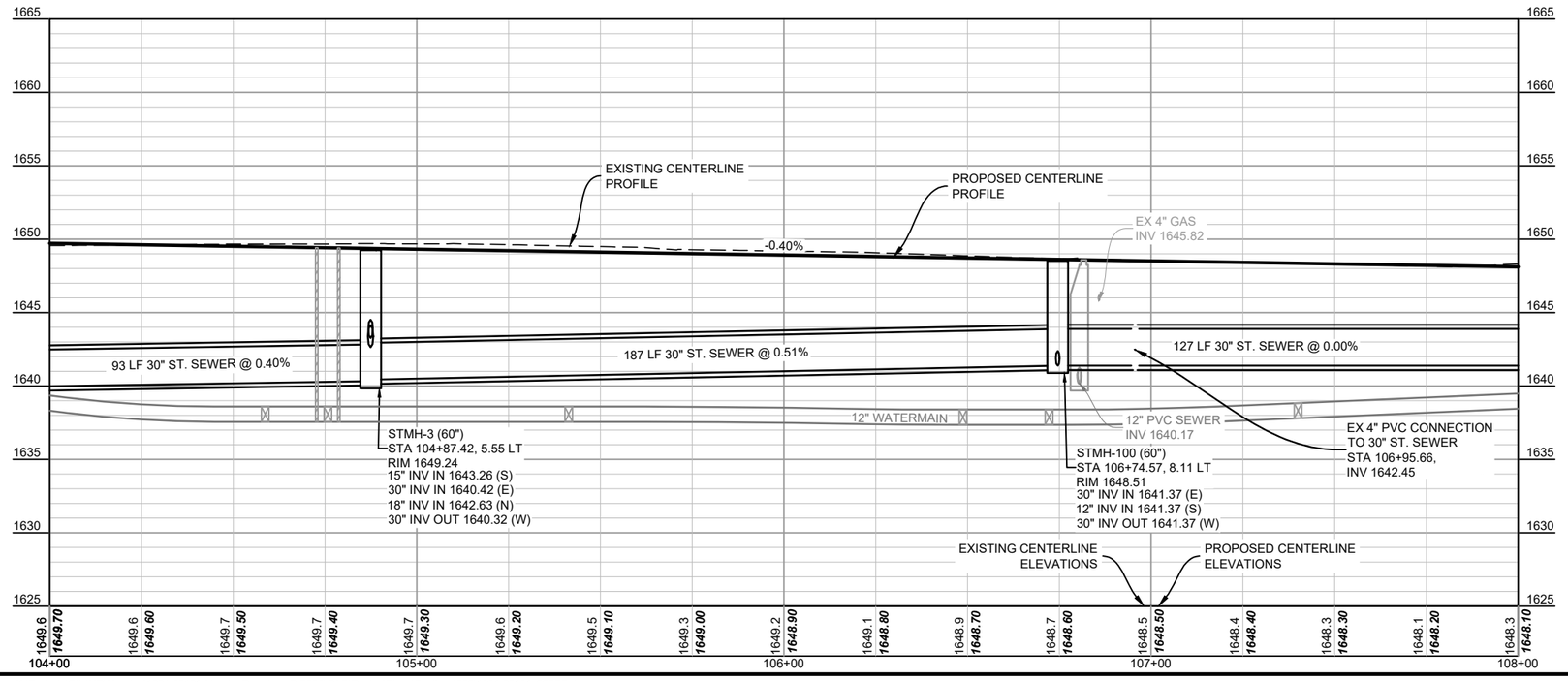
DRWN. BY	CHK'D BY	PROJECT NO.
MM	EB	1904-02191

Dec 08, 2025 - 2:30pm - K:\Projects\City\ND\Mandan\1904-02191-MandanDowntownSID236\CAD\Design\Plans\Sections\060\1904-02191_060PP.dwg

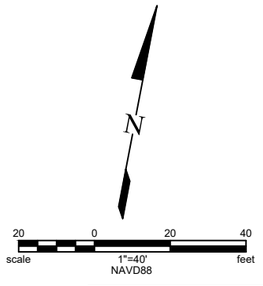
SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	60	2



SPEC	CODE	BID ITEM	QTY	UNIT
714	0210	PIPE CONC REINF 15IN CL III-STORM DRAIN		
		STMH-4 TO I-4(A)	15	LF
		STMH-4 TO I-4(B)	15	LF
		STMH-3 TO I-3(C)	21	LF
714	0315	PIPE CONC REINF 18IN CL III-STORM DRAIN		
		STMH-3 TO STMH-4	44	LF
714	0825	PIPE CONC REINF 30IN CL III-STORM DRAIN		
		EXMH-2 TO STMH-3	93	LF
		STMH-3 TO STMH-100	187	LF
		STMH-100 TO STMH-5	127	LF
722	0100	MANHOLE 48IN		
		STMH-4	1	EA
722	0110	MANHOLE 60IN		
		STMH-3	1	EA
		STMH-100	1	EA
722	3510	INLET-TYPE 2		
		I-3(C)	1	EA
722	3520	INLET-TYPE 2 DOUBLE		
		I-4(A)	1	EA
		I-4(B)	1	EA



NOTE(S):
1. EXISTING CONTOURS SHOWN AT 1' INTERVALS.
2. PROPOSED CONTOURS SHOWN AT 0.5' INTERVALS.



REGISTERED PROFESSIONAL ENGINEER
ANDREW WERDER
PE-6696
DATE 12-8-25
NORTH DAKOTA

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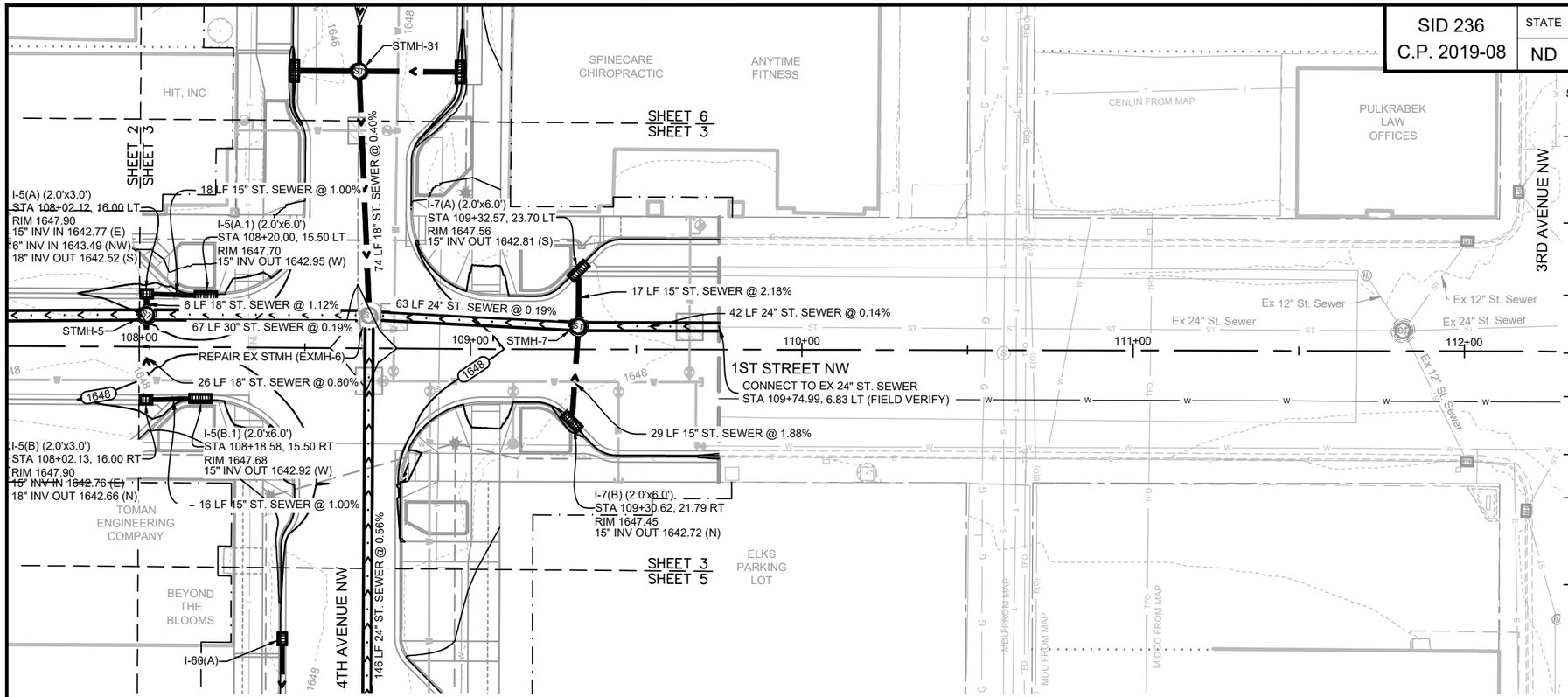
DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

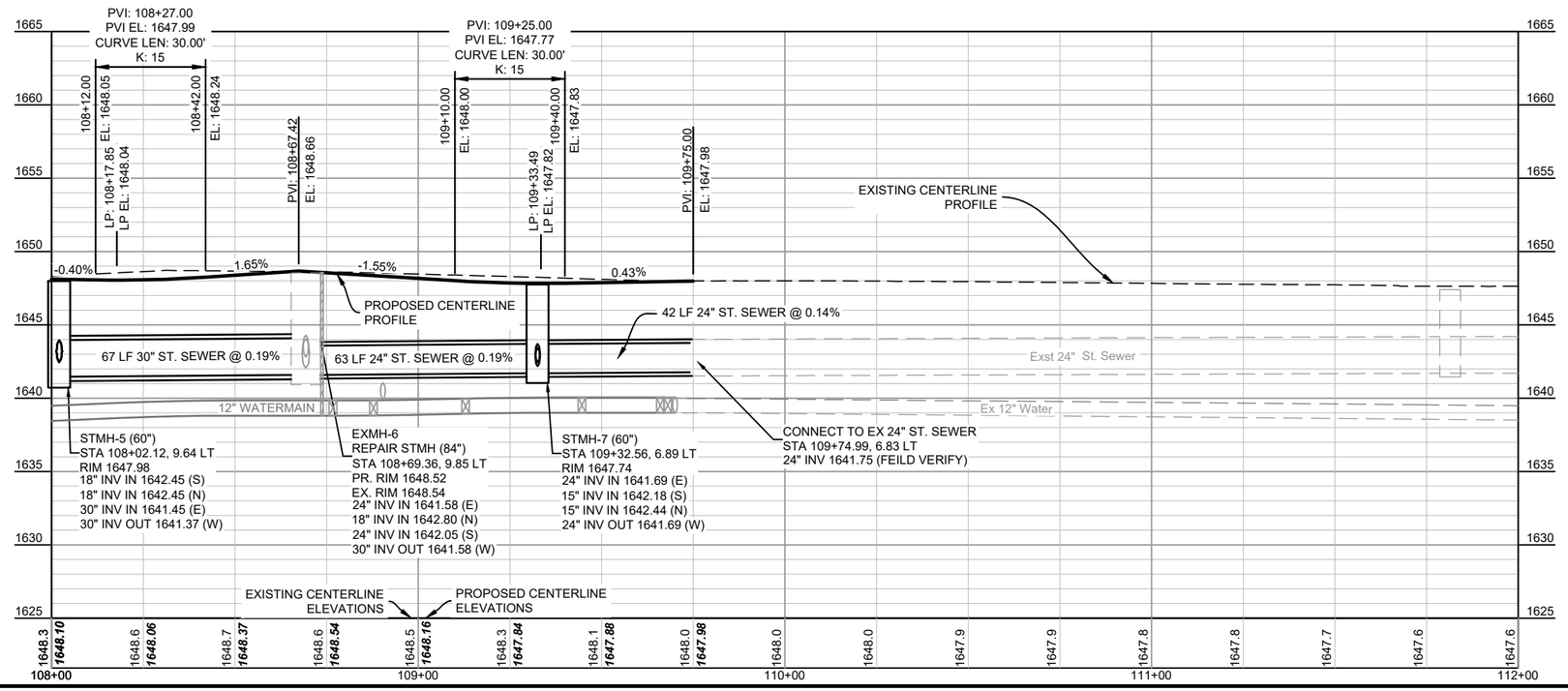
KLJ

PLAN & PROFILE
STA. 104+00 TO 108+00

DRWN. BY	CHK'D BY	PROJECT NO.
MM	EB	1904-02191

SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	60	3





SPEC CODE	BID ITEM	QTY	UNIT
714 0210	PIPE CONC REINF 15IN CL III-STORM DRAIN		
	I-5(B) TO I-5(B.1)	16	LF
	I-5(A) TO I-5(A.1)	18	LF
	STMH-7 TO I-7(A)	17	LF
	STMH-7 TO I-7(B)	29	LF
714 0315	PIPE CONC REINF 18IN CL III-STORM DRAIN		
	STMH-5 TO I-5(A)	6	LF
	STMH-5 TO I-5(B)	26	LF
	EXMH-6 TO STMH-31	74	LF
714 0620	PIPE CONC REINF 24IN CL III-STORM DRAIN		
	EXMH-6 TO STMH-7	63	LF
	STMH-7 TO STA 109+74.99, 6.8 LT	42	LF
714 0825	PIPE CONC REINF 30IN CL III-STORM DRAIN		
	STMH-5 TO EXMH-6	67	LF
722 0110	MANHOLE 60IN		
	STMH-5	1	EA
	STMH-7	1	EA
722 3410	MANHOLE REPAIR		
	EXMH-6	1	EA
722 3520	INLET-TYPE 2 DOUBLE		
	I-5(A.1)	1	EA
	I-5(B.1)	1	EA
	I-7(A)	1	EA
	I-7(B)	1	EA
722 4060	INLET MOUNTABLE CURB-TYPE B		
	I-5(A)	1	EA
	I-5(B)	1	EA

NOTE(S):
1. EXISTING CONTOURS SHOWN AT 1' INTERVALS.
2. PROPOSED CONTOURS SHOWN AT 0.5' INTERVALS.

N

20 0 20 40
scale 1"=40' feet
NAVD88

REGISTERED PROFESSIONAL ENGINEER
ANDREW WERDER
PE-6696
DATE 12-8-25
NORTH DAKOTA

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

KLJ

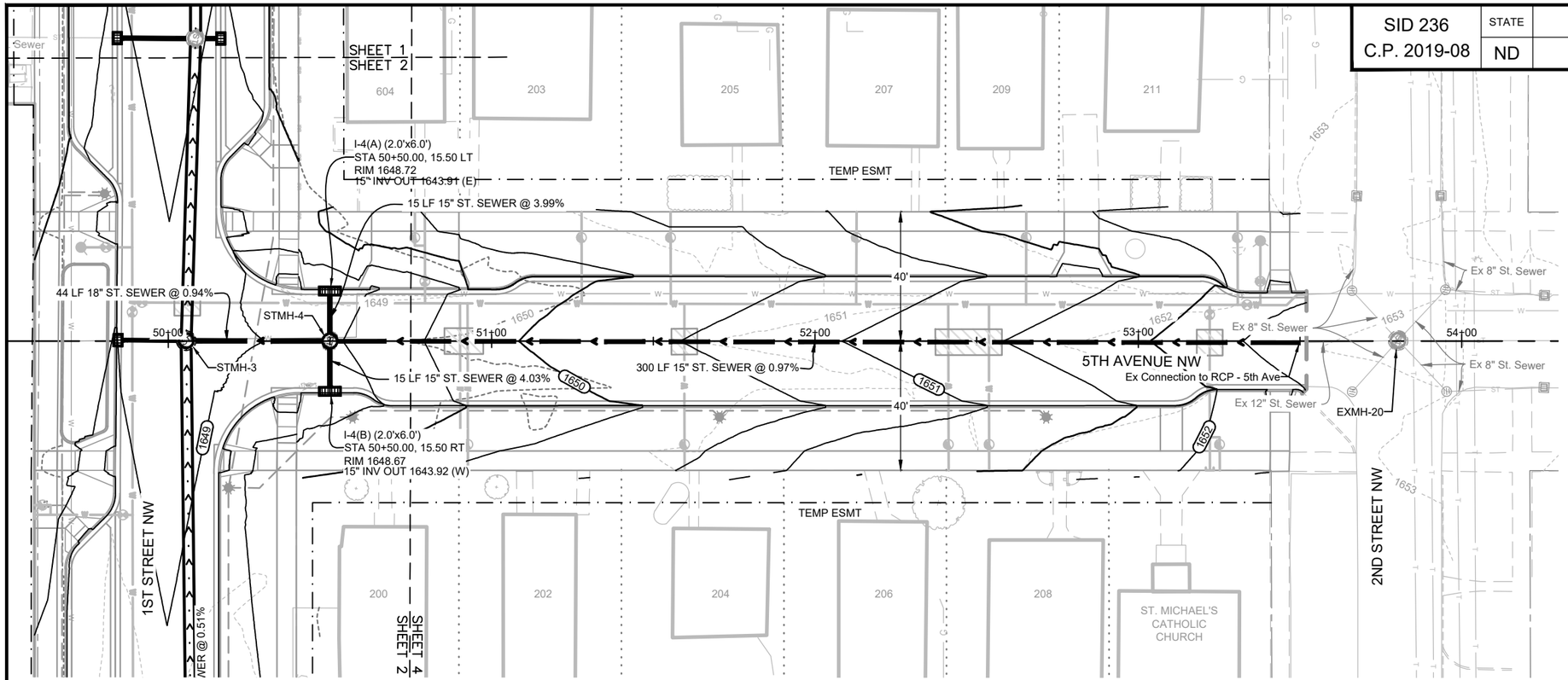
PLAN & PROFILE
STA. 108+00 TO 112+00

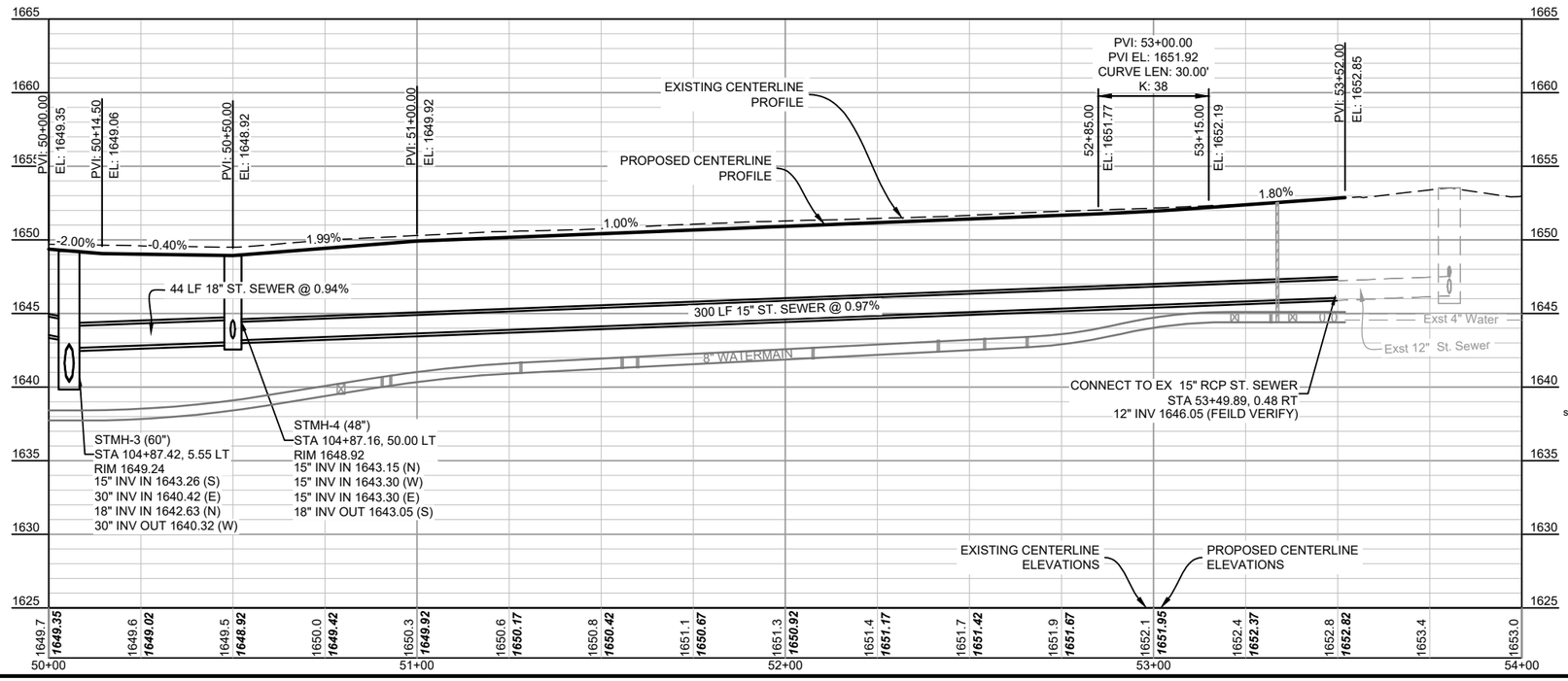
DRWN. BY	CHK'D BY	PROJECT NO.
MM	EB	1904-02191

Dec 08, 2025 - 2:31pm - K:\Projects\City\ND\Mandan\1904-02191-MandanDowntownSID236\CAD\Design\Plans\Sections\060\1904-02191_060PP.dwg

SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	60	4

SPEC CODE	BID ITEM	QTY	UNIT
714 0210	PIPE CONC REINF 15IN CL III-STORM DRAIN STMH-4 TO STA 53+49.89, 0.5 RT	300	LF





NOTE(S):
1. EXISTING CONTOURS SHOWN AT 1' INTERVALS.
2. PROPOSED CONTOURS SHOWN AT 0.5' INTERVALS.

N

scale 20 0 20 40 feet
1"=40'
NAVD88

REGISTERED PROFESSIONAL ENGINEER
ANDREW WERDER
PE-6696
DATE 12-8-25
NORTH DAKOTA

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
5TH AVENUE NW

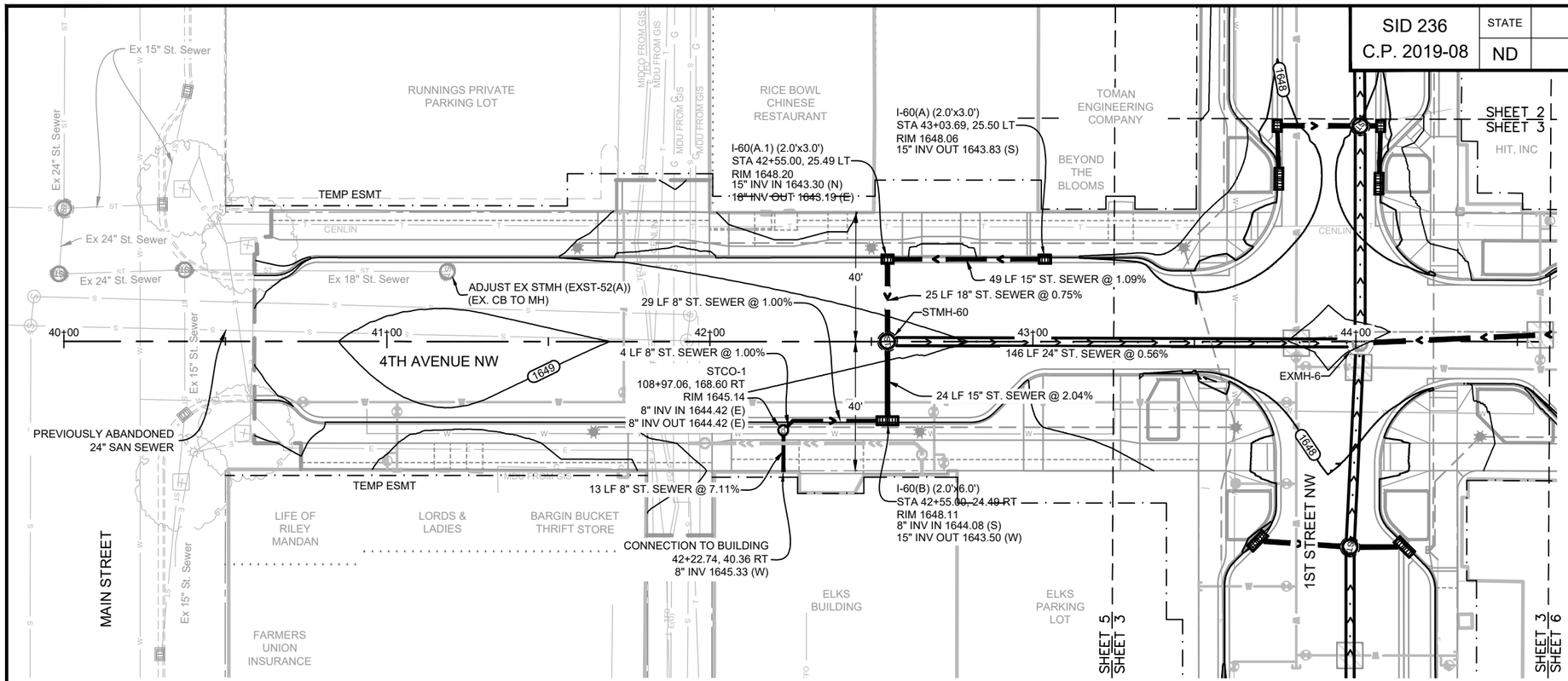
KLJ

PLAN & PROFILE
STA. 50+00 TO 54+00

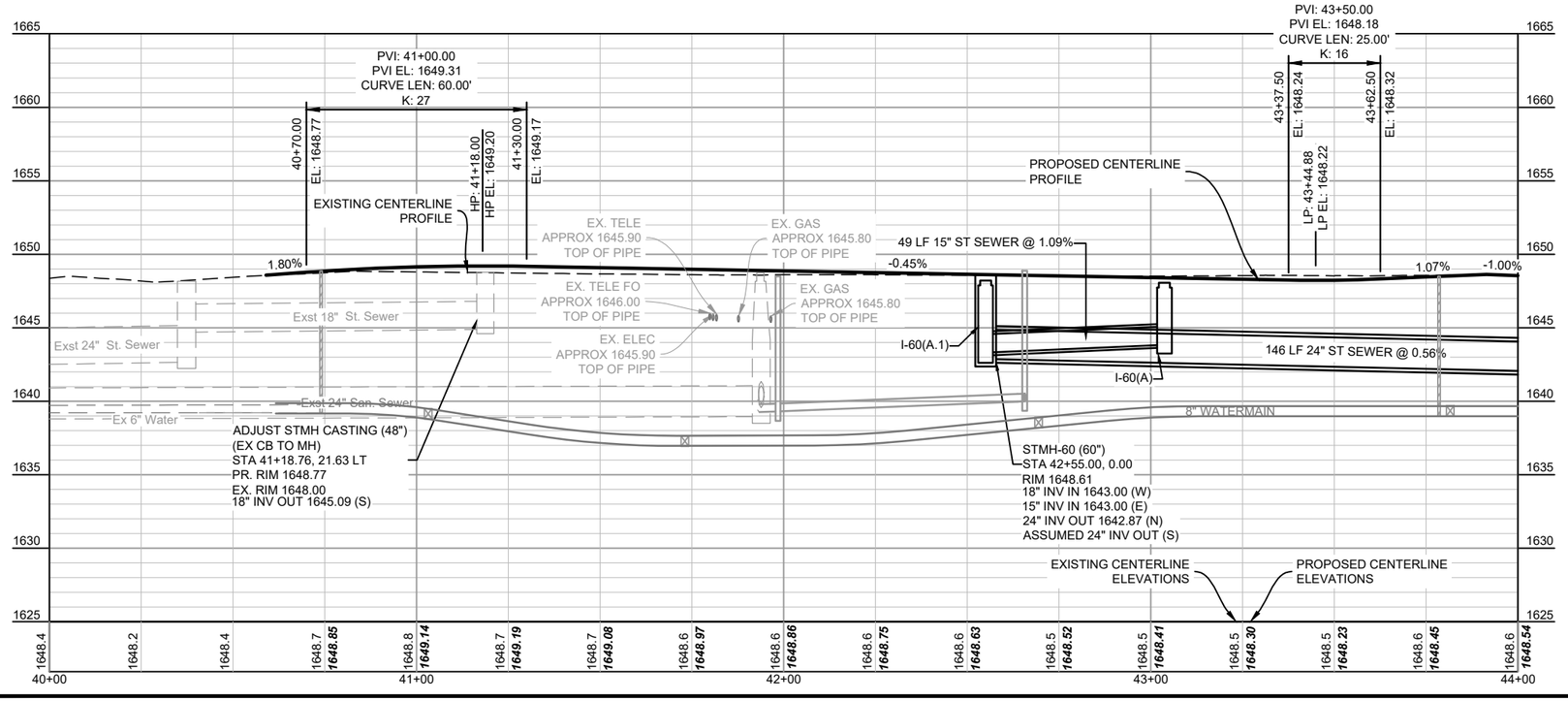
DRWN. BY	CHK'D BY	PROJECT NO.
MM	EB	1904-02191

Dec 08, 2025 - 2:31pm - K:\Projects\City\ND\Mandan\1904-02191-MandanDowntownSID236\CAD\Design\Plans\Sections\060\1904-02191_060PP.dwg

SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	60	5



SPEC	CODE	BID ITEM	QTY	UNIT
714	0210	PIPE CONC REINF 15IN CL III-STORM DRAIN		
		I-60(A.1) TO I-60(A)	49	LF
		STMH-60 TO I-60(B)	24	LF
714	0315	PIPE CONC REINF 18IN CL III-STORM DRAIN		
		STMH-60 TO 1-60(A.1)	25	LF
714	0620	PIPE CONC REINF 24IN CL III-STORM DRAIN		
		STMH-60 TO EXMH-6	146	LF
714	7025	PIPE PVC 8IN		
		I-60(B) TO STCO-1	33	LF
		STCO-1 TO STA 42+22.74, 40.4 RT	13	LF
714	9000	STORM SEWER CLEANOUT		
		STCO-1	1	LF
722	0110	MANHOLE 60IN		
		STMH-60	1	EA
722	3510	INLET-TYPE 2		
		I-60(A)	1	EA
		I-60(A.1)	1	EA
722	3520	INLET-TYPE 2 DOUBLE		
		I-60(B)	1	EA
722	6200	ADJUST MANHOLE		
		STA 41+18.76, 21.6 LT	1	EA



NOTE(S):
1. EXISTING CONTOURS SHOWN AT 1' INTERVALS.
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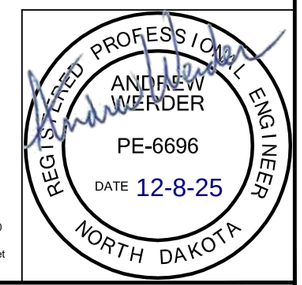

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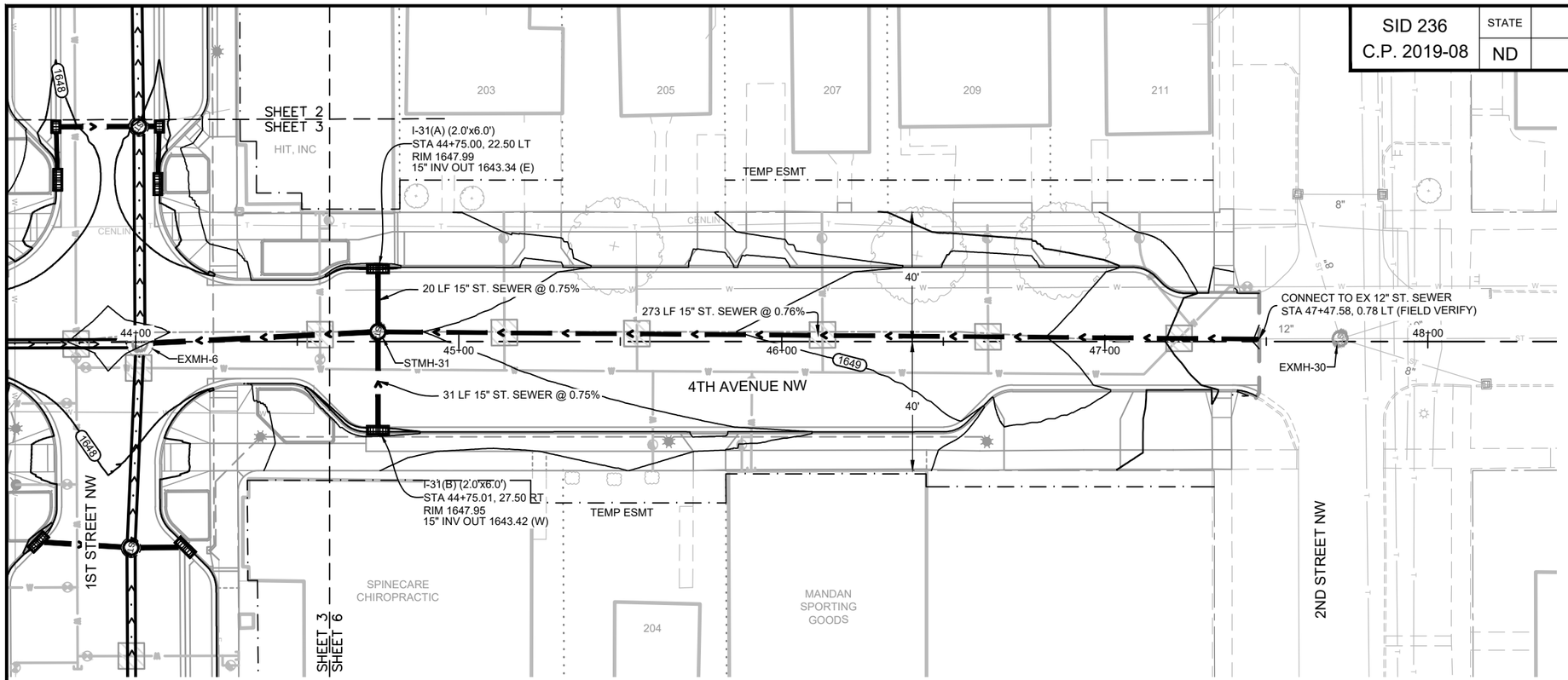
DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
4TH AVENUE NW

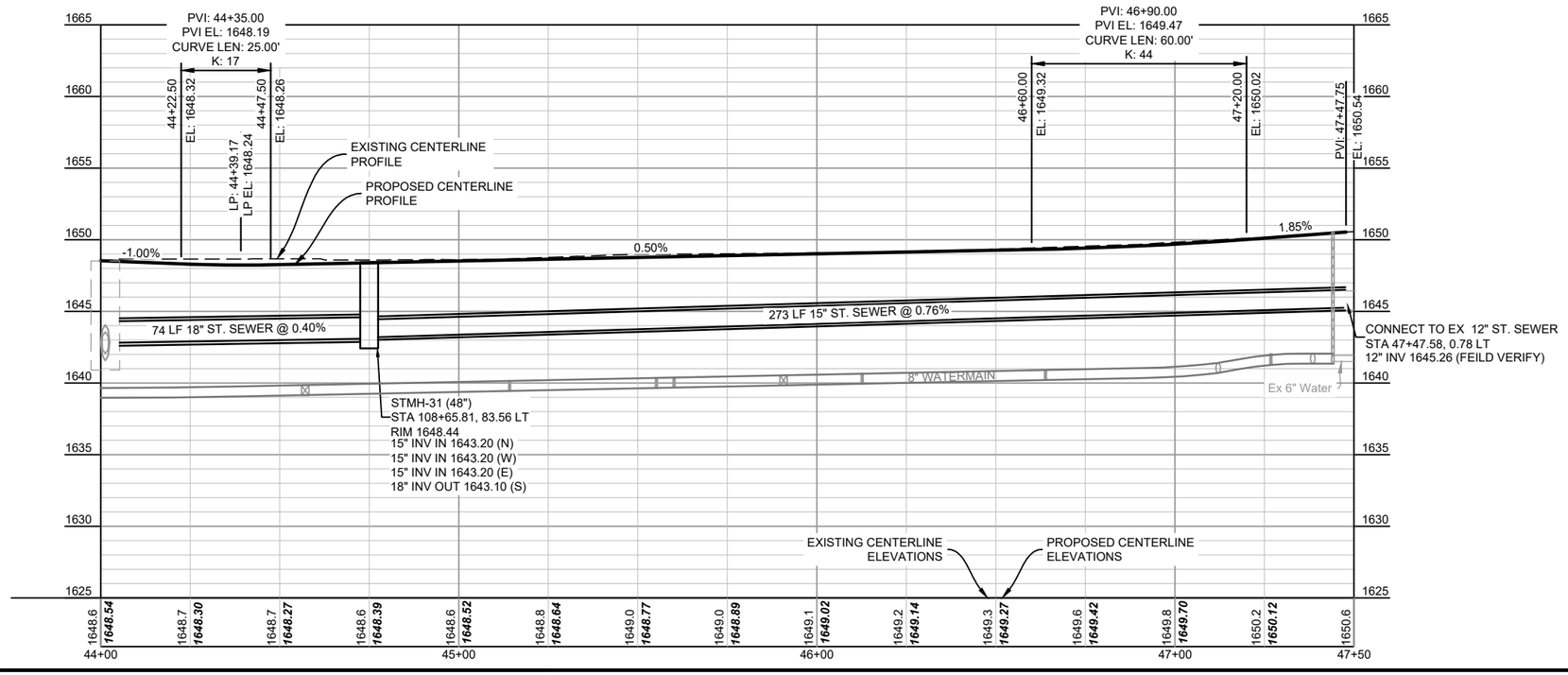
PLAN & PROFILE
STA. 40+00 TO 44+00

DRWN. BY	CHK'D BY	PROJECT NO.
MM	EB	1904-02191

Dec 08, 2025 - 2:31pm - K:\Projects\City\ND\Mandan\1904-02191-MandanDowntownSID236\CAD\Design\Plans\Sections\060\1904-02191_060PP.dwg

SID 236 C.P. 2019-08	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	UGP-1-988(052)	60	6





SPEC CODE	BID ITEM	QTY	UNIT
714 0210	PIPE CONC REINF 15IN CL III-STORM DRAIN		
	STMH-31 TO I-31(A)	20	LF
	STMH-31 TO I-31(B)	31	LF
	STMH-31 TO STA 47+47.58, 0.8 LT	273	LF
722 0100	MANHOLE 48IN		
	STMH-31	1	EA
722 3520	INLET-TYPE 2 DOUBLE		
	I-31(A)	1	EA
	I-31(B)	1	EA

NOTE(S):
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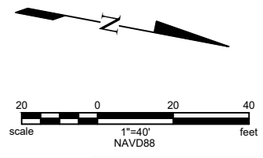

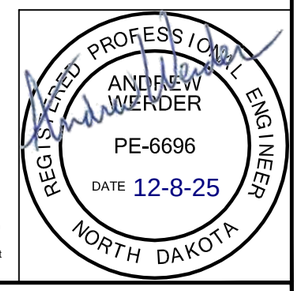

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
4TH AVENUE NW

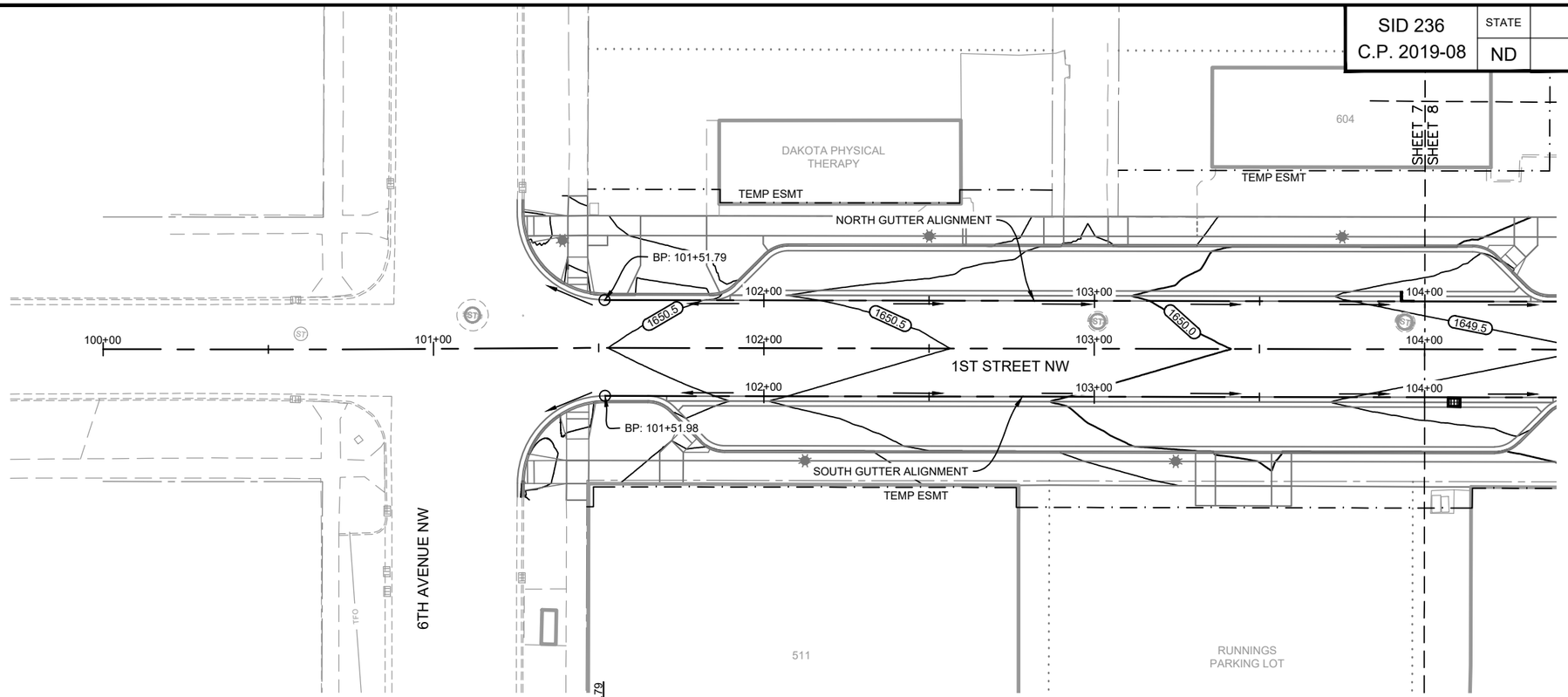
KLJ

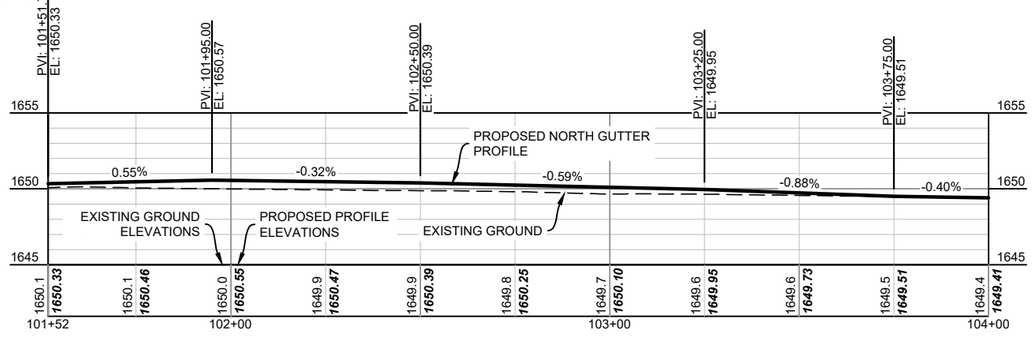
PLAN & PROFILE
STA. 44+00 TO 47+50

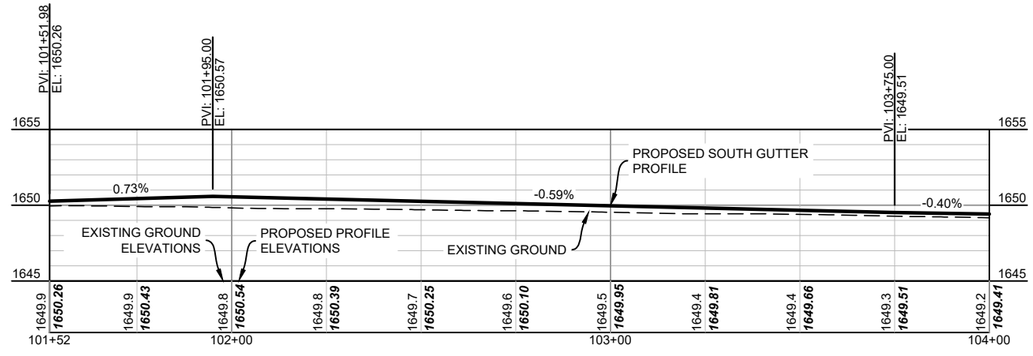
DRWN. BY	CHK'D BY	PROJECT NO.
MM	EB	1904-02191

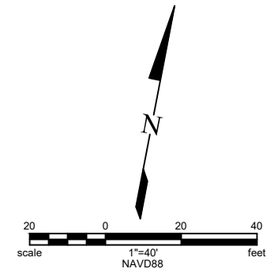
SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	60	7

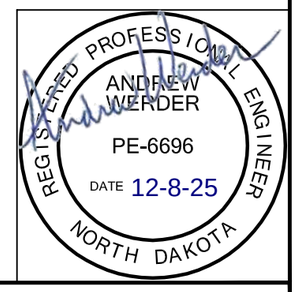
NOTES:
1. DRAINAGE ALIGNMENTS AND PROFILES FOLLOW THE EDGE OF PAVEMENT AT THE TOE OF CURB AND/OR GUTTER











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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

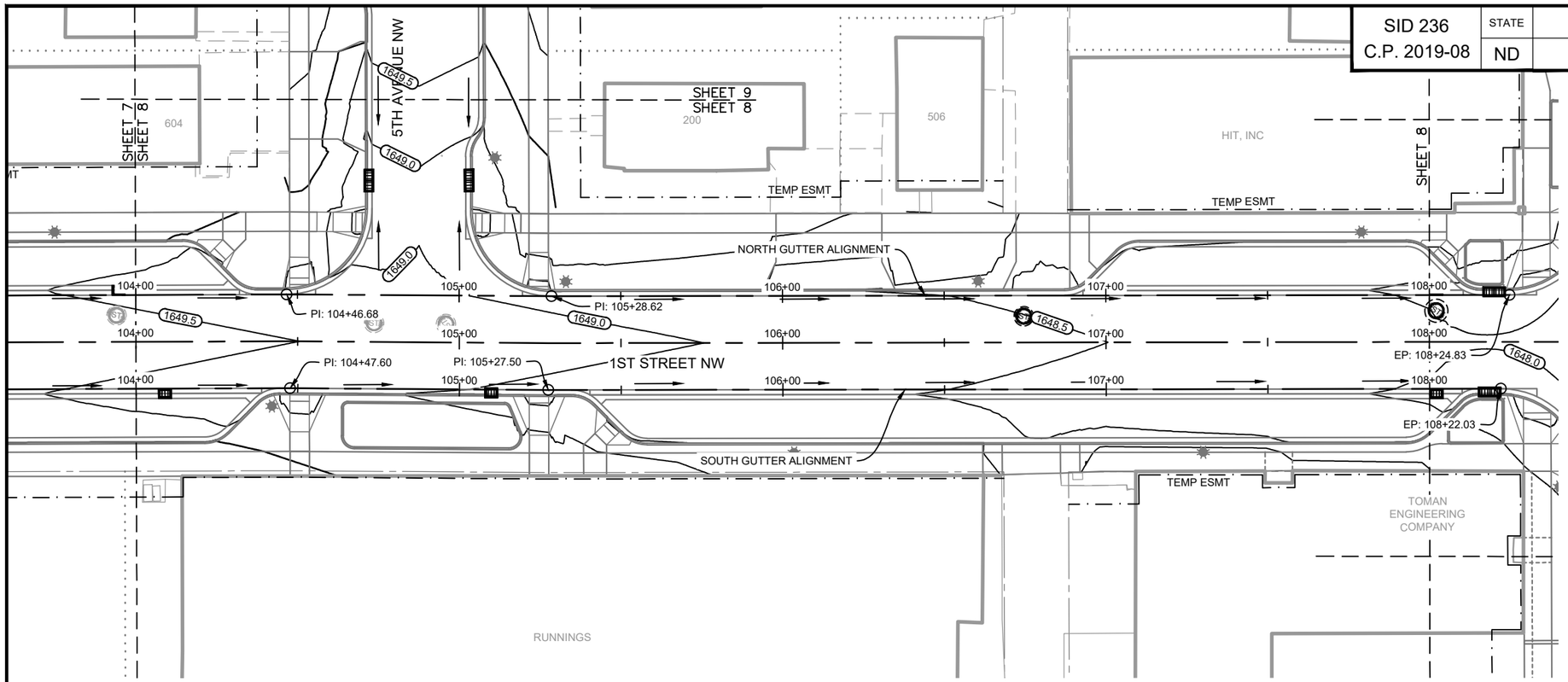
KLJ

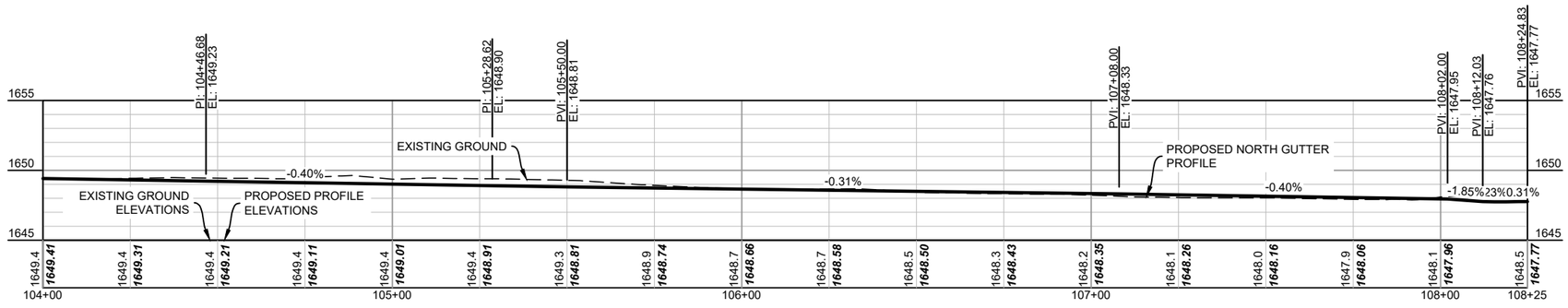
DRAINAGE PLAN & PROFILE STA. 100+00 TO 104+00

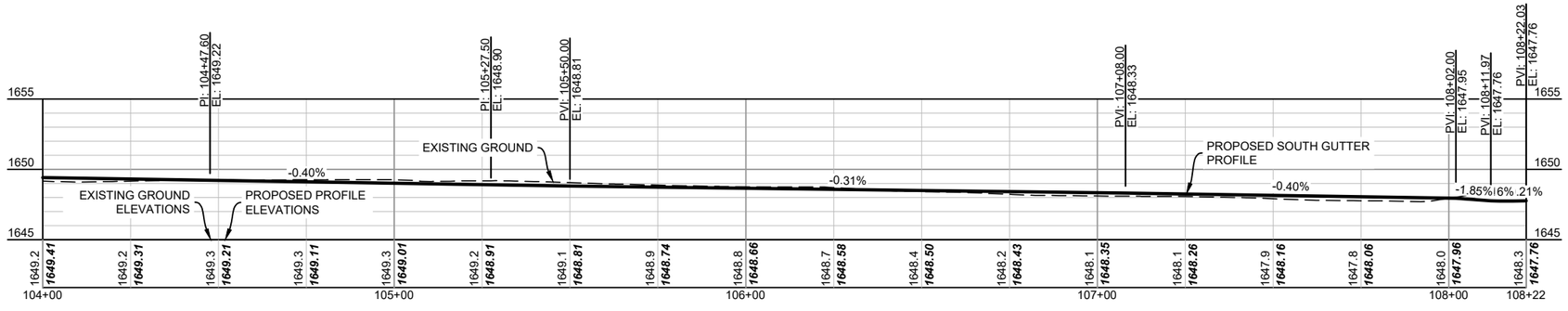
DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

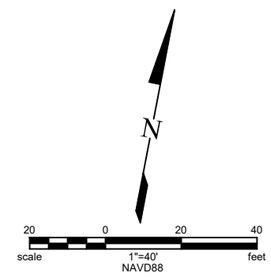
SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	60	8

NOTES:
1. DRAINAGE ALIGNMENTS AND PROFILES FOLLOW THE EDGE OF PAVEMENT AT THE TOE OF CURB AND/OR GUTTER









REGISTERED PROFESSIONAL ENGINEER
ANDREW WERDER
PE-6696
DATE 12-8-25
NORTH DAKOTA

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

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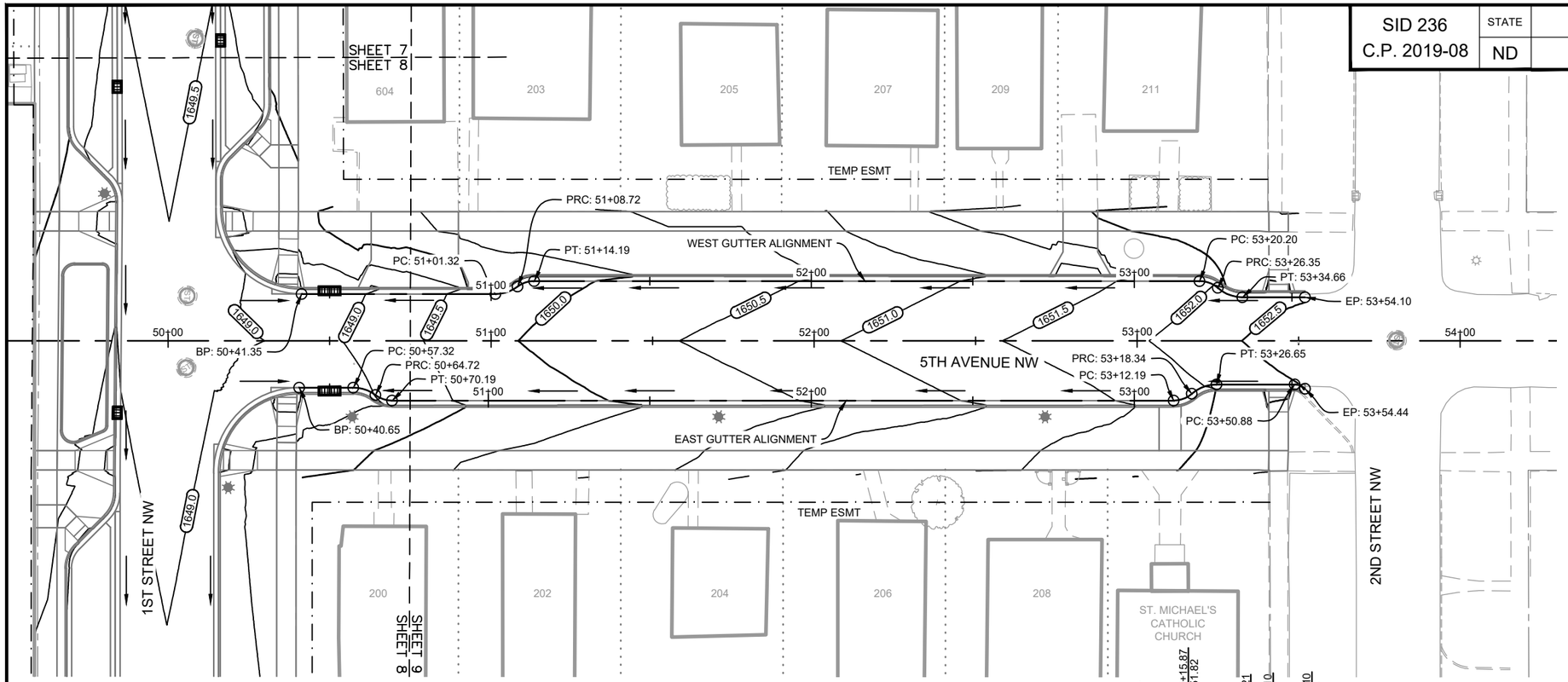
DRAINAGE PLAN & PROFILE STA. 104+00 TO 108+22

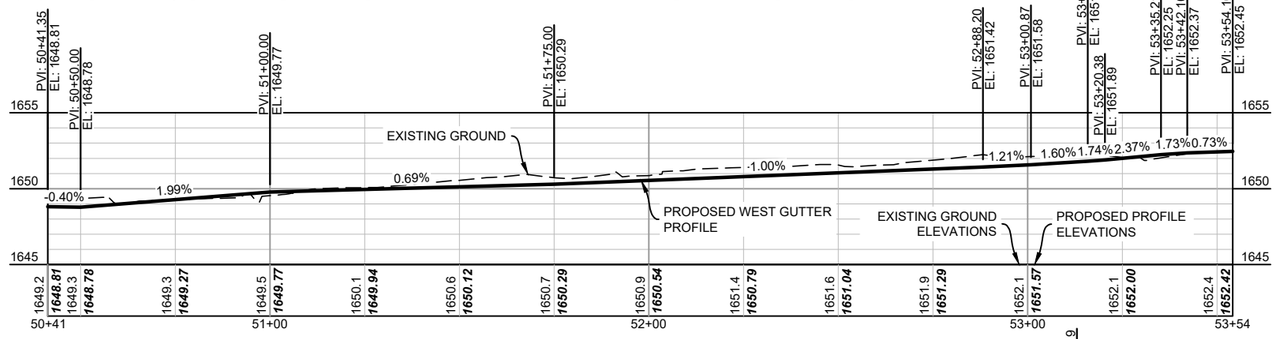
DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

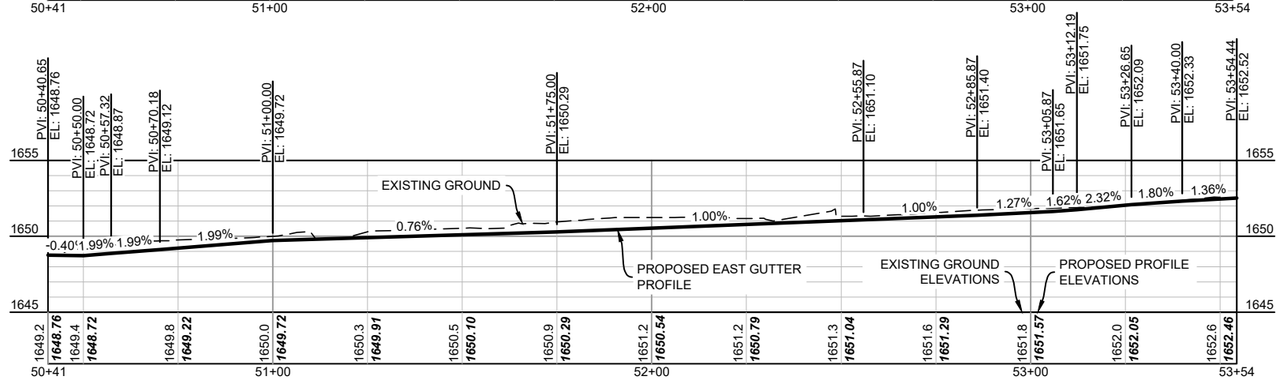
Dec 08, 2025 - 2:33pm - K:\Projects\City\ND\Mandan\1904-02191-MandanDowntownSID236\CAD\Design\Plans\Sections\060\1904-02191_060PP_Drainage.dwg

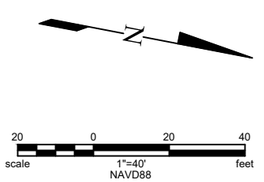
SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	60	9

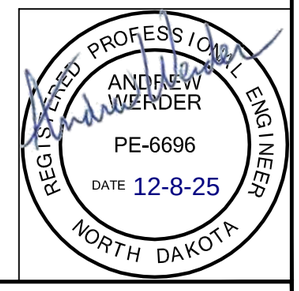
NOTES:
1. DRAINAGE ALIGNMENTS AND PROFILES FOLLOW THE EDGE OF PAVEMENT AT THE TOE OF CURB AND/OR GUTTER











Rev'd.
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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
5TH AVENUE NW

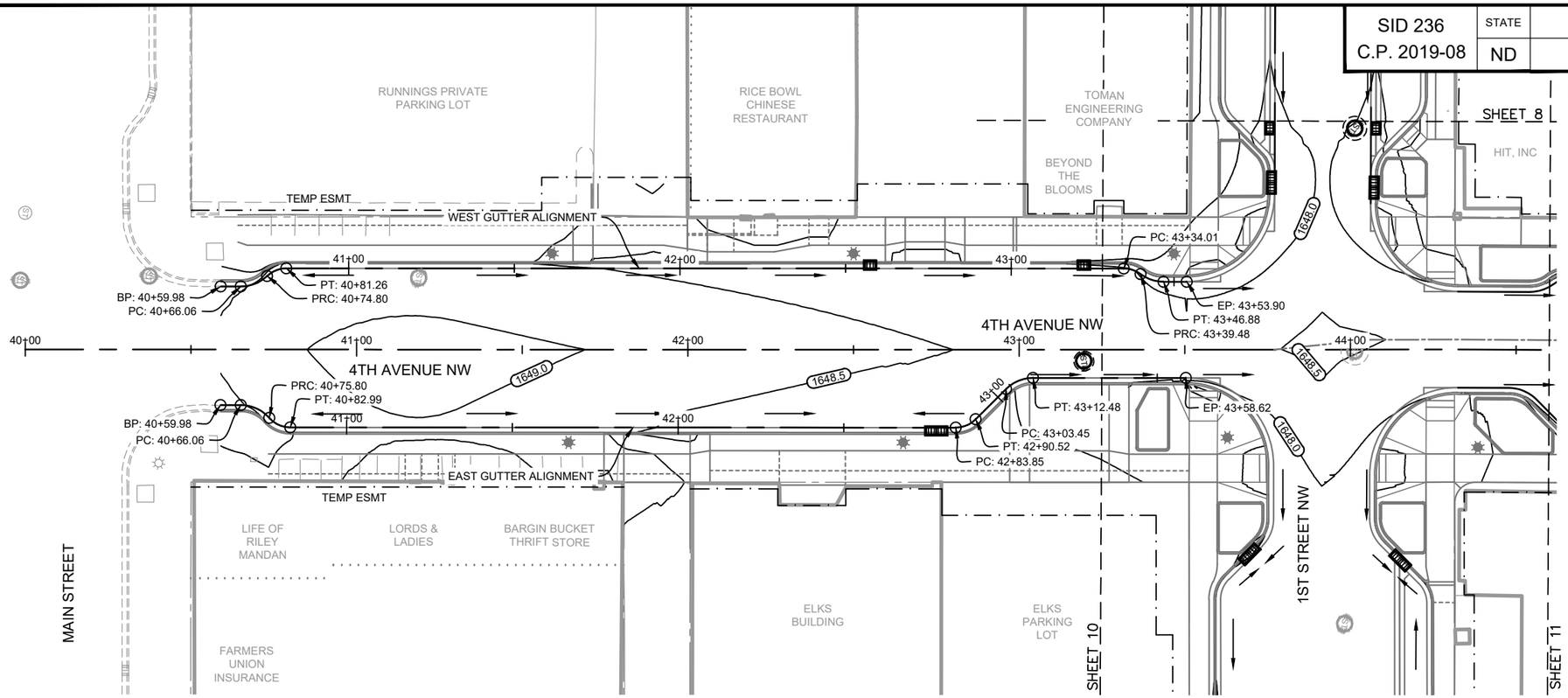
KLJ

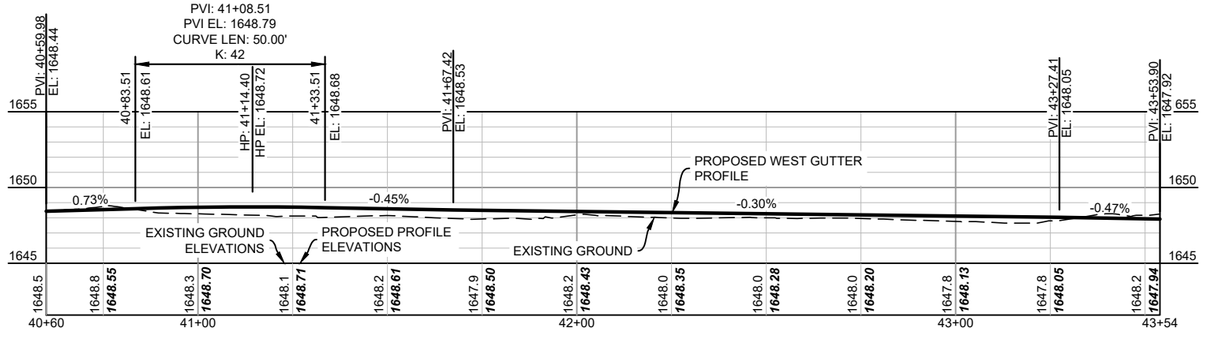
DRAINAGE PLAN & PROFILE STA. 50+00 TO 54+00

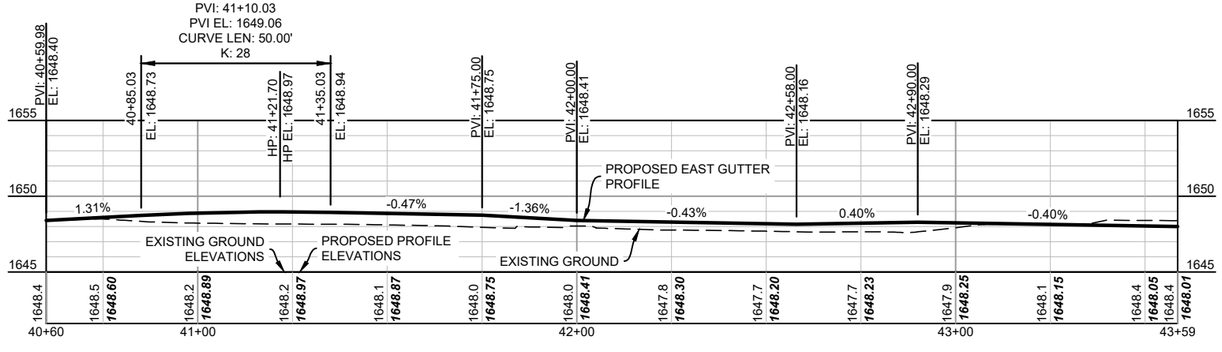
DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

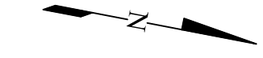
SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	60	10

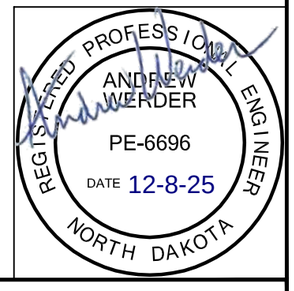
NOTES:
1. DRAINAGE ALIGNMENTS AND PROFILES FOLLOW THE EDGE OF PAVEMENT AT THE TOE OF CURB AND/OR GUTTER











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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
4TH AVENUE NW

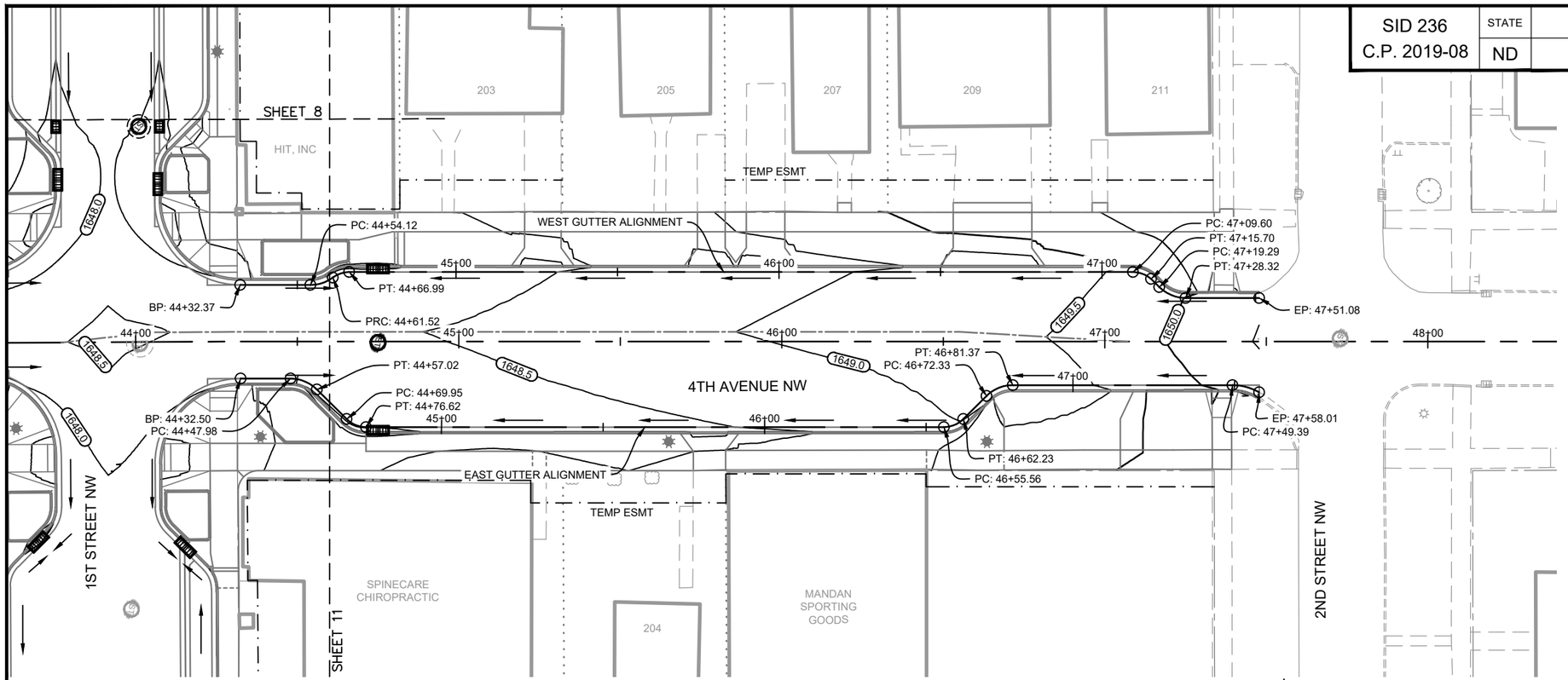
DRAINAGE PLAN & PROFILE STA. 40+00 TO 44+00

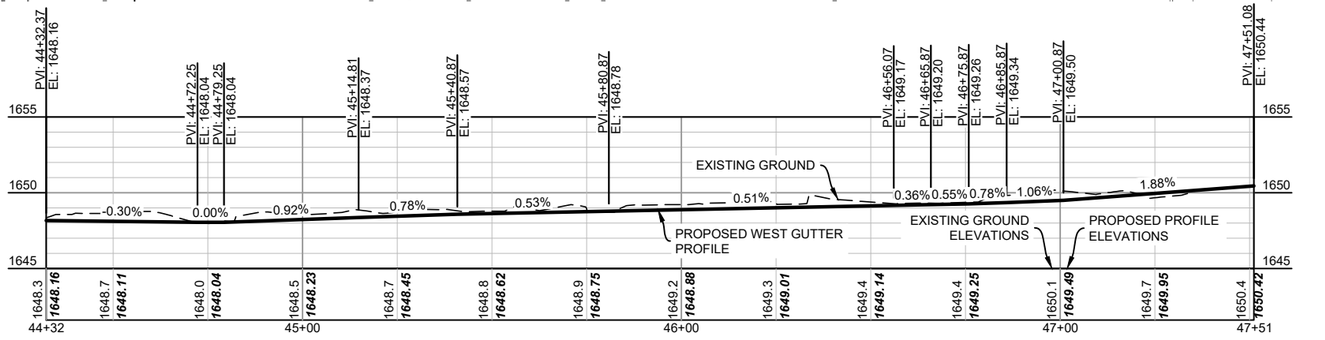
DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

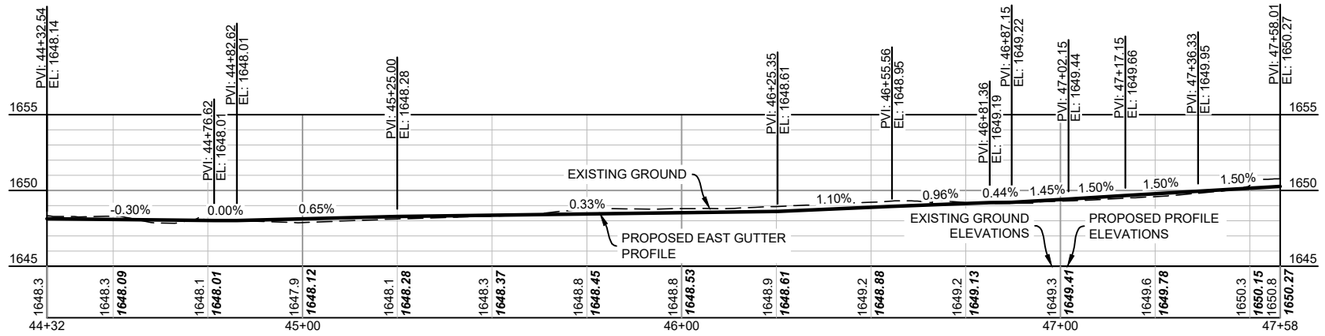
Dec 08, 2025 - 2:33pm - K:\Projects\City\ND\Mandan\1904-02191-MandanDowntownSID236\CAD\Design\Plans\Sections\060\1904-02191_060PP_Drainage.dwg

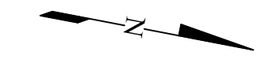
SID 236 C.P. 2019-08	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	UGP-1-988(052)	60	11

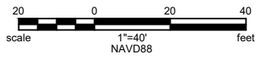
NOTES:
1. DRAINAGE ALIGNMENTS AND PROFILES FOLLOW THE EDGE OF PAVEMENT AT THE TOE OF CURB AND/OR GUTTER

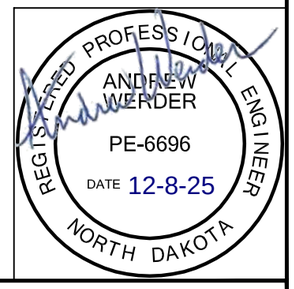












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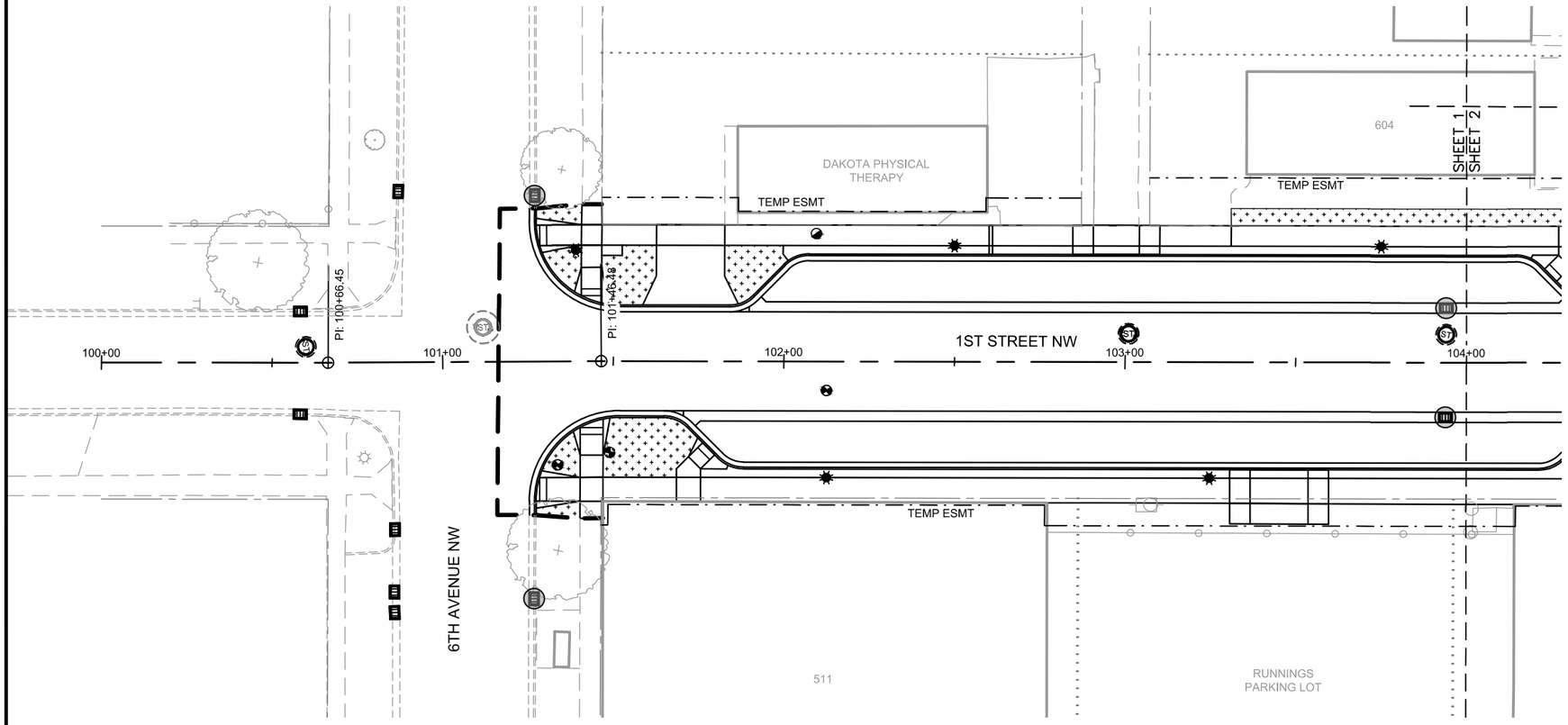
DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
4TH AVENUE NW

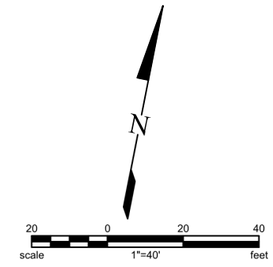
DRAINAGE PLAN & PROFILE STA. 44+00 TO 47+50

DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	76	1

SPEC	CODE	BID ITEM	QTY	UNIT
253	0201	HYDRAULIC MULCH	0.04	ACRE
708	1540	INLET PROTECTION-SPECIAL	4	EA
708	1541	REMOVE INLET PROTECTION-SPECIAL	4	EA





LEGEND:

HYDRAULIC MULCH

INLET PROTECTION - SPECIAL

FLOW DIRECTION

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/04/25
NORTH DAKOTA

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

KLJ

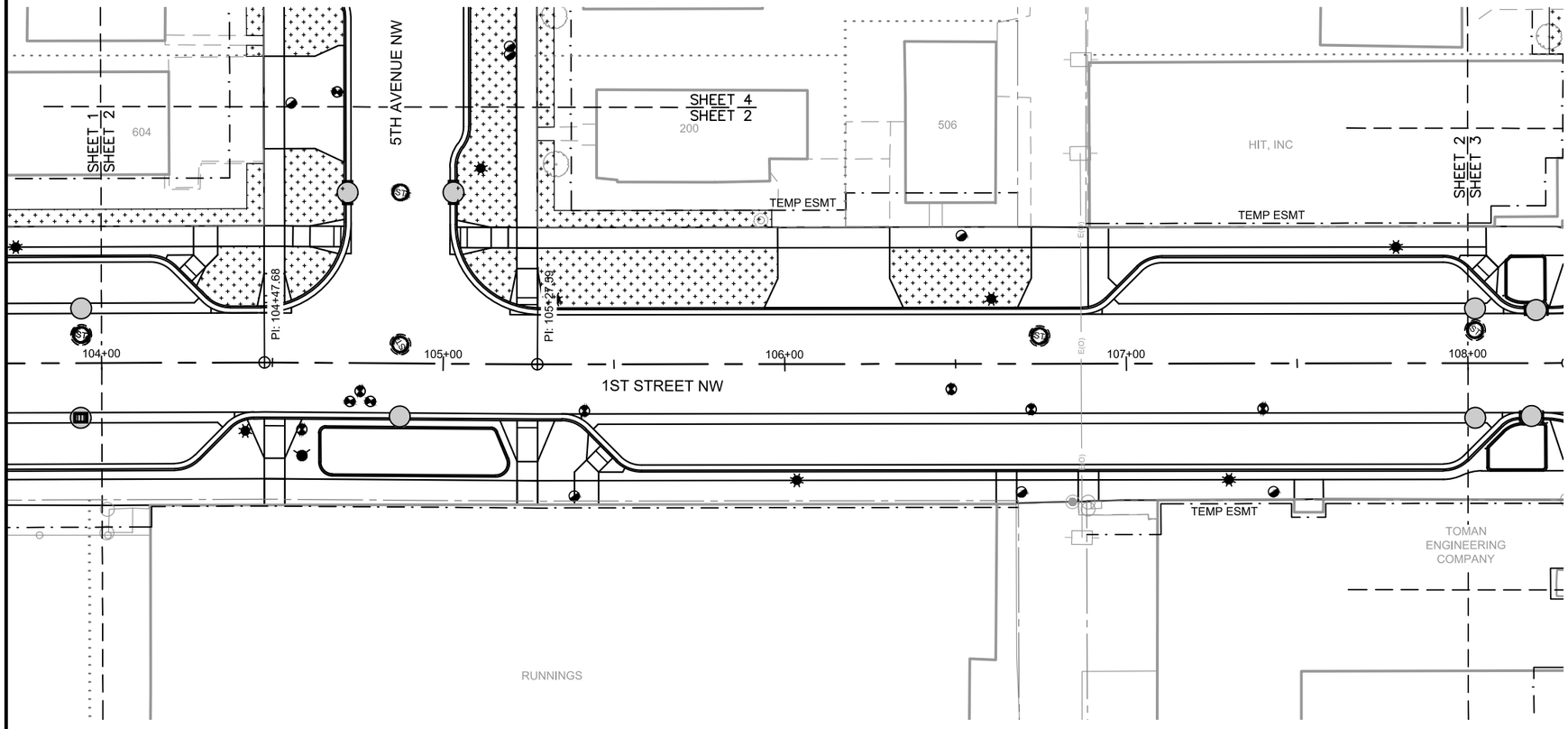
TEMPORARY EROSION CONTROL
STA. 100+00 TO 104+00

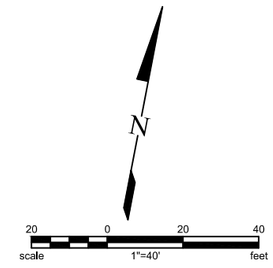
DRWN. BY	CHK'D BY	PROJECT NO.
SM	AC	1904-02191

Dec 04, 2025 - 1:23pm - K:\Projects\City\ND\Mandan\1904-02191-MandanDowntownSID236\CAD\Design\Plans\Sections\076\1904-02191_076TEC.dwg

SID 236 C.P. 2019-08	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	UGP-1-988(052)	76	2

SPEC	CODE	BID ITEM	QTY	UNIT
253	0201	HYDRAULIC MULCH	0.10	ACRE
708	1540	INLET PROTECTION-SPECIAL	3	EA
708	1541	REMOVE INLET PROTECTION-SPECIAL	3	EA





LEGEND:

HYDRAULIC MULCH

INLET PROTECTION - SPECIAL

FLOW DIRECTION

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/04/25
NORTH DAKOTA

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

KLJ

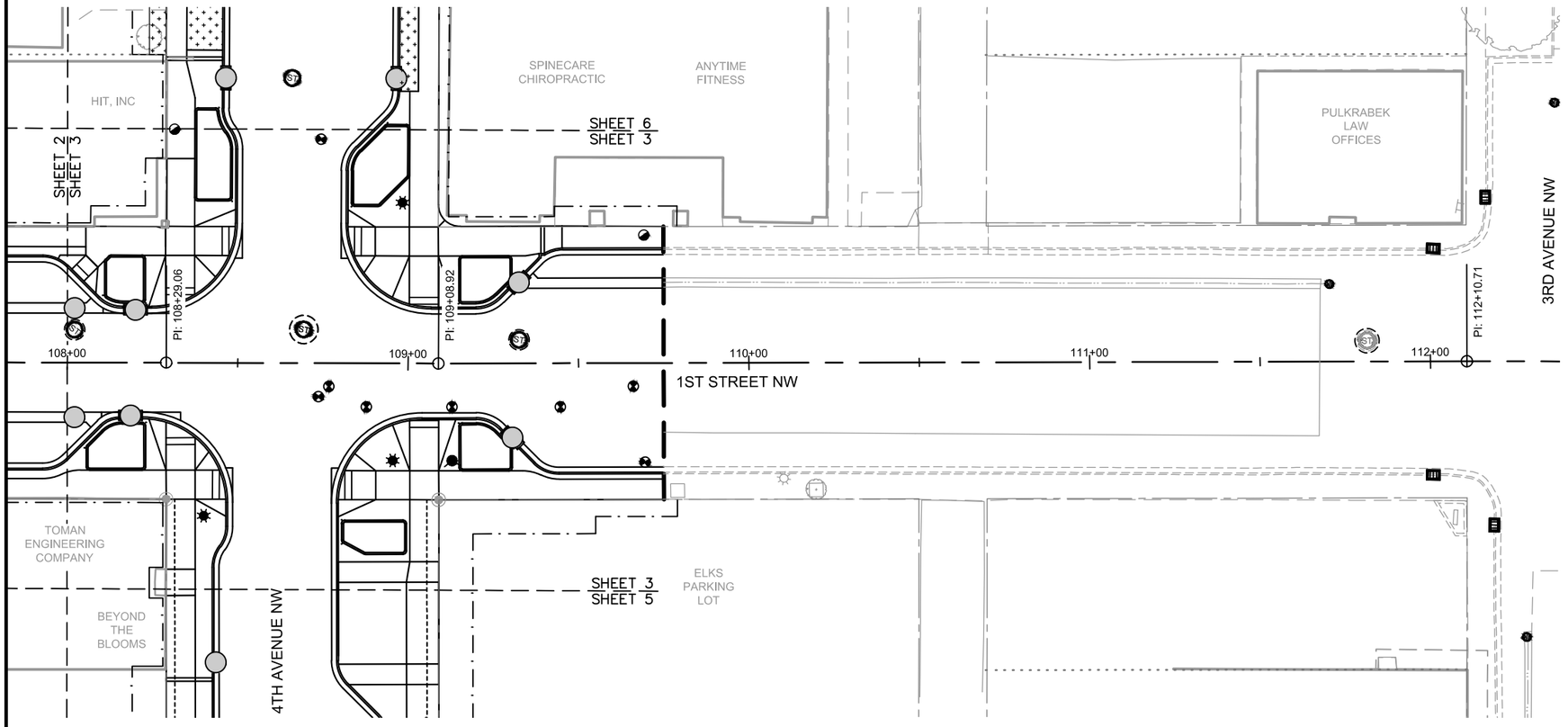
TEMPORARY EROSION CONTROL
STA. 104+00 TO 108+00

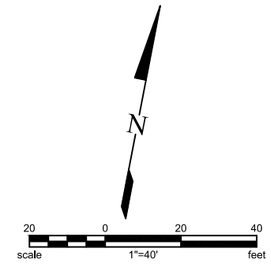
DRWN. BY	CHK'D BY	PROJECT NO.
SM	AC	1904-02191

Dec 04, 2025 - 1:23pm - K:\Projects\City\ND\Mandan\1904-02191-MandanDowntownSID236\CAD\Design\Plans\Sections\076\1904-02191_076TEC.dwg

SID 236 C.P. 2019-08	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	UGP-1-988(052)	76	3

SPEC	CODE	BID ITEM	QTY	UNIT
708	1540	INLET PROTECTION-SPECIAL	6	EA
708	1541	REMOVE INLET PROTECTION-SPECIAL	6	EA





LEGEND:

HYDRAULIC MULCH

INLET PROTECTION - SPECIAL

FLOW DIRECTION

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/04/25
NORTH DAKOTA

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

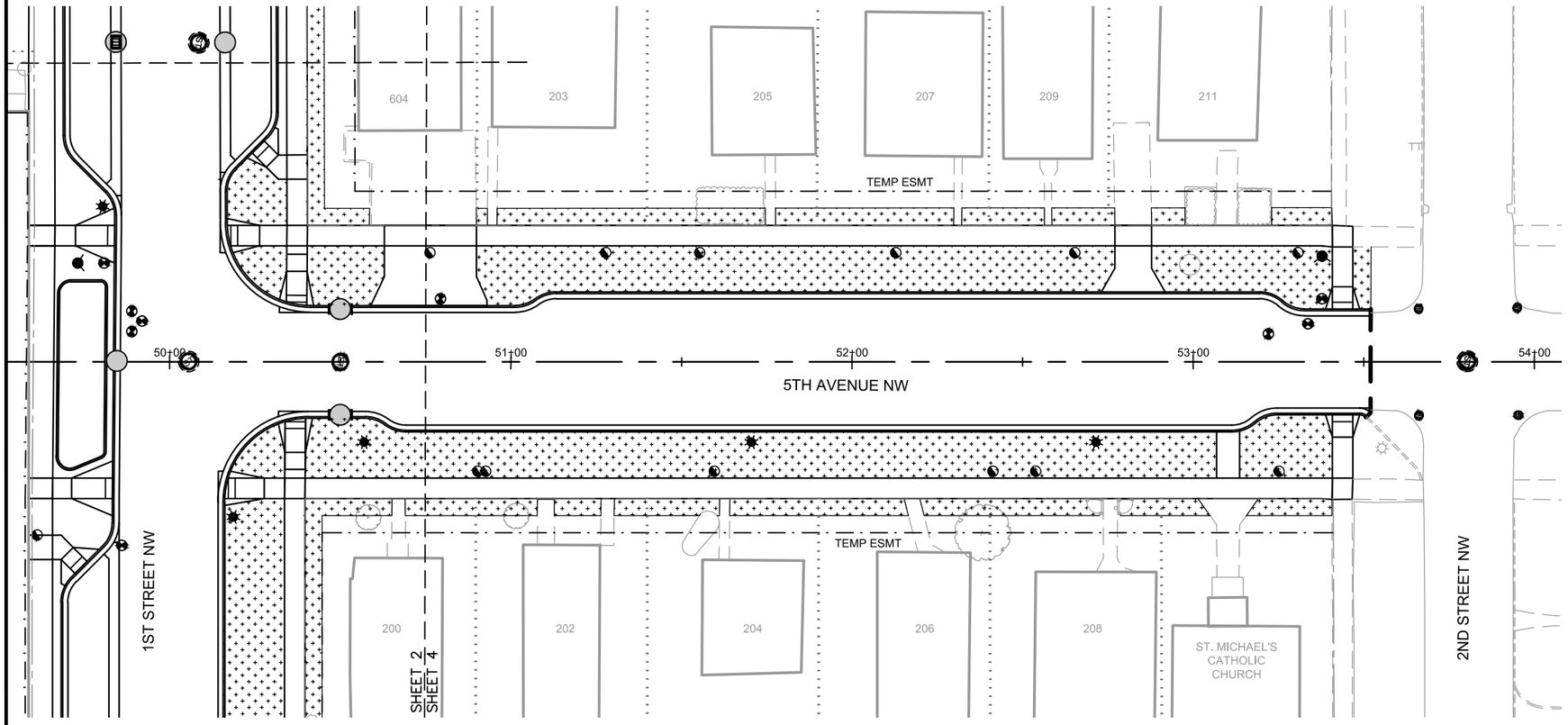
TEMPORARY EROSION CONTROL
STA. 108+00 TO 112+00

DRWN. BY	CHK'D BY	PROJECT NO.
SM	AC	1904-02191

Dec 04, 2025 - 1:24pm - K:\Projects\City\ND\Mandan\1904-02191-MandanDowntownSID236\CAD\Design\Plans\Sections\076\1904-02191_076TEC.dwg

SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	76	4

SPEC CODE	BID ITEM	QTY	UNIT
253 0201	HYDRAULIC MULCH	0.20	ACRE



N

20 0 20 40
scale 1"=40' feet

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/04/25
NORTH DAKOTA

LEGEND:

HYDRAULIC MULCH

INLET PROTECTION - SPECIAL

FLOW DIRECTION

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
5TH AVENUE NW

KLJ

TEMPORARY EROSION CONTROL
STA. 50+00 TO 54+00

DRWN. BY	CHK'D BY	PROJECT NO.
SM	AC	1904-02191

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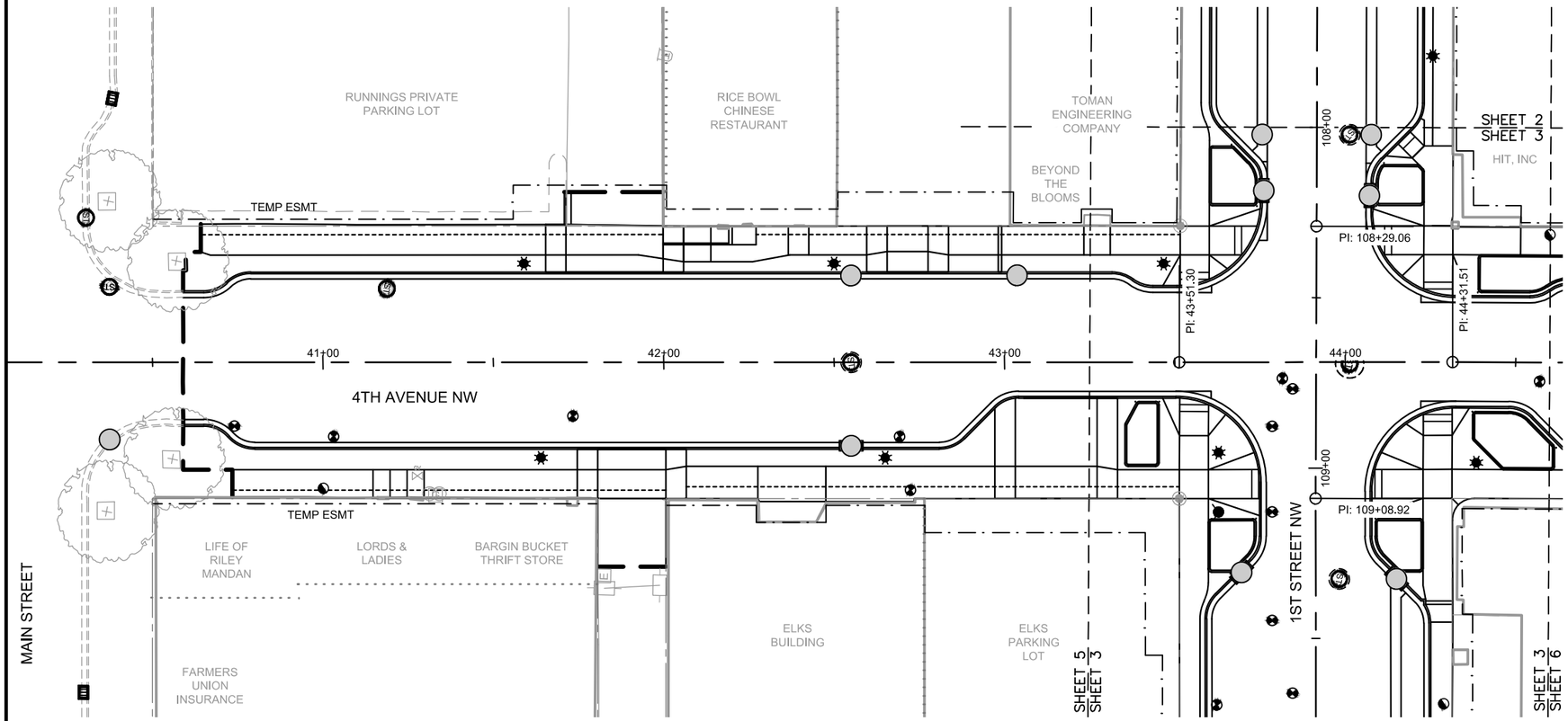
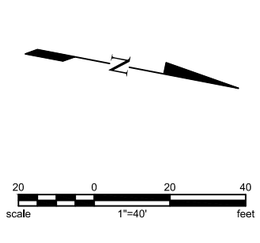
SID 236 C.P. 2019-08	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	UGP-1-988(052)	76	5

SPEC	CODE	BID ITEM	QTY	UNIT
708	1540	INLET PROTECTION-SPECIAL	4	EA
708	1541	REMOVE INLET PROTECTION-SPECIAL	4	EA





REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/04/25
NORTH DAKOTA

LEGEND:

HYDRAULIC MULCH

INLET PROTECTION - SPECIAL

FLOW DIRECTION

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
4TH AVENUE NW

TEMPORARY EROSION CONTROL
STA. 40+00 TO 43+25

DRWN. BY	CHK'D BY	PROJECT NO.
SM	AC	1904-02191

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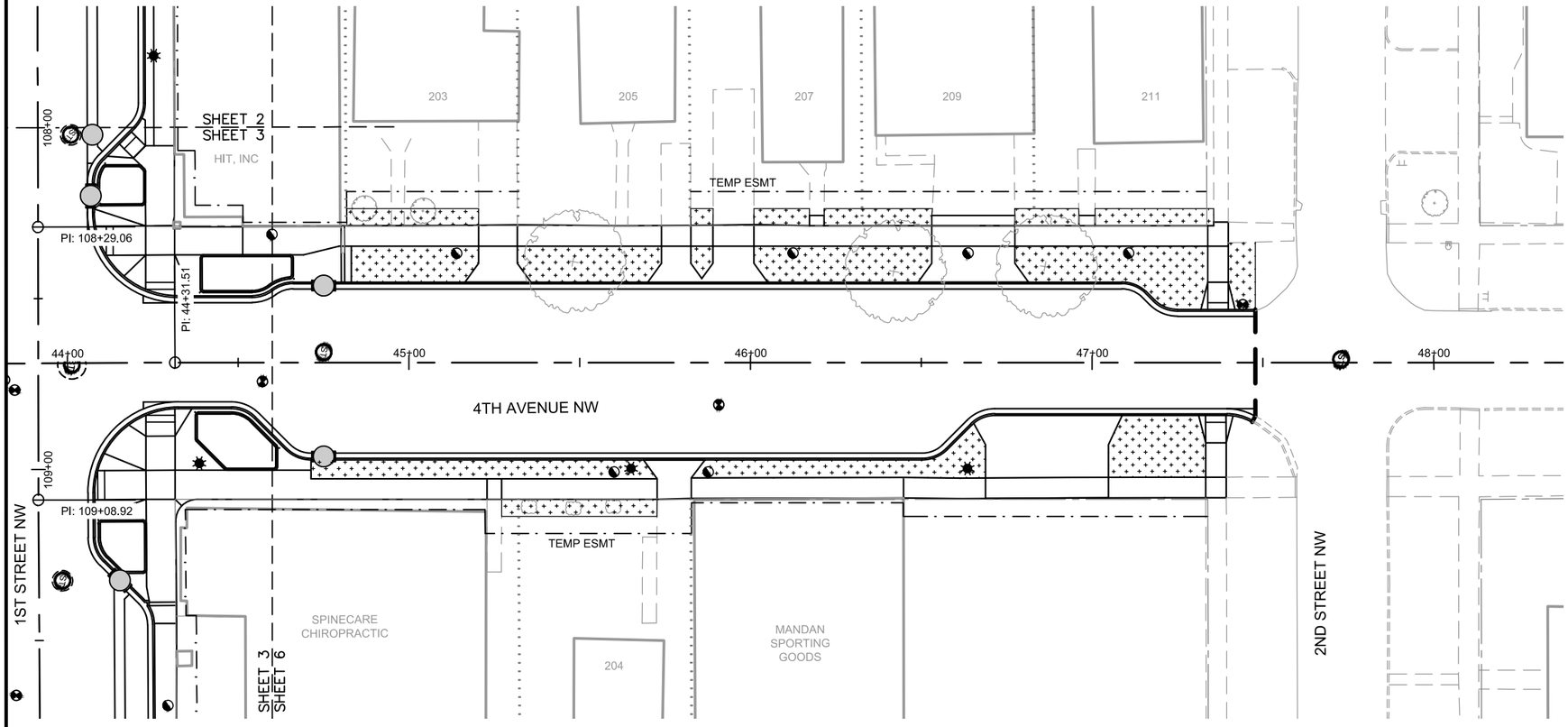
SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	76	6

SPEC	CODE	BID ITEM	QTY	UNIT
253	0201	HYDRAULIC MULCH	0.11	ACRE
708	1540	INLET PROTECTION-SPECIAL	2	EA
708	1541	REMOVE INLET PROTECTION-SPECIAL	2	EA



N

20 0 20 40
scale 1"=40' feet

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/04/25
NORTH DAKOTA

LEGEND:

HYDRAULIC MULCH

INLET PROTECTION - SPECIAL

FLOW DIRECTION

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
4TH AVENUE NW

KLJ

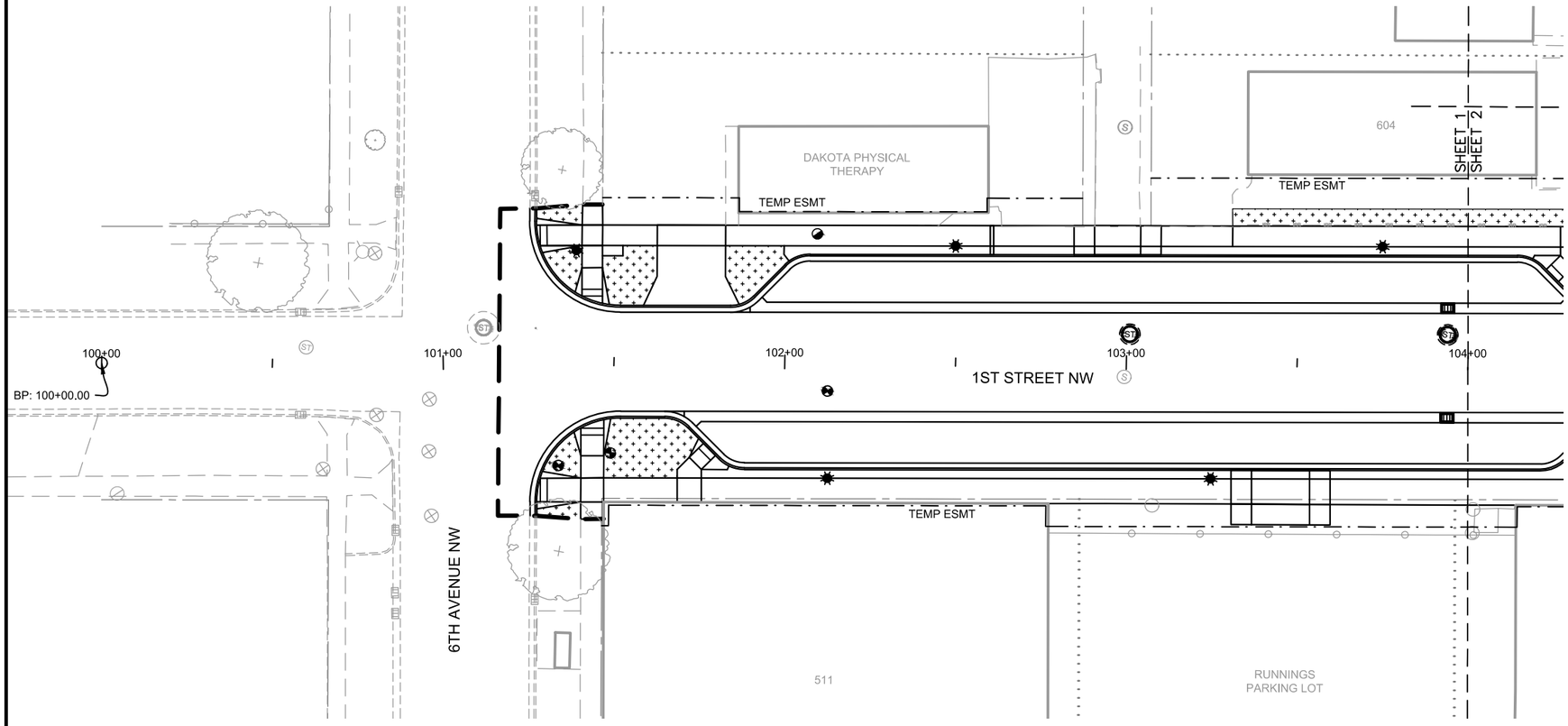
TEMORARY EROSION CONTROL STA. 44+60 TO 47+50

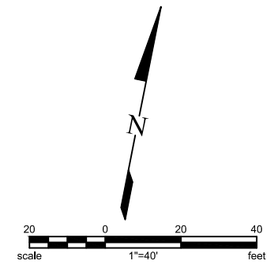
DRWN. BY	CHK'D BY	PROJECT NO.
SM	AC	1904-02191

Dec 04, 2025 - 1:24pm - K:\Projects\City\ND\Mandan\1904-02191-MandanDowntownSID236\CAD\Design\Plans\Sections\076\1904-02191_076TEC.dwg

SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	77	1

SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II	0.04	ACRE
253	0201	HYDRAULIC MULCH	0.04	ACRE





REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/04/25
NORTH DAKOTA

LEGEND:

SEEDING & HYDRAULIC MULCH

FLOW DIRECTION

REFER TO SECTION 76 FOR INLET PROTECTION

Rev'd.
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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

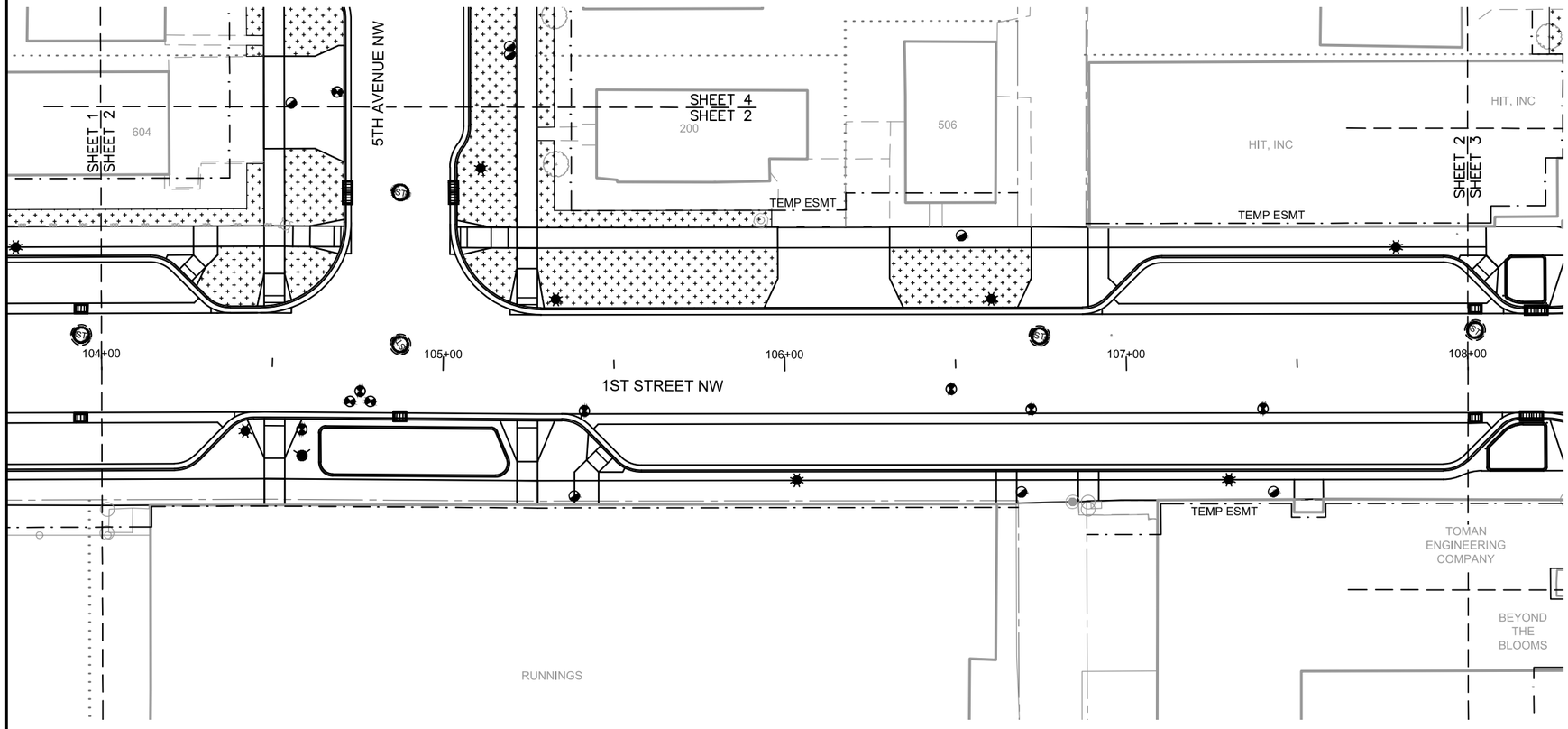
PERMANENT EROSION CONTROL
STA. 100+00 TO 104+00

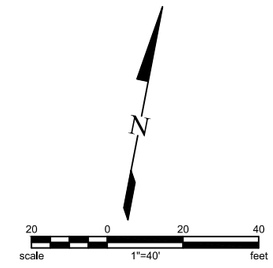
DRWN. BY	CHK'D BY	PROJECT NO.
SM	AC	1904-02191

Dec 04, 2025 - 1:24pm - K:\Projects\City\ND\Mandan\1904-02191-MandanDowntownSID236\CAD\Design\Plans\Sections\077\1904-02191_077PEC.dwg

SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	77	2

SPEC	CODE	BID ITEM	QTY	UNIT
251	0200	SEEDING CLASS II	0.10	ACRE
253	0201	HYDRAULIC MULCH	0.10	ACRE





LEGEND:

SEEDING & HYDRAULIC MULCH

FLOW DIRECTION

REFER TO SECTION 76 FOR INLET PROTECTION

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/04/25
NORTH DAKOTA

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

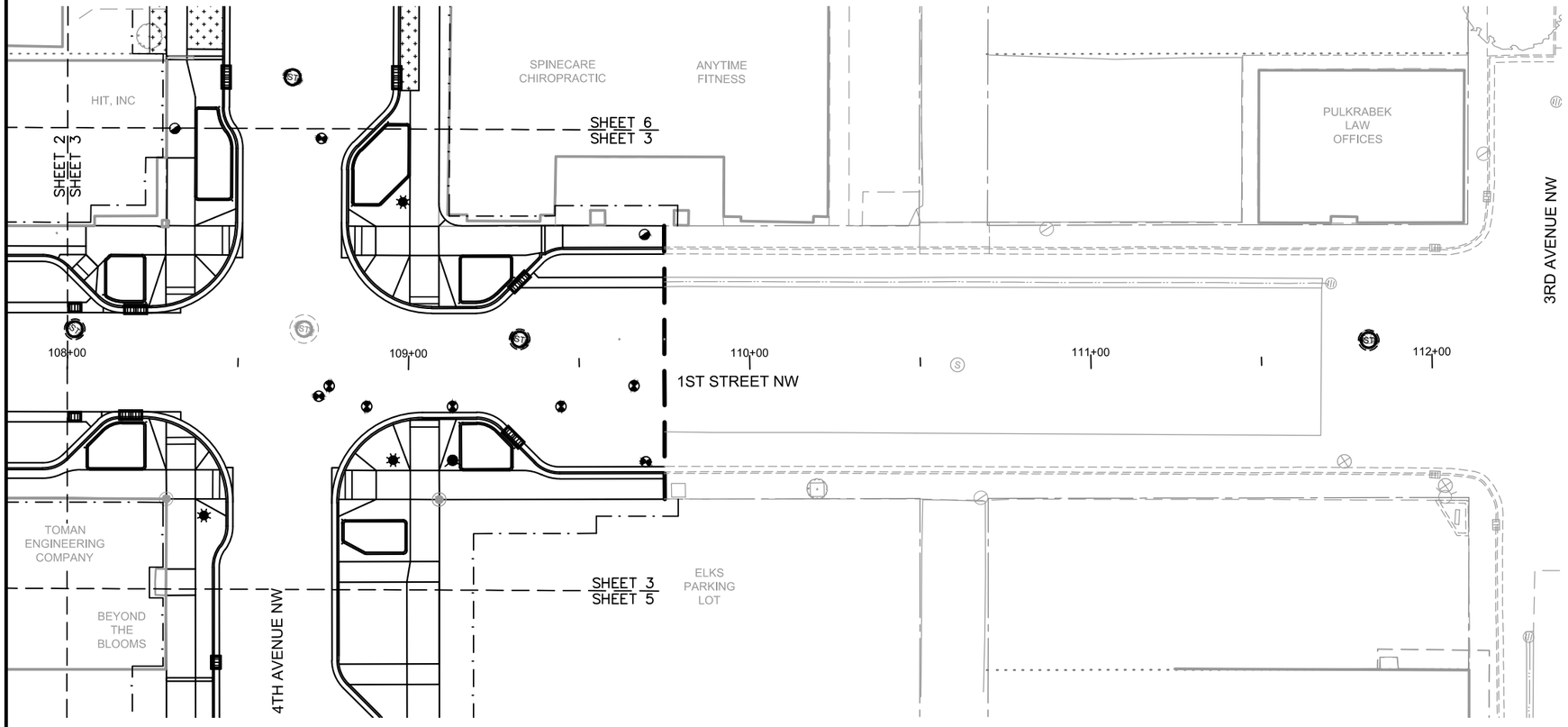
KLJ

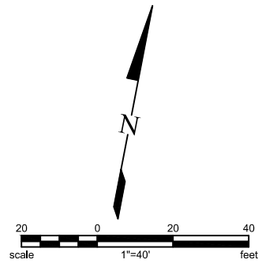
PERMANENT EROSION CONTROL
STA. 104+00 TO 108+00

DRWN. BY	CHK'D BY	PROJECT NO.
SM	AC	1904-02191

Dec 04, 2025 - 1:25pm - K:\Projects\City\ND\Mandan\1904-02191-MandanDowntownSID236\CAD\Design\Plans\Sections\077\1904-02191_077PEC.dwg

SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	77	3





LEGEND:

SEEDING & HYDRAULIC MULCH

FLOW DIRECTION

REFER TO SECTION 76 FOR INLET PROTECTION

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/04/25
NORTH DAKOTA

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

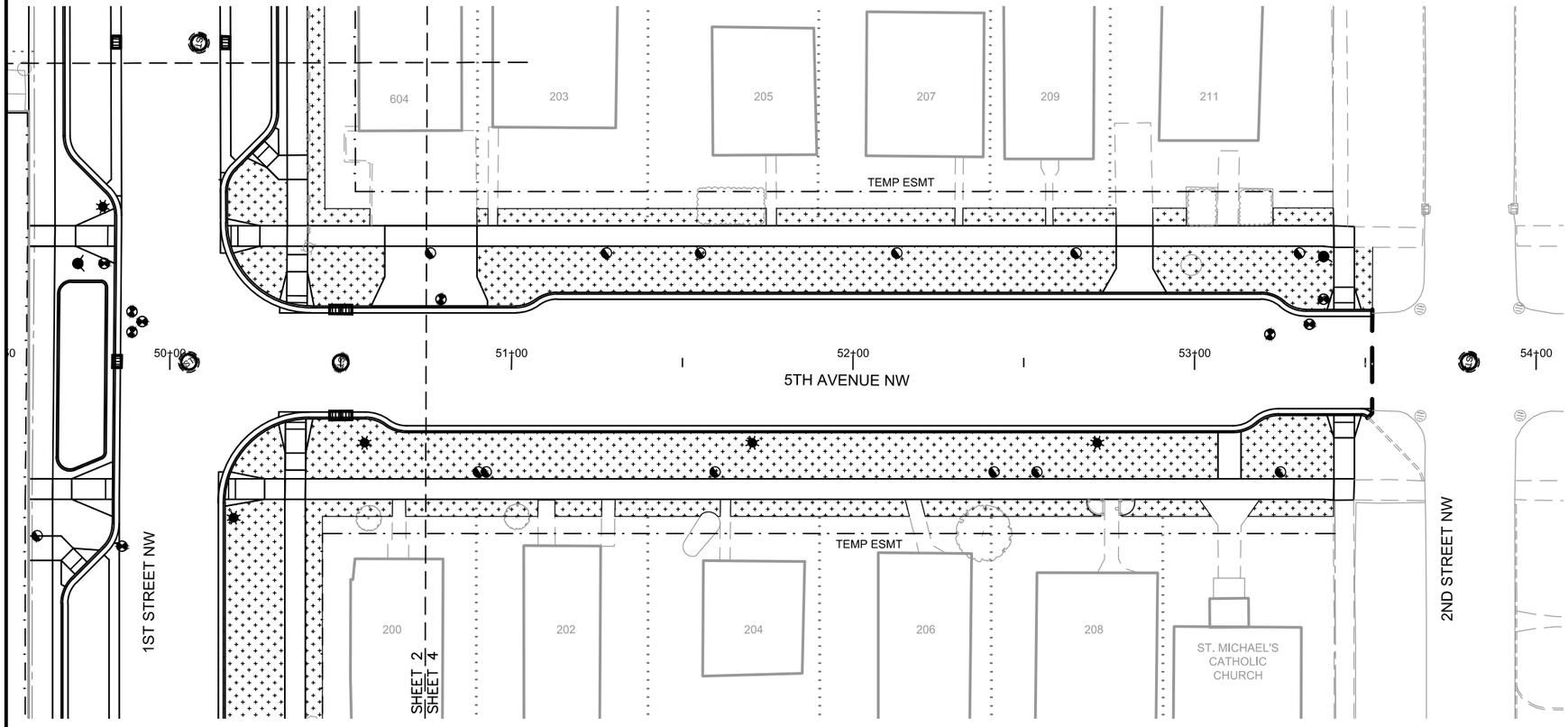
KLJ

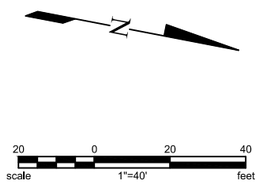
PERMANENT EROSION CONTROL
STA. 108+00 TO 112+00

DRWN. BY	CHK'D BY	PROJECT NO.
SM	AC	1904-02191

SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	77	4

SPEC CODE	BID ITEM	QTY	UNIT
251 0200	SEEDING CLASS II	0.20	ACRE
253 0201	HYDRAULIC MULCH	0.20	ACRE





REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/04/25
NORTH DAKOTA

LEGEND:

SEEDING & HYDRAULIC MULCH

FLOW DIRECTION

REFER TO SECTION 76 FOR INLET PROTECTION

Rev'd.
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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
5TH AVENUE NW

KLJ

PERMANENT EROSION CONTROL STA. 50+00 TO 54+00

DRWN. BY	CHK'D BY	PROJECT NO.
SM	AC	1904-02191

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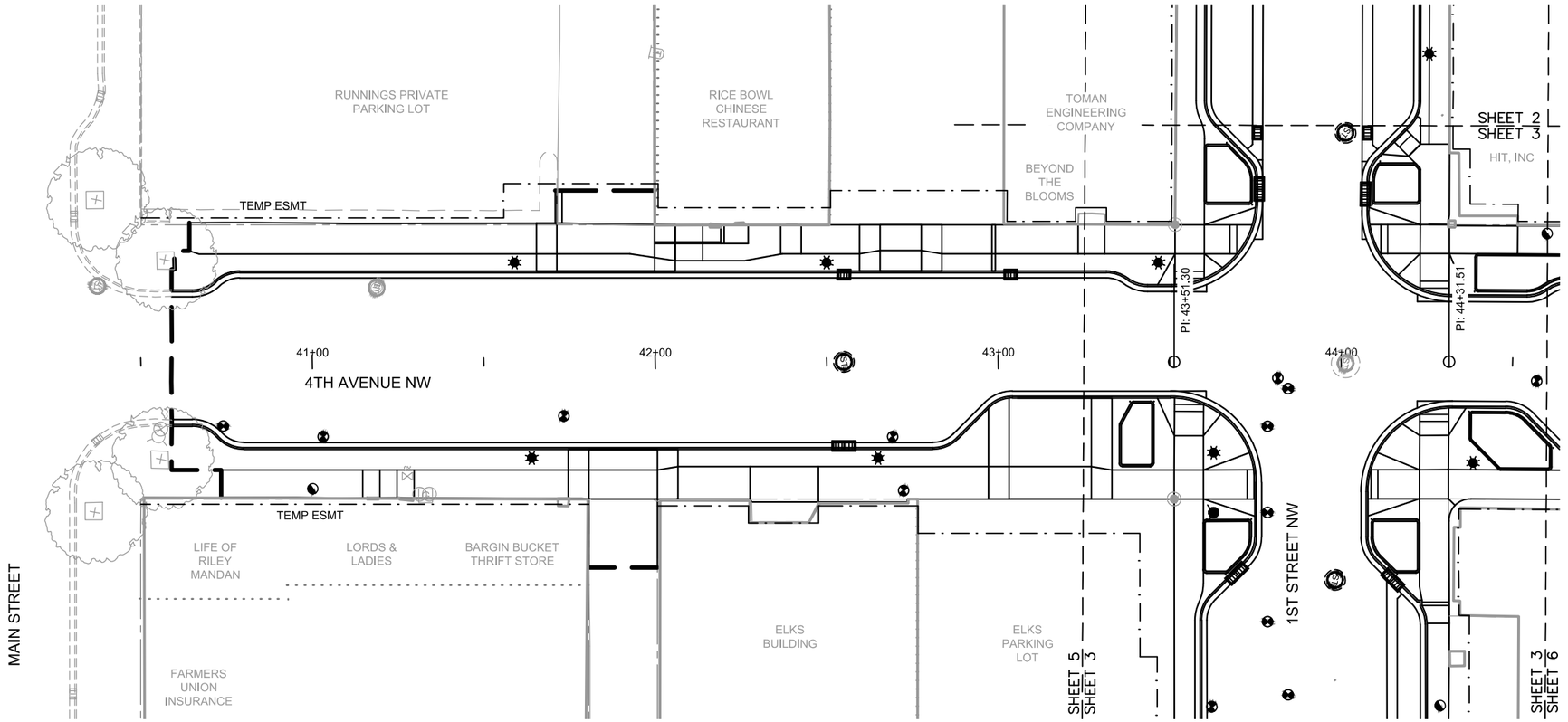
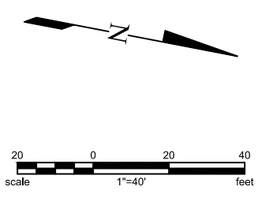
SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	77	5





LEGEND:

SEEDING & HYDRAULIC MULCH

FLOW DIRECTION

REFER TO SECTION 76 FOR INLET PROTECTION

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Rev'd.
Rev'd.

DOWNTOWN STREET RECONSTRUCTION

CITY OF MANDAN, NORTH DAKOTA

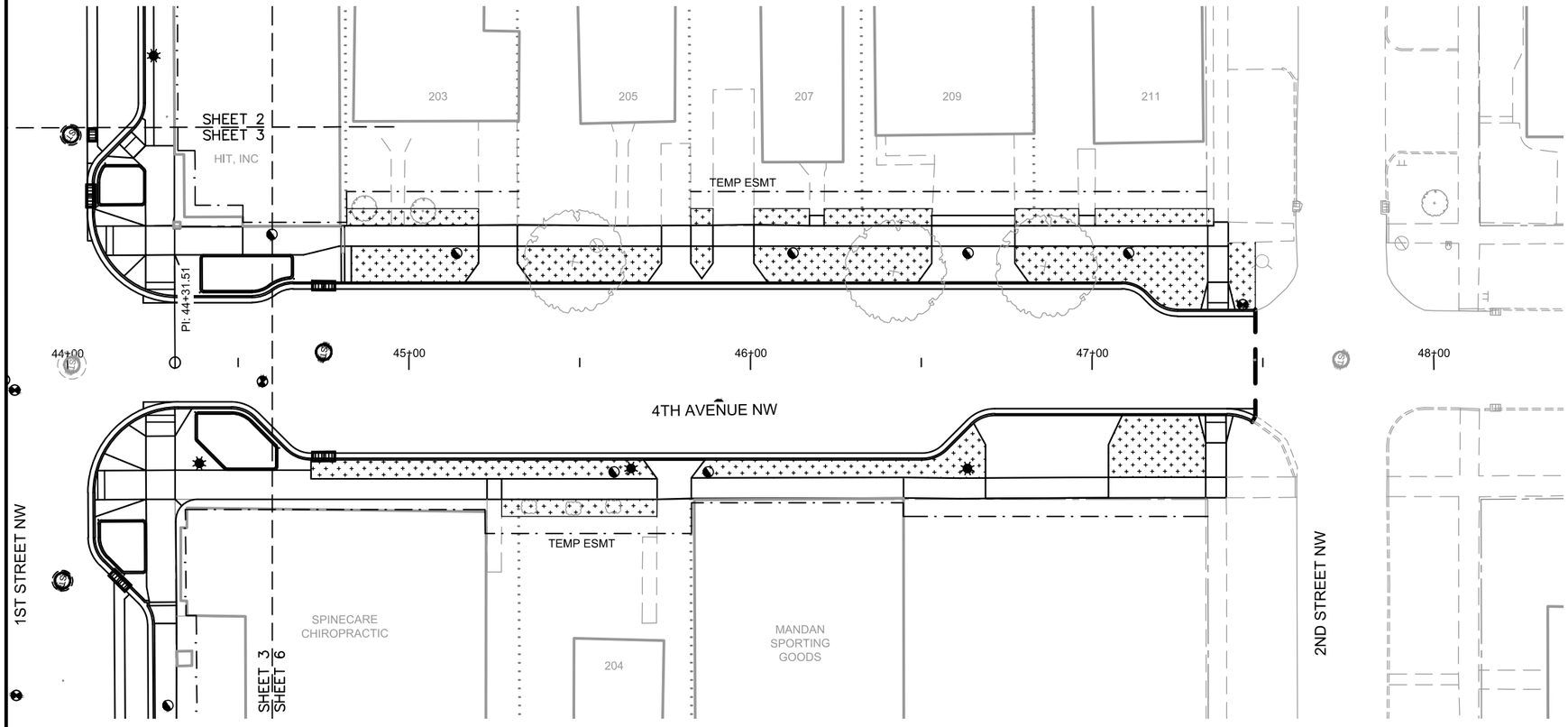
4TH AVENUE NW

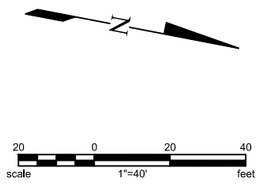
PERMANENT EROSION CONTROL
STA. 40+00 TO 43+25

DRWN. BY	CHK'D BY	PROJECT NO.
SM	AC	1904-02191

SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	77	6

SPEC CODE	BID ITEM	QTY	UNIT
251 0200	SEEDING CLASS II	0.11	ACRE
253 0201	HYDRAULIC MULCH	0.11	ACRE





REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/04/25
NORTH DAKOTA

LEGEND:

SEEDING & HYDRAULIC MULCH

FLOW DIRECTION

REFER TO SECTION 76 FOR INLET PROTECTION

Rev'd.
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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
4TH AVENUE NW

KLJ

PERMANENT EROSION CONTROL STA. 44+60 TO 47+50

DRWN. BY	CHK'D BY	PROJECT NO.
SM	AC	1904-02191

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PRELIMINARY SURVEY COORDINATE AND CURVE DATA

SID 236 C.P. 2019-08	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	UGP-1-988(052)	81	1

HORIZONTAL ALIGNMENT

PNT	STATION	NORTHING	EASTING
OCL_1stST			
BEGIN	100+00.00	423185.38	1868816.37
PI	100+66.45	423198.14	1868881.58
PI	101+46.48	423214.04	1868960.01
PI	104+47.68	423271.70	1869255.64
PI	105+27.59	423286.15	1869334.24
PI	108+29.07	423343.18	1869630.27
PI	109+08.92	423358.19	1869708.70
PI	112+10.71	423416.33	1870004.83
PI	116+71.40	423504.00	1870457.10
PI	120+52.54	423575.61	1870831.46
PI	124+34.71	423647.89	1871206.73
END	126+50.00	423687.94	1871418.26
OCL_4thAve			
BEGIN	40+00.00	422966.49	1869744.43
PI	43+51.30	423311.28	1869677.15
PI	44+31.51	423389.99	1869661.71
END	48+50.00	423801.14	1869583.66
OCL_5thAve			
BEGIN	49+50.00	423229.82	1869304.38
END	54+50.00	423720.77	1869209.66

CURVE DATA

ARC DEFINITION

US PUBLIC LAND SURVEY DATA

CORNER	IRN	NORTHING	EASTING

SURVEY CONTROL POINTS

PNT	NORTHING	EASTING	ELEV	STA	OFFSET	CONTROL POINT DESCRIPTION
CP#1	423160.82	1868838.94	1650.84	100+17.44	28.4' Rt	
CP#7	423234.17	1868956.79	1650.43	101+47.17	20.4' Lt	PK
CP#14	423215.39	1869139.45	1650.46	103+22.85	33.0' Rt	PK IN JNT
CP#15	423256.62	1869341.14	1649.57	105+28.78	30.3' Rt	PK IN ASP
CP#10000	423303.97	1869637.99	1648.85	108+29.28	40.0' Rt	
CP#905	423323.91	1869704.01	1648.09	108+97.87	32.8' Rt	
CP#6	423333.83	1869724.49	1648.00	109+19.72	27.0' Rt	PK IN CONC JNT
CP#16	423352.41	1869848.91	1647.80	110+45.39	32.7' Rt	PK IN CONC JNT
CP#8	423153.39	1869687.75	1648.14	41+94.30	19.8' Lt	PK IN ASP
CP#25	423182.24	1869898.83	1648.27	41+82.19	192.9' Rt	PK IN ASP

NOTES: Sheet 1 of 1

Date Survey Completed 07/2025

☐ Assumed Coordinates

☒ All coordinates on this sheet are Morton County ground coordinates.
They are derived from the "North American Datum of 1983", NAD83, 2011 Reference Frame; North Dakota South Zone

Combination Factor (cf) = 0.9998485

INITIALIZING BENCH MARK OPUS

☒ NAVD-88
☐ NGVD-29

☒ GEOID12B ☐ GEOID12A
☐ GEOID18

All coordinates and measurements on this document derived from the International Foot definition.

REGISTERED PROFESSIONAL ENGINEER & LAND SURVEYOR
CARL F. OLSON
PE-4687
LS-4687
DATE 11/06/25
NORTH DAKOTA

Rev'd.
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Rev'd.

DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA

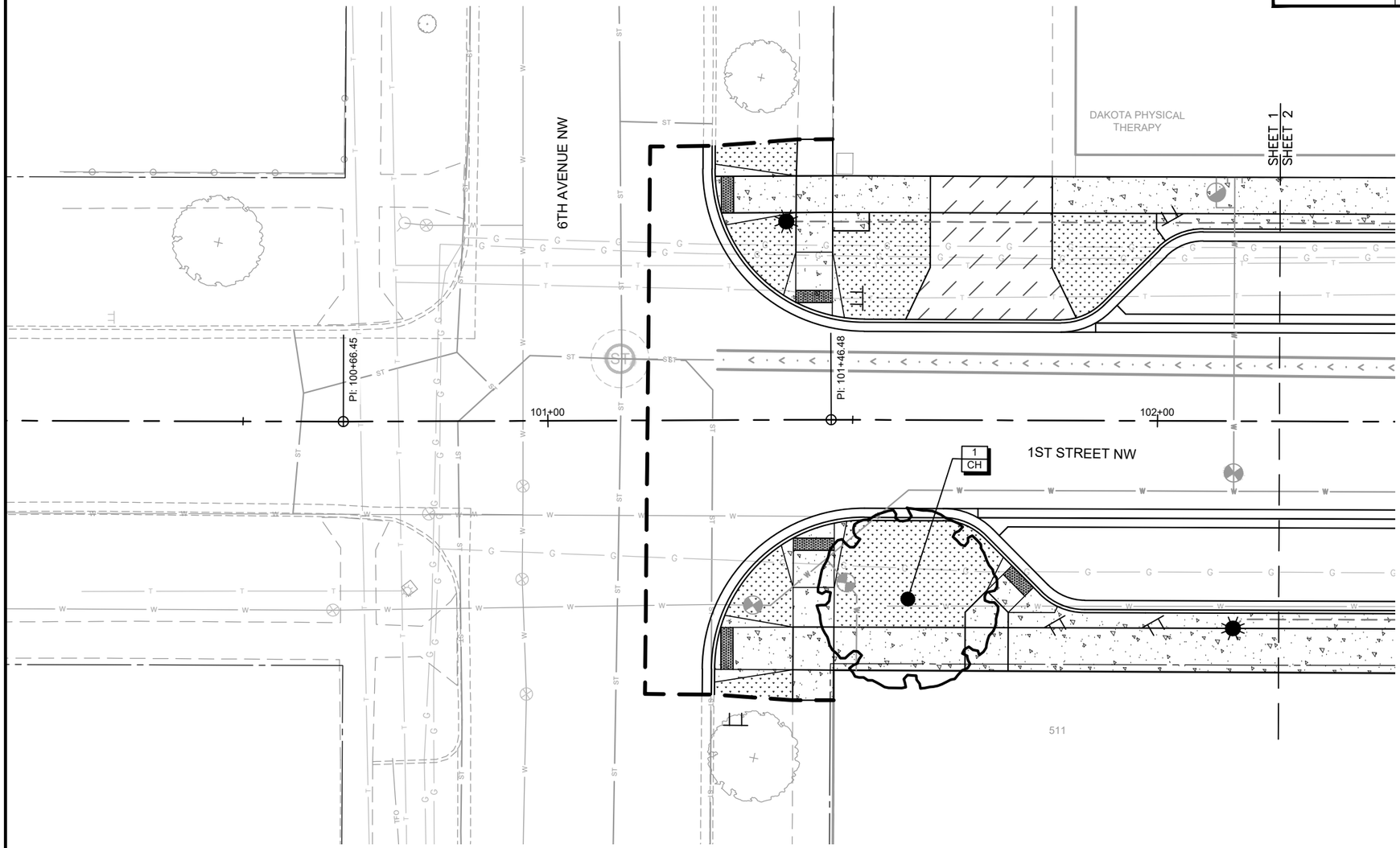
KLJ

SURVEY COORDINATE & CURVE DATA

DRWN. BY	CHK'D BY	PROJECT NO.
AC	SS	1904-02191

SID 236 C.P. 2019-08	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	UGP-1-988(052)	85	1

SPEC	CODE	BID ITEM	QTY	UNIT
970	0008	LANDSCAPE PREPARATION		
		Summary of all Section 85 sheets	89	SY
970	0201	DECORATIVE PLANTER		
		Summary of all Section 85 sheets	7	EA
970	0300	BENCH		
		Summary of all Section 85 sheets	3	EA
970	0320	TRASH RECEPTACLE		
		Summary of all Section 85 sheets	2	EA
970	0601	TREE GRATE		
		Summary of all Section 85 sheets	4	EA
970	1000	TREES		
		Summary of all Section 85 sheets	28	EA



N

10 0 10 20
scale 1"=20' feet

LEGEND

- SEEDED BOULEVARD 6IN TOPSOIL
- DRIVEWAY CONCRETE
- SIDEWALK CONCRETE
- NON-REINF CONCRETE AE-COLORED
- MAINTENANCE-FREE LANDSCAPING ROCK
- BOLLARD
- BENCH
- TRASH RECEPTACLE
- DECORATIVE LIGHTING WITH GRCI RECEPTABLE
- TREE GRATE 5' x 5' FLEXI PAVE POROUS CONCRETE
- PLANT SYMBOLS VARY, REFER TO PLANT CODES IN PLANT SCHEDULE
- PLANT CALL-OUT
- 1 / AA — PLANT QUANTITY, SEE PLANT SCHEDULE; PLANT SPECIES CODE, SEE PLANT SCHEDULE

PLANT SCHEDULE

TREES	QTY	COMMON NAME	BOTANICAL NAME	TYPE	SIZE	NOTES
CH	1	Common Hackberry Tree	Celtis Occidentalis	CONT. or B&B	2" Cal.	

REGISTERED PROFESSIONAL ENGINEER
ANDREW WERDER
PE-6696
DATE 12-8-25
NORTH DAKOTA

Rev'd.
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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

KLJ

PEDESTRIAN FACILITIES & STREETSCAPE LAYOUT STA. 100+00 TO 102+20

DRWN. BY	CHK'D BY	PROJECT NO.
JP	EB	1904-02191

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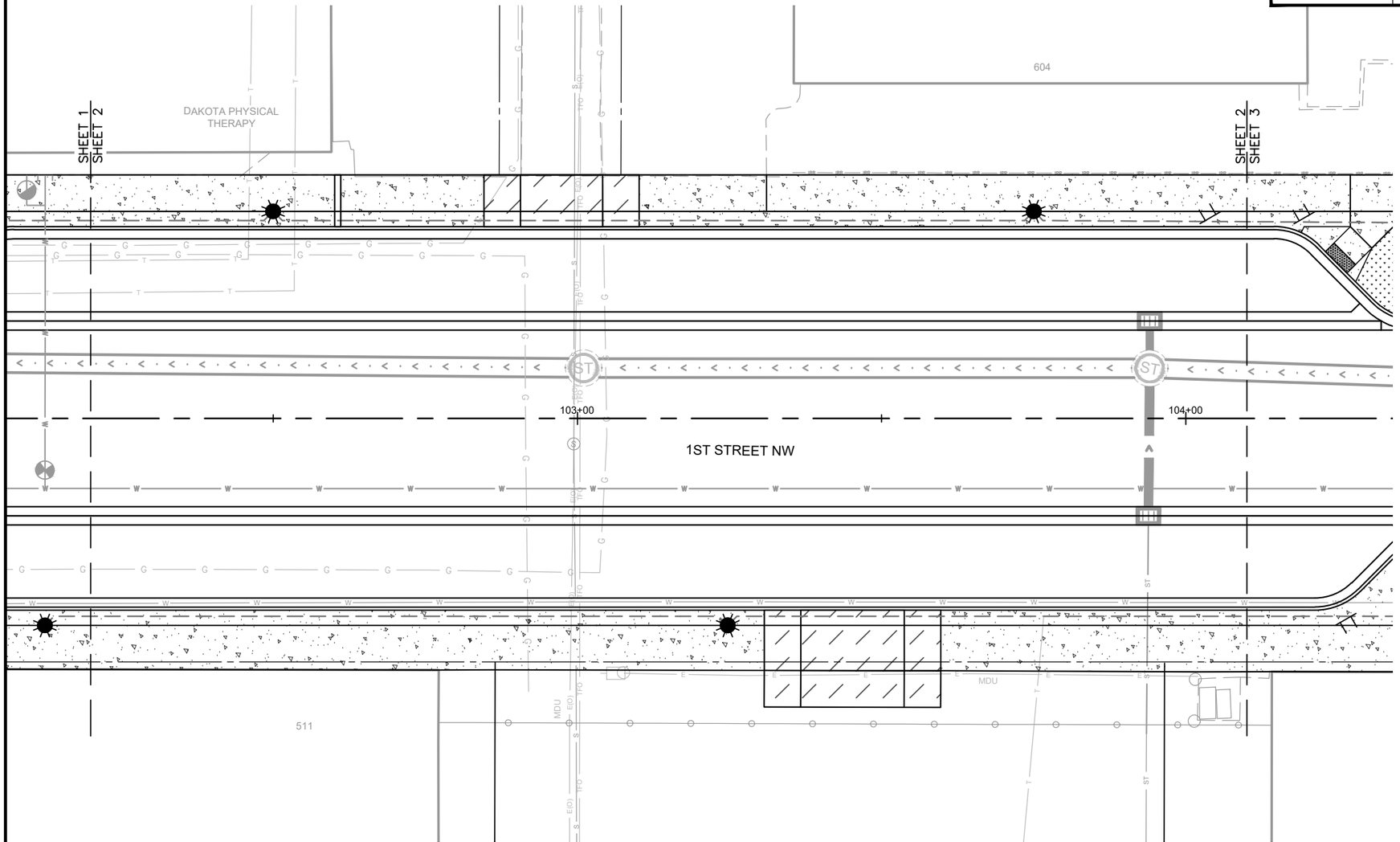
SID 236 C.P. 2019-08	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	UGP-1-988(052)	85	2



LEGEND

- SEEDED BOULEVARD 6IN TOPSOIL
- DRIVEWAY CONCRETE
- SIDEWALK CONCRETE
- NON-REINF CONCRETE AE-COLORED
- MAINTENANCE-FREE LANDSCAPING ROCK
- BOLLARD
- BENCH
- TRASH RECEPTACLE
- DECORATIVE LIGHTING WITH GRCI RECEPTABLE
- TREE GRATE 5' x 5' FLEXI PAVE POROUS CONCRETE
- PLANT SYMBOLS VARY, REFER TO PLANT CODES IN PLANT SCHEDULE
- PLANT CALL-OUT
- 1 / AA — PLANT QUANTITY, SEE PLANT SCHEDULE; PLANT SPECIES CODE, SEE PLANT SCHEDULE

N

10 0 10 20
scale 1"=20' feet

REGISTERED PROFESSIONAL ENGINEER
ANDREW WERDER
PE-6696
DATE 12-8-25
NORTH DAKOTA

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Rev'd.

DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

KLJ

PEDESTRIAN FACILITIES & STREETSCAPE LAYOUT STA. 102+20 TO 104+10

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JP	EB	1904-02191

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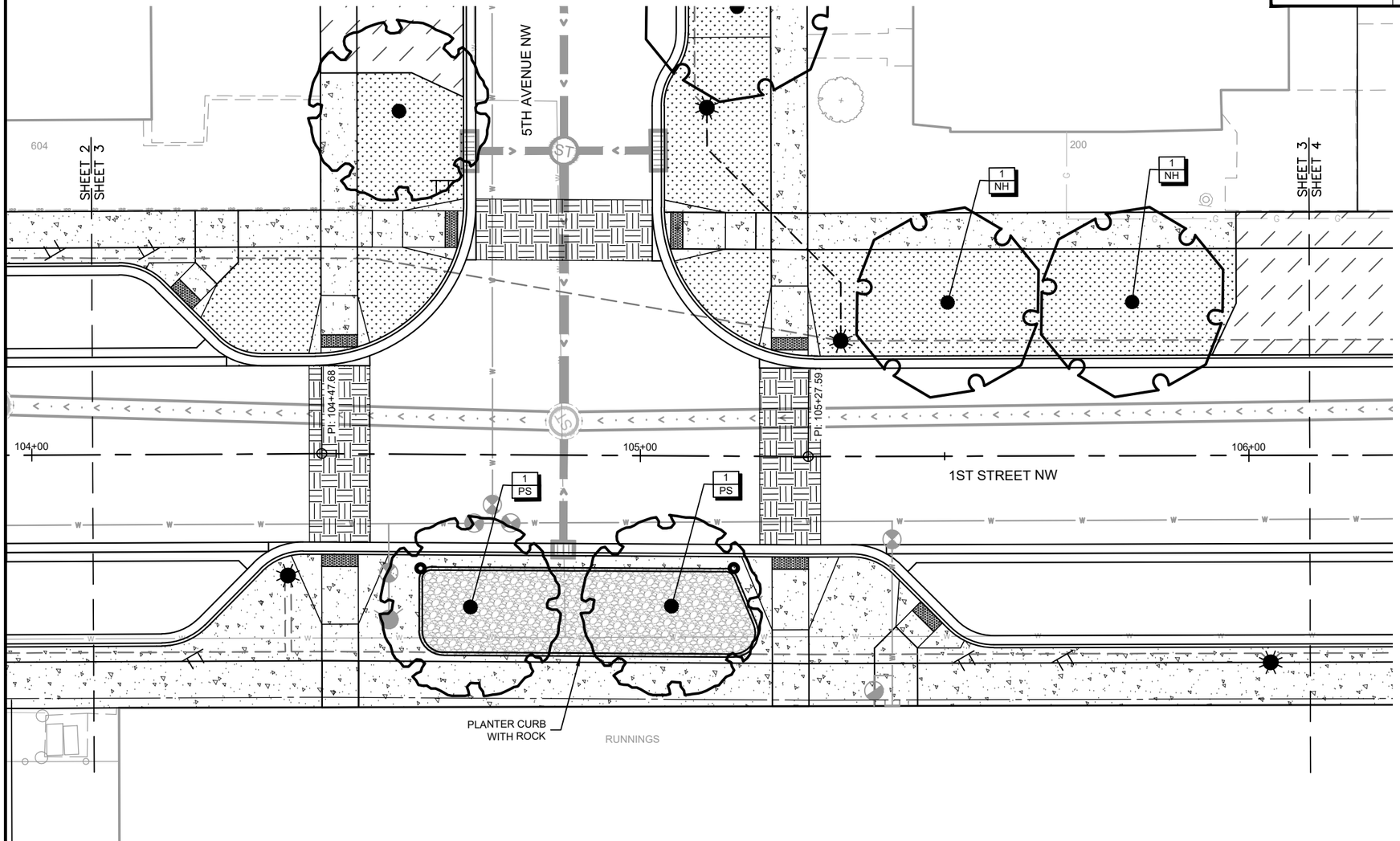
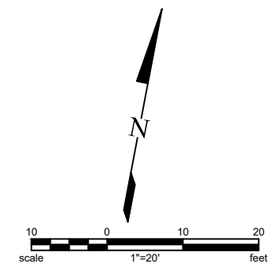
SID 236 C.P. 2019-08	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	UGP-1-988(052)	85	3





LEGEND

- SEEDED BOULEVARD 6IN TOPSOIL
- DRIVEWAY CONCRETE
- SIDEWALK CONCRETE
- NON-REINF CONCRETE AE-COLORED
- MAINTENANCE-FREE LANDSCAPING ROCK
- BOLLARD
- BENCH
- TRASH RECEPTACLE
- DECORATIVE LIGHTING WITH GRCI RECEPTABLE
- TREE GRATE 5' x 5' FLEXI PAVE POROUS CONCRETE
- PLANT SYMBOLS VARY, REFER TO PLANT CODES IN PLANT SCHEDULE
- PLANT CALL-OUT
- 1 AA — PLANT QUANTITY, SEE PLANT SCHEDULE; PLANT SPECIES CODE, SEE PLANT SCHEDULE

PLANT SCHEDULE

TREES	QTY	COMMON NAME	BOTANICAL NAME	TYPE	SIZE	NOTES
PS	2	Prairie Statue Oak	Quercus x bimundorum `Midwest`	CONT. or B&B	2" Cal.	
NH	2	New Horizon Elm	Ulmus ' New Horizon'	CONT. or B&B	2" Cal.	

REGISTERED PROFESSIONAL ENGINEER
ANDREW WERDER
PE-6696
DATE 12-8-25
NORTH DAKOTA

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

KLJ

PEDESTRIAN FACILITIES & STREETSCAPE LAYOUT STA. 104+10 TO 106+10

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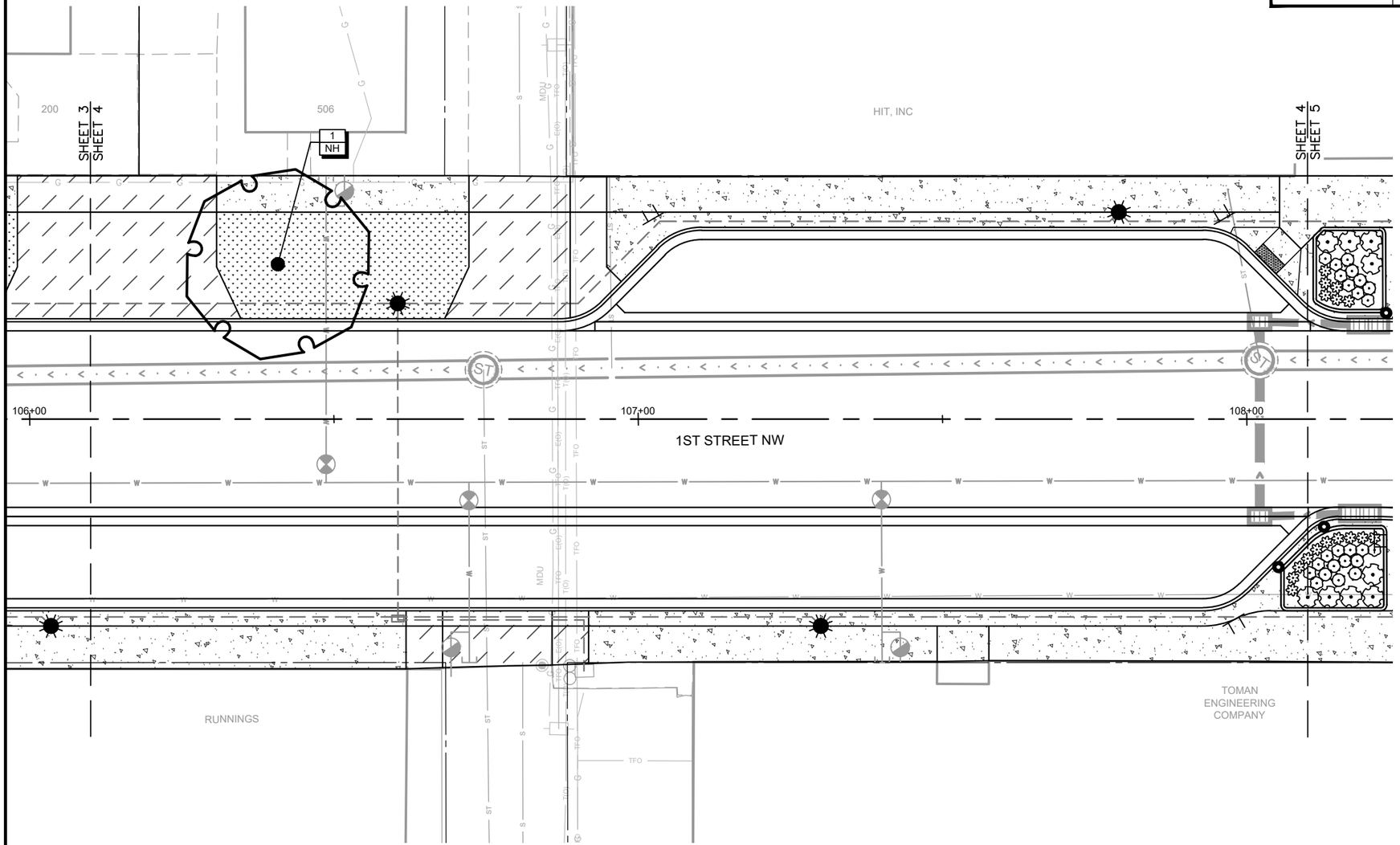
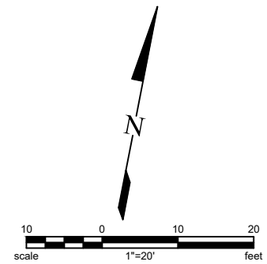
SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	85	4





LEGEND

- SEEDED BOULEVARD 6IN TOPSOIL
- DRIVEWAY CONCRETE
- SIDEWALK CONCRETE
- NON-REINF CONCRETE AE-COLORED
- MAINTENANCE-FREE LANDSCAPING ROCK
- BOLLARD
- BENCH
- TRASH RECEPTACLE
- DECORATIVE LIGHTING WITH GRCI RECEPTABLE
- TREE GRATE 5' x 5' FLEXI PAVE POROUS CONCRETE
- PLANT SYMBOLS VARY, REFER TO PLANT CODES IN PLANT SCHEDULE
- PLANT CALL-OUT
- 1 / AA — PLANT QUANTITY, SEE PLANT SCHEDULE; PLANT SPECIES CODE, SEE PLANT SCHEDULE

PLANT SCHEDULE

TREES	QTY	COMMON NAME	BOTANICAL NAME	TYPE	SIZE	NOTES
NH	1	New Horizon Elm	Ulmus ' New Horizon'	CONT. or B&B	2" Cal.	

REGISTERED PROFESSIONAL ENGINEER
ANDREW WERDER
PE-6696
DATE 12-8-25
NORTH DAKOTA

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

KLJ

PEDESTRIAN FACILITIES & STREETSCAPE LAYOUT STA. 106+10 TO 108+10

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JP	EB	1904-02191

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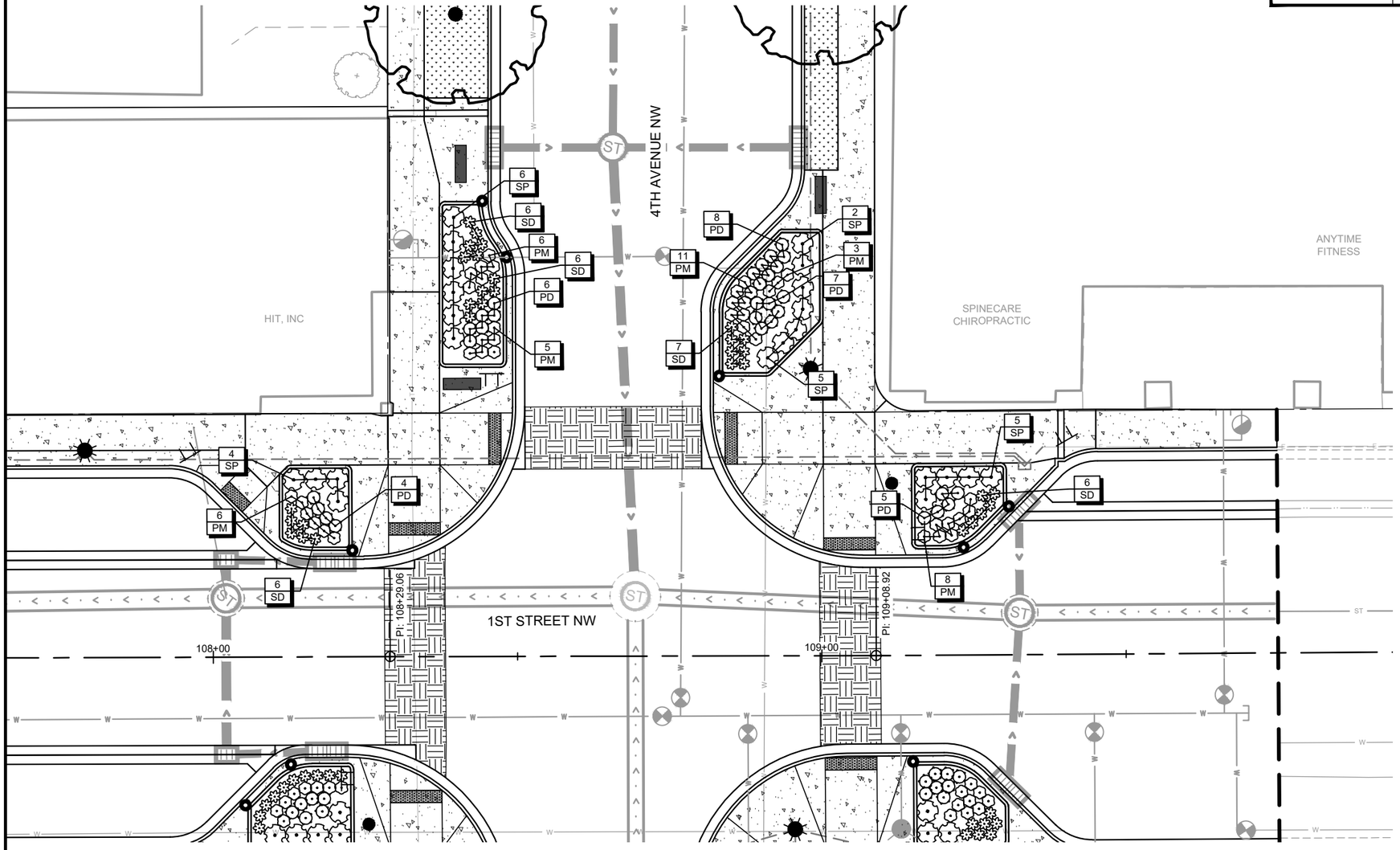
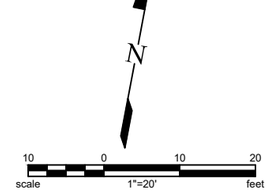
SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	85	5





LEGEND

- SEEDED BOULEVARD 6IN TOPSOIL
- DRIVEWAY CONCRETE
- SIDEWALK CONCRETE
- NON-REINF CONCRETE AE-COLORED
- MAINTENANCE-FREE LANDSCAPING ROCK
- BOLLARD
- BENCH
- TRASH RECEPTACLE
- DECORATIVE LIGHTING WITH GRCI RECEPTABLE
- TREE GRATE 5' x 5' FLEXI PAVE POROUS CONCRETE
- PLANT CALL-OUT: PLANT SYMBOLS VARY, REFER TO PLANT CODES IN PLANT SCHEDULE
- 1 / AA: PLANT QUANTITY, SEE PLANT SCHEDULE; PLANT SPECIES CODE, SEE PLANT SCHEDULE

PLANT SCHEDULE

DECIDUOUS SHRUBS	QTY	COMMON NAME	BOTANICAL NAME	TYPE	SIZE	NOTES
SP	23	Sun Power Hosta	Hosta `Sun Power`	CONT.	#2	

PERENNIALS	QTY	COMMON NAME	BOTANICAL NAME	TYPE	SIZE	NOTES
SD	41	Stella D'Oro Daylily	Hemerocallis 'Stella de Oro'	CONT.	#1	
PD	30	Purple D'Oro Daylily	Hemerocallis 'Purple de Oro'	CONT.	#1	
PM	39	Pardon Me Daylily	Hemerocallis 'Pardon Me'	CONT.	#1	

REGISTERED PROFESSIONAL ENGINEER
ANDREW WERDER
PE-6696
DATE 12-8-25
NORTH DAKOTA

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

KLJ

PEDESTRIAN FACILITIES & STREETSCAPE LAYOUT PLANTERS NE & NW QUADRANTS

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JP	EB	1904-02191

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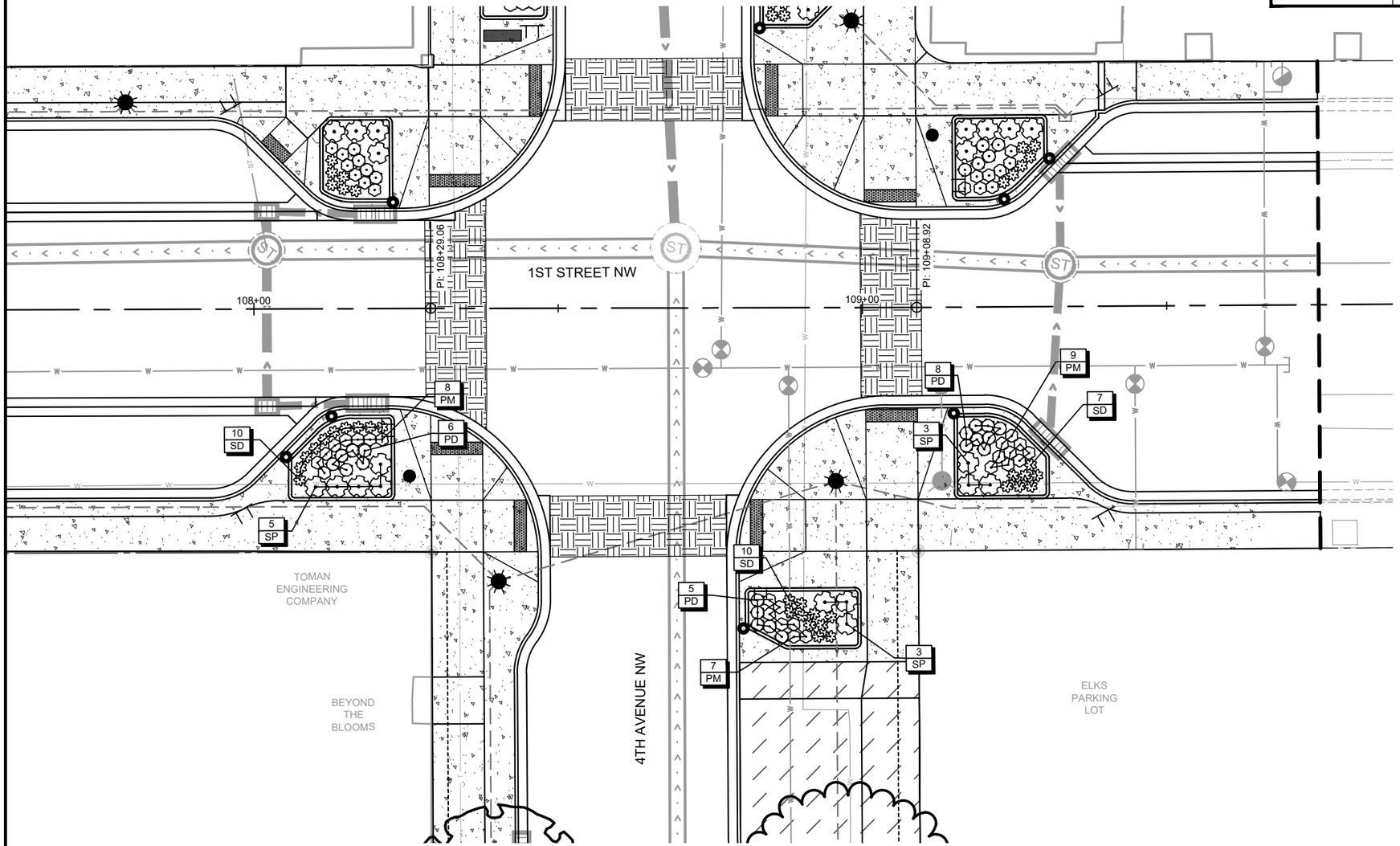
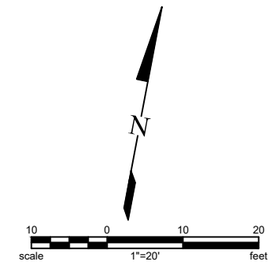
SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	85	6





LEGEND

- SEEDED BOULEVARD 6IN TOPSOIL
- DRIVEWAY CONCRETE
- SIDEWALK CONCRETE
- NON-REINF CONCRETE AE-COLORED
- MAINTENANCE-FREE LANDSCAPING ROCK
- BOLLARD
- BENCH
- TRASH RECEPTACLE
- DECORATIVE LIGHTING WITH GRCI RECEPTABLE
- TREE GRATE 5' x 5' FLEXI PAVE POROUS CONCRETE
- PLANT SYMBOLS VARY, REFER TO PLANT CODES IN PLANT SCHEDULE
- PLANT CALL-OUT
- 1 AA — PLANT QUANTITY, SEE PLANT SCHEDULE; PLANT SPECIES CODE, SEE PLANT SCHEDULE

PLANT SCHEDULE

DECIDUOUS SHRUBS	QTY	COMMON NAME	BOTANICAL NAME	TYPE	SIZE	NOTES
SP	12	Sun Power Hosta	Hosta `Sun Power`	CONT.	#2	

PERENNIALS	QTY	COMMON NAME	BOTANICAL NAME	TYPE	SIZE	NOTES
SD	33	Stella D'Oro Daylily	Hemerocallis 'Stella de Oro'	CONT.	#1	
PD	21	Purple D'Oro Daylily	Hemerocallis 'Purple de Oro'	CONT.	#1	
PM	24	Pardon Me Daylily	Hemerocallis 'Pardon Me'	CONT.	#1	

REGISTERED PROFESSIONAL ENGINEER
ANDREW WERDER
PE-6696
DATE 12-8-25
NORTH DAKOTA

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

KLJ

PEDESTRIAN FACILITIES & STREETSCAPE LAYOUT PLANTERS SE & SW QUADRANTS

DRWN. BY	CHK'D BY	PROJECT NO.
JP	EB	1904-02191

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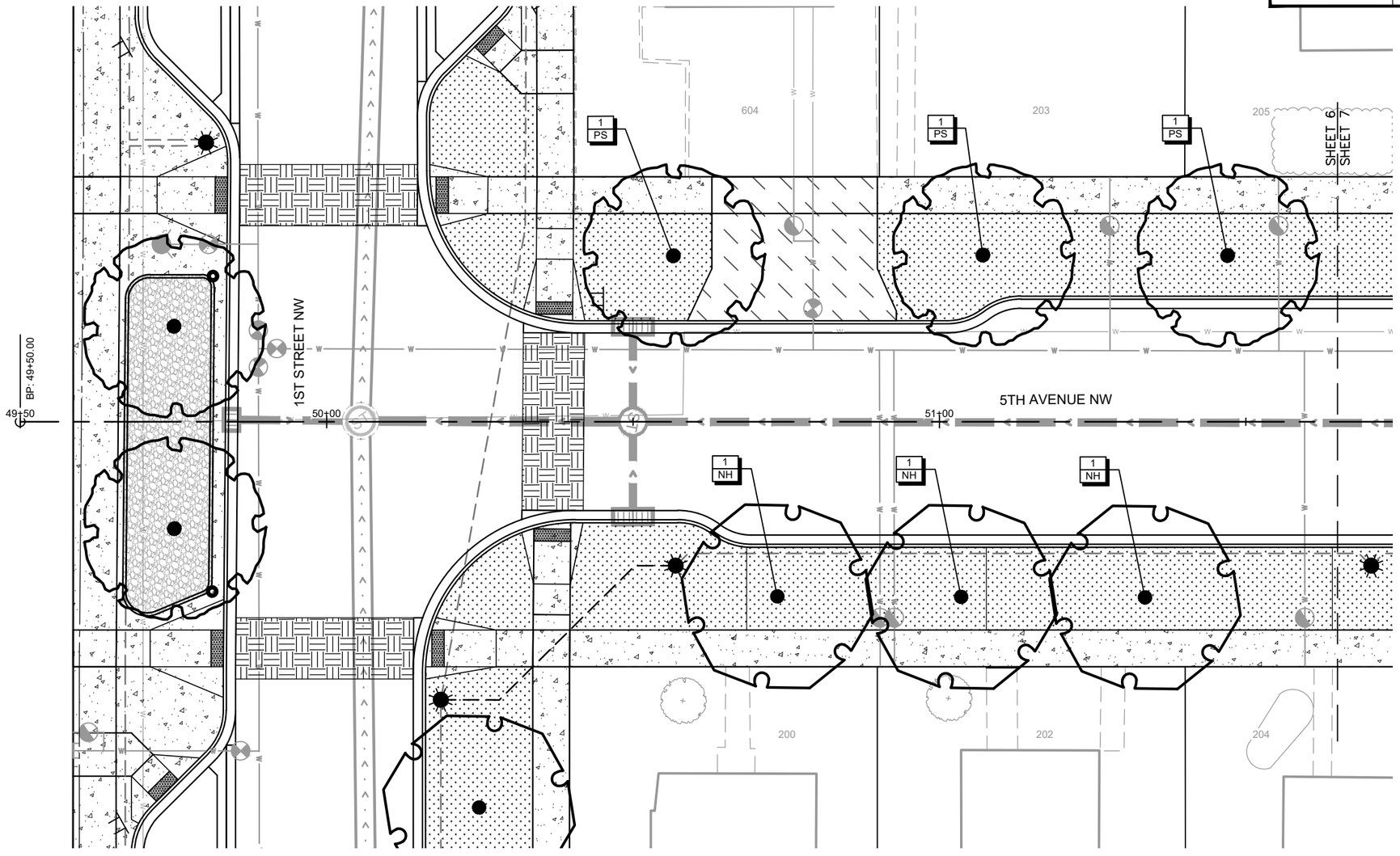
SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	85	7



N

10 0 10 20
scale 1"=20' feet

LEGEND

- SEEDED BOULEVARD 6IN TOPSOIL
- DRIVEWAY CONCRETE
- SIDEWALK CONCRETE
- NON-REINF CONCRETE AE-COLORED
- MAINTENANCE-FREE LANDSCAPING ROCK
- BOLLARD
- BENCH
- TRASH RECEPTACLE
- DECORATIVE LIGHTING WITH GRCI RECEPTABLE
- TREE GRATE 5' x 5' FLEXI PAVE POROUS CONCRETE
- PLANT SYMBOLS VARY, REFER TO PLANT CODES IN PLANT SCHEDULE
- PLANT CALL-OUT
- 1 / AA — PLANT QUANTITY, SEE PLANT SCHEDULE; PLANT SPECIES CODE, SEE PLANT SCHEDULE

PLANT SCHEDULE

TREES	QTY	COMMON NAME	BOTANICAL NAME	TYPE	SIZE	NOTES
PS	3	Prairie Statue Oak	Quercus x bimundorum `Midwest`	CONT. or B&B	2" Cal.	
NH	3	New Horizon Elm	Ulmus ' New Horizon'	CONT. or B&B	2" Cal.	

REGISTERED PROFESSIONAL ENGINEER
ANDREW WERDER
PE-6696
DATE 12-8-25
NORTH DAKOTA

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
5TH AVENUE NW

PEDESTRIAN FACILITIES & STREETSCAPE LAYOUT STA. 50+00 TO 51+65

DRWN. BY	CHK'D BY	PROJECT NO.
JP	EB	1904-02191

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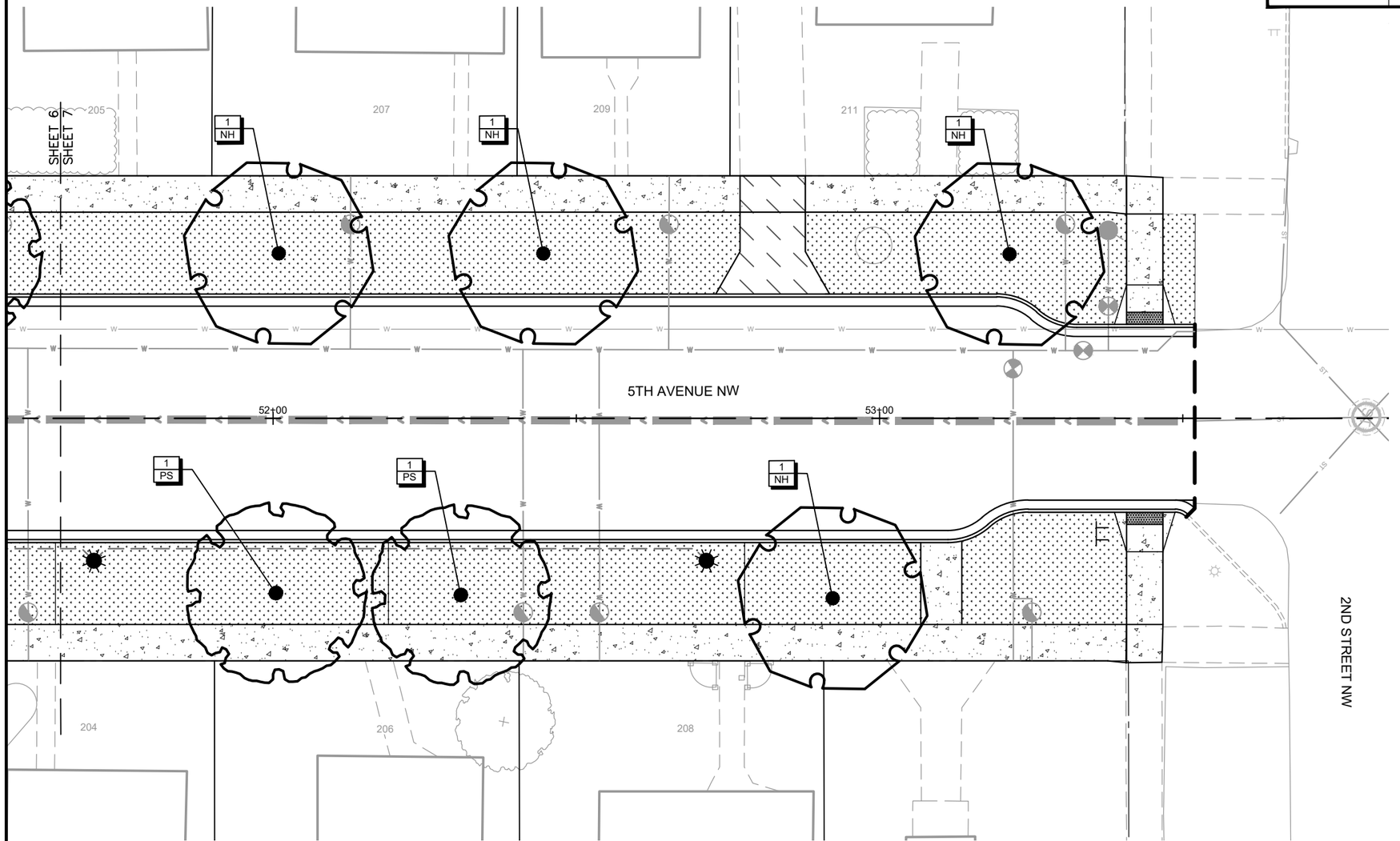
SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	85	8



N

10 0 10 20
scale 1"=20' feet

LEGEND

- SEEDED BOULEVARD 6IN TOPSOIL
- DRIVEWAY CONCRETE
- SIDEWALK CONCRETE
- NON-REINF CONCRETE AE-COLORED
- MAINTENANCE-FREE LANDSCAPING ROCK
- BOLLARD
- BENCH
- TRASH RECEPTACLE
- DECORATIVE LIGHTING WITH GRCI RECEPTABLE
- TREE GRATE 5' x 5' FLEXI PAVE POROUS CONCRETE
- PLANT SYMBOLS VARY, REFER TO PLANT CODES IN PLANT SCHEDULE
- PLANT CALL-OUT (1 / AA): PLANT QUANTITY, SEE PLANT SCHEDULE; PLANT SPECIES CODE, SEE PLANT SCHEDULE

PLANT SCHEDULE

TREES	QTY	COMMON NAME	BOTANICAL NAME	TYPE	SIZE	NOTES
PS	2	Prairie Statue Oak	Quercus x bimundorum `Midwest`	CONT. or B&B	2" Cal.	
NH	4	New Horizon Elm	Ulmus ' New Horizon'	CONT. or B&B	2" Cal.	

REGISTERED PROFESSIONAL ENGINEER
ANDREW WERDER
PE-6696
DATE 12-8-25
NORTH DAKOTA

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
5TH AVENUE NW

KLJ

PEDESTRIAN FACILITIES & STREETSCAPE LAYOUT STA. 51+65 TO 53+80

DRWN. BY	CHK'D BY	PROJECT NO.
JP	EB	1904-02191

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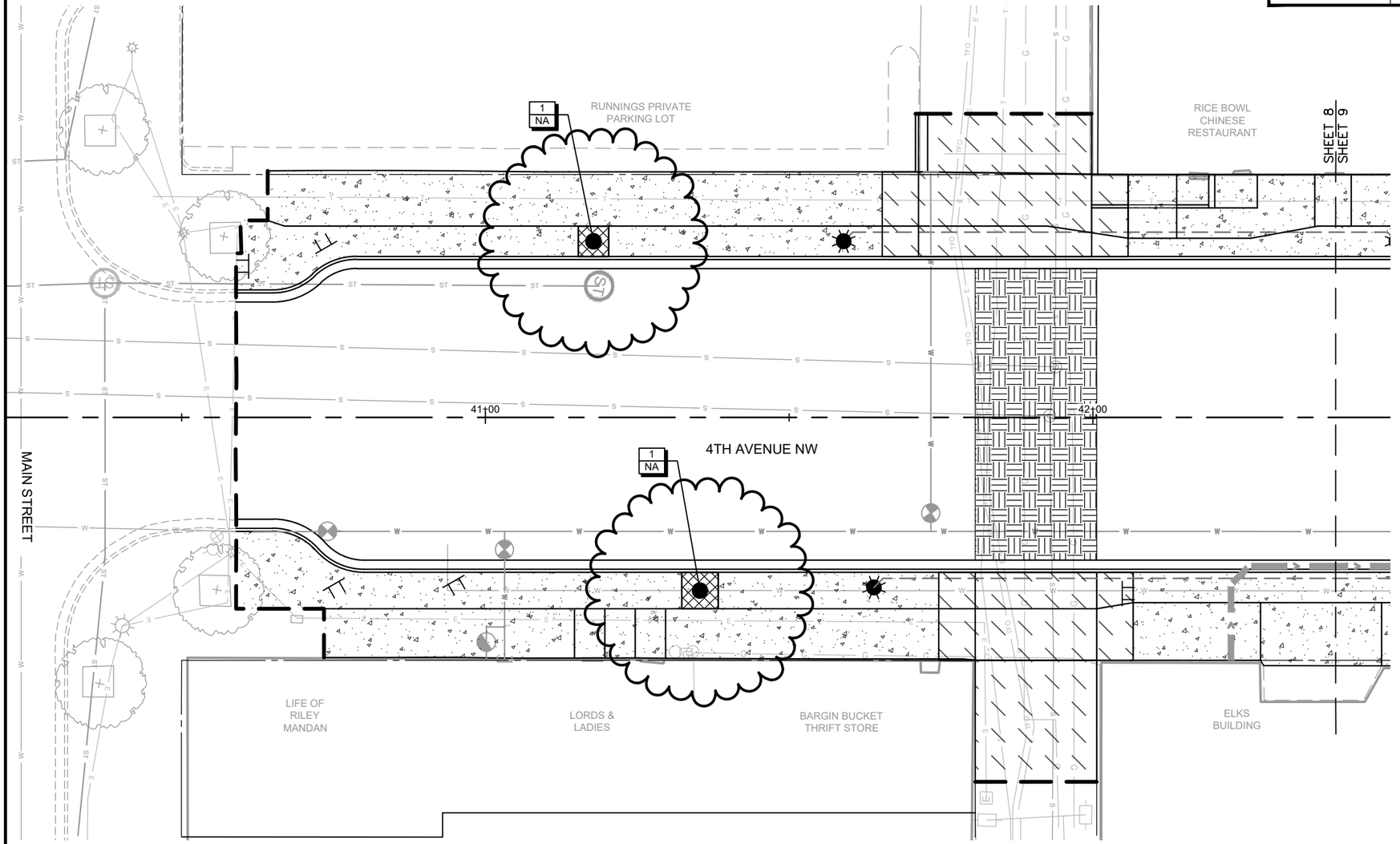
SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	85	9



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scale 10 0 10 20 1"=20' feet

LEGEND

- SEEDED BOULEVARD 6IN TOPSOIL
- DRIVEWAY CONCRETE
- SIDEWALK CONCRETE
- NON-REINF CONCRETE AE-COLORED
- MAINTENANCE-FREE LANDSCAPING ROCK
- BOLLARD
- BENCH
- TRASH RECEPTACLE
- DECORATIVE LIGHTING WITH GRCI RECEPTABLE
- TREE GRATE 5' x 5' FLEXI PAVE POROUS CONCRETE
- PLANT CALL-OUT: PLANT SYMBOLS VARY, REFER TO PLANT CODES IN PLANT SCHEDULE
- 1 / AA: PLANT QUANTITY, SEE PLANT SCHEDULE; PLANT SPECIES CODE, SEE PLANT SCHEDULE

PLANT SCHEDULE

TREES	QTY	COMMON NAME	BOTANICAL NAME	TYPE	SIZE	NOTES
NA	2	Northern Acclaim Honeylocust	Gleditsia triacanthos f. inermis 'Harve'	CONT. or B&B	2" Cal.	

REGISTERED PROFESSIONAL ENGINEER
ANDREW WERDER
PE-6696
DATE 12-8-25
NORTH DAKOTA

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
4TH AVENUE NW

KLJ

PEDESTRIAN FACILITIES & STREETSCAPE LAYOUT STA. 40+00 TO 41+90

DRWN. BY	CHK'D BY	PROJECT NO.
JP	EB	1904-02191

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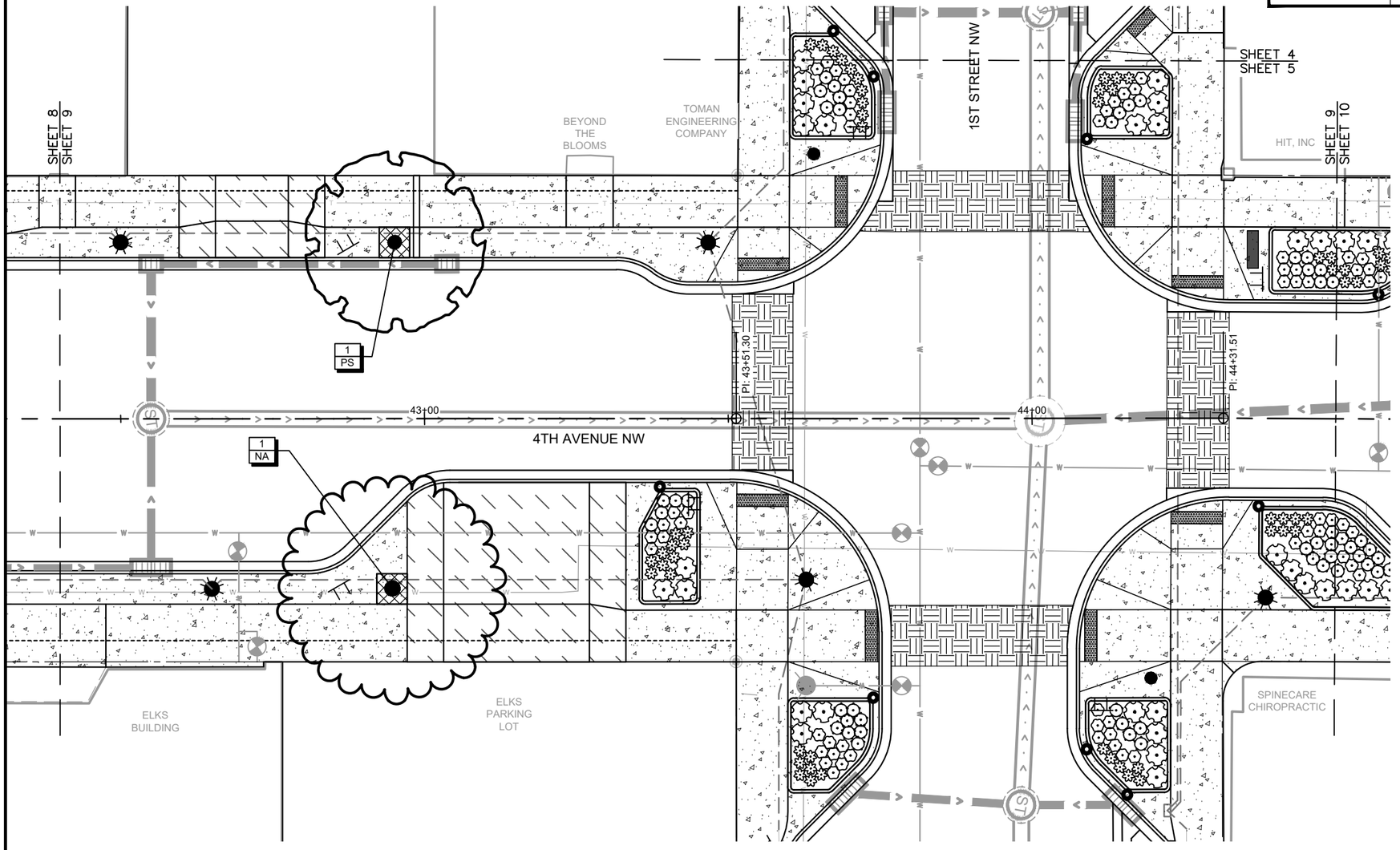
SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	85	10



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10 0 10 20
scale 1"=20' feet

LEGEND

- SEEDED BOULEVARD 6IN TOPSOIL
- DRIVEWAY CONCRETE
- SIDEWALK CONCRETE
- NON-REINF CONCRETE AE-COLORED
- MAINTENANCE-FREE LANDSCAPING ROCK
- BOLLARD
- BENCH
- TRASH RECEPTACLE
- DECORATIVE LIGHTING WITH GRCI RECEPTABLE
- TREE GRATE 5' x 5' FLEXI PAVE POROUS CONCRETE
- PLANT SYMBOLS VARY, REFER TO PLANT CODES IN PLANT SCHEDULE
- PLANT CALL-OUT
- 1 / AA — PLANT QUANTITY, SEE PLANT SCHEDULE; PLANT SPECIES CODE, SEE PLANT SCHEDULE

PLANT SCHEDULE

TREES	QTY	COMMON NAME	BOTANICAL NAME	TYPE	SIZE	NOTES
PS	1	Prairie Statue Oak	Quercus x bimundorum `Midwest`	CONT. or B&B	2" Cal.	
NA	1	Northern Acclaim Honeylocust	Gleditsia triacanthos f. inermis 'Harve'	CONT. or B&B	2" Cal.	

REGISTERED PROFESSIONAL ENGINEER
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PE-6696
DATE 12-8-25
NORTH DAKOTA

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
4TH AVENUE NW

KLJ

PEDESTRIAN FACILITIES & STREETSCAPE LAYOUT STA. 41+90 TO 44+00

DRWN. BY	CHK'D BY	PROJECT NO.
JP	EB	1904-02191

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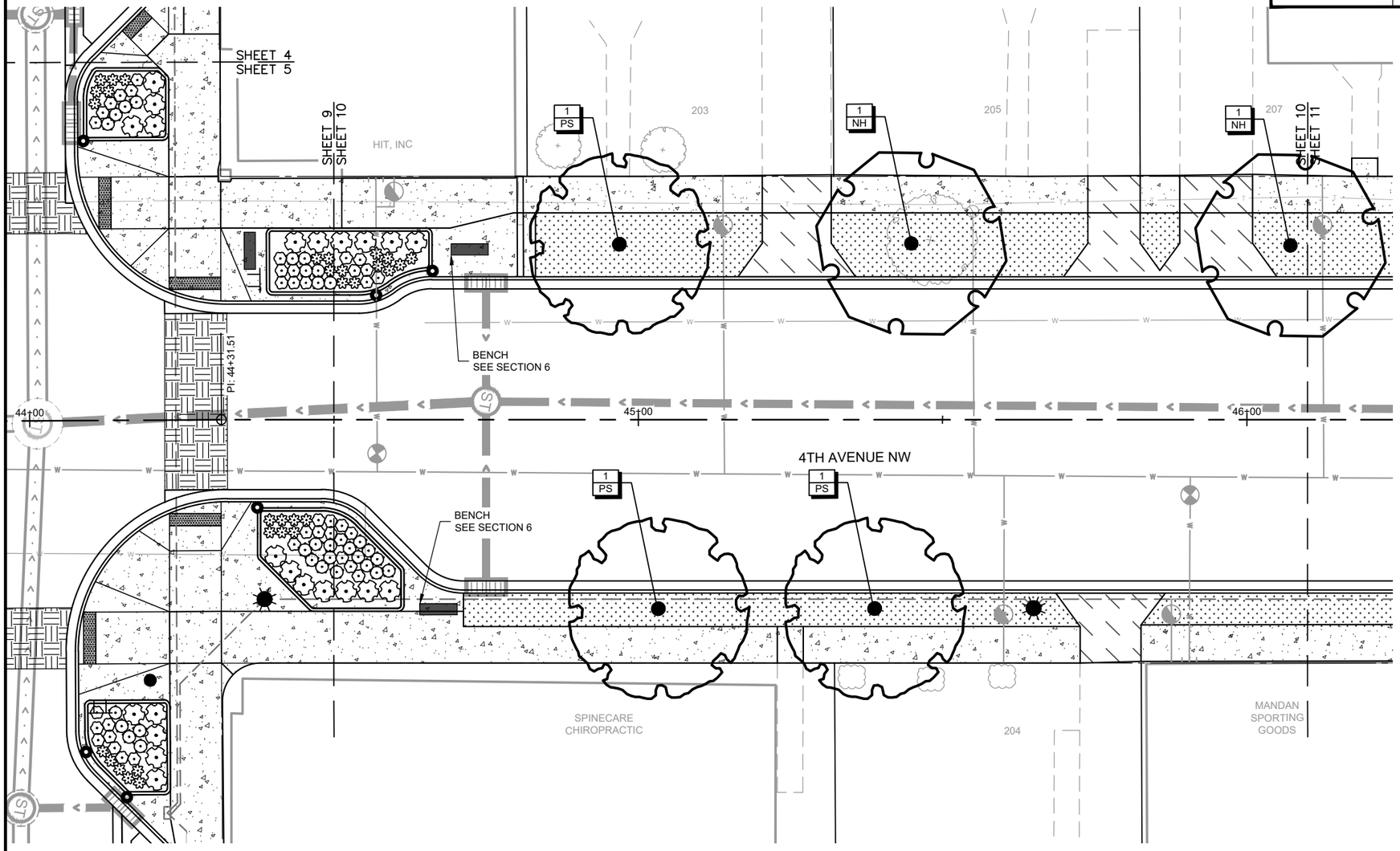
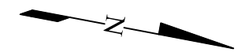
SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	85	11





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scale 1"=20' feet

LEGEND

- SEEDED BOULEVARD 6IN TOPSOIL
- DRIVEWAY CONCRETE
- SIDEWALK CONCRETE
- NON-REINF CONCRETE AE-COLORED
- MAINTENANCE-FREE LANDSCAPING ROCK
- BOLLARD
- BENCH
- TRASH RECEPTACLE
- DECORATIVE LIGHTING WITH GRCI RECEPTABLE
- TREE GRATE 5' x 5' FLEXI PAVE POROUS CONCRETE
- PLANT SYMBOLS VARY, REFER TO PLANT CODES IN PLANT SCHEDULE
- PLANT CALL-OUT
- 1 / AA — PLANT QUANTITY, SEE PLANT SCHEDULE; PLANT SPECIES CODE, SEE PLANT SCHEDULE

PLANT SCHEDULE

TREES	QTY	COMMON NAME	BOTANICAL NAME	TYPE	SIZE	NOTES
PS	3	Prairie Statue Oak	Quercus x bimundorum `Midwest`	CONT. or B&B	2" Cal.	
NH	2	New Horizon Elm	Ulmus ' New Horizon'	CONT. or B&B	2" Cal.	

REGISTERED PROFESSIONAL ENGINEER
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DATE 12-8-25
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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
4TH AVENUE NW

PEDESTRIAN FACILITIES & STREETSCAPE LAYOUT STA. 44+00 TO 45+60

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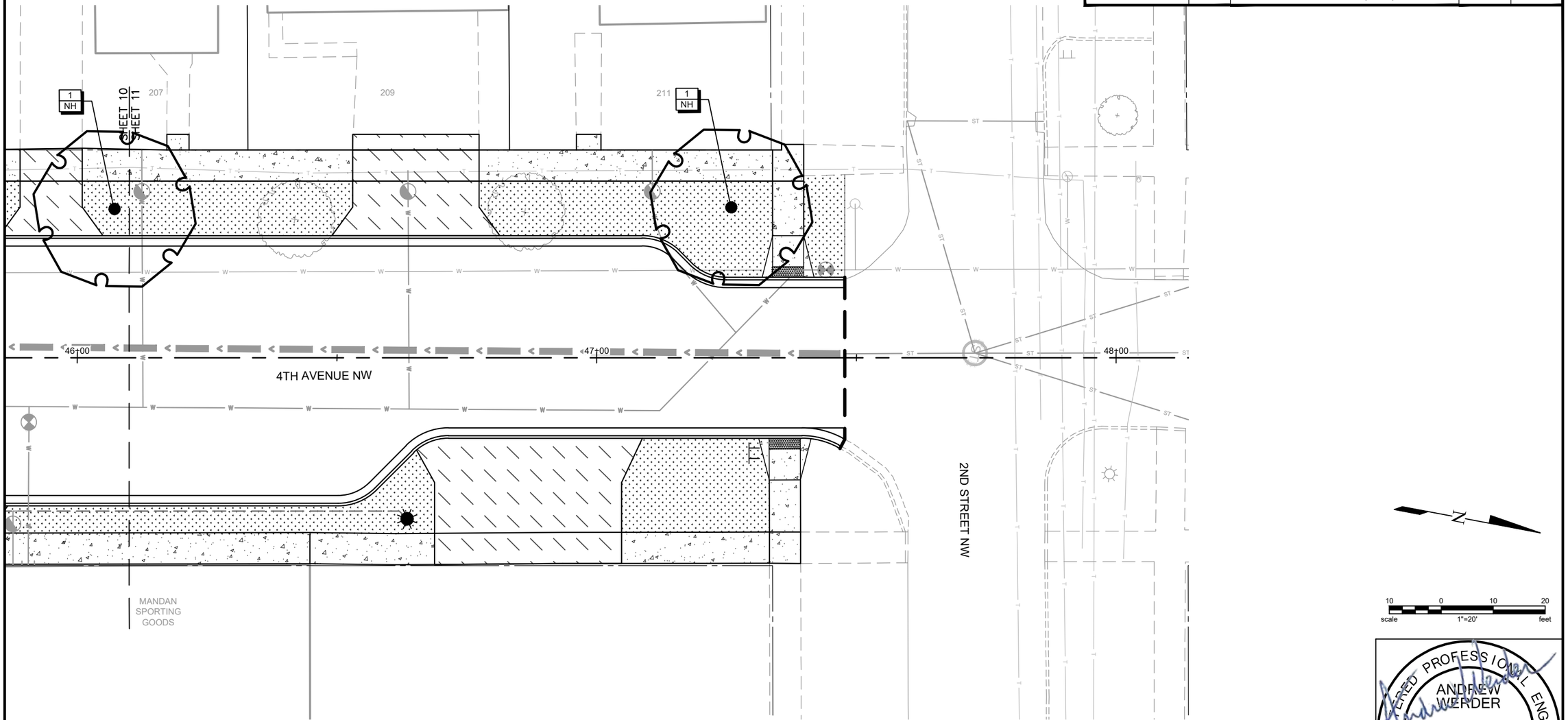
SID 236 C.P. 2019-08	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	UGP-1-988(052)	85	12



LEGEND

- SEEDED BOULEVARD 6IN TOPSOIL
- DRIVEWAY CONCRETE
- SIDEWALK CONCRETE
- NON-REINF CONCRETE AE-COLORED
- MAINTENANCE-FREE LANDSCAPING ROCK
- BOLLARD
- BENCH
- TRASH RECEPTACLE
- DECORATIVE LIGHTING WITH GRCI RECEPTABLE
- TREE GRATE 5' x 5' FLEXI PAVE POROUS CONCRETE
- PLANT SYMBOLS VARY, REFER TO PLANT CODES IN PLANT SCHEDULE
- PLANT CALL-OUT
- 1 / AA — PLANT QUANTITY, SEE PLANT SCHEDULE; PLANT SPECIES CODE, SEE PLANT SCHEDULE

PLANT SCHEDULE

TREES	QTY	COMMON NAME	BOTANICAL NAME	TYPE	SIZE	NOTES
NH	1	New Horizon Elm	Ulmus ' New Horizon'	CONT. or B&B	2" Cal.	

REGISTERED PROFESSIONAL ENGINEER
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DATE 12-8-25
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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
4TH AVENUE NW

PEDESTRIAN FACILITIES & STREETSCAPE LAYOUT STA. 45+60 TO 47+60

DRWN. BY	CHK'D BY	PROJECT NO.
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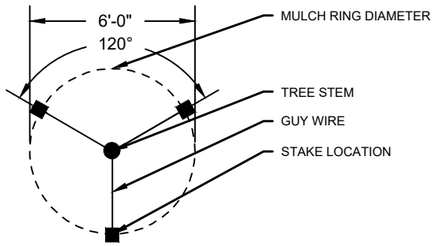
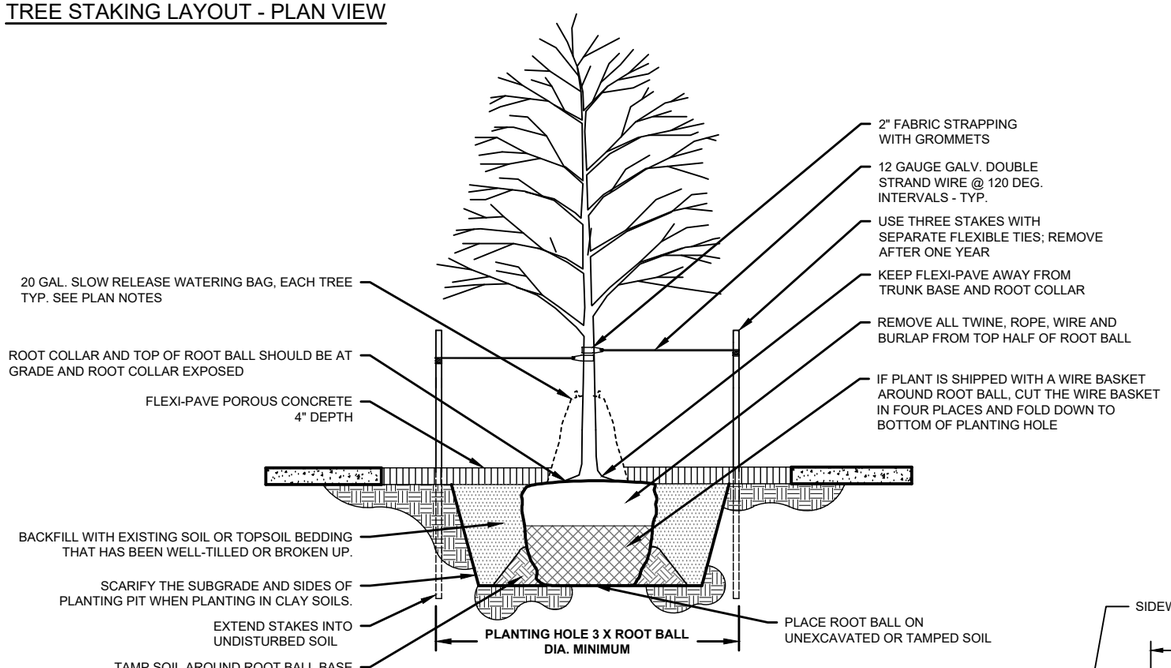
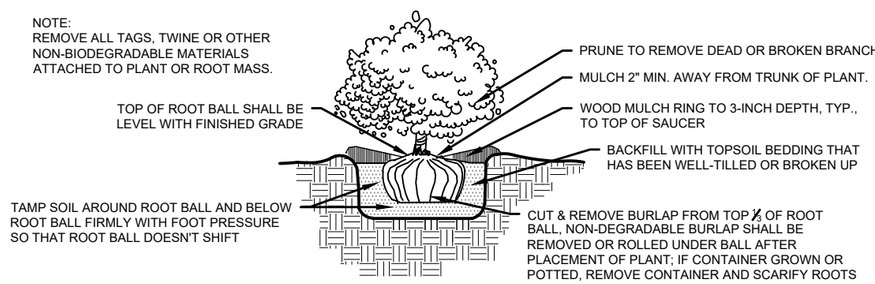
SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	85	13



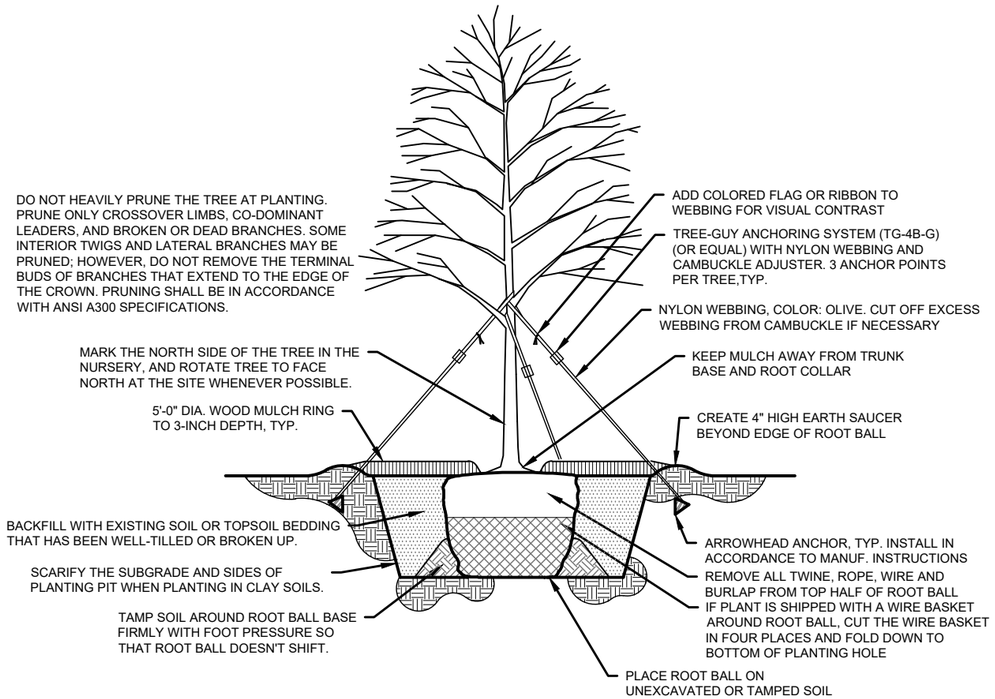
TREE STAKING LAYOUT - PLAN VIEW



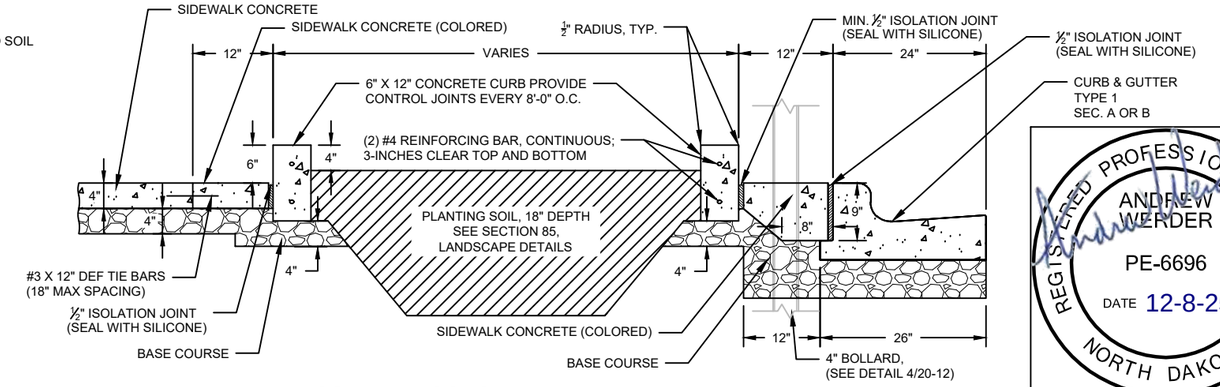
FLEXI-PAVE TREE PLANTING DETAIL



SHRUB/PERENNIAL PLANTING DETAIL



TREE PLANTING DETAIL



DECORATIVE CONCRETE PLANTER DETAIL

REGISTERED PROFESSIONAL ENGINEER
ANDREW WERDER
PE-6696
DATE 12-8-25
NORTH DAKOTA

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA

KLJ

PEDESTRIAN FACILITIES & STREETSCAPE LAYOUT DETAILS

DRWN. BY	CHK'D BY	PROJECT NO.
JP	EB	1904-02191

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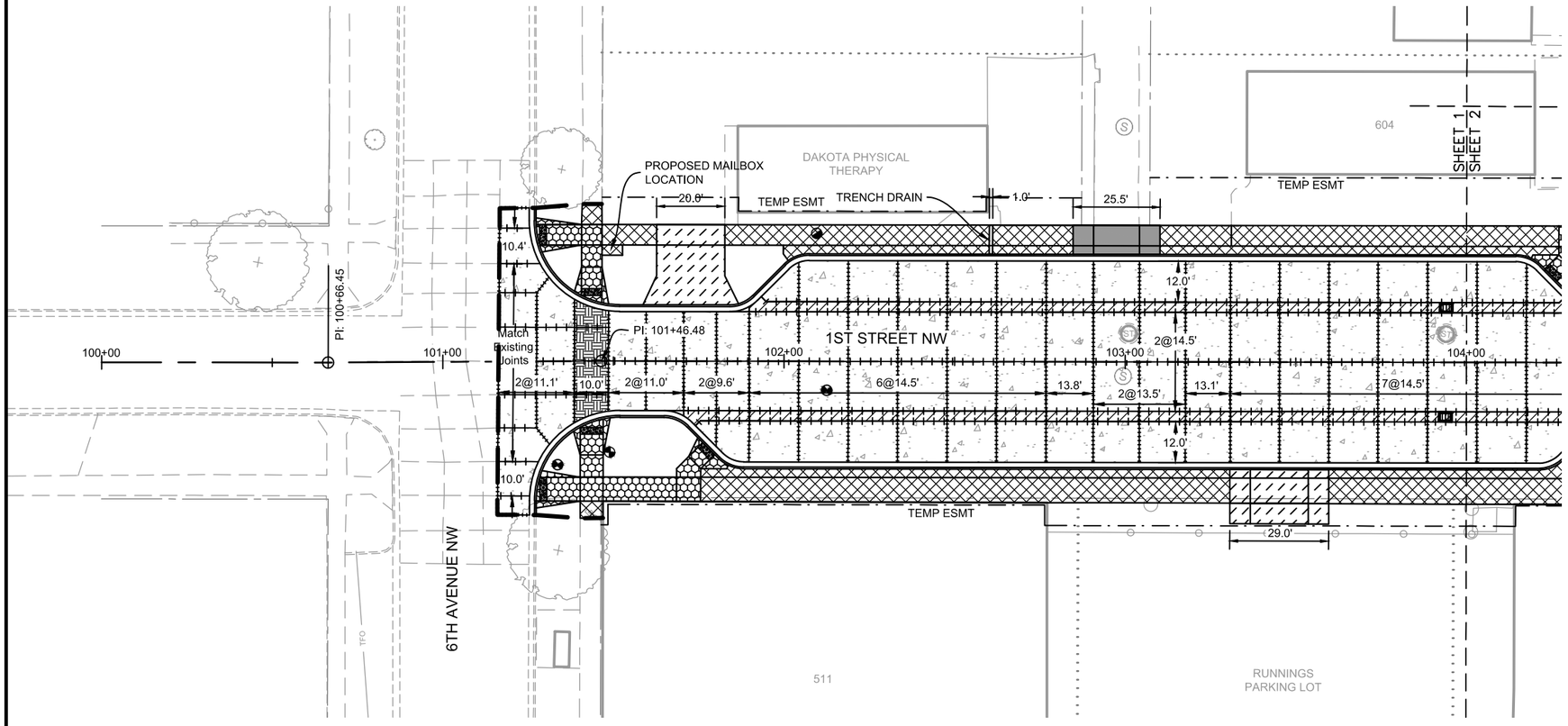
SID 236 C.P. 2019-08	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	UGP-1-988(052)	90	1



SPEC	CODE	BID ITEM	QTY	UNIT
302	0121	AGGREGATE BASE COURSE CL 5		
		ROADWAY	533	CY
		ALLEY DRIVEWAY	6	CY
		DRIVEWAY, LANDING & RAMP	34	CY
		SIDEWALK	47	CY
550	0300	8IN NON-REINF CONCRETE PVMT CL AE-DOWELED	1,537	SY
550	0330	NON-REINF CONCRETE PVMT CL AE-DOWELED-COLORED	36	SY
709	0100	GEOSYNTHETIC MATERIAL TYPE G	1,918	SY
748	0140	CURB & GUTTER-TYPE I	594	LF
748	0520	CURB-TYPE I	185	LF
750	0115	SIDEWALK CONCRETE 4IN	408	SY
750	0140	SIDEWALK CONCRETE 6IN	92	SY
750	0150	SIDEWALK TRENCH DRAIN	1	EA
750	1016	DRIVEWAY CONCRETE 6IN REINFORCED	108	SY
750	1021	DRIVEWAY CONCRETE 8IN REINFORCED	25	SY
750	2115	DETECTABLE WARNING PANELS	62	SF

LEGEND:

- 8IN NON-REINF CONCRETE PVMT CL AE-DOWELED
- SIDEWALK CONCRETE 4IN
- DRIVEWAY CONCRETE 6IN REINFORCED
- DETECTABLE WARNING PANEL
- 8IN NON-REINF CONCRETE PVMT CL AE-DOWELED-COLORED
- VALLEY GUTTER 36IN
- SIDEWALK CONCRETE 6IN
- CURB & GUTTER-TYPE I
- TIED JOINT
- DOWELED JOINT
- STORM SEWER MANHOLE
- SANITARY MANHOLE
- GATE VALVE
- INLET
- CURB STOP
- LIGHT POLES
- DRIVEWAY CONCRETE 8IN REINFORCED

N

20 0 20 40
scale 1"=40' feet

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/04/25
NORTH DAKOTA

Rev'd.
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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

KLJ

PAVING LAYOUT
STA. 100+00 TO 104+00

DRWN. BY	CHK'D BY	PROJECT NO.
SM	AC	1904-02191

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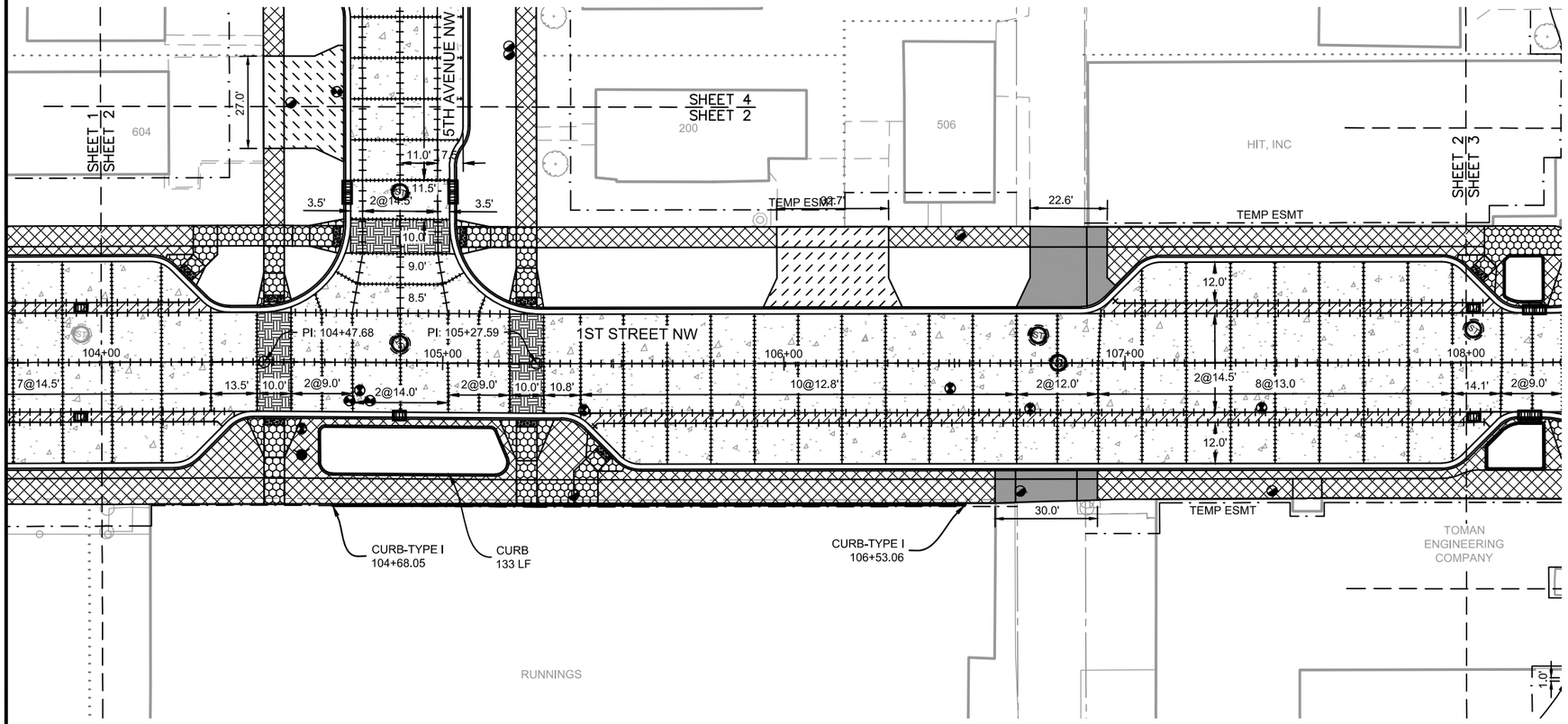
SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	90	2



SPEC	CODE	BID ITEM	QTY	UNIT
302	0121	AGGREGATE BASE COURSE CL 5		
		ROADWAY	696	CY
		ALLEY DRIVEWAY	35	CY
		DRIVEWAY, LANDING & RAMP	47	CY
		SIDEWALK	77	CY
550	0300	8IN NON-REINF CONCRETE PVMT CL AE-DOWELED	1,962	SY
550	0330	NON-REINF CONCRETE PVMT CL AE-DOWELED-COLORED	97	SY
709	0100	GEOSYNTHETIC MATERIAL TYPE G	2,503	SY
748	0140	CURB & GUTTER-TYPE I	889	LF
748	0520	CURB-TYPE I	185	LF
748	0540	CURB	133	LF
748	1020	VALLEY GUTTER 36IN	146	SY
750	0115	SIDEWALK CONCRETE 4IN	660	SY
750	0140	SIDEWALK CONCRETE 6IN	156	SY
750	1016	DRIVEWAY CONCRETE 6IN REINFORCED	124	SY
750	1021	DRIVEWAY CONCRETE 8IN REINFORCED	91	SY
750	2115	DETECTABLE WARNING PANELS	92	SF

LEGEND:

- 8IN NON-REINF CONCRETE PVMT CL AE-DOWELED
- SIDEWALK CONCRETE 4IN
- DRIVEWAY CONCRETE 6IN REINFORCED
- DETECTABLE WARNING PANEL
- 8IN NON-REINF CONCRETE PVMT CL AE-DOWELED-COLORED
- VALLEY GUTTER 36IN
- SIDEWALK CONCRETE 6IN
- CURB & GUTTER-TYPE I
- TIED JOINT
- DOWELED JOINT
- STORM SEWER MANHOLE
- SANITARY MANHOLE
- GATE VALVE
- INLET
- CURB STOP
- LIGHT POLES
- DRIVEWAY CONCRETE 8IN REINFORCED

N

20 0 20 40
scale 1"=40' feet

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/04/25
NORTH DAKOTA

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

KLJ

PAVING LAYOUT
STA. 104+00 TO 108+00

DRWN. BY	CHK'D BY	PROJECT NO.
SM	AC	1904-02191

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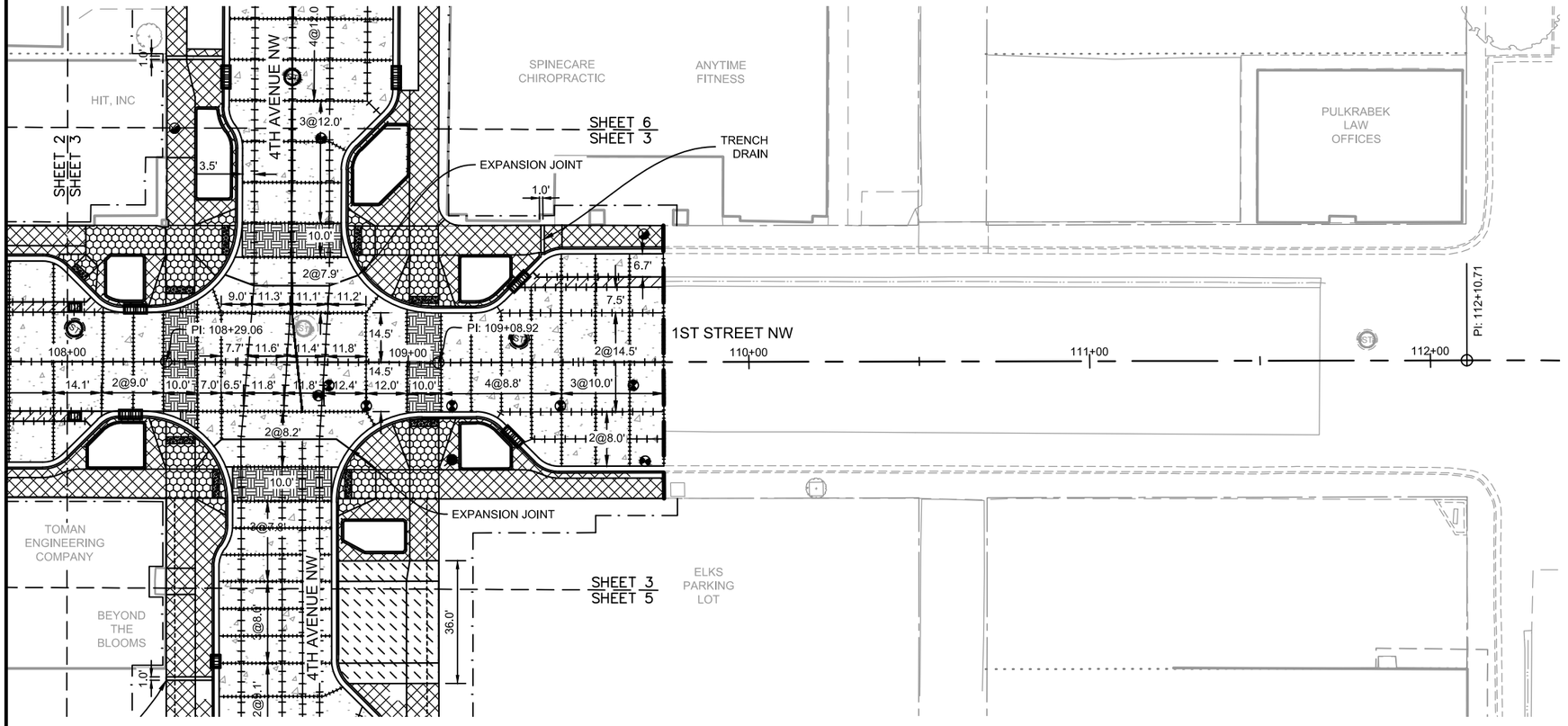
SID 236 C.P. 2019-08	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	UGP-1-988(052)	90	3



SPEC	CODE	BID ITEM	QTY	UNIT
302	0121	AGGREGATE BASE COURSE CL 5		
		ROADWAY	364	CY
		DRIVEWAY, LANDING & RAMP	42	CY
		SIDEWALK	47	CY
550	0300	8IN NON-REINF CONCRETE PVMT CL AE-DOWELED	991	SY
550	0330	NON-REINF CONCRETE PVMT CL AE-DOWELED-COLORED	135	SY
709	0100	GEOSYNTHETIC MATERIAL TYPE G	1,310	SY
748	0140	CURB & GUTTER-TYPE I	475	LF
748	1020	VALLEY GUTTER 36IN	22	SY
750	0115	SIDEWALK CONCRETE 4IN	375	SY
750	0140	SIDEWALK CONCRETE 6IN	221	SY
750	0150	SIDEWALK TRENCH DRAIN	1	EA
750	1016	DRIVEWAY CONCRETE 6IN REINFORCED	28	SY
750	2115	DETECTABLE WARNING PANELS	146	SF

LEGEND:

- 8IN NON-REINF CONCRETE PVMT CL AE-DOWELED
- SIDEWALK CONCRETE 4IN
- DRIVEWAY CONCRETE 6IN REINFORCED
- DETECTABLE WARNING PANEL
- 8IN NON-REINF CONCRETE PVMT CL AE-DOWELED-COLORED
- VALLEY GUTTER 36IN
- SIDEWALK CONCRETE 6IN
- CURB & GUTTER-TYPE I
- TIED JOINT
- DOWELED JOINT
- STORM SEWER MANHOLE
- SANITARY MANHOLE
- GATE VALVE
- INLET
- CURB STOP
- LIGHT POLES
- DRIVEWAY CONCRETE 8IN REINFORCED

N

20 0 20 40
scale 1"=40' feet

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/04/25
NORTH DAKOTA

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

PAVING LAYOUT
STA. 104+00 TO 112+00

DRWN. BY	CHK'D BY	PROJECT NO.
SM	AC	1904-02191

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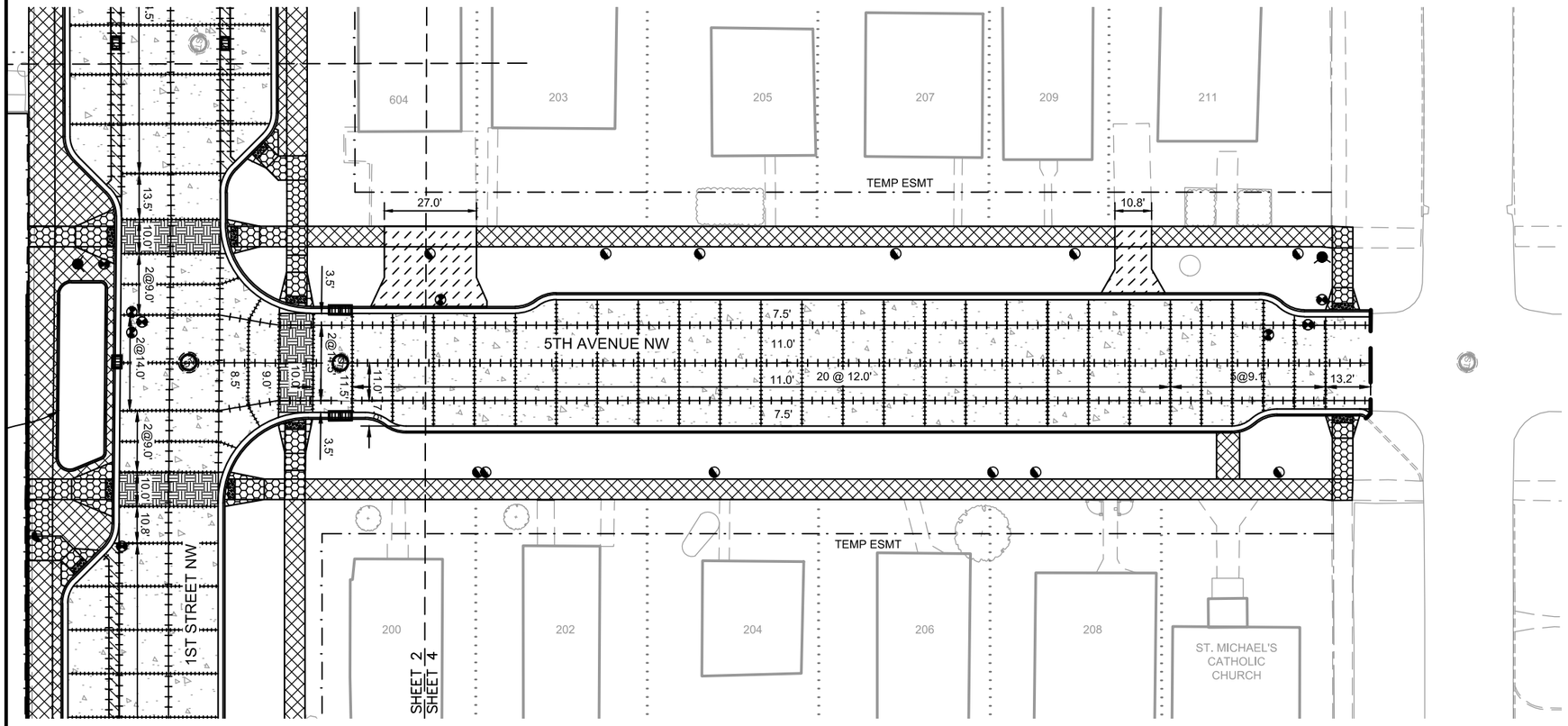
SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	90	4



SPEC	CODE	BID ITEM	QTY	UNIT
302	0121	AGGREGATE BASE COURSE CL 5		
		ROADWAY	355	CY
		DRIVEWAY, LANDING & RAMP	18	CY
		SIDEWALK	39	CY
550	0300	8IN NON-REINF CONCRETE PVMT CL AE-DOWELED	1,091	SY
709	0100	GEOSYNTHETIC MATERIAL TYPE G	1,277	SY
748	0140	CURB & GUTTER-TYPE I	557	LF
750	0115	SIDEWALK CONCRETE 4IN	348	SY
750	0140	SIDEWALK CONCRETE 6IN	36	SY
750	1016	DRIVEWAY CONCRETE 6IN REINFORCED	67	SY
750	2115	DETECTABLE WARNING PANELS	24	SF

LEGEND:

- 8IN NON-REINF CONCRETE PVMT CL AE-DOWELED
- SIDEWALK CONCRETE 4IN
- DRIVEWAY CONCRETE 6IN REINFORCED
- DETECTABLE WARNING PANEL
- 8IN NON-REINF CONCRETE PVMT CL AE-DOWELED-COLORED
- VALLEY GUTTER 36IN
- SIDEWALK CONCRETE 6IN
- CURB & GUTTER-TYPE I
- TIED JOINT
- DOWELED JOINT
- STORM SEWER MANHOLE
- SANITARY MANHOLE
- GATE VALVE
- INLET
- CURB STOP
- LIGHT POLES
- DRIVEWAY CONCRETE 8IN REINFORCED

N

scale 20 0 20 40 feet
1"=40'

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/04/25
NORTH DAKOTA

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
5TH AVENUE NW

KLJ

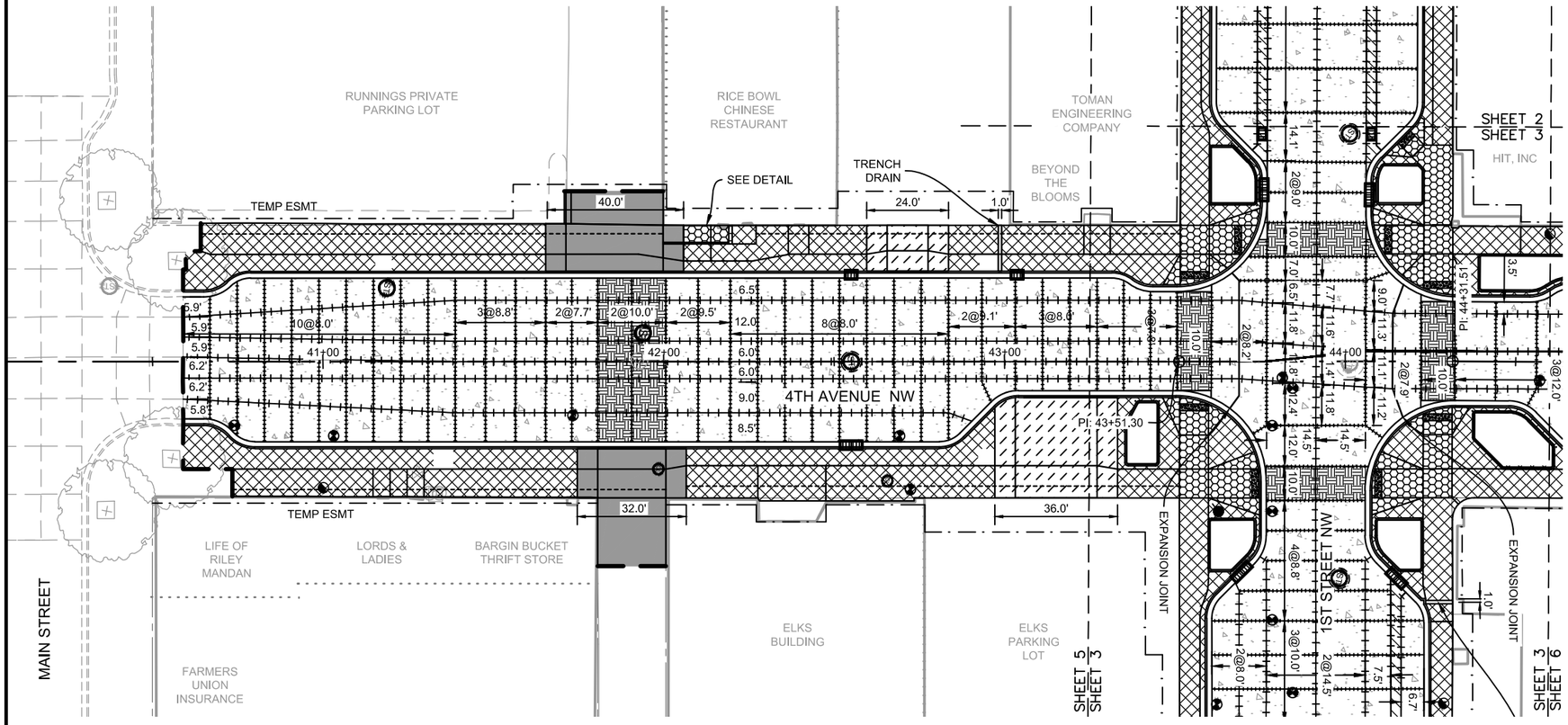
PAVING LAYOUT
STA. 50+00 TO 54+00

DRWN. BY	CHK'D BY	PROJECT NO.
SM	AC	1904-02191

Dec 04, 2025 - 1:26pm - K:\Projects\City\ND\Mandan\1904-02191-MandanDowntownSID236\CAD\Design\Plans\Sections\090\1904-02191_090PL.dwg

SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	90	5

SPEC	CODE	BID ITEM	QTY	UNIT
302	0121	AGGREGATE BASE COURSE CL 5		
		ROADWAY	424	CY
		ALLEY DRIVEWAY	42	CY
		DRIVEWAY, LANDING & RAMP	22	CY
		SIDEWALK	70	CY
550	0300	8IN NON-REINF CONCRETE PVMT CL AE-DOWELED	1,239	SY
550	0330	NON-REINF CONCRETE PVMT CL AE-DOWELED-COLORED	107	SY
709	0100	GEOSYNTHETIC MATERIAL TYPE G	1,526	SY
748	0140	CURB & GUTTER-TYPE I	541	LF
750	0115	SIDEWALK CONCRETE 4IN	627	SY
750	0150	SIDEWALK TRENCH DRAIN	1	EA
750	1016	DRIVEWAY CONCRETE 6IN REINFORCED	127	SY
750	1021	DRIVEWAY CONCRETE 8IN REINFORCED	189	SY



LEGEND:

- 8IN NON-REINF CONCRETE PVMT CL AE-DOWELED
- SIDEWALK CONCRETE 4IN
- DRIVEWAY CONCRETE 6IN REINFORCED
- DETECTABLE WARNING PANEL
- 8IN NON-REINF CONCRETE PVMT CL AE-DOWELED-COLORED
- VALLEY GUTTER 36IN
- SIDEWALK CONCRETE 6IN
- CURB & GUTTER-TYPE I
- TIED JOINT
- DOWELED JOINT
- STORM SEWER MANHOLE
- SANITARY MANHOLE
- GATE VALVE
- INLET
- CURB STOP
- LIGHT POLES
- DRIVEWAY CONCRETE 8IN REINFORCED

N

20 0 20 40
scale 1"=40' feet

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/04/25
NORTH DAKOTA

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
4TH AVENUE NW

KLJ

PAVING LAYOUT
STA. 40+00 TO 42+75

DRWN. BY	CHK'D BY	PROJECT NO.
SM	AC	1904-02191

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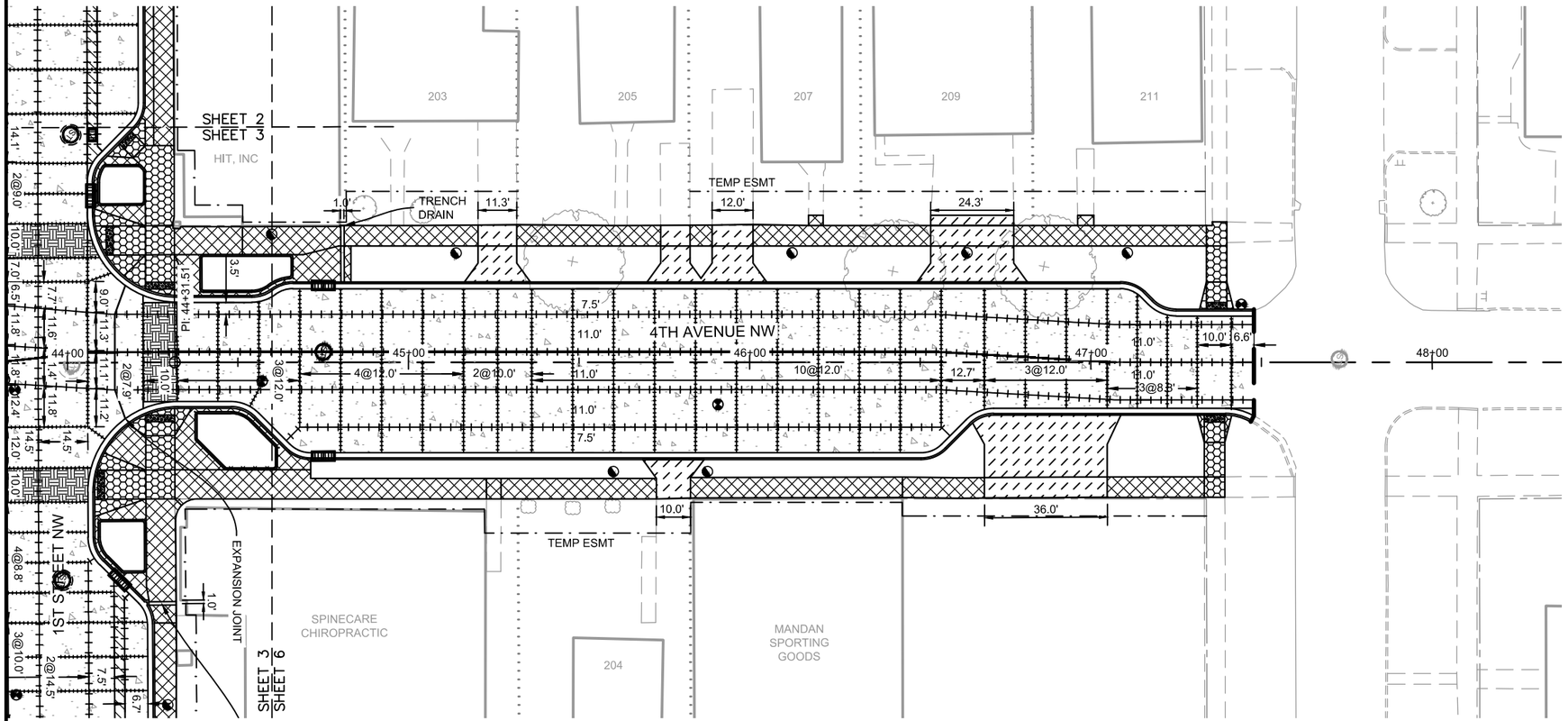
SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	90	6

SPEC	CODE	BID ITEM	QTY	UNIT
302	0121	AGGREGATE BASE COURSE CL 5		
		ROADWAY	437	CY
		DRIVEWAY, LANDING & RAMP	44	CY
		SIDEWALK	34	CY
550	0300	8IN NON-REINF CONCRETE PVMT CL AE-DOWELED	1,378	SY
709	0100	GEOSYNTHETIC MATERIAL TYPE G	1,573	SY
748	0140	CURB & GUTTER-TYPE I	586	LF
750	0115	SIDEWALK CONCRETE 4IN	299	SY
750	0140	SIDEWALK CONCRETE 6IN	37	SY
750	0150	SIDEWALK TRENCH DRAIN	1	EA
750	1016	DRIVEWAY CONCRETE 6IN REINFORCED	219	SY
750	2115	DETECTABLE WARNING PANELS	24	SF



LEGEND:

- 8IN NON-REINF CONCRETE PVMT CL AE-DOWELED
- SIDEWALK CONCRETE 4IN
- DRIVEWAY CONCRETE 6IN REINFORCED
- DETECTABLE WARNING PANEL
- 8IN NON-REINF CONCRETE PVMT CL AE-DOWELED-COLORED
- VALLEY GUTTER 36IN
- SIDEWALK CONCRETE 6IN
- CURB & GUTTER-TYPE I
- TIED JOINT
- DOWELED JOINT
- STORM SEWER MANHOLE
- SANITARY MANHOLE
- GATE VALVE
- INLET
- CURB STOP
- LIGHT POLES
- DRIVEWAY CONCRETE 8IN REINFORCED

N

20 0 20 40
scale 1"=40' feet

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
4TH AVENUE NW

KLJ

PAVING LAYOUT
STA. 44+10 TO 47+50

DRWN. BY	CHK'D BY	PROJECT NO.
SM	AC	1904-02191

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SID 236 C.P. 2019-08	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	UGP-1-988(052)	100	1

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED BY PHASE NO. 1	2	3	4	5	TOTAL AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
E5-1-48	48"x48"	EXIT GORE							35	
G20-1-60	60"x24"	ROAD WORK NEXT ___ MILES							28	
G20-1b-60	60"x24"	NO WORK IN PROGRESS (Sign and installation only)							18	
G20-2-48	48"x24"	END ROAD WORK							26	
G20-4-36	36"x18"	PILOT CAR FOLLOW ME (Mounted to back of pilot car)							18	
G20-4b-36	36"x30"	WAIT FOR PILOT CAR							18	
G20-50a-72	72"x36"	ROAD WORK NEXT ___ MILES RT & LT ARROWS							43	
G20-52a-72	72"x24"	ROAD WORK NEXT ___ MILES RT or LT ARROW							36	
G20-55-96	96"x48"	SPEED LIMIT ENFORCED - MINIMUM FEE $150 WHEN WORKERS PRESENT							59	
M1-1-36	36"x36"	INTERSTATE ROUTE MARKER (Post and installation only)							11	
M1-4-24	24"x24"	U.S. ROUTE MARKER (Post and installation only)							10	
M1-5-24	24"x24"	STATE ROUTE MARKER (Post and installation only)							10	
M3-1-24	24"x12"	NORTH (Mounted on route marker post)							7	
M3-2-24	24"x12"	EAST (Mounted on route marker post)							7	
M3-3-24	24"x12"	SOUTH (Mounted on route marker post)							7	
M3-4-24	24"x12"	WEST (Mounted on route marker post)							7	
M4-8-24	24"x12"	DETOUR (Mounted on route marker post)							7	
M4-8a-24	**24"x18"**	**END DETOUR**	**2**	**2**	**2**	**2**	**2**	**2**	**12**	**24**
M4-9-30	**30"x24"**	**DETOUR ARROW RIGHT or LEFT/AHD AND RT or LT**	**8**	**8**	**8**	**8**	**8**	**8**	**15**	**120**
M4-9a-30	**30"x24"**	**BICYCLIST & PEDESTRIAN DEOTUR LT OR RT ARROW**	**6**	**6**	**6**	**12**		**12**	**15**	**180**
M4-10-48	**48"x18"**	**DETOUR (INSIDE ARROW) RIGHT or LEFT (Mounted on barricade)**	**1**					**1**	**7**	**7**
M5-1-21	21"x15"	ADVANCE TURN ARROW RT or LT(Mounted on route marker post)							7	
M5-1-30	30"x21"	ADVANCE TURN ARROW RT or LT(Mounted on route marker post)							9	
M6-1-21	21"x15"	DIRECTIONAL ARROW RT or LT (Mounted on route marker post)							7	
M6-1-30	30"x21"	DIRECTIONAL ARROW RT or LT (Mounted on route marker post)							9	
M6-3-21	21"x15"	DIRECTIONAL ARROW UP (Mounted on route marker post)							7	
R1-1-48	**48"x48"**	**STOP**	**1**					**1**	**32**	**32**
R1-2-60	60"x60"	YIELD							29	
R2-1-36	36"x48"	SPEED LIMIT __ (Portable only)							30	
R2-1-48	48"x60"	SPEED LIMIT __							39	
R2-1aP-24	24"x18"	MINIMUM FEE $150 (Mounted on Speed Limit post)							10	
R3-1-36	**36"x36"**	**NO RIGHT TURN**	**1**			**1**	**1**	**1**	**27**	**27**
R3-2-36	**36"x36"**	**NO LEFT TURN**	**1**			**1**	**1**	**1**	**27**	**27**
R3-2-48	48"x48"	NO LEFT TURN							35	
R4-1-48	48"x60"	DO NOT PASS							39	
R4-7-48	48"x60"	KEEP RIGHT							39	
R5-1-48	48"x48"	DO NOT ENTER							35	
R6-1-54	54"x18"	ONE WAY RIGHT or LEFT (Mounted on STOP or DO NOT ENTER post)							14	
R7-1-12	12"x18"	NO PARKING ANY TIME							11	
R8-3-24	**24"x30"**	**NO PARKING**	**1**					**1**	**15**	**15**
R9-9-24	**24"x12"**	**SIDEWALK CLOSED (Mounted on barricade)**	**7**	**8**	**4**	**6**	**8**	**8**	**3**	**24**
R9-11-24	**24"x12"**	**SIDEWALK CLOSED AHEAD CROSS HERE**	**6**	**4**	**1**	**2**		**6**	**12**	**72**
R10-6-24	24"x36"	STOP HERE ON RED							16	
R11-2-48	48"x30"	ROAD CLOSED (Mounted on barricade)							12	
R11-2a-48	**48"x30"**	**STREET CLOSED (Mounted on barricade)**	**4**	**3**	**4**	**2**	**6**	**6**	**12**	**72**
R11-3a-60	60"x30"	ROAD CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY (Mtd on barricade)							15	
R11-3c-60	60"x30"	STREET CLOSED __ MILES AHEAD LOCAL TRAFFIC ONLY (Mtd on barricade)							15	
R11-4a-60	**60"x30"**	**STREET CLOSED TO THRU TRAFFIC (Mounted on barricade)**	**3**	**2**	**1**		**3**	**3**	**15**	**45**
R-4-7-24	**24"x30"**	**KEEP RIGHT**					**1**	**1**	**10**	**10**
W1-3-48	48"x48"	REVERSE TURN RIGHT or LEFT							35	
W1-4-48	48"x48"	REVERSE CURVE RIGHT or LEFT							35	
W1-4b-48	48"x48"	TWO LANE REVERSE CURVE RIGHT or LEFT							35	
W1-6-48	48"x24"	ONE DIRECTION LARGE ARROW							26	
W3-1-48	48"x48"	STOP AHEAD							35	
W3-3-48	48"x48"	SIGNAL AHEAD							35	
W3-4-48	48"x48"	BE PREPARED TO STOP							35	
W3-5-48	48"x48"	SPEED REDUCTION AHEAD							35	
W4-2-48	48"x48"	LANE ENDS RIGHT or LEFT							35	
W5-1-48	48"x48"	ROAD NARROWS							35	
W5-8-48	48"x48"	THRU TRAFFIC RIGHT LANE							35	
W5-9-48	48"x48"	ROAD WORK TRAFFIC ONLY DOWN & LT or RT ARROW							35	
W6-3-48	48"x48"	TWO WAY TRAFFIC							35	
W8-1-48	48"x48"	BUMP							35	
W8-3-48	48"x48"	PAVEMENT ENDS							35	
W8-7-48	48"x48"	LOOSE GRAVEL							35	
W8-11-48	48"x48"	UNEVEN LANES							35	
W8-12-48	48"x48"	NO CENTER LINE							35	
W8-17-48	48"x48"	SHOULDER DROP-OFF SYMBOL							35	
W8-53-48	48"x48"	TRUCKS ENTERING HIGHWAY							35	
W8-54-48	48"x48"	TRUCKS ENTERING AHEAD or __ FT or _ MILE							35	
W8-55-48	48"x48"	TRUCKS CROSSING AHEAD or __ FT or _ MILE							35	
W8-56-48	48"x48"	TRUCKS EXITING HIGHWAY							35	
W9-3a-48	48"x48"	CENTER LANE CLOSED SYMBOL							35	
W13-1P-30	30"x30"	__ MPH ADVISORY SPEED PLAQUE (Mounted on warning sign post)							14	
W14-3-64	64"x48"	NO PASSING ZONE							28	
W16-2P-30	30"x24"	__ FEET PLAQUE (Mounted on warning sign post)							10	
W20-1-36	**36"x36"**	**STREET WORK AHEAD**	**2**			**2**		**2**	**27**	**54**
W20-1-48	48"x48"	ROAD WORK AHEAD or _FT or _ MILE							35	
W20-2-36	**36"x36"**	**DETOUR AHEAD**	**2**	**2**	**2**	**2**	**2**	**2**	**27**	**54**
W20-2-48	48"x48"	DETOUR AHEAD or __ FT or _ MILE							35	
W20-3-36	**36"x36"**	**STREET CLOSED AHEAD**	**3**	**4**	**4**	**4**	**4**	**4**	**27**	**108**
W20-3-48	48"x48"	ROAD or STREET CLOSED AHEAD or __ FT or _ MILE							35	
W20-4-48	48"x48"	ONE LANE ROAD AHEAD or __ FT or _ MILE							35	
W20-5-48	48"x48"	RIGHT or CENTER or LEFT LANE CLOSED AHEAD or __ FT or _ MILE							35	
W20-7-48	48"x48"	FLAGGER							35	
W20-8-18	18"x18"	STOP - SLOW PADDLE Back to Back							5	
W20-52P-54	54"x12"	NEXT __ MILES (Mounted on warning sign post)							12	
W21-1-48	48"x48"	WORKERS							35	
W21-2-48	48"x48"	FRESH OIL							35	
W21-3-48	48"x48"	ROAD MACHINERY AHEAD or __ FT or _ MILE							35	
W21-5-48	48"x48"	SHOULDER WORK							35	
W21-5a-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED							35	
W21-5b-48	48"x48"	RIGHT or LEFT SHOULDER CLOSED AHEAD or __ FT or _ MILE							35	
W21-6-48	48"x48"	SURVEY CREW							35	
W21-50-48	48"x48"	BRIDGE PAINTING AHEAD or __ FT							35	
W21-51-48	48"x48"	MATERIAL ON ROADWAY							35	
W21-52-48	48"x48"	PAVEMENT BREAKS							35	
W21-53-48	48"x48"	RUMBLE STRIPS AHEAD							35	
W22-8-48	48"x48"	FRESH OIL LOOSE ROCK							35	
W24-1-48	48"x48"	DOUBLE REVERSE CURVE							35	

SPECIAL SIGNS

SIGN NUMBER	SIGN SIZE	DESCRIPTION	AMOUNT REQUIRED BY PHASE NO. 1	2	3	4	5	TOTAL AMOUNT REQUIRED	UNITS PER AMOUNT	UNITS SUB TOTAL
SS1	**30"x24"**	**1ST ST EAST**	**5**	**5**	**5**	**5**	**5**	**5**	**15**	**75**
SS2	**30"x24"**	**1ST ST WEST**	**5**	**5**	**5**	**5**	**5**	**5**	**15**	**75**
SS3	**30"x24"**	**DETOUR ARROW UP**	**2**	**2**	**2**	**2**	**2**	**2**	**15**	**30**
SS4	**30"x24"**	**4TH AVE CLOSED**					**2**	**2**	**15**	**30**

SPEC & CODE

704-1000	**TRAFFIC CONTROL SIGNS**	**TOTAL UNITS**	**1081**

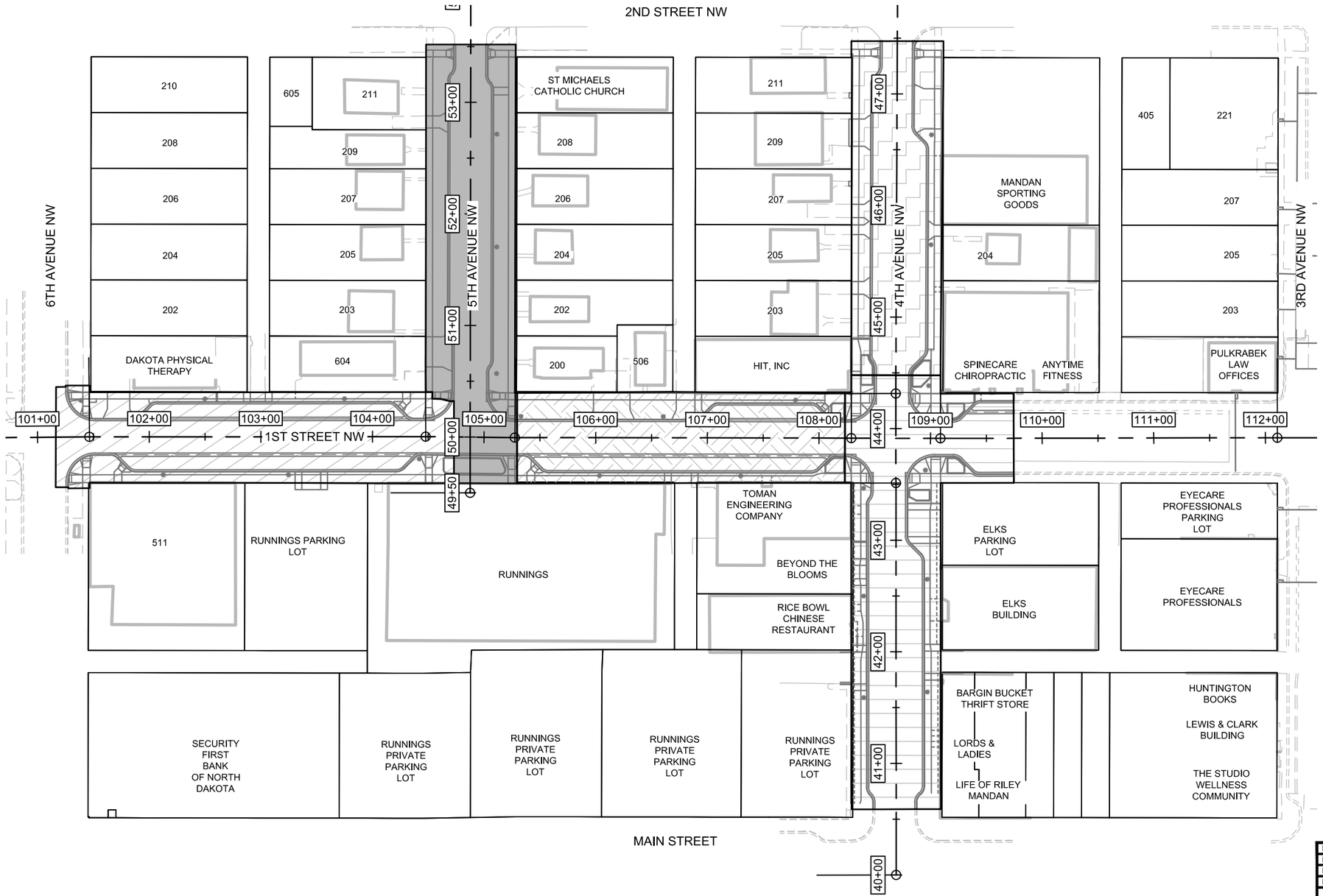
SPEC & CODE	DESCRIPTION	UNIT	QUANTITY BY PHASE NO. 1	2	3	4	5	TOTAL QUANTITY
704-0100	FLAGGING	MHR						
704-1048	PORTABLE RUMBLE STRIPS	EACH						
704-1050	TYPE I BARRICADES	EACH						
704-1052	**TYPE III BARRICADES**	EACH	**18**	**13**	**15**	**8**	**21**	**21**
704-1054	**SIDEWALK BARRICADE**	EACH	**7**	**8**	**4**	**6**	**8**	**8**
704-1058	**PEDESTRIAN WALKWAY**	LF	**193**		**561**		**2151**	**2151**
704-1060	**DELINEATOR DRUMS**	EACH	**30**				**26**	**30**
704-1065	TRAFFIC CONES	EACH						
704-1067	**TUBULAR MARKERS**	EACH	**19**					**19**
704-1070	DELINEATOR	EACH						
704-1072	FLEXIBLE DELINEATORS	EACH						
704-1080	STACKABLE VERTICAL PANELS	EACH						
704-1081	VERTICAL PANELS - BACK TO BACK	EACH						
704-1085	SEQUENCING ARROW PANEL - TYPE A	EACH						
704-1086	SEQUENCING ARROW PANEL - TYPE B	EACH						
704-1087	SEQUENCING ARROW PANEL - TYPE C	EACH						
704-1500	**OBLITERATION OF PVMT MK**	SF	**254**					**254**
704-2108	**TEMPORARY CURB RAMP**	EACH	**1**		**1**		**12**	**12**
704-3501	PORTABLE PRECAST CONCRETE MED BARRIER	LF						
704-3510	PRECAST CONCRETE MED BARRIER - STATE FURNISHED	EACH						
762-0200	RAISED PAVEMENT MARKERS	EACH						
762-0420	SHORT TERM 4IN LINE - TYPE R	LF						
762-0430	SHORT TERM 4IN LINE - TYPE NR	LF						

NOTE:
If additional signs are required, units will be calculated using the formula from Section III-18.06 of the Design Manual.
http://www.dot.nd.gov/

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 11/06/25
NORTH DAKOTA

Traffic Control Devices List

SID 236 C.P. 2019-08	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	UGP-1-988(052)	100	2



LEGEND

- SEGMENT 1
- SEGMENT 2
- SEGMENT 3
- SEGMENT 4
- SEGMENT 5

N

SCALE 1"=150' — 75 0 75 150 FEET

REGISTERED PROFESSIONAL ENGINEER
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DATE 12/04/25
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DOWNTOWN STREET RECONSTRUCTION

CITY OF MANDAN, NORTH DAKOTA

1ST STREET NW

KLJ

TRAFFIC CONTROL OVERVIEW

DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

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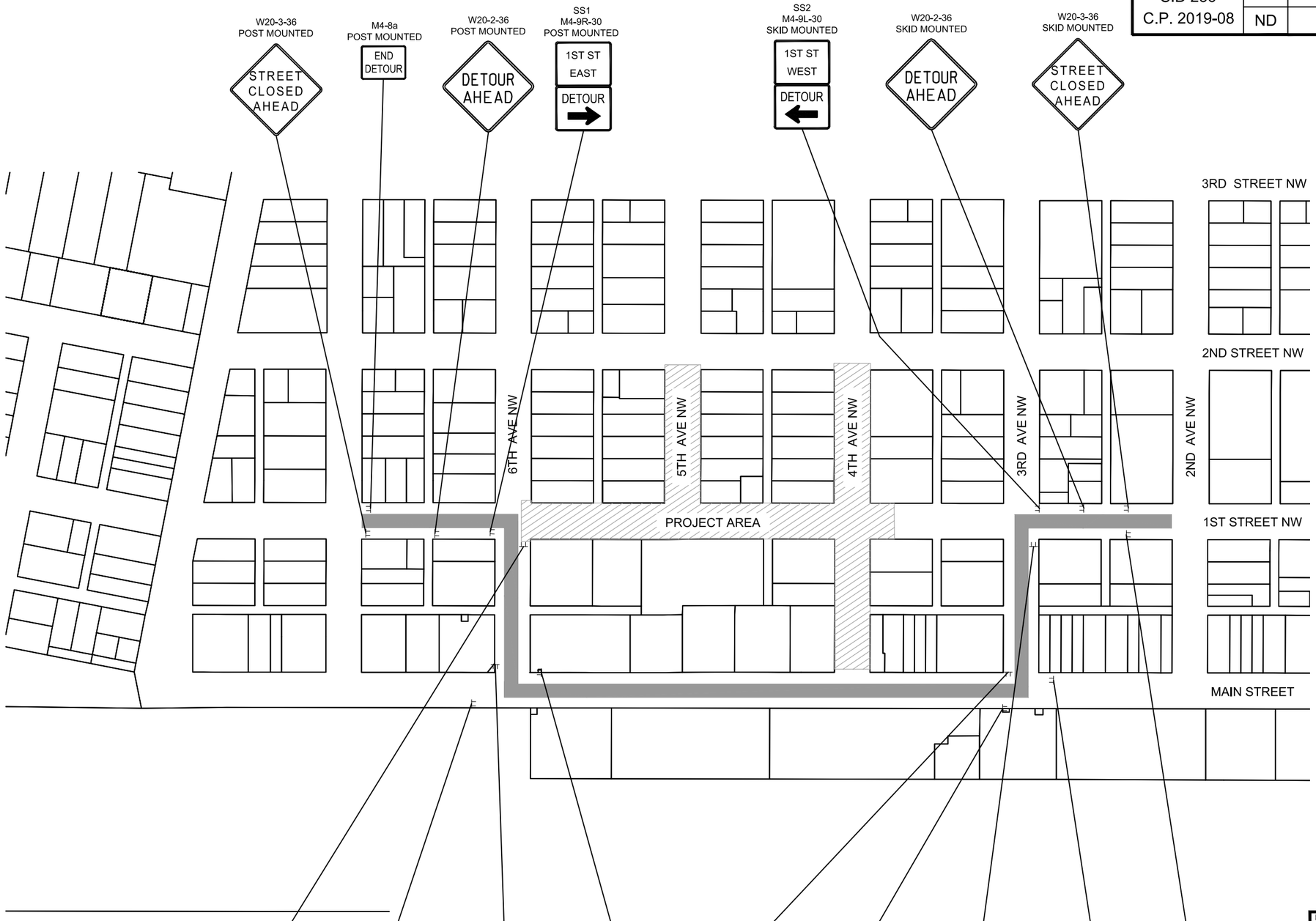
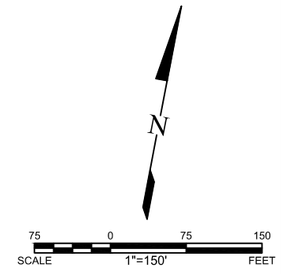
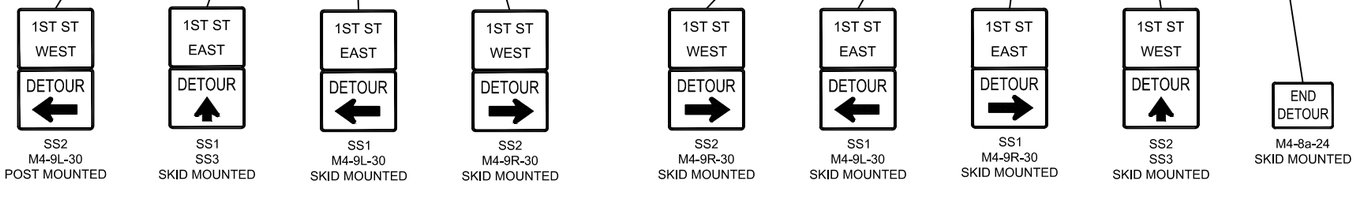
SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	100	3





LEGEND:

- WORKZONE
- DETOUR
- TT SIGN



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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

KLJ

TRAFFIC CONTROL DETOUR OVERVIEW

DRWN. BY	CHK'D BY	PROJECT NO.
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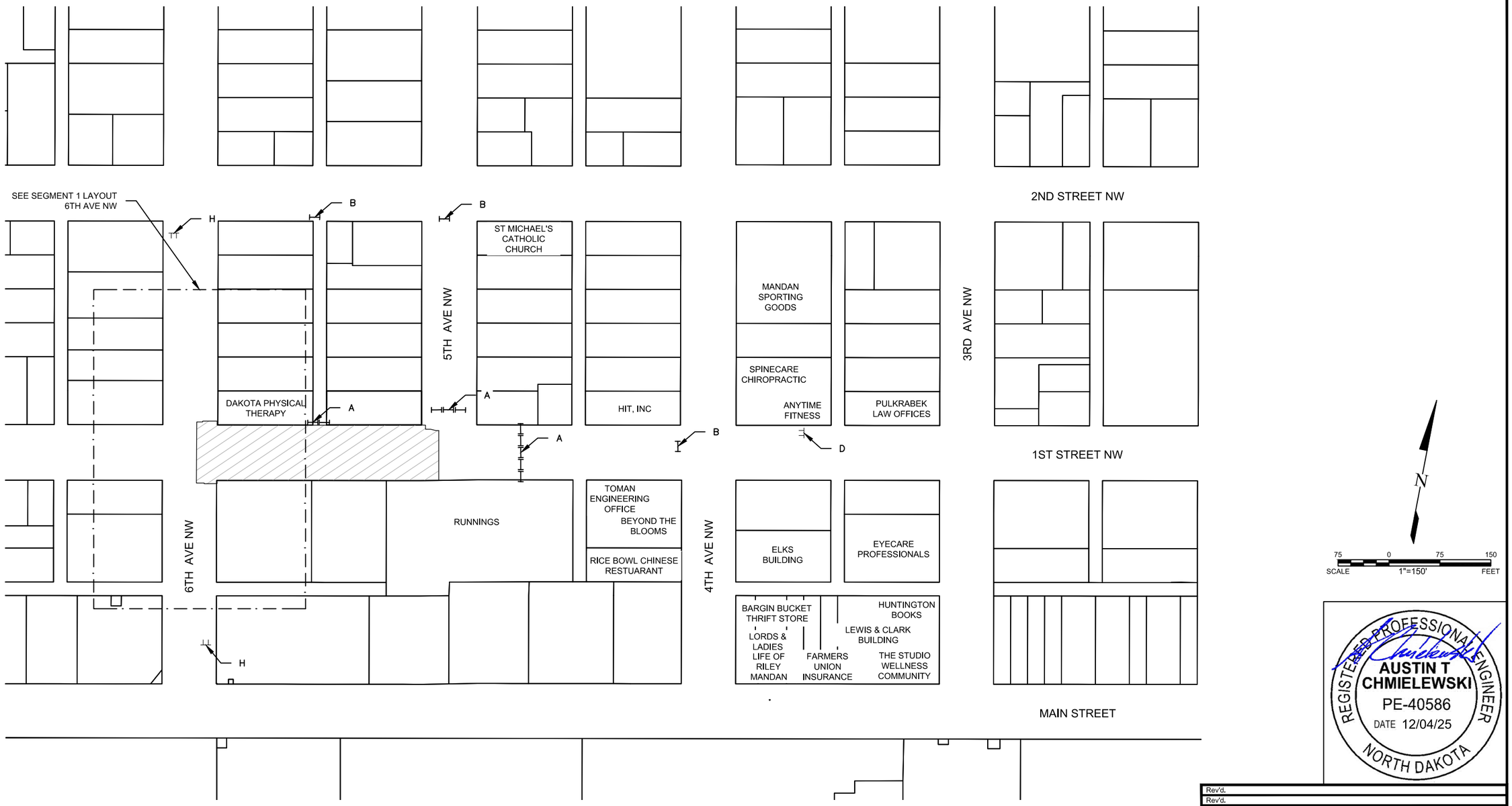
SID 236 C.P. 2019-08	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	UGP-1-988(052)	100	4



LEGEND:

SEGMENT 1

TT SIGN

I TYPE III BARRICADE

A — R11-2a-48 — STREET CLOSED — TYPE III BARRICADE MOUNTED

B — R11-4a-60 — STREET CLOSED TO THRU TRAFFIC — TYPE III BARRICADE MOUNTED

C — W20-2-36 — DETOUR AHEAD — PORTABLE

D — W-20-3-36 — STREET CLOSED AHEAD — PORTABLE

E — R3-1-36 — PORTABLE

F — R3-2-36 — PORTABLE

G — M4-10R-48 (R) DETOUR; M4-10L-48 (L) DETOUR — TYPE III BARRICADE MOUNTED

H — W20-1-36 — STREET WORK AHEAD — PORTABLE

REGISTERED PROFESSIONAL ENGINEER
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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

KLJ

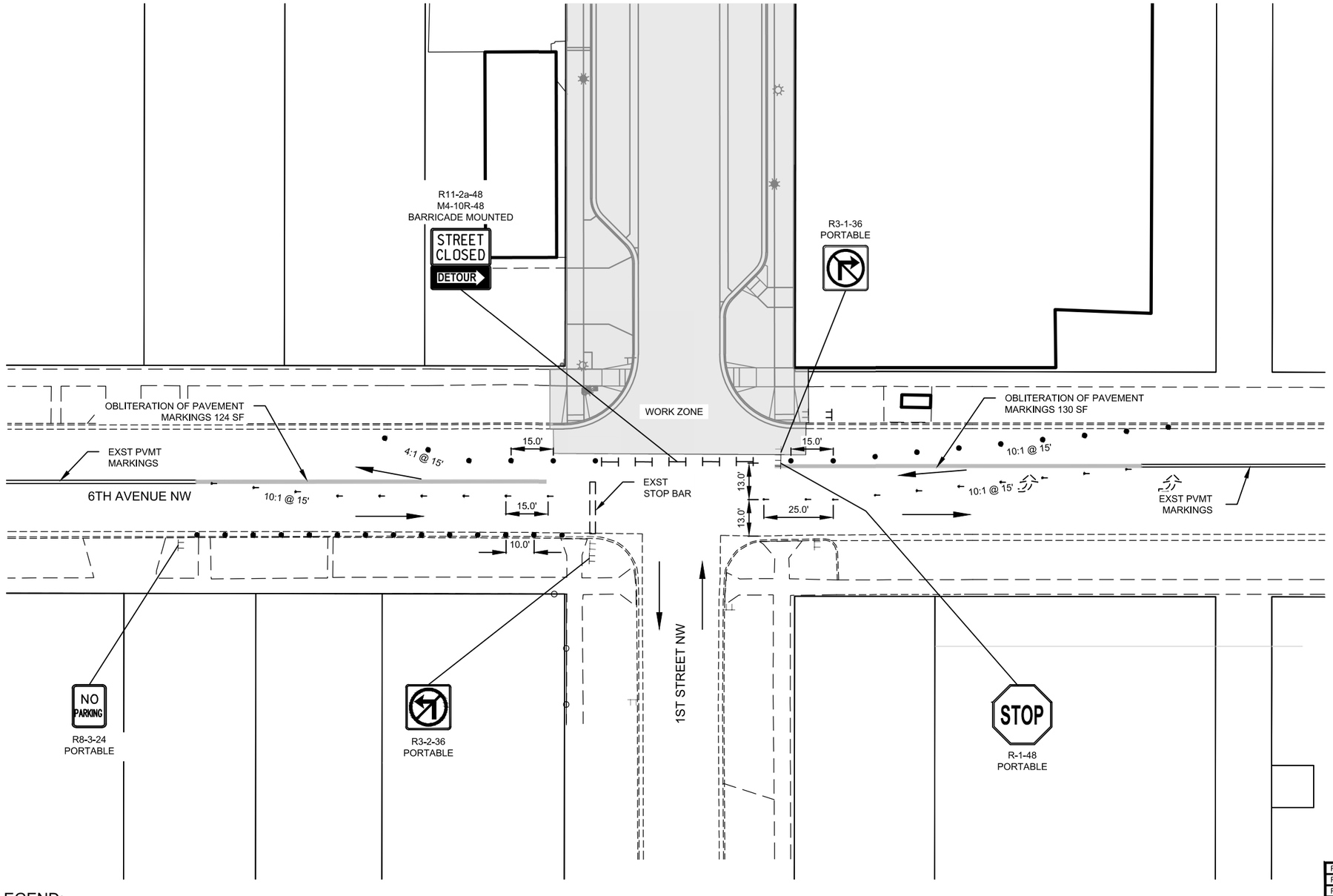
TRAFFIC CONTROL SEGMENT 1 OVERVIEW VEHICLE

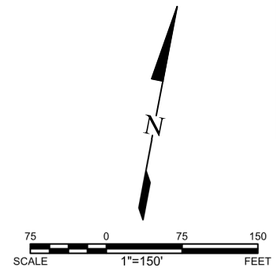
DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

Dec 04, 2025 - 1:28pm - K:\Projects\City\ND\Mandan\1904-02191-MandanDowntownSID236\CAD\Design\Plans\Sections\100\1904-02191_100WZ_Seg1Overview.dwg

SID 236 C.P. 2019-08	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	UGP-1-988(052)	100	5

SPEC	CODE	BID ITEM	QTY	UNIT
704	1500	OBLITERATION OF PAVEMENT MARKING		
		6TH AVENUE NW	254	SF





LEGEND:

WORK ZONE
DELINEATOR DRUM
TRAFFIC ARROW
SIGN
TUBULAR MARKER
TYPE III BARRICADE
OBLITERATION OF PAVEMENT MARKINGS

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/04/25
NORTH DAKOTA

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

KLJ

TRAFFIC CONTROL SEGMENT 1 LAYOUT 6TH AVENUE NW

DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

Dec 04, 2025 - 1:28pm - K:\Projects\City\ND\Mandan\1904-02191-MandanDowntownSID236\CAD\Design\Plans\Sections\100\1904-02191_100WZ_Seg1Overview.dwg

SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	100	6

NOTES
1. PLACE SIDEWALK BARRICADE ADJACENT TO TYPE III BARRICADES

N

75 0 75 150
SCALE 1"=150' FEET

LEGEND:

SEGMENT 1
SIGN
SIDEWALK BARRICADE

A	B	C	D	E
R9-11(L)-24 PORTABLE	R9-11(R)-24 PORTABLE	R9-9-24 SIDEWALK BARRICADE MOUNTED	M4-9a(R)-30 PORTABLE	M4-9a(L)-30 PORTABLE
SIDEWALK CLOSED AHEAD / CROSS HERE	SIDEWALK CLOSED AHEAD / CROSS HERE	SIDEWALK CLOSED	DETOUR	DETOUR

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/04/25
NORTH DAKOTA

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

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TRAFFIC CONTROL SEGMENT 1 OVERVIEW PEDESTRIAN

DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

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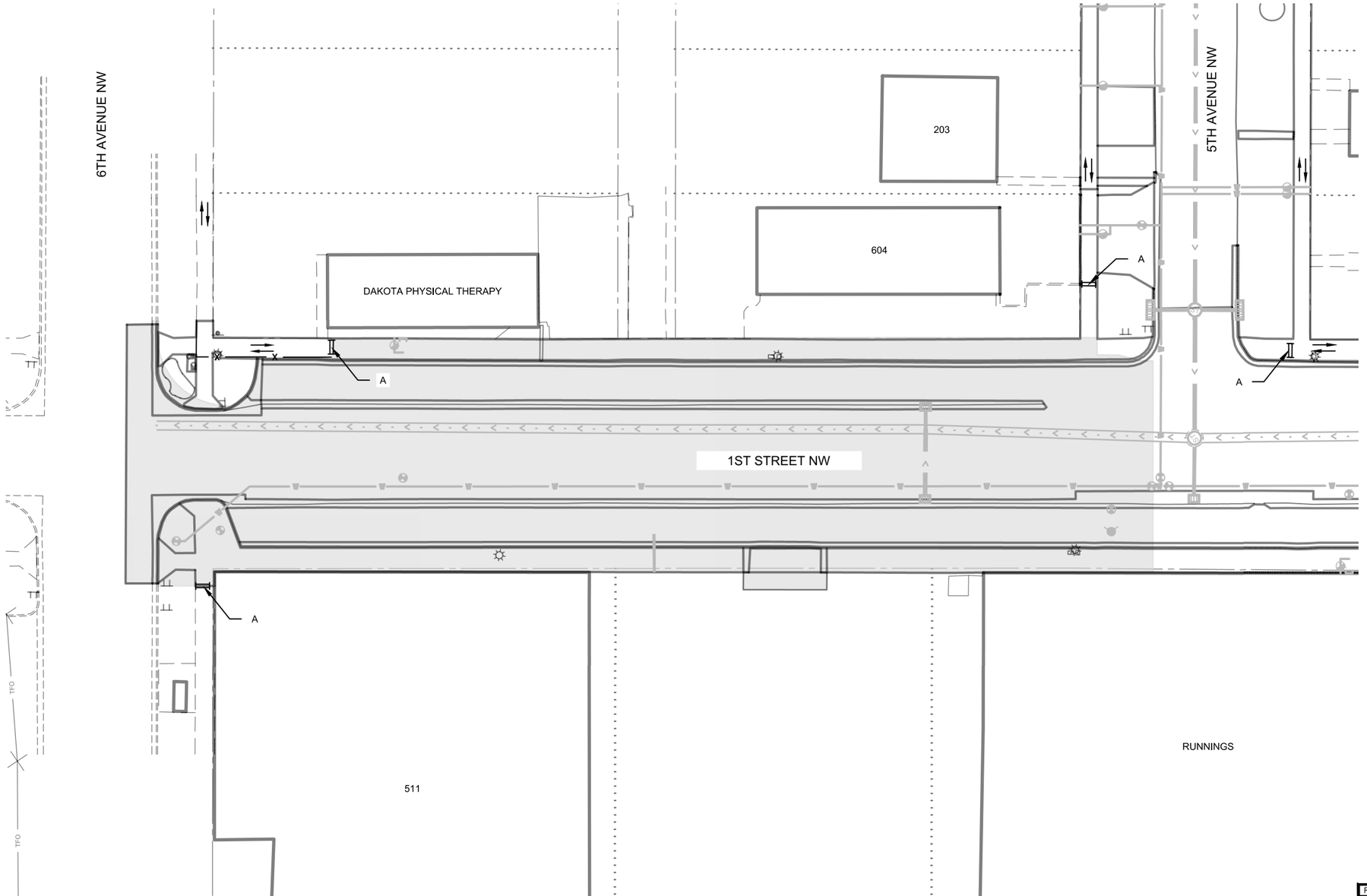
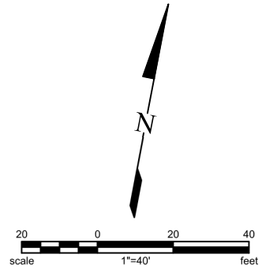
SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	100	7





REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/04/25
NORTH DAKOTA

LEGEND:

- WORK ZONE
- PEDESTRIAN WALKWAY
- TEMPORARY CURB RAMP
- DELINEATOR DRUM
- SIDEWALK BARRICADE
- TUBULAR MARKER
- PEDESTRIAN MOVEMENT ARROWS

A
R9-9-24
SIDEWALK BARRICADE MOUNTED

SIDEWALK CLOSED

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

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TRAFFIC CONTROL PEDESTRIAN WALKWAY SEGMENT 1

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RB	AC	1904-02191

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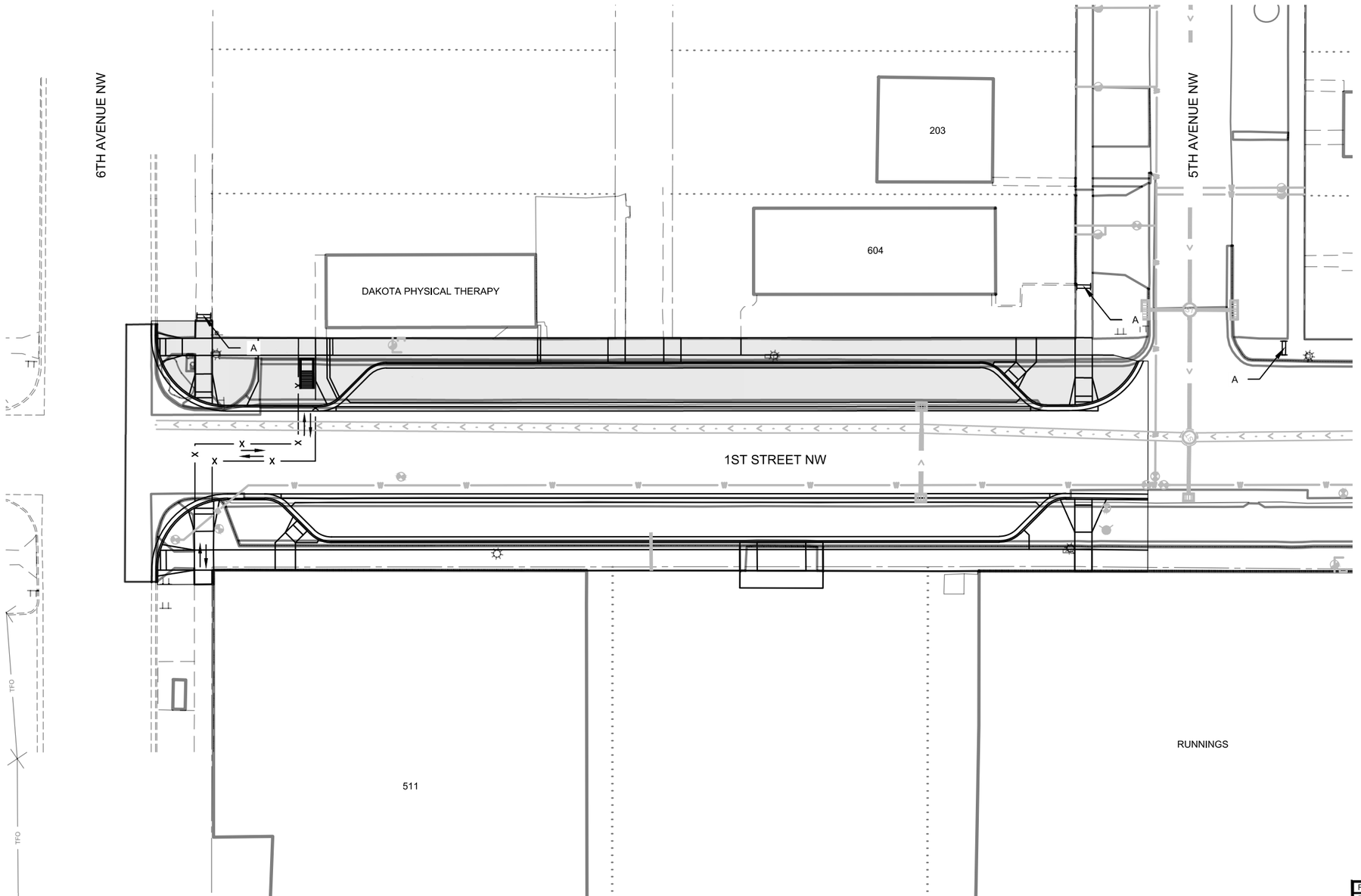
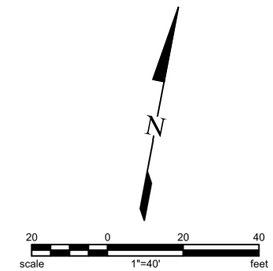
SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	100	8





LEGEND:

- WORK ZONE
- PEDESTRIAN WALKWAY
- TEMPORARY CURB RAMP
- DELINEATOR DRUM
- SIDEWALK BARRICADE
- TUBULAR MARKER
- PEDESTRIAN MOVEMENT ARROWS

A

R9-9-24
SIDEWALK BARRICADE MOUNTED

SIDEWALK CLOSED

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/04/25
NORTH DAKOTA

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

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TRAFFIC CONTROL PEDESTRIAN WALKWAY SEGMENT 1B

DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

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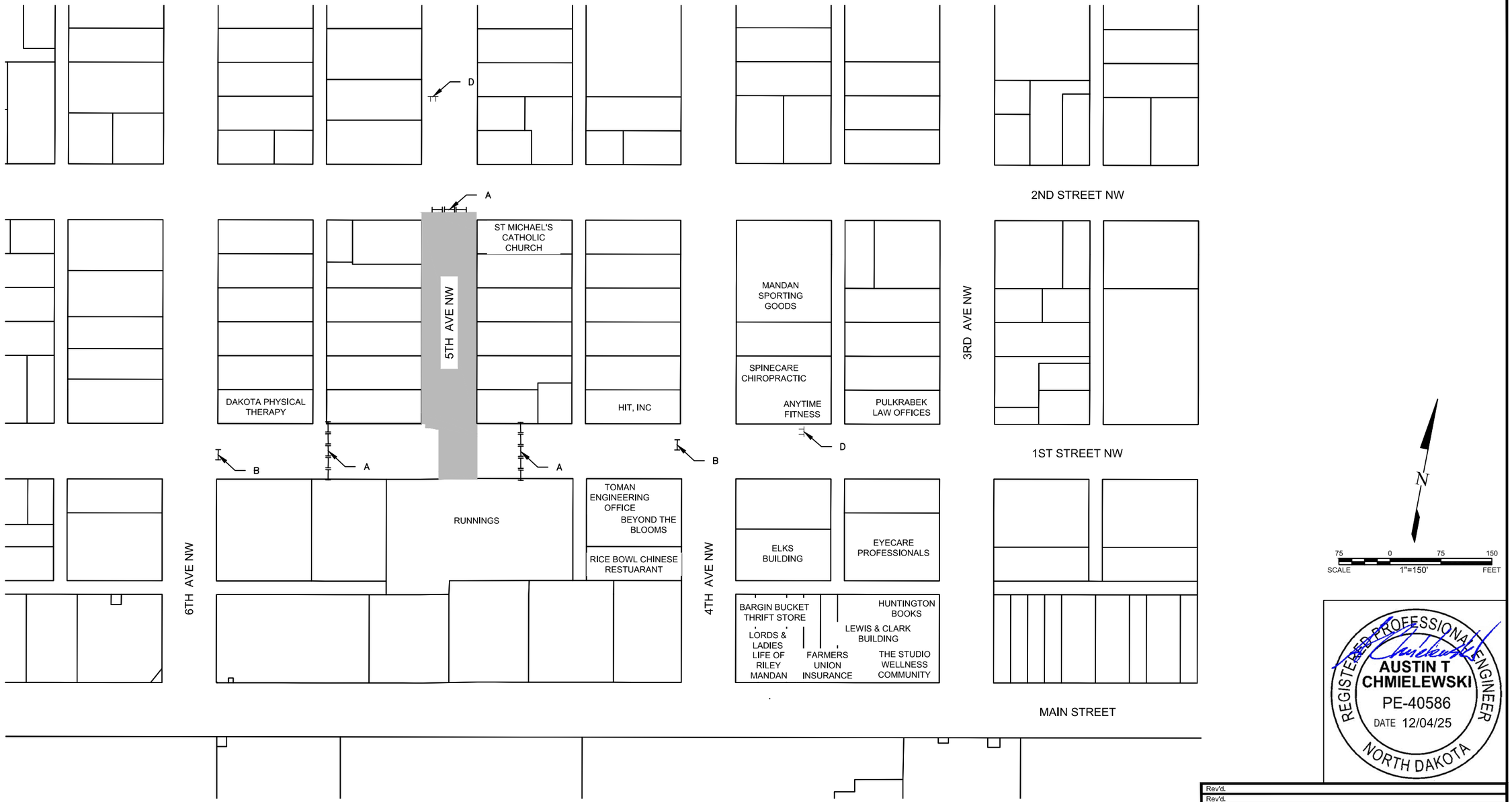
SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	100	9



LEGEND:

SEGMENT 2

SIGN

TYPE III BARRICADE

A — R11-2a-48 — STREET CLOSED — TYPE III BARRICADE MOUNTED

B — R-11-4a-60 — STREET CLOSED TO THRU TRAFFIC — TYPE III BARRICADE MOUNTED

C — W20-2-36 — DETOUR AHEAD — PORTABLE

D — W-20-3-36 — STREET CLOSED AHEAD — PORTABLE

E — R3-1-36 — PORTABLE

F — R3-2-36 — PORTABLE

G — M4-10R-48 (R) DETOUR; M4-10L-48 (L) DETOUR — TYPE III BARRICADE MOUNTED

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/04/25
NORTH DAKOTA

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DOWNTOWN STREET RECONSTRUCTION

CITY OF MANDAN, NORTH DAKOTA

1ST STREET NW

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TRAFFIC CONTROL SEGMENT 2 OVERVIEW VEHICLE

DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

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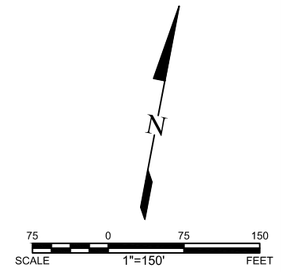
SID 236 C.P. 2019-08	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	UGP-1-988(052)	100	10

NOTES
1. PLACE SIDEWALK BARRICADE ADJACENT TO TYPE III BARRICADES



LEGEND:

SEGMENT 2

SIGN

SIDEWALK BARRICADE

A — R9-11(L)-24 PORTABLE
SIDEWALK CLOSED AHEAD
CROSS HERE

B — R9-11(R)-24 PORTABLE
SIDEWALK CLOSED AHEAD
CROSS HERE

C — R9-9-24 SIDEWALK BARRICADE MOUNTED
SIDEWALK CLOSED

D — M4-9a(R)-30 PORTABLE
DETOUR

E — M4-9a(L)-30 PORTABLE
DETOUR

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/04/25
NORTH DAKOTA

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

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TRAFFIC CONTROL SEGMENT 2 OVERVIEW PEDESTRIAN

DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

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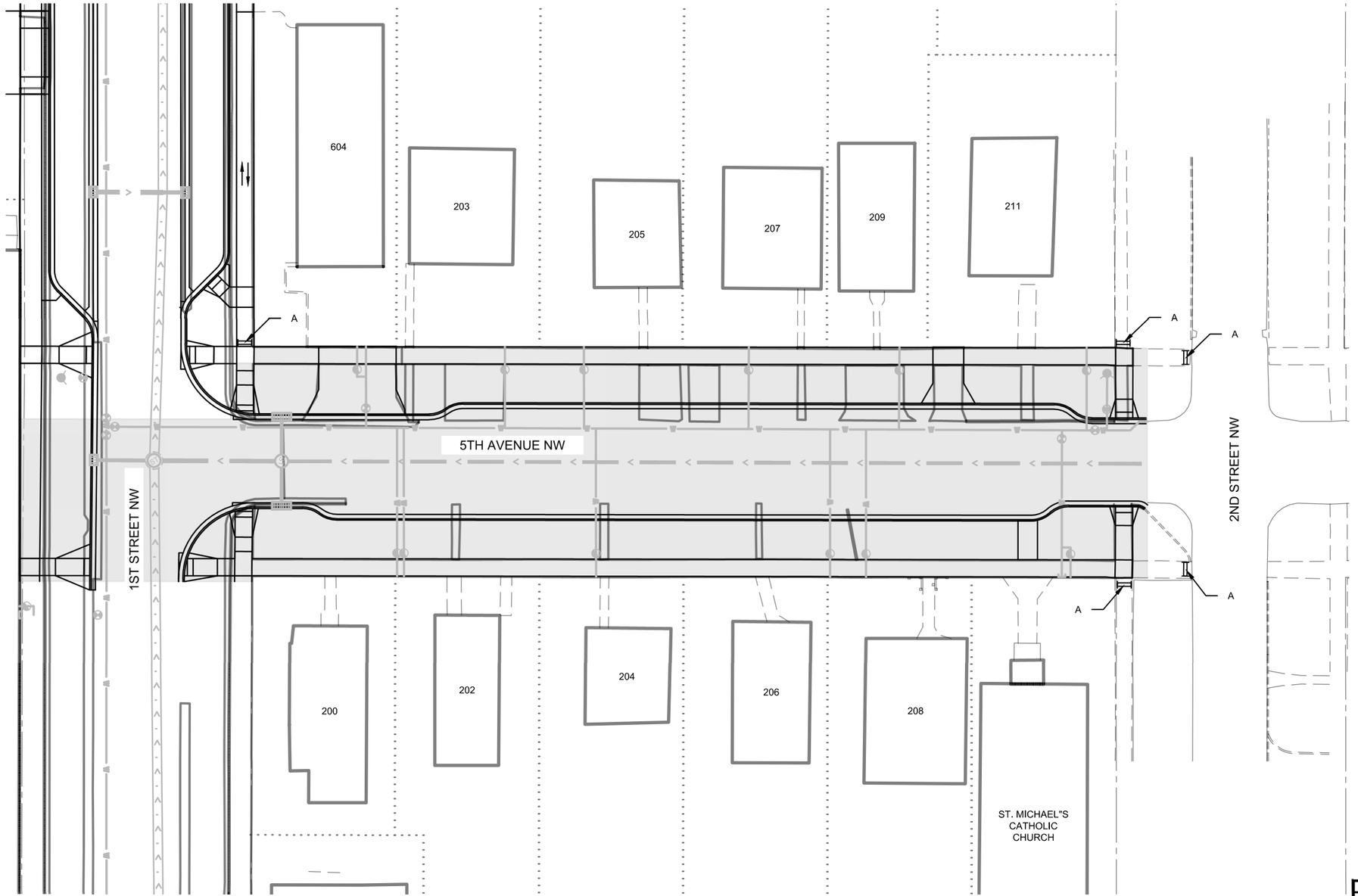
SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	100	11



N

20 0 20 40
scale 1"=40' feet

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/04/25
NORTH DAKOTA

LEGEND:

- WORK ZONE
- PEDESTRIAN WALKWAY
- TEMPORARY CURB RAMP
- DELINEATOR DRUM
- SIDEWALK BARRICADE
- TUBULAR MARKER
- PEDESTRIAN MOVEMENT ARROWS
- A — R9-9-24 SIDEWALK BARRICADE MOUNTED

SIDEWALK CLOSED

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

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TRAFFIC CONTROL PEDESTRIAN WALKWAY SEGMENT 2 - PHASE B

DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

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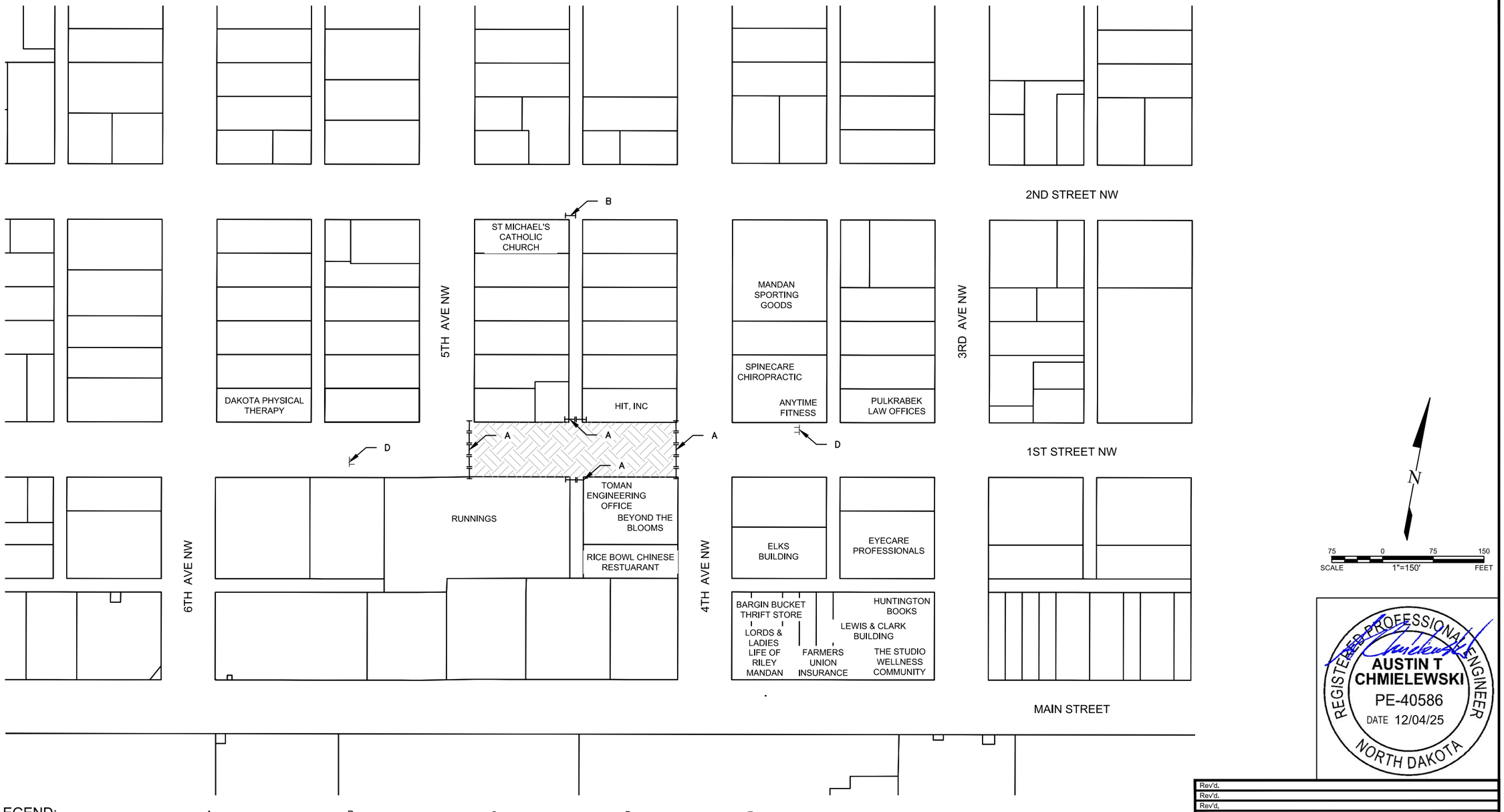
SID 236 C.P. 2019-08	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	UGP-1-988(052)	100	12



LEGEND:

SEGMENT 3

SIGN

TYPE III BARRICADE

A	B	C	D	E	F	G
R11-2a-48	R-11-4a-60	W20-2-36	W-20-3-36	R3-1-36	R3-2-36	M4-10R-48 (R)
STREET CLOSED	STREET CLOSED TO THRU TRAFFIC	DETOUR AHEAD	STREET CLOSED AHEAD			DETOUR
TYPE III BARRICADE MOUNTED	TYPE III BARRICADE MOUNTED	PORTABLE	PORTABLE	PORTABLE	PORTABLE	M4-10L-48 (L) DETOUR TYPE III BARRICADE MOUNTED

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/04/25
NORTH DAKOTA

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

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TRAFFIC CONTROL SEGMENT 3 OVERVIEW VEHICLE

DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

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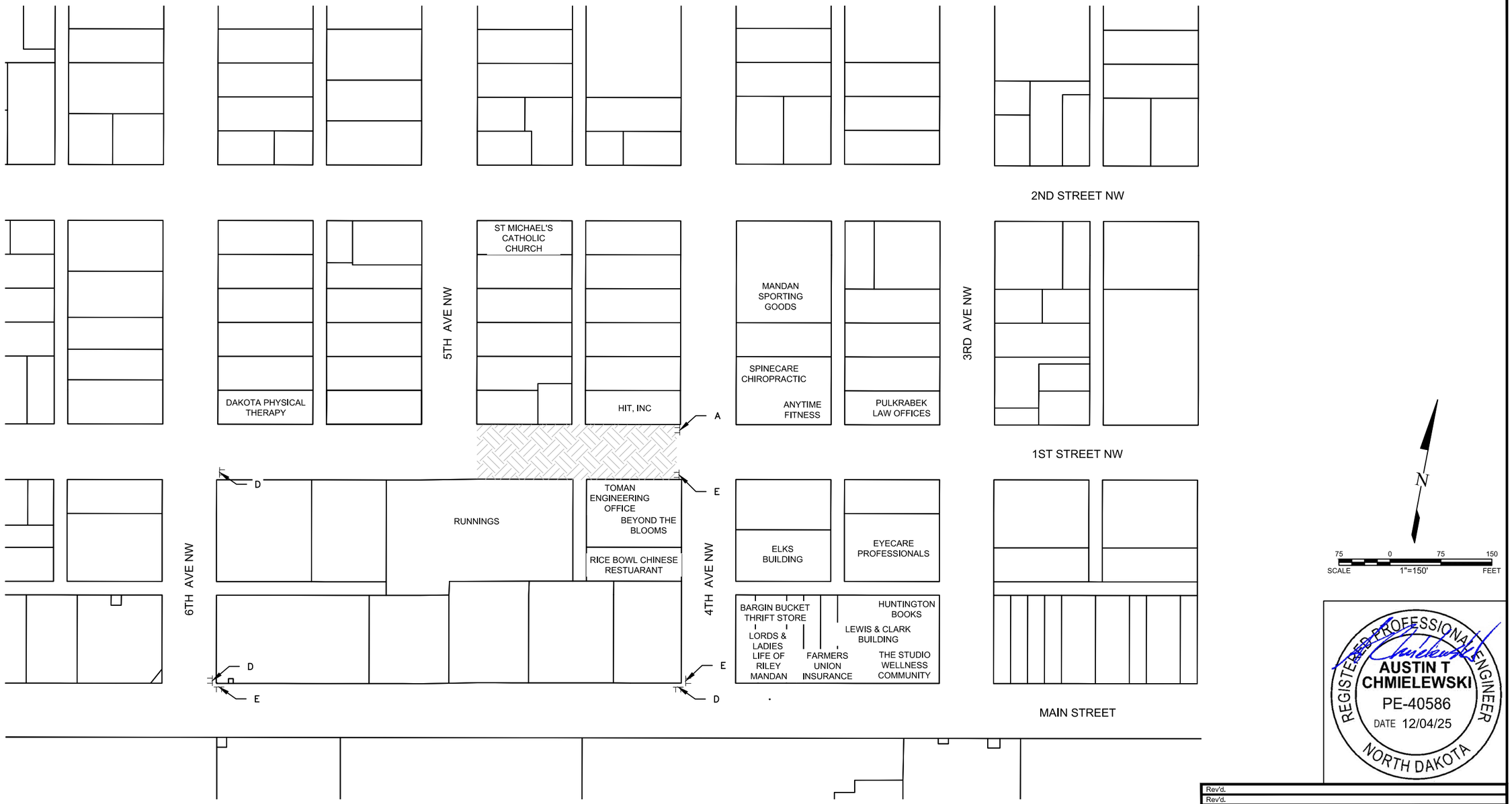
SID 236 C.P. 2019-08	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	UGP-1-988(052)	100	13



LEGEND:

SEGMENT 3

TT SIGN

SIDEWALK BARRICADE

A	B	C	D	E
R9-11(L)-24 PORTABLE	R9-11(R)-24 PORTABLE	R9-9-24 SIDEWALK BARRICADE MOUNTED	M4-9a(R)-30 PORTABLE	M4-9a(L)-30 PORTABLE
SIDEWALK CLOSED AHEAD CROSS HERE	SIDEWALK CLOSED AHEAD CROSS HERE	SIDEWALK CLOSED	DETOUR	DETOUR

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/04/25
NORTH DAKOTA

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DOWNTOWN STREET RECONSTRUCTION

CITY OF MANDAN, NORTH DAKOTA

1ST STREET NW

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TRAFFIC CONTROL SEGMENT 3 OVERVIEW PEDESTRIAN

DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

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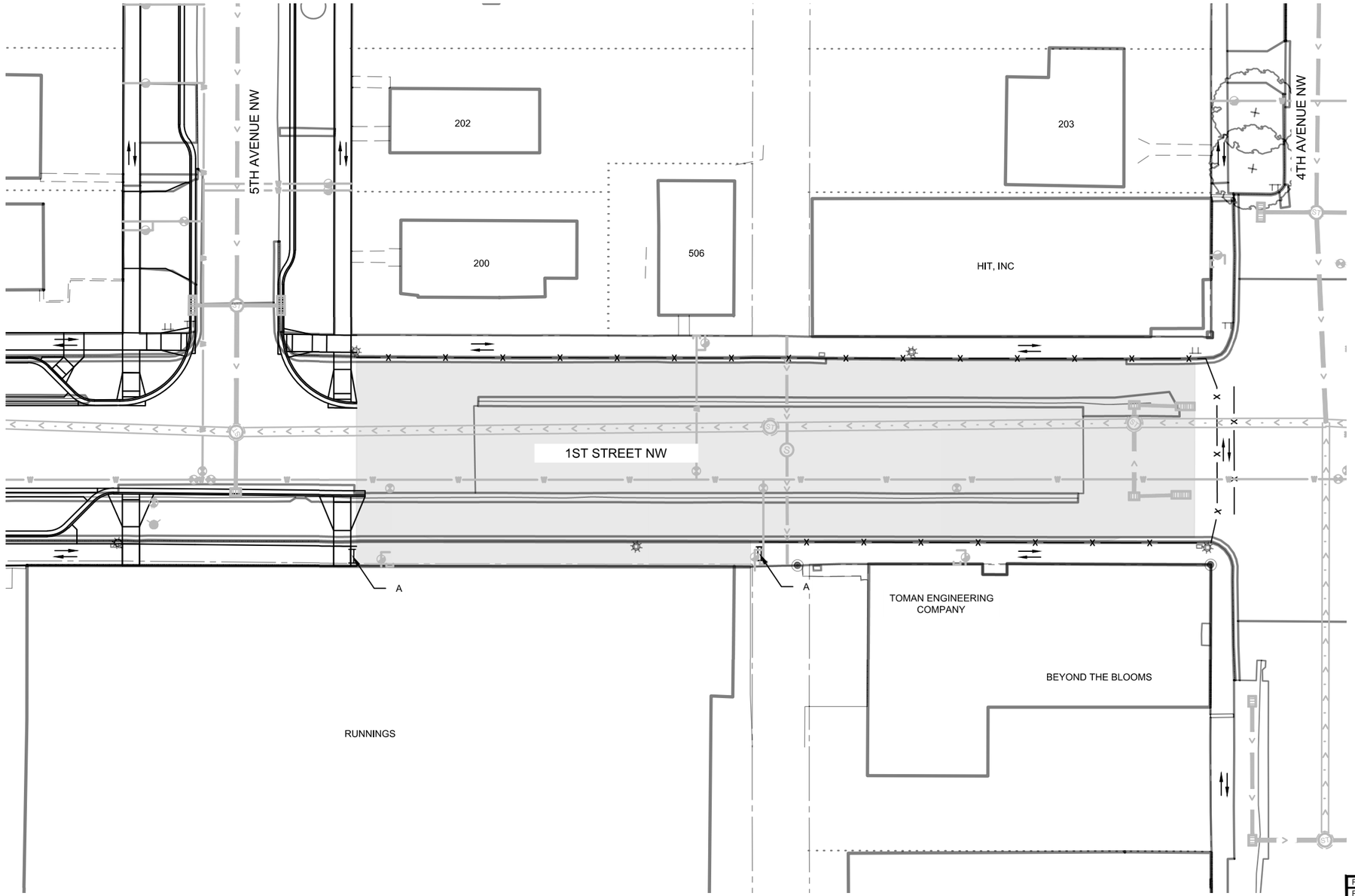
SID 236 C.P. 2019-08	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	UGP-1-988(052)	100	14



N

20 0 20 40
scale 1"=40' feet

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/04/25
NORTH DAKOTA

LEGEND:

- WORK ZONE
- PEDESTRIAN WALKWAY
- TEMPORARY CURB RAMP
- DELINEATOR DRUM
- SIDEWALK BARRICADE
- TUBULAR MARKER
- PEDESTRIAN MOVEMENT ARROWS

A
R9-9-24
SIDEWALK BARRICADE MOUNTED

SIDEWALK CLOSED

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

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TRAFFIC CONTROL PEDESTRIAN WALKWAY SEGMENT 3 - PHASE A

DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

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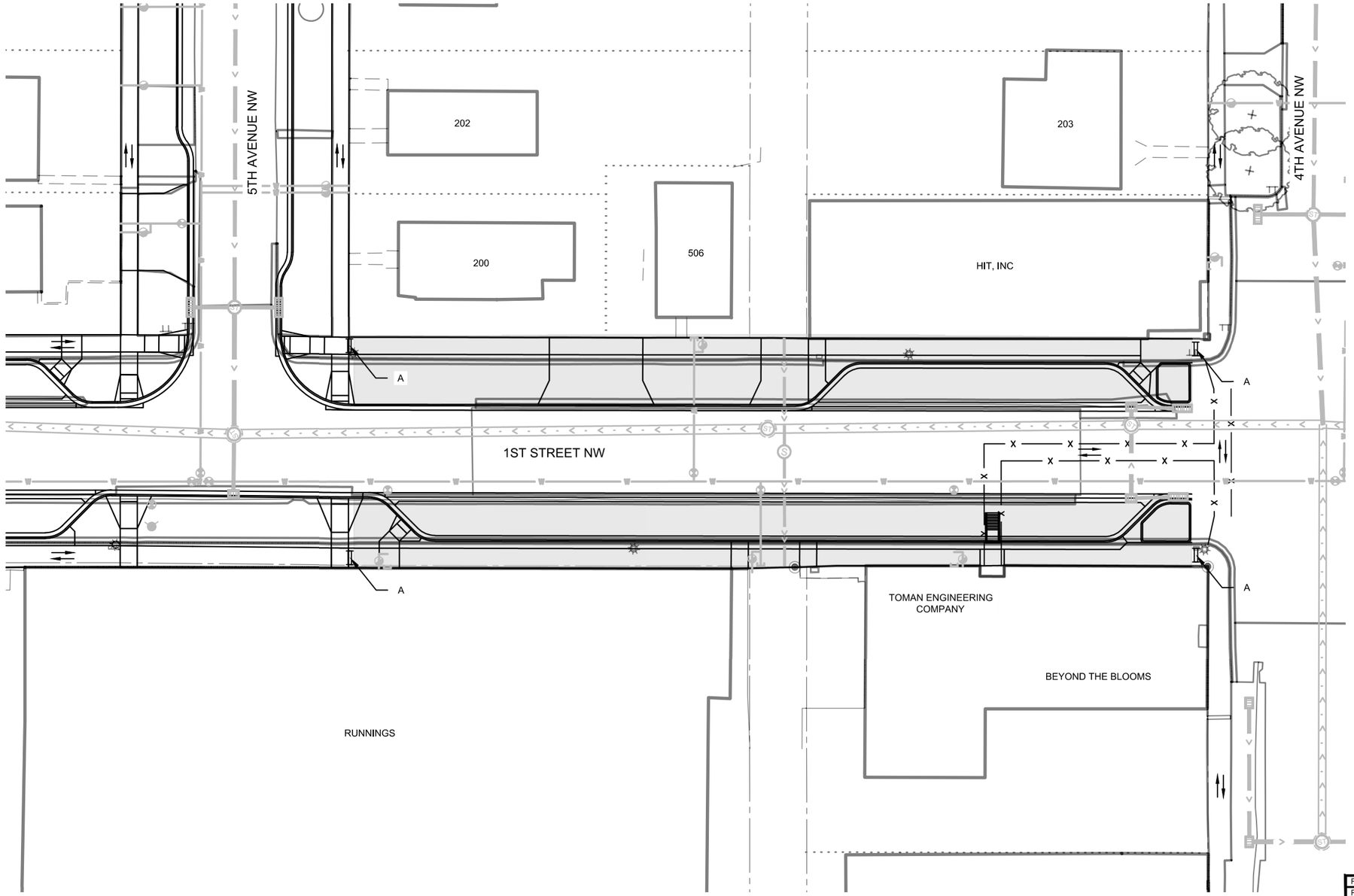
SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	100	15



N

20 0 20 40
scale 1"=40' feet

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/04/25
NORTH DAKOTA

LEGEND:

- WORK ZONE
- PEDESTRIAN WALKWAY
- TEMPORARY CURB RAMP
- DELINEATOR DRUM
- SIDEWALK BARRICADE
- TUBULAR MARKER
- PEDESTRIAN MOVEMENT ARROWS

A
R9-9-24
SIDEWALK BARRICADE MOUNTED

SIDEWALK CLOSED

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Rev'd.

DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

KLJ

TRAFFIC CONTROL PEDESTRIAN WALKWAY SEGMENT 3 - PHASE B

DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

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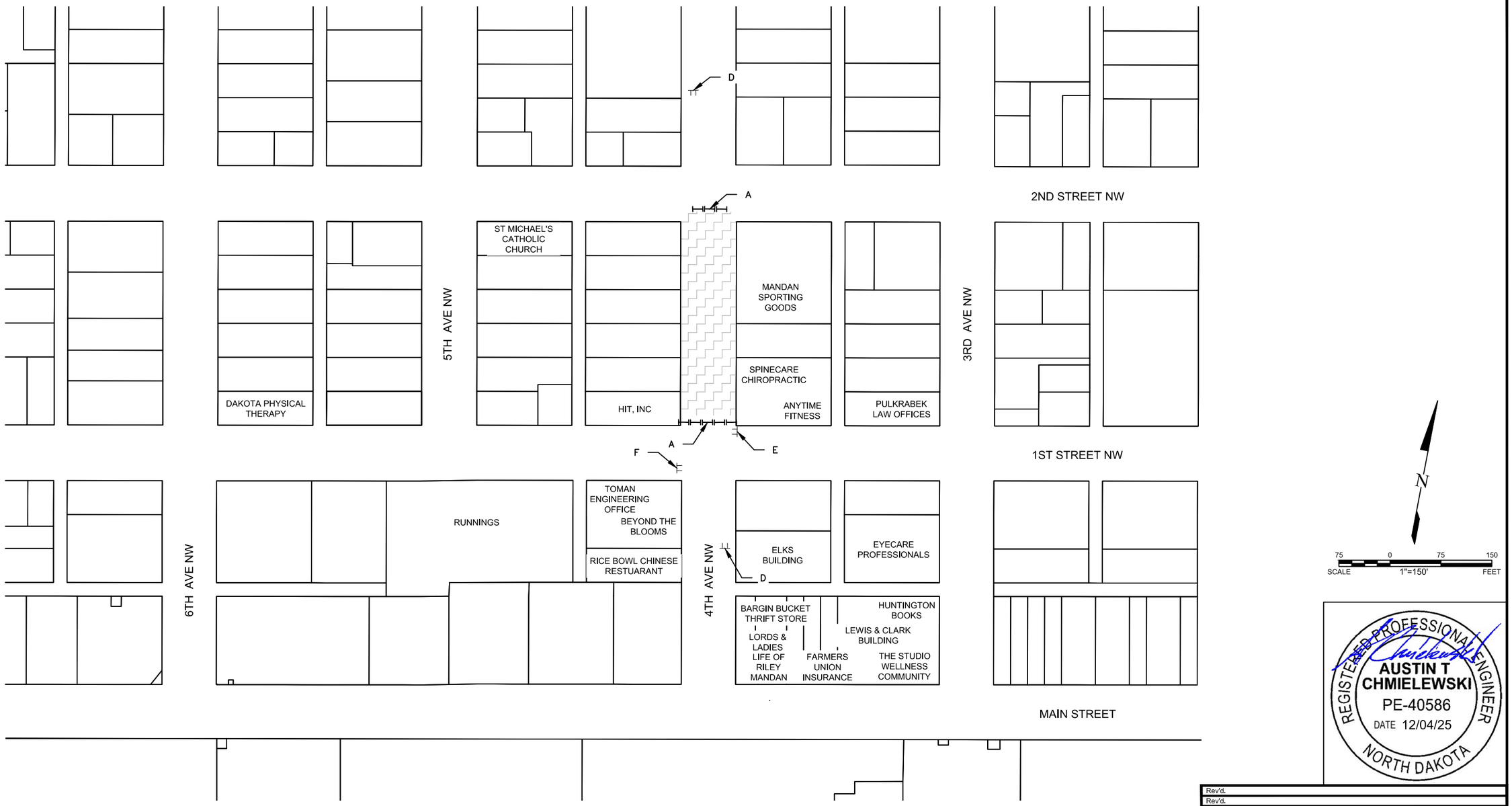
SID 236 C.P. 2019-08	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	UGP-1-988(052)	100	16



REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/04/25
NORTH DAKOTA

LEGEND:

SEGMENT 4

SIGN

TYPE III BARRICADE

A	B	C	D	E	F	G
R11-2a-48	R-11-4a-60	W20-2-36	W-20-3-36	R3-1-36	R3-2-36	M4-10R-48 (R)
STREET CLOSED	STREET CLOSED TO THRU TRAFFIC	DETOUR AHEAD	STREET CLOSED AHEAD			DETOUR
TYPE III BARRICADE MOUNTED	TYPE III BARRICADE MOUNTED	PORTABLE	PORTABLE	PORTABLE	PORTABLE	M4-10L-48 (L) DETOUR; TYPE III BARRICADE MOUNTED

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DOWNTOWN STREET RECONSTRUCTION

CITY OF MANDAN, NORTH DAKOTA

1ST STREET NW

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TRAFFIC CONTROL SEGMENT 4 OVERVIEW VEHICLE

DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

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SID 236 C.P. 2019-08	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	UGP-1-988(052)	100	17

LEGEND:

SEGMENT 4

TT SIGN

SIDEWALK BARRICADE

A — R9-11(L)-24 PORTABLE: SIDEWALK CLOSED AHEAD / CROSS HERE

B — R9-11(R)-24 PORTABLE: SIDEWALK CLOSED AHEAD / CROSS HERE

C — R9-9-24 SIDEWALK BARRICADE MOUNTED: SIDEWALK CLOSED

D — M4-9a(R)-30 PORTABLE: DETOUR

E — M4-9a(L)-30 PORTABLE: DETOUR

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/04/25
NORTH DAKOTA

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DOWNTOWN STREET RECONSTRUCTION

CITY OF MANDAN, NORTH DAKOTA

1ST STREET NW

KLJ

TRAFFIC CONTROL SEGMENT 4 OVERVIEW PEDESTRIAN

DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

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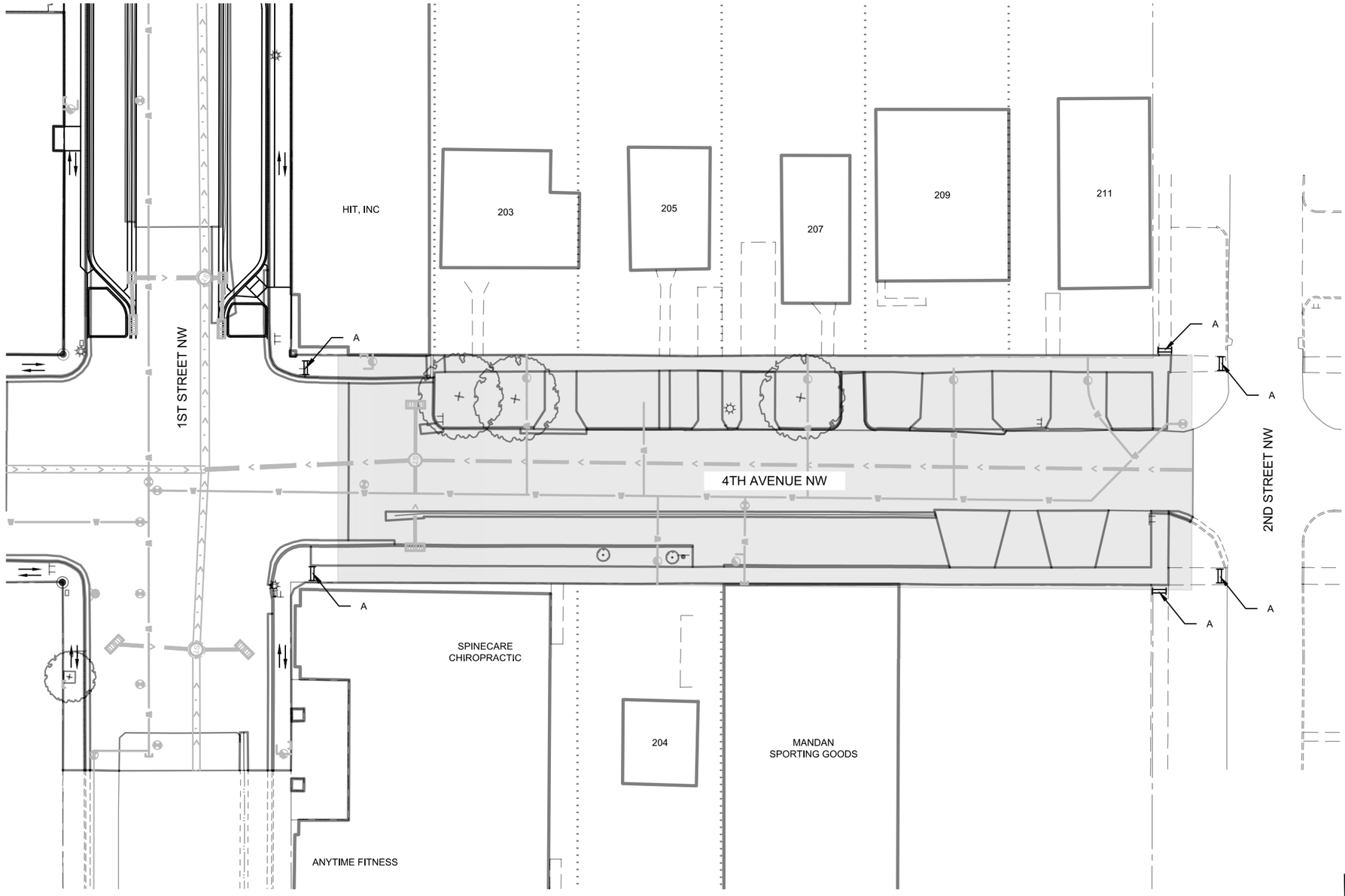
SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	100	18



N

scale 20 0 20 40 1"=40' feet

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/04/25
NORTH DAKOTA

LEGEND:

- WORK ZONE
- PEDESTRIAN WALKWAY
- TEMPORARY CURB RAMP
- DELINEATOR DRUM
- SIDEWALK BARRICADE
- TUBULAR MARKER
- PEDESTRIAN MOVEMENT ARROWS

A
R9-9-24
SIDEWALK BARRICADE MOUNTED

SIDEWALK CLOSED

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

KLJ

TRAFFIC CONTROL PEDESTRIAN WALKWAY SEGMENT 4

DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

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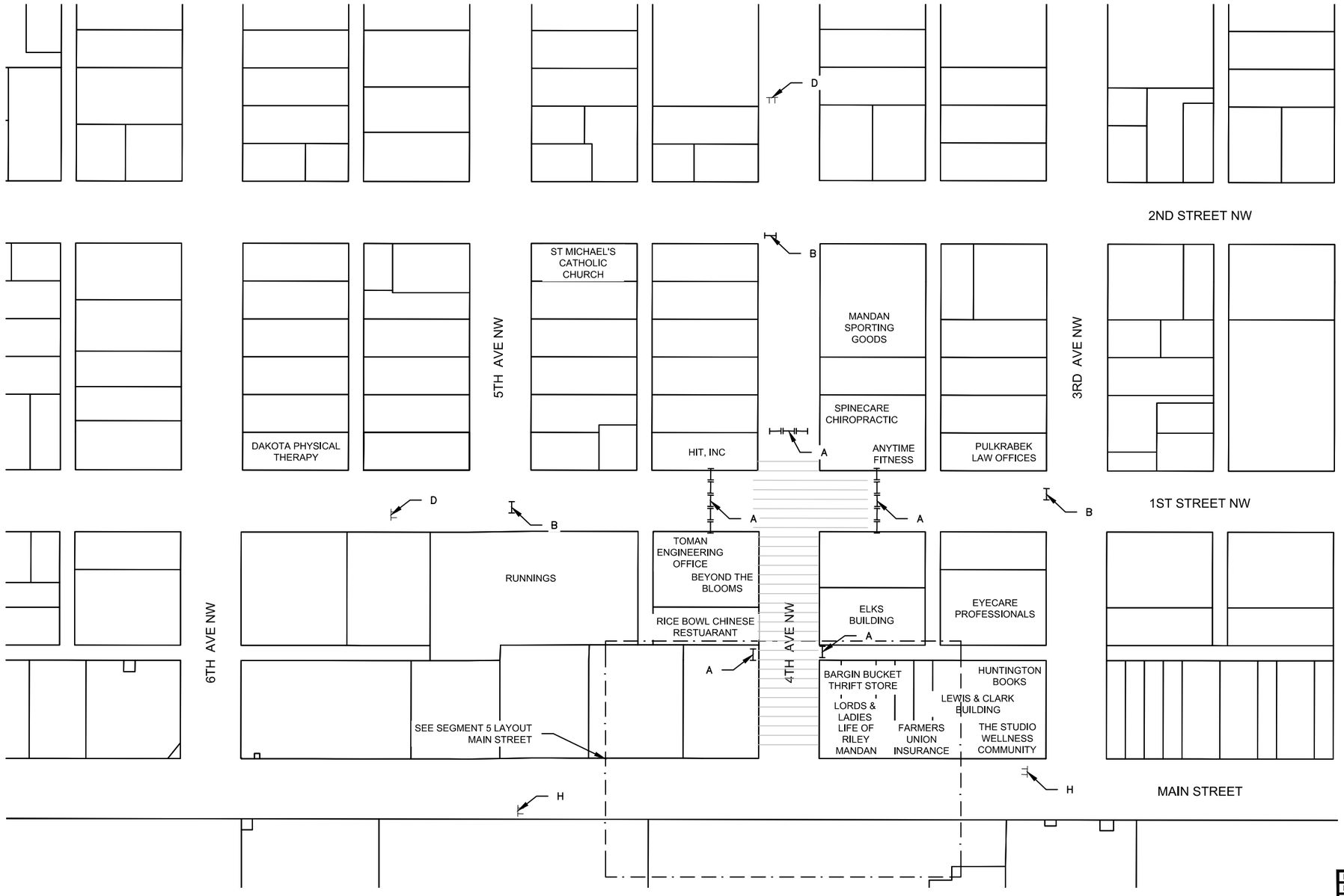
SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	100	19



LEGEND:

SEGMENT 5

TT SIGN

I TYPE III BARRICADE

A
R11-2a-48
STREET CLOSED
TYPE III BARRICADE MOUNTED

B
R-11-4a-60
STREET CLOSED TO THRU TRAFFIC
TYPE III BARRICADE MOUNTED

C
W20-2-36
DETOUR AHEAD
PORTABLE

D
W-20-3-36
STREET CLOSED AHEAD
PORTABLE

E
R3-1-36
PORTABLE

F
R3-2-36
PORTABLE

G
M4-10R-48 (R)
DETOUR
M4-10L-48 (L)
DETOUR
TYPE III BARRICADE MOUNTED

H
W20-1-36
STREET WORK AHEAD
PORTABLE

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/04/25
NORTH DAKOTA

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Rev'd.

DOWNTOWN STREET RECONSTRUCTION

CITY OF MANDAN, NORTH DAKOTA

1ST STREET NW

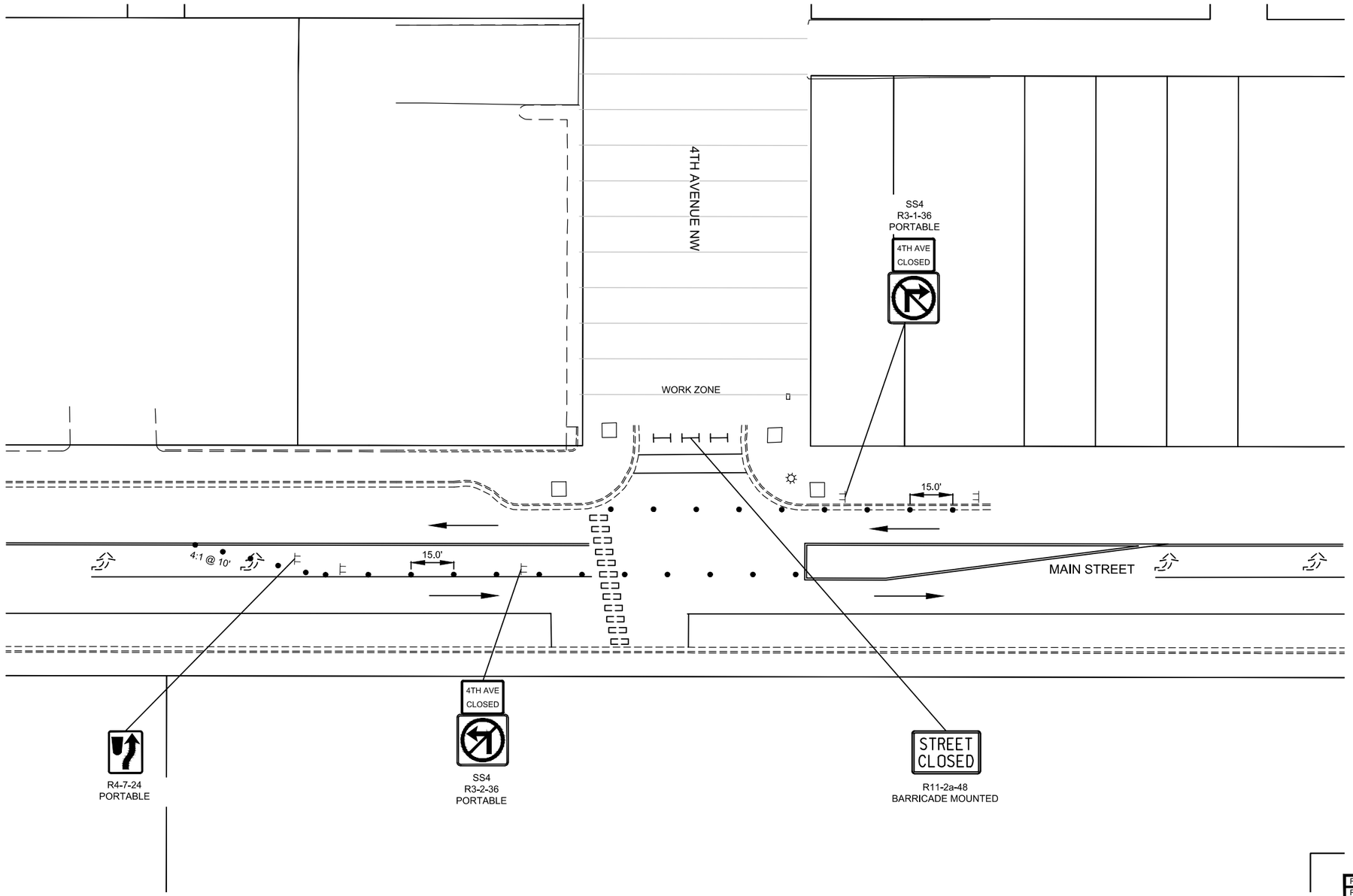
KLJ

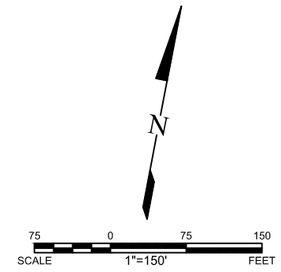
TRAFFIC CONTROL SEGMENT 5 OVERVIEW VEHICLE

DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

Dec 04, 2025 - 1:32pm - K:\Projects\City\ND\Mandan\1904-02191-MandanDowntownSID236\CAD\Design\Plans\Sections\100\1904-02191_100WZ_Seg5Overview.dwg

SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	100	20





LEGEND:

- SEGMENT 5
- DELINEATOR DRUM
- TT SIGN
- TRAFFIC ARROW
- TYPE III BARRICADE

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DOWNTOWN STREET RECONSTRUCTION

CITY OF MANDAN, NORTH DAKOTA

1ST STREET NW

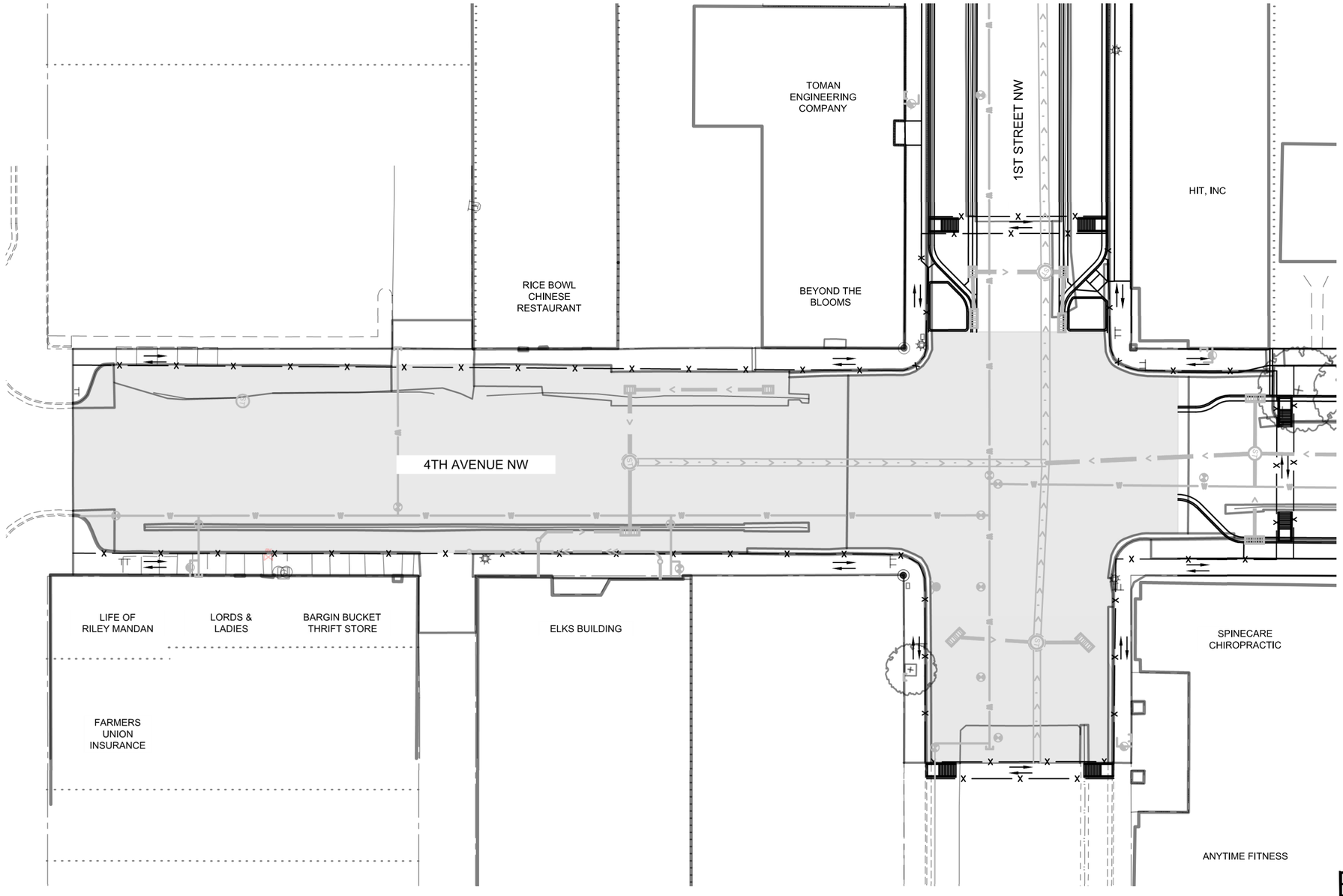
KLJ

TRAFFIC CONTROL SEGMENT 5 LAYOUT MAIN STREET

DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

Dec 04, 2025 - 1:33pm - K:\Projects\City\ND\Mandan\1904-02191-MandanDowntownSID236\CAD\Design\Plans\Sections\100\1904-02191_100WZ_Seg5Overview.dwg

SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	100	21



N

20 0 20 40
scale 1"=40' feet

LEGEND:

- WORK ZONE
- PEDESTRIAN WALKWAY
- TEMPORARY CURB RAMP
- DELINEATOR DRUM
- SIDEWALK BARRICADE
- TUBULAR MARKER
- PEDESTRIAN MOVEMENT ARROWS

A
R9-9-24
SIDEWALK BARRICADE MOUNTED

SIDEWALK CLOSED

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/04/25
NORTH DAKOTA

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

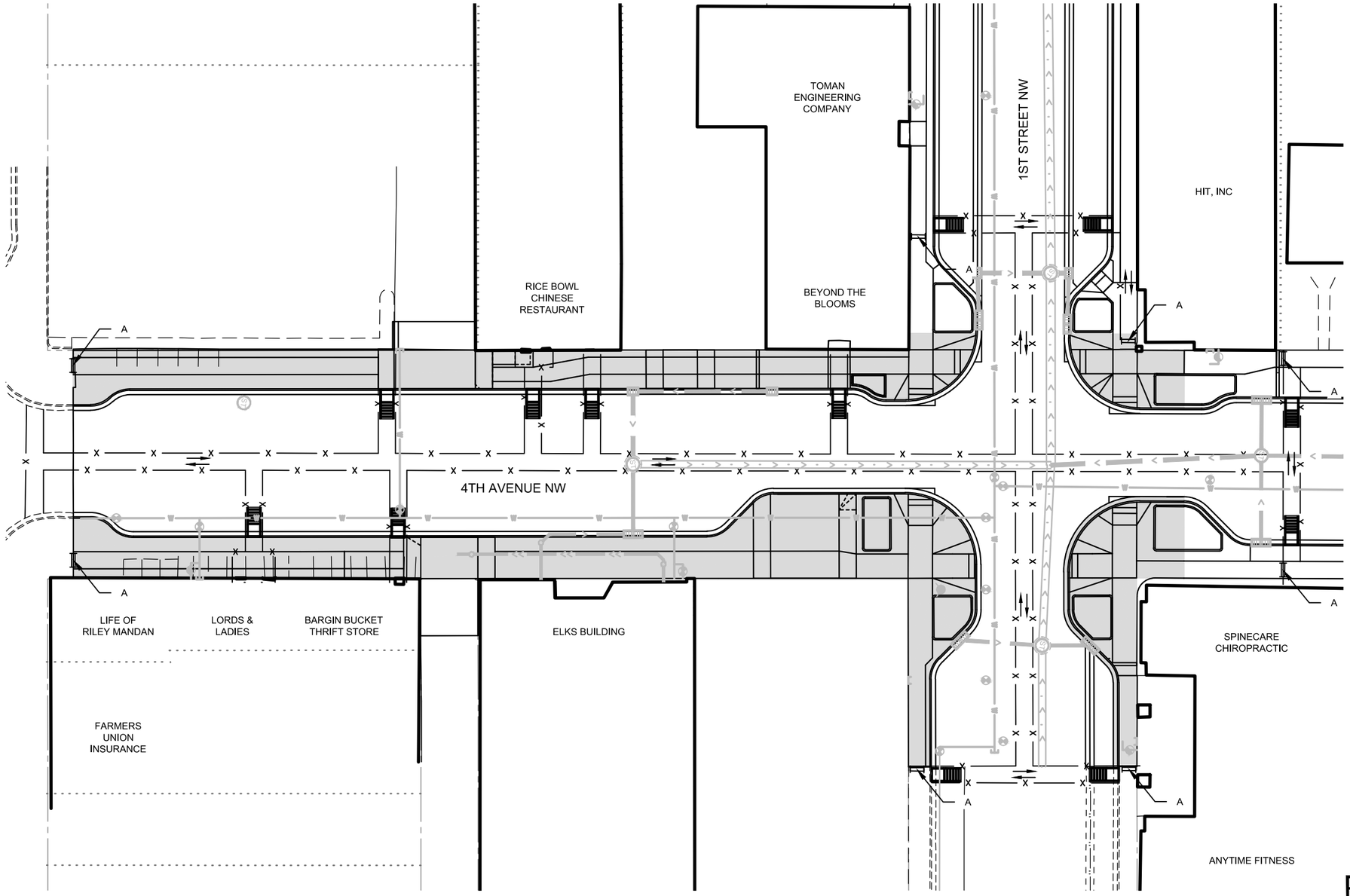
KLJ

TRAFFIC CONTROL PEDESTRIAN WALKWAY SEGMENT 5 - PHASE A

DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

Dec 04, 2025 - 1:33pm - K:\Projects\City\ND\Mandan\1904-02191-MandanDowntownSID236\CAD\Design\Plans\Sections\100\1904-02191_100WZ_PedestrianWalkway.dwg

SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	100	22



N

20 0 20 40
scale 1"=40' feet

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/04/25
NORTH DAKOTA

LEGEND:

- WORK ZONE
- PEDESTRIAN WALKWAY
- TEMPORARY CURB RAMP
- DELINEATOR DRUM
- SIDEWALK BARRICADE
- TUBULAR MARKER
- PEDESTRIAN MOVEMENT ARROWS

A
R9-9-24
SIDEWALK BARRICADE MOUNTED

SIDEWALK CLOSED

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

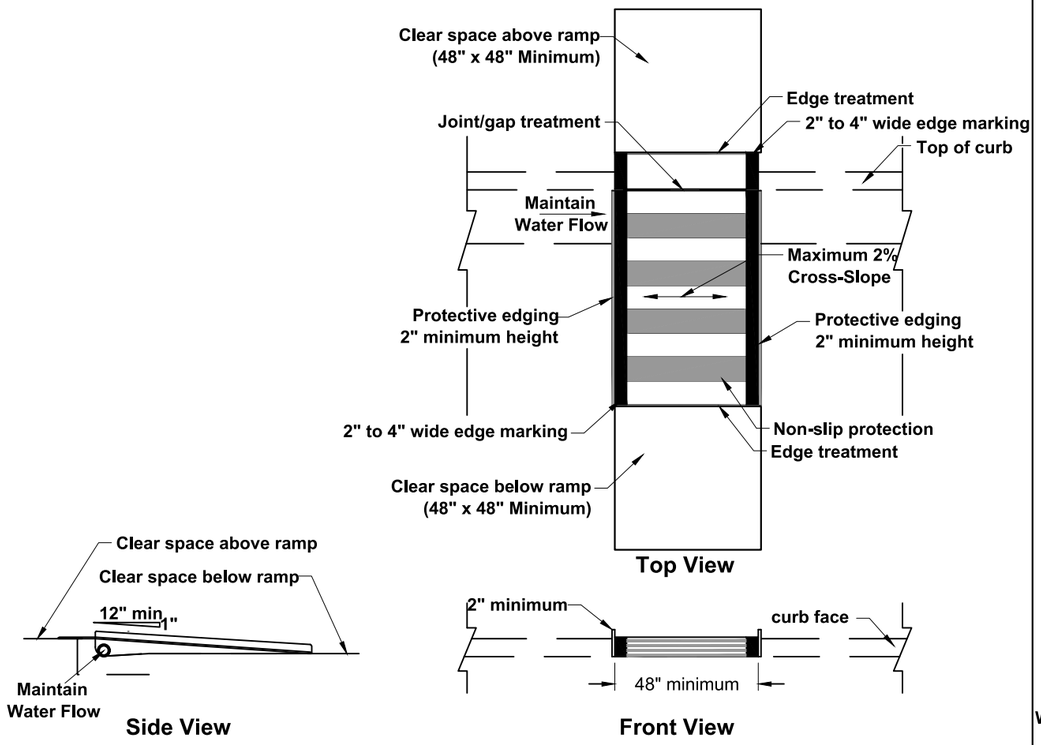
KLJ

TRAFFIC CONTROL PEDESTRIAN WALKWAY SEGMENT 5 - PHASE B

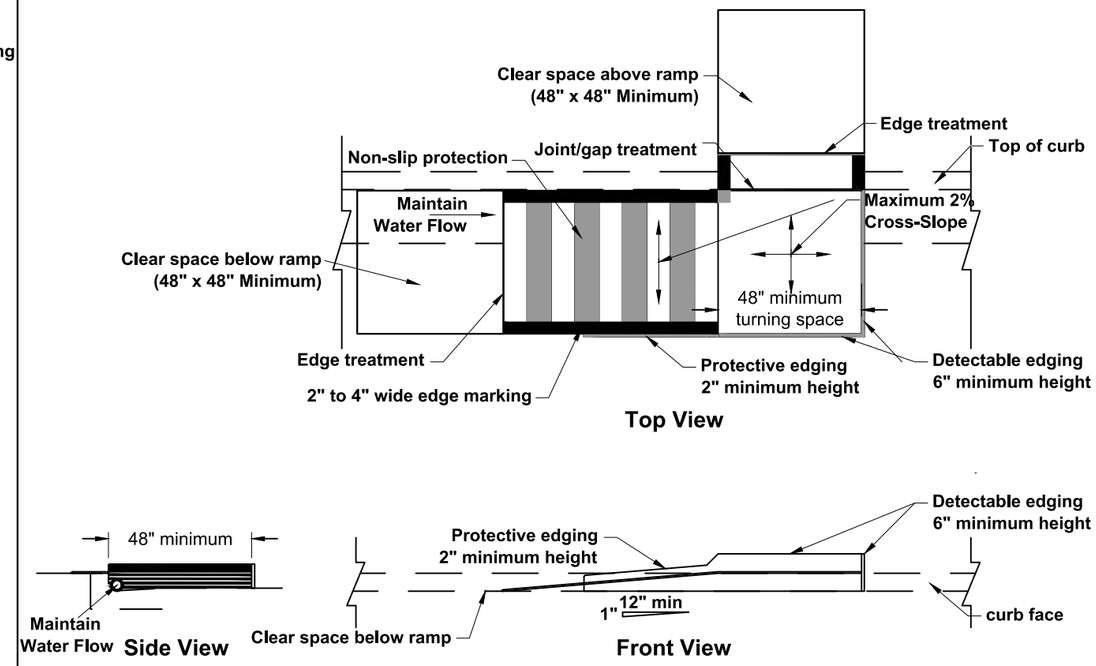
DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

Dec 04, 2025 - 1:33pm - K:\Projects\City\ND\Mandan\1904-02191-MandanDowntownSID236\CAD\Design\Plans\Sections\100\1904-02191_100WZ_PedestrianWalkway.dwg

SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	100	23

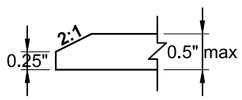


Temporary Perpendicular Curb Ramp



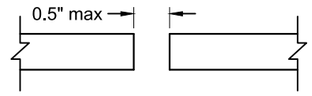
Temporary Parallel Curb Ramp

Edge Treatment



Maximum Surface Height Change Detail

Joint/Gap Treatment



Maximum Width Lateral Joints or Gaps

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

KLJ

TEMPORARY PEDESTRIAN CURB RAMP DETAILS

DRWN. BY	CHK'D BY	PROJECT NO.
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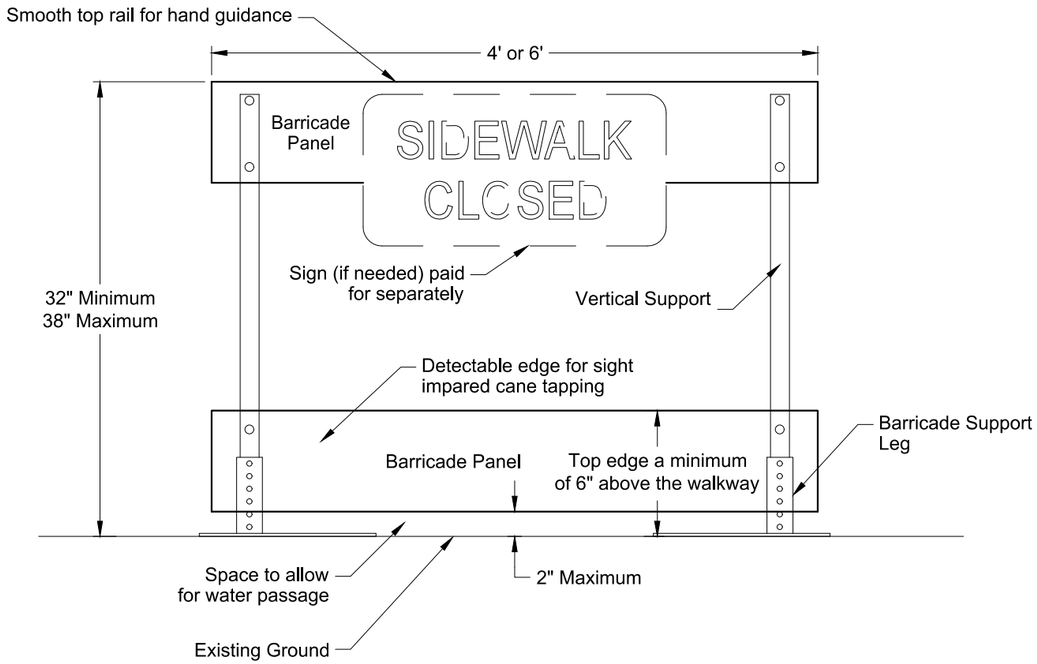
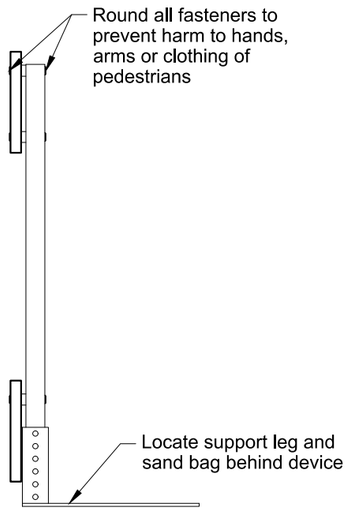
SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	100	24



Front View

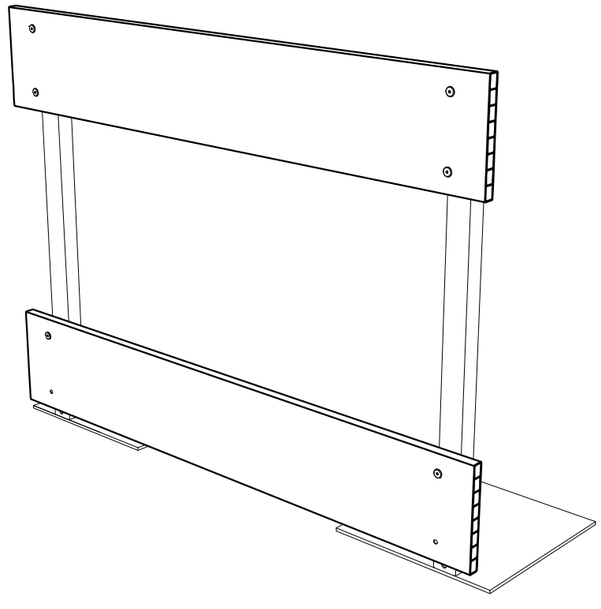


End View

NOTES:

Sidewalk Barricades

1. Provide self standing sidewalk barricade with no supports extending into the pedestrians path.
2. Use orange or orange and white diagonal striped barricade panels contrasting with the walkway surface.
3. Provide ADA compliant and NCHRP 350 or Mash Test Level 3 (TL3) approved sidewalk barricades.
4. Include all costs to furnish, maintain and remove sidewalk barricades in the price bid for "Sidewalk Barricade".



Perspective View

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DOWNTOWN STREET RECONSTRUCTION

CITY OF MANDAN, NORTH DAKOTA

1ST STREET NW

KLJ

SIDEWALK BARRICADE

DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

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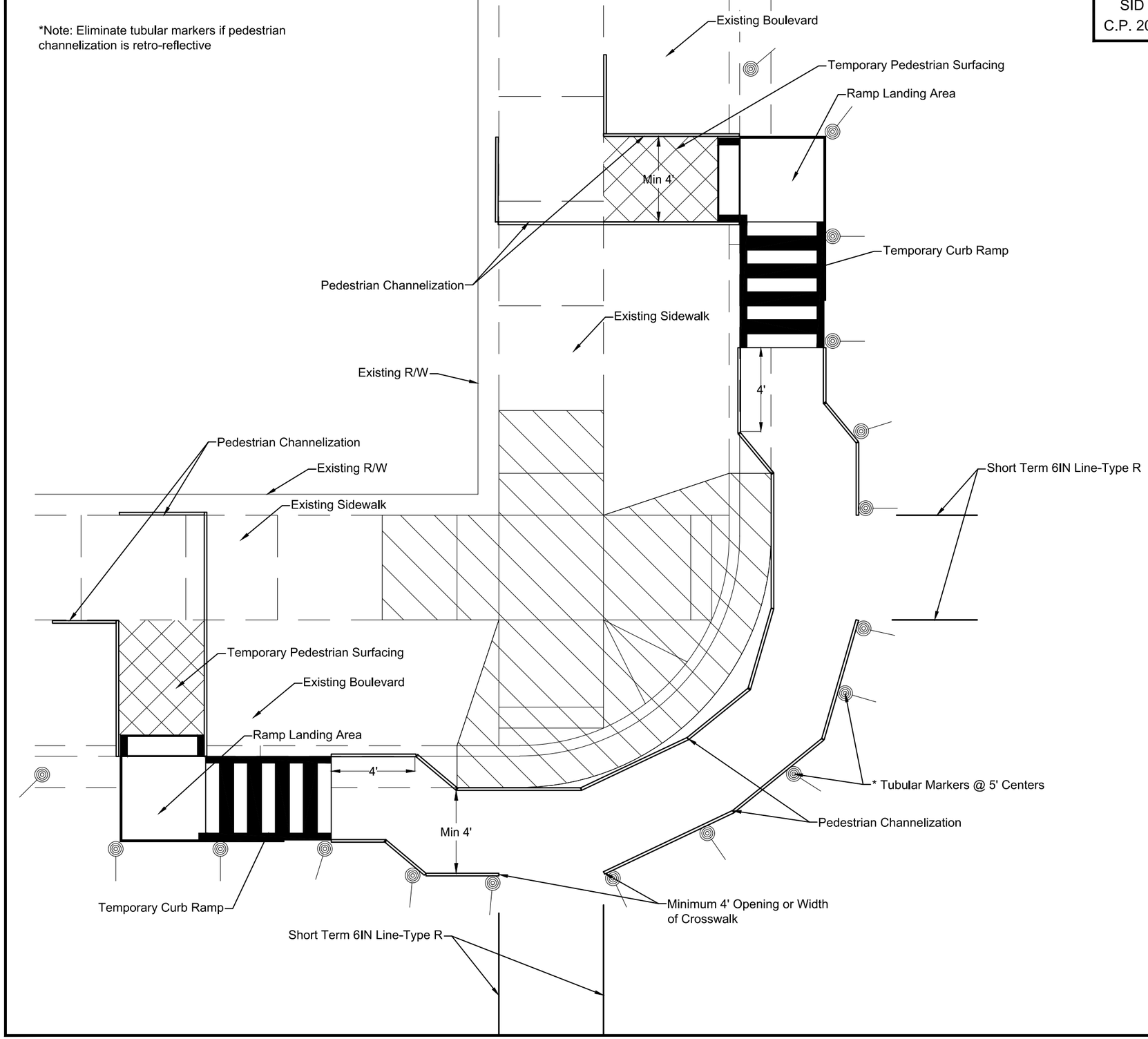
SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	100	25

*Note: Eliminate tubular markers if pedestrian channelization is retro-reflective



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DATE 12/04/25
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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

KLJ

TEMPORARY PEDESTRIAN ACCESS ROUTE

DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

Dec 04, 2025 - 1:33pm - K:\Projects\City\ND\Mandan\1904-02191-MandanDowntownSID236\CAD\Design\Plans\Sections\100\1904-02191_100WZ_TemporaryCurbRamp.dwg

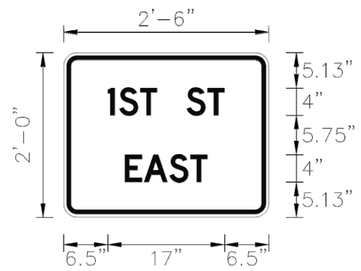
SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	100	26

SIGN NUMBER	SS1
WIDTH X HEIGHT	2'-6" x 2'-0"
BORDER WIDTH	0.63" (inset 0.47")
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Orange
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: Black

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S): none

AREA: 5 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: construction_guide.ssi

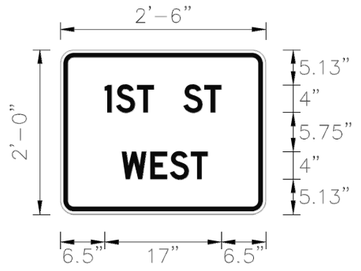
LETTER POSITION (X)							LENGTH	SIZE	SERIES
1	S	T		S	T		17.04	4	D 2000
6.48	8.16	11.2	13.8	18	21.04				
E	A	S	T				12.04	4	D 2000
8.98	11.78	15.5	18.54						

SIGN NUMBER	SS2
WIDTH X HEIGHT	2'-6" x 2'-0"
BORDER WIDTH	0.63" (inset 0.47")
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Orange
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: Black

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S): none

AREA: 5 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: construction_guide.ssi

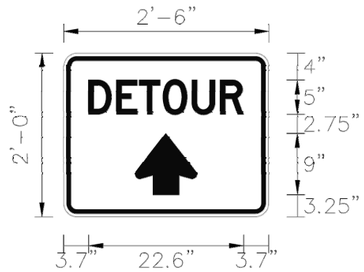
LETTER POSITION (X)							LENGTH	SIZE	SERIES
1	S	T		S	T		17.04	4	D 2000
6.48	8.16	11.2	13.8	18	21.04				
W	E	S	T				12.56	4	D 2000
8.98	13.14	16.02	19.06						

SIGN NUMBER	SS3
WIDTH X HEIGHT	2'-6" x 2'-0"
BORDER WIDTH	0.63" (inset 0.47")
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Orange
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: Black

SYMBOL	X	Y	WID	HT	ANGLE
Up Arrow Construction	10.5	3.25	9	9	0

STATION(S): none

AREA: 5 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: construction_guide.ssi

LETTER POSITION (X)							LENGTH	SIZE	SERIES
D	E	T	O	U	R		22.64	5	D 2000
3.68	7.74	11.09	14.58	18.79	22.92				

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/04/25
NORTH DAKOTA

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DOWNTOWN STREET RECONSTRUCTION

CITY OF MANDAN, NORTH DAKOTA

1ST STREET NW

KLJ

TRAFFIC CONTROL SPECIAL SIGNS

DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

Dec 04, 2025 - 1:33pm - K:\Projects\City\ND\Mandan\1904-02191-MandanDowntownSID236\CAD\Design\Plans\Sections\100\1904-02191_100WZ_SpecialSigns.dwg

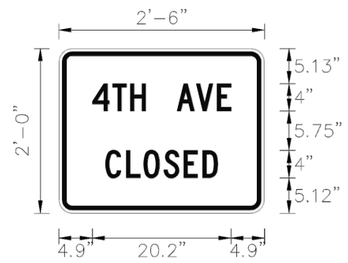
SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	100	27

SIGN NUMBER	SS4
WIDTH X HEIGHT	2'-6" x 2'-0"
BORDER WIDTH	0.63" (inset 0.47")
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Orange
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: Black

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S):
none

AREA: 5 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: construction_guide.sst

LETTER POSITION (X)							LENGTH	SIZE	SERIES
4	T	H		A	V	E	20.24	4	C 2000
4.88	7.84	10.44	13.12	17.24	20.04	23.08			
C	L	O	S	E	D		16.4	4	C 2000
6.8	9.84	12.36	15.32	18.24	20.96				

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/04/25
NORTH DAKOTA

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

KLJ

TRAFFIC CONTROL SPECIAL SIGNS

DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

Dec 04, 2025 - 1:34pm - K:\Projects\City\ND\Mandan\1904-02191-MandanDowntownSID236\CAD\Design\Plans\Sections\100\1904-02191_100WZ_SpecialSigns.dwg

SID 236 C.P. 2019-08	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	N.D.	UGP-1-988(052)	110	1

Station / RP	Sign No.	Assembly No.	Flat Sheet For Signs IV SF	Flat Sheet For Signs XI SF	Sign Support Length 1st LF	2nd LF	3rd LF	4th LF	Vert Clear-ance FT	Support Size	Max Post Len LF	Sleeve Length 1st LF	2nd LF	3rd LF	4th LF	Sleeve Size	Anchor EA	Anchor LF	Anchor Size	Reset Sign Panel EA	Reset Sign Support EA	Break-Away EA	Comments
1ST STREET NW																							
100+61 Rt	R1-3P-18			0.8																			
100+84 Lt	R1-3P-18			0.8																			
101+30 Rt	SA F			6.0	10.2				7.0	2.25 x 2.25 12 ga	12.9						1	4	2.5 x 2.5 12 ga				
101+52 Lt	SA 3E		17.0	6.0	11.7				7.0	2.5 x 2.5 10 ga	12.7						1	4	3 x 3 7 ga			1	
101+83 Rt	SS18	7		1.5	8.7				7.0	2 x 2 12 ga	25.5						1	4	2.25 x 2.25 12 ga				
101+99 Rt	SA B			2.5	9.7				7.0	2 x 2 12 ga	17.6						1	4	2.25 x 2.25 12 ga				
102+02 Lt	SS17	7		1.5	8.7				7.0	2 x 2 12 ga	25.5						1	4	2.25 x 2.25 12 ga				
102+50 Lt	SS16	7		1.5																			Mount on Light Standard
103+25 Rt	SS16	7		1.5																			Mount on Light Standard
103+75 Lt	SS16	7		1.5																			Mount on Light Standard
104+04 Lt	SA B			2.5	9.7				7.0	2 x 2 12 ga	17.6						1	4	2.25 x 2.25 12 ga				
104+20 Lt	SS18	7		1.5	8.7				7.0	2 x 2 12 ga	25.5						1	4	2.25 x 2.25 12 ga				
104+26 Rt	SS17	7		1.5	8.7				7.0	2 x 2 12 ga	25.5						1	4	2.25 x 2.25 12 ga				
105+53 Rt	SS18	7		1.5	8.7				7.0	2 x 2 12 ga	25.5						1	4	2.25 x 2.25 12 ga				
105+69 Rt	SA B			2.5	9.7				7.0	2 x 2 12 ga	17.6						1	4	2.25 x 2.25 12 ga				
106+04 Rt	SS16	7		1.5																			Mount on Light Standard
107+03 Lt	SS17	7		1.5	8.7				7.0	2 x 2 12 ga	25.5						1	4	2.25 x 2.25 12 ga				
107+30 Rt	SS16	7		1.5																			Mount on Light Standard
107+79 Lt	R7-8 / SS27			2.5																			Mount on Light Standard
107+96 Lt	SS18	7		1.5	8.7				7.0	2 x 2 12 ga	25.5						1	4	2.25 x 2.25 12 ga				
107+98 Rt	SS17	7		1.5	8.7				7.0	2 x 2 12 ga	25.5						1	4	2.25 x 2.25 12 ga				
108+21 Rt	SA F			6.0	10.2				7.0	2.25 x 2.25 12 ga	12.9						1	4	2.5 x 2.5 12 ga				
109+17 Lt	SA F			6.0	10.2				7.0	2.25 x 2.25 12 ga	12.9						1	4	2.5 x 2.5 12 ga				
109+39 Lt	SA A			3.0	10.2				7.0	2 x 2 12 ga	15.1						1	4	2.25 x 2.25 12 ga				
109+39 Rt	SS18	7		1.5	8.7				7.0	2 x 2 12 ga	25.5						1	4	2.25 x 2.25 12 ga				
Sub Total			17.0	59.6		**Total**	159.9										**Total**	68.0		0	0	1	
5TH AVE NW																							
50+45 Lt	SA 2E		17.0	5.2	11.2				7.0	2.5 x 2.5 10 ga	12.7						1	4	3 x 3 7 ga			1	
53+36 Rt	R1-1-30	1		5.2	9.7				7.0	2 x 2 12 ga	10.5						1	4	2.25 x 2.25 12 ga				
Sub Total			17.0	10.4		**Total**	20.9										**Total**	8.0		0	0	1	

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 11/06/25
NORTH DAKOTA

Sign Summary
Perforated Tube

Downtown Street Reconstruction

City of Mandan, North Dakota

SID 236 C.P. 2019-08	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	N.D.	UGP-1-988(052)	110	2

Station / RP	Sign No.	Assembly No.	Flat Sheet For Signs IV SF	Flat Sheet For Signs XI SF	Sign Support Length 1st LF	2nd LF	3rd LF	4th LF	Vert Clear-ance FT	Support Size	Max Post Len LF	Sleeve Length 1st LF	2nd LF	3rd LF	4th LF	Sleeve Size	Anchor EA	Anchor LF	Anchor Size	Reset Sign Panel EA	Reset Sign Support EA	Break-Away EA	Comments
4TH AVE NW																							
40+61 Lt	SA 2E		17.0	5.2	11.7				7.0	2.5 x 2.5 10 ga	13.6						1	4	3 x 3 7 ga			1	
40+74 Lt	SS20	7		1.5	8.7				7.0	2 x 2 12 ga	25.5						1	4	2.25 x 2.25 12 ga				
40+75 Rt	SA A			3.0	10.2				7.0	2 x 2 12 ga	15.1						1	4	2.25 x 2.25 12 ga				
40+95 Rt	SA B			2.5	9.7				7.0	2 x 2 12 ga	17.6						1	4	2.25 x 2.25 12 ga				
41+59 Lt	SS19	7		1.5																			Mount on Light Standard
42+04 Rt	SA E			9.0	11.2				7.0	2.25 x 2.25 12 ga	13.4						1	4	2.5 x 2.5 12 ga				
42+86 Rt	SA A			3.0	10.2				7.0	2 x 2 12 ga	15.1						1	4	2.25 x 2.25 12 ga				
42+87 Lt	SS19 / SS25			3.0																			Mount on Light Standard
43+43 Rt	SA 3E		17.0	6.0	10.2				7.0	2.25 x 2.25 12 ga	12.9						1	4	2.5 x 2.5 12 ga				
43+47 Lt	SS21 / SS26			3.0																			Mount on Light Standard
44+38 Lt	SA 3E		17.0	6.0	11.7				7.0	2.5 x 2.5 10 ga	12.7						1	4	3 x 3 7 ga			1	
47+30 Rt	R1-1-30	1		5.2	9.7				7.0	2 x 2 12 ga	10.5						1	4	2.25 x 2.25 12 ga				
Sub Total			51.0	48.9		**Total**	93.3										**Total**	36.0		0	0	2	
Grand Total			**85.0**	**118.9**		**Total**	**274.1**										**Total**	**112**	**0**	**0**	**0**	**4**	

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Sign Summary
Perforated Tube

Downtown Street Reconstruction

City of Mandan, North Dakota

SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	110	3

SPEC	CODE	BID ITEM	QTY	UNIT
762	0103	PVMT MK PAINTED-MESSAGE		
		Sta 100+00 to 104+00 (Blue Accessibility)	3	SF
762	0110	EPOXY PVMT MK 4IN LINE-GROOVED		
		Sta 100+00 to 104+00 (White)	870	LF
		Sta 100+00 to 104+00 (Blue)	107	LF
762	0131	EPOXY PVMT MK 6IN LINE-GROOVED		
		Sta 100+00 to 104+00 (White)	66	LF
		Sta 100+00 to 104+00 (Yellow)	70	LF
762	0135	EPOXY PVMT MK 24IN LINE-GROOVED		
		Sta 100+00 to 104+00 (White)	15	LF
762	1140	PVMT MK PAINTED CURB TOP & FACE		
		Sta 100+00 to 104+00 (Blue)	19	LF

INSTALL ALL WAY R1-3P-18

REMAIN STOP 4-WAY REMOVE
STA 100+84 LT

REMOVE STOP 4-WAY
STA 101+51 LT

REMOVE NO PARKING MON-WED-FRI 1AM-7AM
STA 101+48 LT

INSTALL 1st St NW SS11(2) 6th Ave NW SS14(2) STOP ALL WAY
R1-1-30
R1-3P-18
SPECIAL ASSEMBLY 3E
STA 101+52 LT

INSTALL NO PARKING MON, WED, & FRI 1AM - 7AM
SS17
ASSEMBLY 7
STA 102+02 LT

INSTALL NO PARKING MON, WED, & FRI 1AM - 7AM
SS16
LIGHT POLE MOUNTED
STA 102+50 LT

REMOVE NO PARKING MON-WED-FRI 1AM - 7AM
STA 103+43 LT

INSTALL NO PARKING MON, WED, & FRI 1AM - 7AM
SS16
LIGHT POLE MOUNTED
STA 103+75 LT

DAKOTA PHYSICAL THERAPY

TEMP ESMT

604

BLUE PVMT MK CURB TOP & FACE 3 LF

SHEET 1
SHEET 2

BP: 100+00.00

100+00

RESTRIPE EXST PVMT MARKINGS SEE SECTION 10

101+00

102+00

103+00

104+00

67.2'

4'

6'

26.0'

1ST STREET NW

6" YELLOW BARRIER 10' LINE, 30' SKIP

19.0'

9.0'

45°

11.0'

5.0'

6TH AVENUE NW

BLUE PVMT MK CURB TOP & FACE 16 LF

TEMP ESMT

511

RUNNINGS PARKING LOT

REMAIN STOP 4-WAY REMOVE
STA 100+61 RT

REMAIN 6TH AVE NW 1ST ST NW
STA 100+78 RT

REMOVE STOP 4-WAY
STA 101+30 RT

INSTALL ALL WAY R1-3P-18

INSTALL STOP ALL WAY
R1-1-30
R1-3P-18
SPECIAL ASSEMBLY F
STA 101+30 RT

REMOVE NO PARKING ANY TIME
STA 101+30 RT

INSTALL NO PARKING MON, WED, & FRI 1AM - 7AM
SS18
ASSEMBLY 7
STA 101+83 RT

INSTALL RESERVED PARKING UNAUTHORIZED PARKING MANDATES $100 FEE.
R7-8
SS27
SPECIAL ASSEMBLY B
STA 101+99 RT

REMOVE NO PARKING MON-WED-FRI 1AM - 7AM
STA 102+46 RT

INSTALL NO PARKING MON, WED, & FRI 1AM - 7AM
SS16
LIGHT POLE MOUNTED
STA 103+25 RT

LEGEND:

- 4" WHITE LINE
- 4" BLUE LINE
- 6" WHITE CROSSWALK
- PAINTED CURB TOP & FACE
- 24" WHITE STOP BAR
- BLUE PAINTED MESSAGE

N

20 0 20 40
scale 1"=40' feet

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/04/25
NORTH DAKOTA

Rev'd.
Rev'd.
Rev'd.
Rev'd.

DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

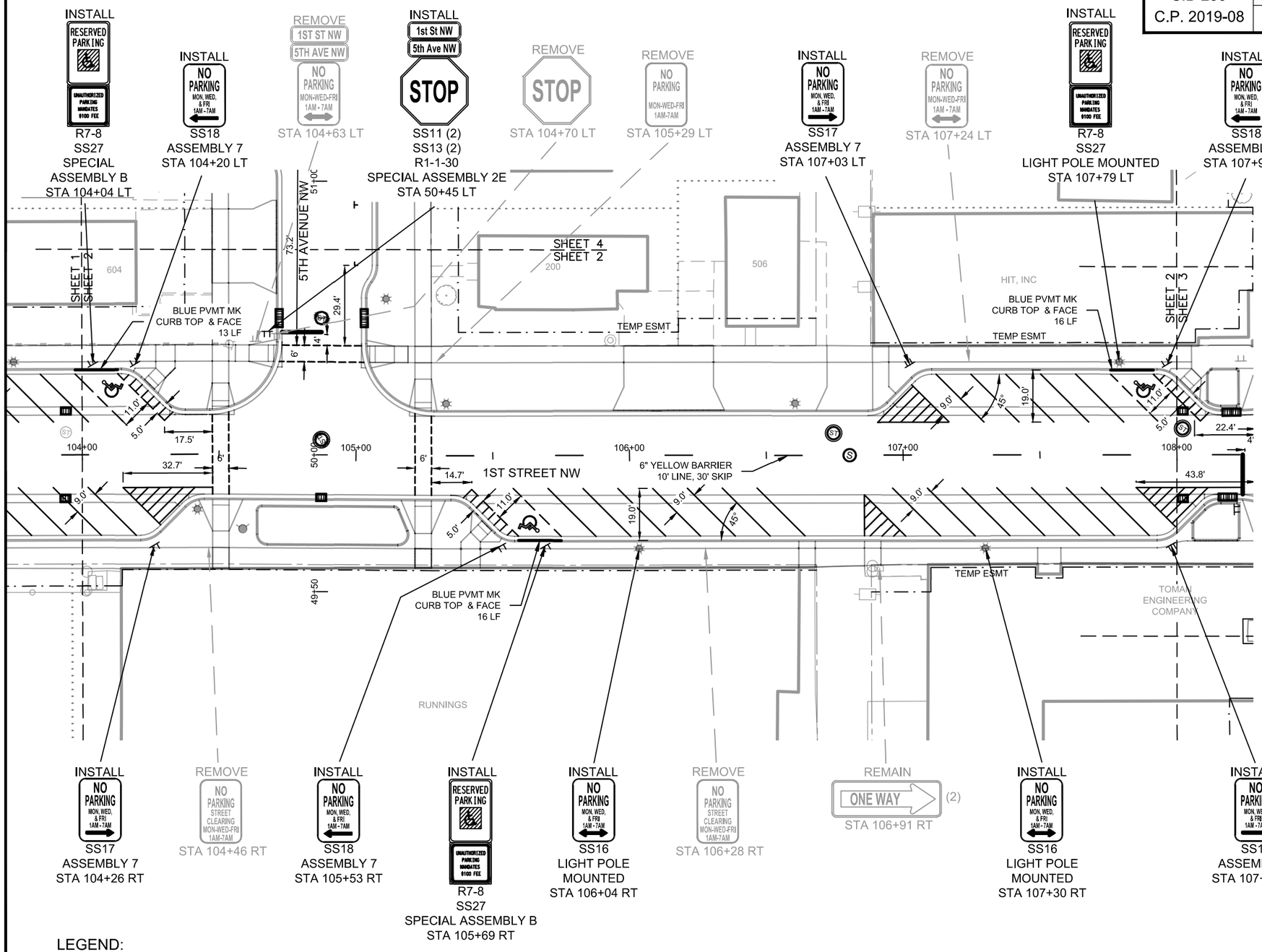
KLJ

SIGNING & PAVEMENT MARKING LAYOUT STA. 100+00 TO 104+00

DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

Dec 04, 2025 - 1:36pm - K:\Projects\City\ND\Mandan\1904-02191-MandanDowntownSID236\CAD\Design\Plans\Sections\110\1904-02191_110SN.dwg

SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	110	4



SPEC	CODE	BID ITEM	QTY	UNIT
762	0103	PVMT MK PAINTED-MESSAGE		
		Sta 104+00 to 108+00 (Blue Accessibility)	9	SF
		Sta 104+00 to 108+00 (White End Block)	1	SF
762	0110	EPOXY PVMT MK 4IN LINE-GROOVED		
		Sta 104+00 to 108+00 (White)	909	LF
		Sta 104+00 to 108+00 (Blue)	229	LF
762	0131	EPOXY PVMT MK 6IN LINE-GROOVED		
		Sta 104+00 to 108+00 (White)	178	LF
		Sta 104+00 to 108+00 (Yellow)	80	LF
762	0135	EPOXY PVMT MK 24IN LINE-GROOVED		
		Sta 104+00 to 108+00 (White)	15	LF
762	1140	PVMT MK PAINTED CURB TOP & FACE		
		Sta 104+00 to 108+00 (Blue)	45	LF

N

20 0 20 40
scale 1"=40' feet

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/04/25
NORTH DAKOTA

Rev'd.
Rev'd.
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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

KLJ

SIGNING & PAVEMENT MARKING LAYOUT STA. 104+00 TO 108+00

DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

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SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	110	5

SPEC	CODE	BID ITEM	QTY	UNIT
762	0103	PVMT MK PAINTED-MESSAGE		
		Sta 108+00 to 112+00 (White End Block)	1	SF
762	0110	EPOXY PVMT MK 4IN LINE-GROOVED		
		Sta 108+00 to 112+00 (White)	68	LF
		Sta 108+00 to 112+00 (Blue)	52	LF
762	0131	EPOXY PVMT MK 6IN LINE-GROOVED		
		Sta 108+00 to 112+00 (White)	250	LF
		Sta 108+00 to 112+00 (Yellow)	30	LF
762	0135	EPOXY PVMT MK 24IN LINE-GROOVED		
		Sta 108+00 to 112+00 (White)	58	LF
762	1104	PVMT MK PAINTED 4IN LINE		
		Sta 108+00 to 112+00 (Yellow)	138	LF

REMOVE
1ST ST NW (2)
4TH AVE NW (2)
NO PARKING MON-WED-FRI 1AM - 7AM
STA 108+23 LT

REMOVE
STOP 4-WAY
STA 44+36 LT

INSTALL
1st St NW
4th Ave NW
STOP ALL WAY
SS11 (2)
SS12 (2)
R1-1-30
R1-3P-18
SPECIAL ASSEMBLY 3E
STA 44+38 LT

REMOVE
NO PARKING MON-WED-FRI 1AM - 7AM
RESET
90 MIN PARKING 8:00 AM TO 5:00 PM
STA 109+10 LT

REMOVE
STOP 4-WAY
STA 109+14 LT

INSTALL
STOP ALL WAY
R1-1-30
R1-3P-18
SPECIAL ASSEMBLY F
STA 109+17 LT

INSTALL
NO PARKING MON, WED, & FRI 1AM - 7AM
90 MIN PARKING 8:00 AM TO 5:00 PM
SS17
SS23
SPECIAL ASSEMBLY A
STA 109+39 LT

HIT, INC
SPINECARE CHIROPRACTIC
ANYTIME FITNESS
PULKRABEK LAW OFFICES
SHEET 2 SHEET 3
SHEET 6 SHEET 3
34.7'
31.9'
4'
YELLOW MARKINGS TO MATCH EXST
11.0'
5.0'
22.4'
8.5'
4'
108+00
44+00
109+00
110+00
111+00
112+00
1ST STREET NW
6" YELLOW BARRIER 10' LINE, 30' SKIP
43.8'
3RD AVENUE NW
TOMAN ENGINEERING COMPANY
BEYOND THE BLOOMS
4TH AVENUE NW
20.0'
76.9'
43+00
SHEET 3 SHEET 5
ELKS PARKING LOT

REMOVE
NO PARKING MON-WED-FRI 1AM-7AM
NO PARKING TUES - THURS 1AM - 7AM
STOP 4-WAY
STA 108+28 RT

INSTALL
STOP ALL WAY
R1-1-30
R1-3P-18
SPECIAL ASSEMBLY F
STA 108+21 RT

INSTALL
NO PARKING TUES & THURS 1AM - 7AM
90 MIN PARKING 8:00 AM TO 5:00 PM
SS21
SS26
LIGHT POLE MOUNTED
STA 43+47 LT

INSTALL
1st St NW
4th Ave NW
STOP ALL WAY
SS11 (2)
SS12 (2)
R1-1-30
R1-3P-18
SPECIAL ASSEMBLY 3E
STA 43+43 RT

REMOVE
STOP 4-WAY
NO PARKING TUES - THURS 1AM - 7AM
90 MIN PARKING 8:00 AM TO 5:00 PM
RESET
STA 109+05 RT

REMOVE
NO PARKING STREET CLEARING MON-WED-FRI 1AM-7AM
STA 109+33 RT

INSTALL
NO PARKING MON, WED, & FRI 1AM - 7AM
SS18
ASSEMBLY 7
STA 109+39 RT

LEGEND:
- 4" WHITE LINE
- 4" BLUE LINE
- 6" WHITE CROSSWALK
- PAINTED CURB TOP & FACE
- 24" WHITE STOP BAR
- BLUE PAINTED MESSAGE

N

20 0 20 40
scale 1"=40' feet

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/04/25
NORTH DAKOTA

Rev'd.
Rev'd.
Rev'd.
Rev'd.

DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

KLJ

SIGNING & PAVEMENT MARKING LAYOUT STA. 108+00 TO 112+00

DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

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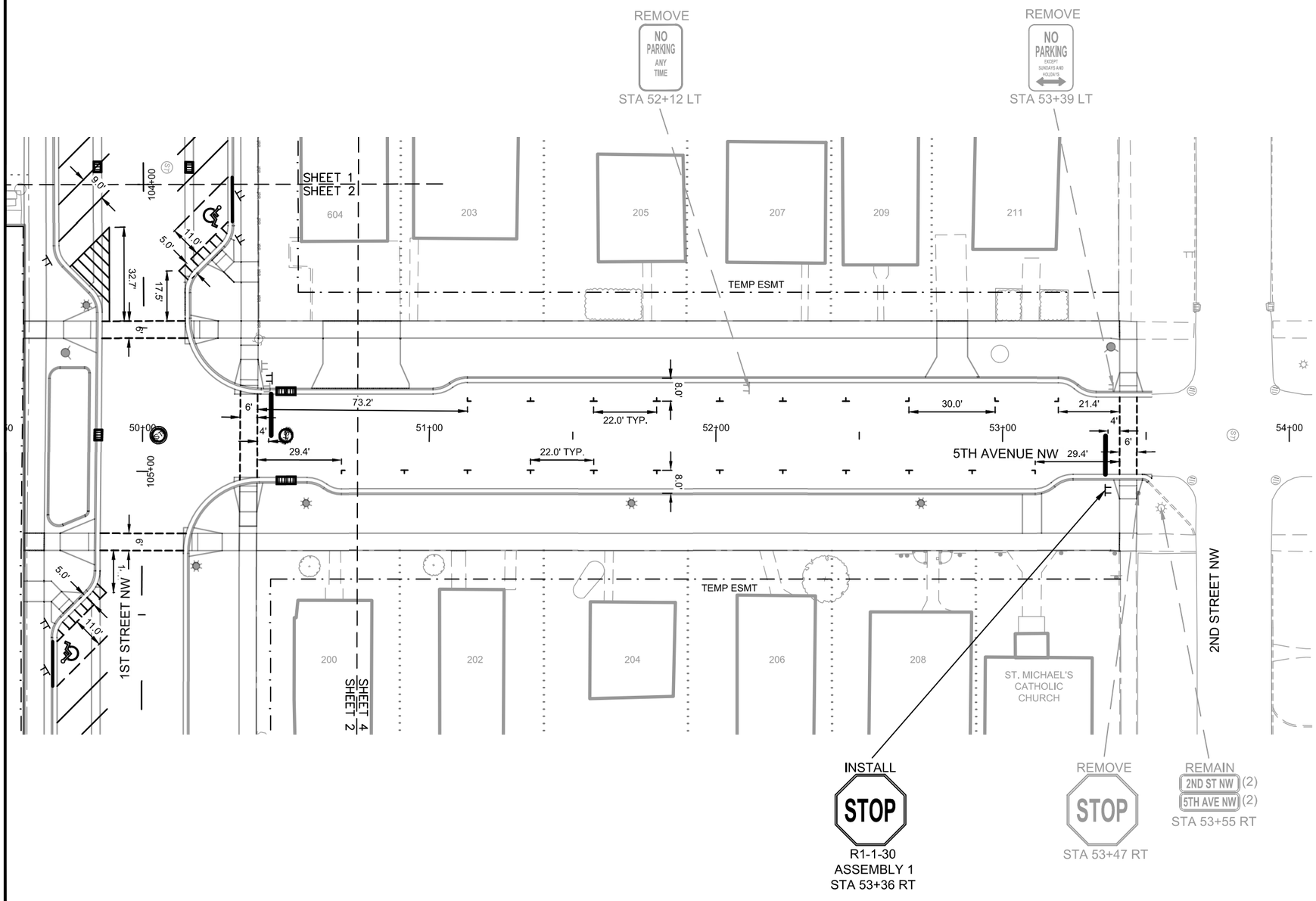
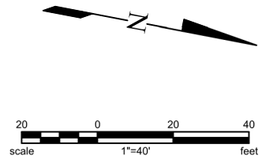
SID 236 C.P. 2019-08	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	UGP-1-988(052)	110	6

SPEC	CODE	BID ITEM	QTY	UNIT
762	0103	PVMT MK PAINTED-MESSAGE		
		Sta 50+75 to 54+00 (White Mid Block)	18	SF
		Sta 50+75 to 54+00 (White End Block)	4	SF
762	0131	EPOXY PVMT MK 6IN LINE-GROOVED		
		Sta 50+75 to 54+00 (White)	54	LF
762	0135	EPOXY PVMT MK 24IN LINE-GROOVED		
		Sta 50+75 to 54+00 (White)	14	LF





LEGEND:

- 4" WHITE LINE
- 4" BLUE LINE
- 6" WHITE CROSSWALK
- PAINTED CURB TOP & FACE
- 24" WHITE STOP BAR
- BLUE PAINTED MESSAGE

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/04/25
NORTH DAKOTA

Rev'd.
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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
5TH AVENUE NW

KLJ

SIGNING & PAVEMENT MARKING LAYOUT STA. 50+75 TO 54+00

DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

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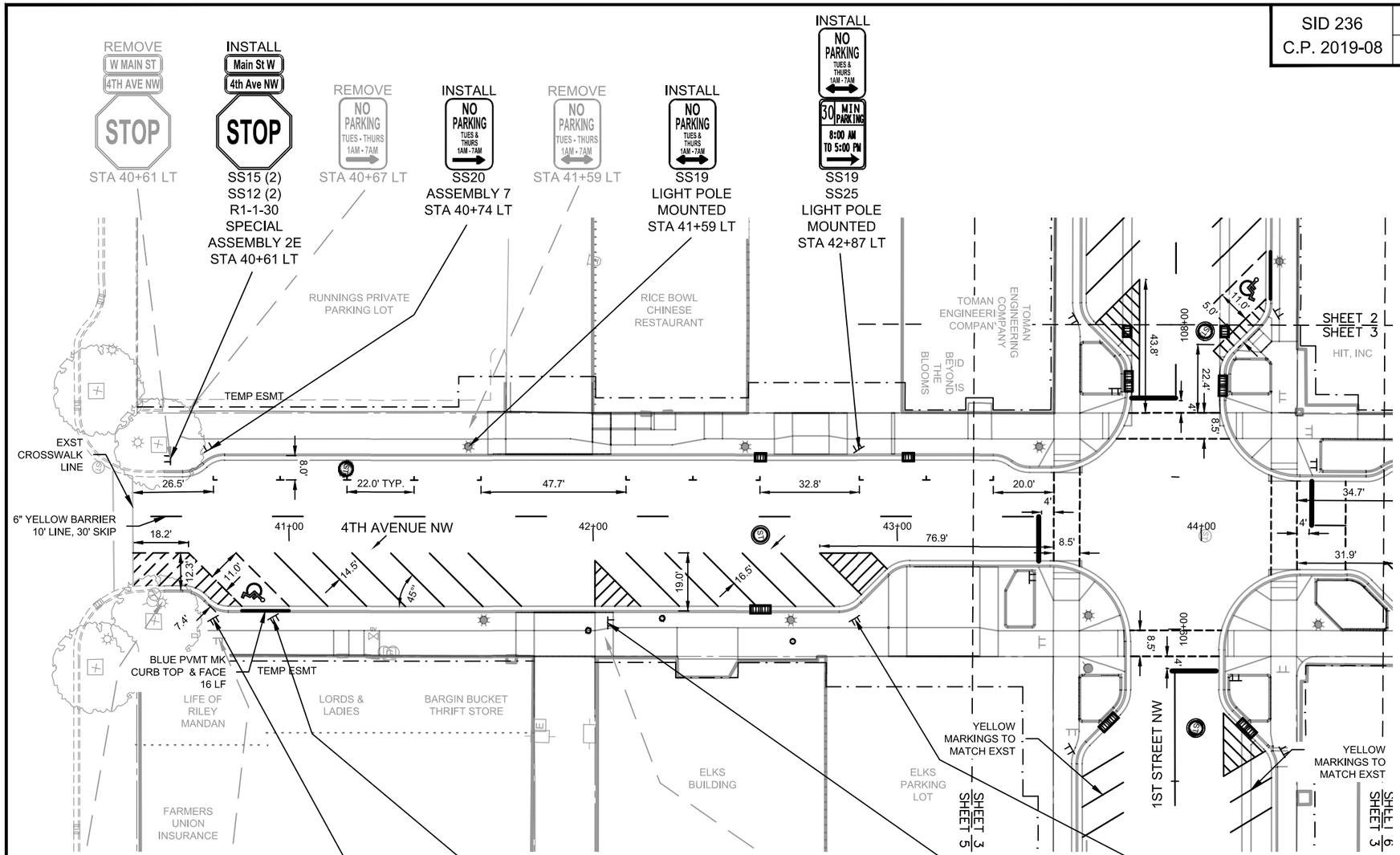
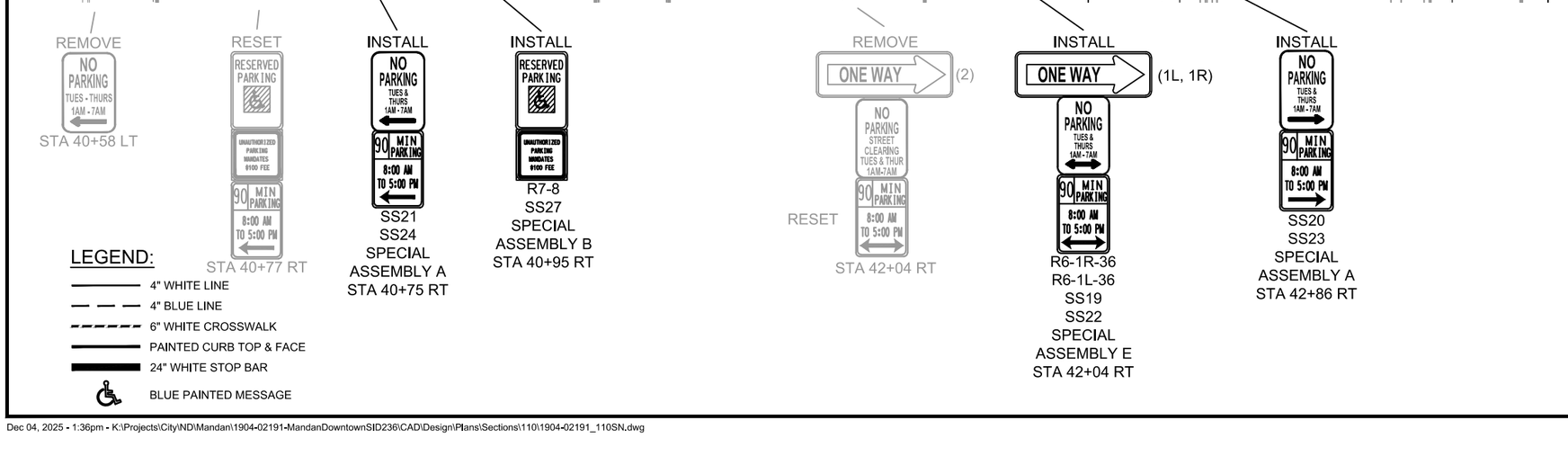
SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	110	7

SPEC	CODE	BID ITEM	QTY	UNIT
762	0103	PVMT MK PAINTED-MESSAGE		
		Sta 40+00 to 43+25 (Blue Accessibility)	3	SF
		Sta 40+00 to 43+25 (White Mid Block)	6	SF
		Sta 40+00 to 43+25 (White End Block)	4	SF
762	0110	EPOXY PVMT MK 4IN LINE-GROOVED		
		Sta 40+00 to 43+25 (White)	463	LF
		Sta 40+00 to 43+25 (Blue)	171	LF
762	0131	EPOXY PVMT MK 6IN LINE-GROOVED		
		Sta 40+00 to 43+25 (Yellow)	70	LF
762	1140	PVMT MK PAINTED CURB TOP & FACE		
		Sta 40+00 to 43+25 (Blue)	16	LF
				LF





REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/04/25
NORTH DAKOTA

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Rev'd.
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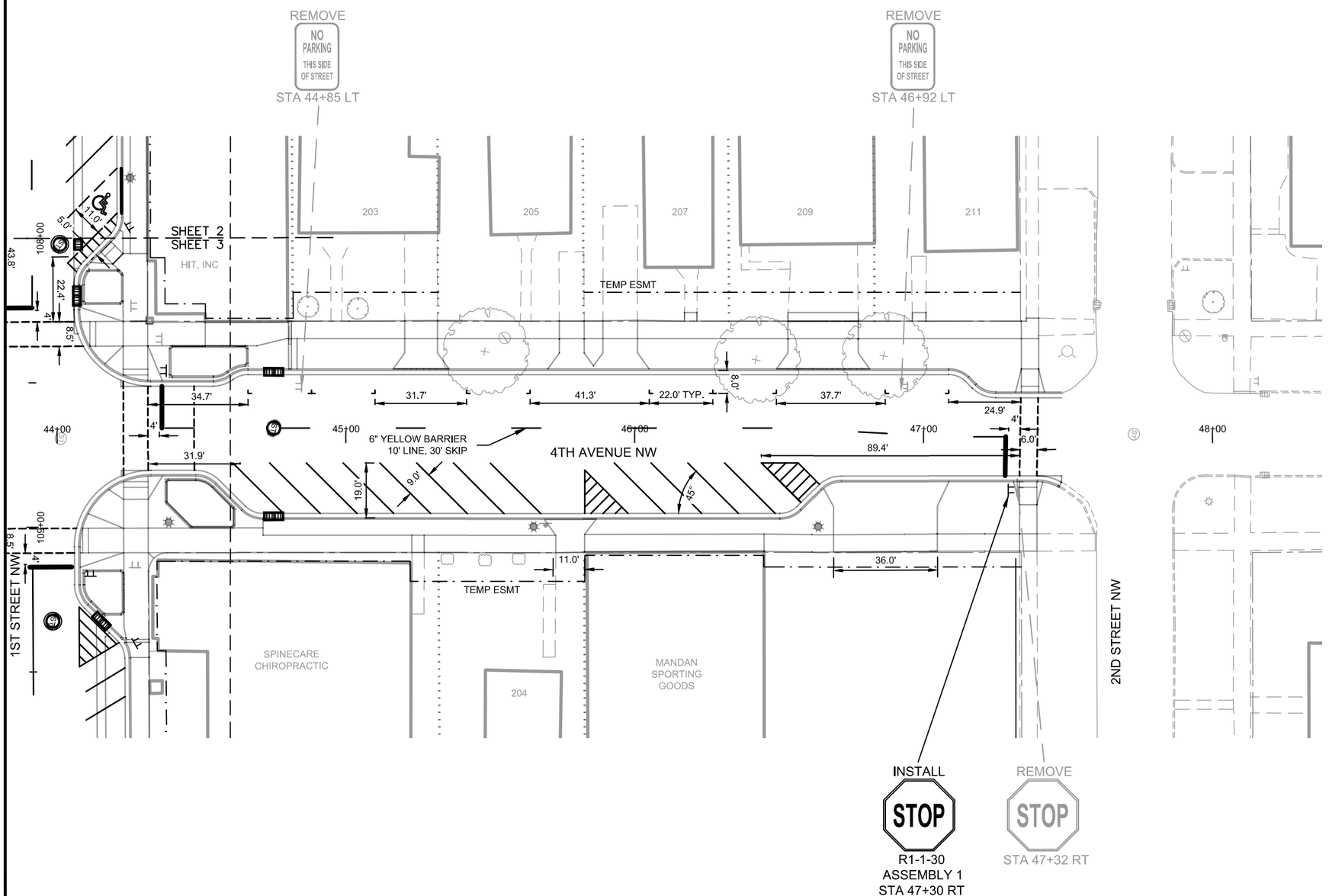
DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
4TH AVENUE NW

KLJ

SIGNING & PAVEMENT MARKING LAYOUT STA. 40+00 TO 43+25

DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	110	8



SPEC	CODE	BID ITEM	QTY	UNIT
762	0103	PVMT MK PAINTED-MESSAGE		
		Sta 44+60 to 47+50 (White Mid Block)	4	SF
		Sta 44+60 to 47+50 (White End Block)	7	SF
762	0110	EPOXY PVMT MK 4IN LINE-GROOVED		
		Sta 44+60 to 47+50 (White)	503	LF
762	0131	EPOXY PVMT MK 6IN LINE-GROOVED		
		Sta 44+60 to 47+50 (White)	54	LF
		Sta 44+60 to 47+50 (Yellow)	70	LF
762	0135	EPOXY PVMT MK 24IN LINE-GROOVED		
		Sta 44+60 to 47+50 (White)	14	LF

N

20 0 20 40
scale 1"=40' feet

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/04/25
NORTH DAKOTA

LEGEND:

- 4" WHITE LINE
- 4" BLUE LINE
- 6" WHITE CROSSWALK
- PAINTED CURB TOP & FACE
- 24" WHITE STOP BAR
- BLUE PAINTED MESSAGE

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
4TH AVENUE NW

KLJ

SIGNING & PAVEMENT MARKING LAYOUT STA. 44+60 TO 47+50

DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

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SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	110	9

SIGN NUMBER	SS11
WIDTH X HEIGHT	4'-0" x 1'-0"
BORDER WIDTH	0.5" (inset 0")
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S): AREA: 4 Sq.Ft.
101+52 Lt (2) - OCL_1stSt
50+45 Lt (2) - OCL_5thAve
43+43 Rt (2) - OCL_4thAve
44+38 Lt (2) - OCL_4thAve

Dimensions are in inches.tenths — Letter locations are panel edge to lower left corner

PANELSTYLE: ND_Conv_Street Name.ssi

LETTER POSITION (X)																						LENGTH	SIZE	SERIES
1	s	t		S	t		N	W														34.5	6/4.5	D 2000
6.75	9.02	12.03	14.48	19.22	23.59	26.04	31.11	35.91																

SIGN NUMBER	SS12
WIDTH X HEIGHT	4'-6" x 1'-0"
BORDER WIDTH	0.5" (inset 0")
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S): AREA: 4.5 Sq.Ft.
40+61 Lt (2) - OCL_4thAve
43+43 Rt (2) - OCL_4thAve
44+38 Lt (2) - OCL_4thAve

Dimensions are in inches.tenths — Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Conv_Street Name.ssi

LETTER POSITION (X)																						LENGTH	SIZE	SERIES
4	t	h		A	v	e		N	W													45.6	6/4.5	D 2000
4.2	9.33	12.25	16.23	20.87	26.21	30.85	34.59	39.66	44.46															

SIGN NUMBER	SS13
WIDTH X HEIGHT	4'-6" x 1'-0"
BORDER WIDTH	0.5" (inset 0")
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S): AREA: 4.5 Sq.Ft.
50+45 Lt (2) - OCL_5thAve

Dimensions are in inches.tenths — Letter locations are panel edge to lower left corner

PANELSTYLE: ND_Conv_Street Name.ssi

LETTER POSITION (X)																						LENGTH	SIZE	SERIES
5	t	h		A	v	e		N	W													45.08	6/4.5	D 2000
4.46	9.07	11.99	15.97	20.61	25.95	30.59	34.33	39.4	44.2															

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/04/25
NORTH DAKOTA

Rev'd.	
Rev'd.	
Rev'd.	
Rev'd.	

DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
4TH AVENUE NW

KLJ

PERMANENT SIGNING SPECIAL SIGNS

DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	110	10

SIGN NUMBER	SS14
WIDTH X HEIGHT	4'-6" x 1'-0"
BORDER WIDTH	0.5" (inset 0")
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S): AREA: 4.5 Sq.Ft.
101+52 Lt (2) - OCL_1stSt

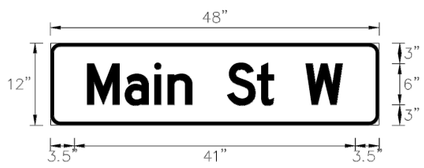
Dimensions are in inches.tenths
Letter locations are panel edge to lower left corner
PANEL STYLE: ND_Conv_Street Name.ssi

LETTER POSITION (X)											LENGTH	SIZE	SERIES
6	t	h		A	v	e		N	W				
4.47	9.07	12	15.97	20.62	25.96	30.6	34.33	39.41	44.21		45.09	6/4.5	D 2000

SIGN NUMBER	SS15
WIDTH X HEIGHT	4'-0" x 1'-0"
BORDER WIDTH	0.5" (inset 0")
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: Green
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: White

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S): AREA: 4 Sq.Ft.
40+61 Lt (2) - OCL_4thAve



Dimensions are in inches.tenths
Letter locations are panel edge to lower left corner
PANEL STYLE: ND_Conv_Street Name.ssi

LETTER POSITION (X)											LENGTH	SIZE	SERIES
M	a	i	n		S	t		W					
5.38	10.87	15.21	17.13	21.1	25.84	30.21	32.65	37.3			37.26	6/4.5	D 2000

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/04/25
NORTH DAKOTA

Rev'd.
Rev'd.
Rev'd.
Rev'd.

DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
4TH AVENUE NW

KLJ

PERMANENT SIGNING SPECIAL SIGNS

DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

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SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	110	11

SIGN NUMBER	SS16
WIDTH X HEIGHT	1'-0" x 1'-6"
BORDER WIDTH	0.38" (inset 0.38")
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: White
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: Red

SYMBOL	X	Y	WID	HT	ANGLE
ND_0.75IN_DBL	2.13	1.5	7.75	2	0

STATION(S):
102+50 Lt - OCL_1stSt
103+25 Rt - OCL_1stSt
103+75 Lt - OCL_1stSt
106+04 Rt - OCL_1stSt
107+30 Rt - OCL_1stSt

AREA: 1.5 Sq.Ft.

Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Reg_12_Small_Red_Parking.ssl

LETTER POSITION (X)																								LENGTH	SIZE	SERIES
N	O																							4	3	C 2000
4	6.23																									
P	A	R	K	I	N	G																		9.75	3	B 2000
1.13	2.5	4.31	5.82	7.35	8.04	9.59																				
M	O	N	,	W	E	D	,																	5.95	1	C 2000
3.03	3.89	4.68	5.39	6.55	7.45	8.13	8.82																			
&		F	R	I																				3.5	1	C 2000
4.26	5.13	6.24	6.89	7.62																						
1	A	M		-		7	A	M																6.46	1	C 2000
2.78	3.13	3.91	4.68	5.71	6.09	7.12	7.8	8.58																		

SIGN NUMBER	SS18
WIDTH X HEIGHT	1'-0" x 1'-6"
BORDER WIDTH	0.38" (inset 0.38")
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: White
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: Red

SYMBOL	X	Y	WID	HT	ANGLE
ND_0.75IN	2.13	1.5	2	7.75	90

STATION(S):
101+83 Rt - OCL_1stSt
104+20 Lt - OCL_1stSt
105+53 Rt - OCL_1stSt
107+96 Lt - OCL_1stSt

AREA: 1.5 Sq.Ft.

Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Reg_12_Small_Red_Parking.ssl

LETTER POSITION (X)																								LENGTH	SIZE	SERIES
N	O																							4	3	C 2000
4	6.23																									
P	A	R	K	I	N	G																		9.75	3	B 2000
1.13	2.5	4.31	5.81	7.35	8.04	9.59																				
M	O	N	,	W	E	D	,																	5.95	1	C 2000
3.03	3.89	4.68	5.39	6.54	7.44	8.12	8.81																			
&		F	R	I																				3.5	1	C 2000
4.25	5.12	6.23	6.88	7.61																						
1	A	M		-		7	A	M																6.46	1	C 2000
2.77	3.12	3.9	4.67	5.7	6.08	7.11	7.79	8.57																		

SIGN NUMBER	SS17
WIDTH X HEIGHT	1'-0" x 1'-6"
BORDER WIDTH	0.38" (inset 0.38")
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: White
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: Red

SYMBOL	X	Y	WID	HT	ANGLE
ND_0.75IN	2.12	1.5	2	7.76	270

STATION(S):
102+02 Lt - OCL_1stSt
104+26 Rt - OCL_1stSt
107+03 Lt - OCL_1stSt
107+98 Rt - OCL_1stSt
109+39 Lt - OCL_1stSt

AREA: 1.5 Sq.Ft.

Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Reg_12_Small_Red_Parking.ssl

LETTER POSITION (X)																								LENGTH	SIZE	SERIES
N	O																							4	3	C 2000
4	6.23																									
P	A	R	K	I	N	G																		9.75	3	B 2000
1.13	2.5	4.31	5.81	7.35	8.04	9.59																				
M	O	N	,	W	E	D	,																	5.95	1	C 2000
3.03	3.89	4.68	5.39	6.54	7.44	8.12	8.81																			
&		F	R	I																				3.5	1	C 2000
4.25	5.12	6.23	6.88	7.61																						
1	A	M		-		7	A	M																6.46	1	C 2000
2.77	3.12	3.9	4.67	5.7	6.08	7.11	7.79	8.57																		

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DOWNTOWN STREET RECONSTRUCTION

CITY OF MANDAN, NORTH DAKOTA

4TH AVENUE NW

KLJ

PERMANENT SIGNING SPECIAL SIGNS

DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	110	12

SIGN NUMBER	SS19
WIDTH X HEIGHT	1'-0" x 1'-6"
BORDER WIDTH	0.38" (inset 0.38")
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: White
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: Red

SYMBOL	X	Y	WID	HT	ANGLE
ND_0.75IN_DBL	2.13	1.5	7.75	2	0

STATION(S):
41+39 Rt - OCL_4thAve
41+59 Lt - OCL_4thAve
42+04 Rt - OCL_4thAve
42+87 Lt - OCL_4thAve

AREA: 1.5 Sq.Ft.

Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Reg_12_Small_Red_Parking.sst

LETTER POSITION (X)																						LENGTH	SIZE	SERIES
N	O																					4	3	C 2000
4	6.23																							
P	A	R	K	I	N	G																9.75	3	B 2000
1.13	2.5	4.31	5.81	7.35	8.04	9.59																		
T	U	E	S		&																	4.64	1	C 2000
3.68	4.33	5.11	5.74	6.36	7.45																			
T	H	U	R	S																		3.45	1	C 2000
4.27	4.92	5.7	6.48	7.16																				
1	A	M		-		7	A	M														6.46	1	C 2000
2.77	3.12	3.9	4.67	5.7	6.08	7.11	7.79	8.57																

SIGN NUMBER	SS21
WIDTH X HEIGHT	1'-0" x 1'-6"
BORDER WIDTH	0.38" (inset 0.38")
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: White
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: Red

SYMBOL	X	Y	WID	HT	ANGLE
ND_0.75IN	2.13	1.5	2	7.75	90

STATION(S):
40+75 Rt - OCL_4thAve
43+47 Lt - OCL_4thAve

AREA: 1.5 Sq.Ft.

Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Reg_12_Small_Red_Parking.sst

LETTER POSITION (X)																						LENGTH	SIZE	SERIES
N	O																					4	3	C 2000
4	6.23																							
P	A	R	K	I	N	G																9.75	3	B 2000
1.13	2.5	4.31	5.82	7.35	8.04	9.59																		
T	U	E	S		&																	4.64	1	C 2000
3.68	4.33	5.11	5.74	6.36	7.45																			
T	H	U	R	S																		3.45	1	C 2000
4.28	4.93	5.71	6.49	7.17																				
1	A	M		-		7	A	M														6.46	1	C 2000
2.77	3.12	3.9	4.67	5.7	6.08	7.11	7.79	8.57																

SIGN NUMBER	SS20
WIDTH X HEIGHT	1'-0" x 1'-6"
BORDER WIDTH	0.38" (inset 0.38")
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: IV Reflective
	COLOR: White
LEGEND/BORDER	TYPE: IV Reflective
	COLOR: Red

SYMBOL	X	Y	WID	HT	ANGLE
ND_0.75IN	2.12	1.5	2	7.76	270

STATION(S):
40+74 Lt - OCL_4thAve
42+86 Rt - OCL_4thAve

AREA: 1.5 Sq.Ft.

Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Reg_12_Small_Red_Parking.sst

LETTER POSITION (X)																						LENGTH	SIZE	SERIES
N	O																					4	3	C 2000
4	6.23																							
P	A	R	K	I	N	G																9.75	3	B 2000
1.13	2.5	4.31	5.82	7.35	8.04	9.59																		
T	U	E	S		&																	4.64	1	C 2000
3.68	4.33	5.11	5.74	6.36	7.45																			
T	H	U	R	S																		3.45	1	C 2000
4.28	4.93	5.71	6.49	7.17																				
1	A	M		-		7	A	M														6.46	1	C 2000
2.77	3.12	3.9	4.67	5.7	6.08	7.11	7.79	8.57																

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/04/25
NORTH DAKOTA

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
4TH AVENUE NW

KLJ

PERMANENT SIGNING SPECIAL SIGNS

DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

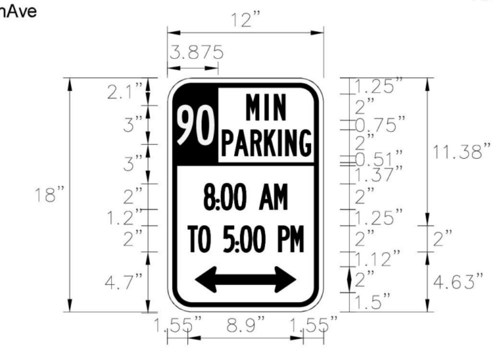
SID 236 C.P. 2019-08	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	UGP-1-988(052)	110	13

SIGN NUMBER	SS22
WIDTH X HEIGHT	1'-0" x 1'-6"
BORDER WIDTH	0.38" (inset 0.38")
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: XI Reflective
	COLOR: White
LEGEND/BORDER	TYPE: XI Reflective
	COLOR: Green

SYMBOL	X	Y	WID	HT	ANGLE
ND_0.75IN_DBL	2.13	1.5	7.75	2	0

STATION(S):
42+04 Rt - OCL_4thAve

AREA: 1.5 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Reg_12_Small_Green_Parking.ssi

LETTER POSITION (X)

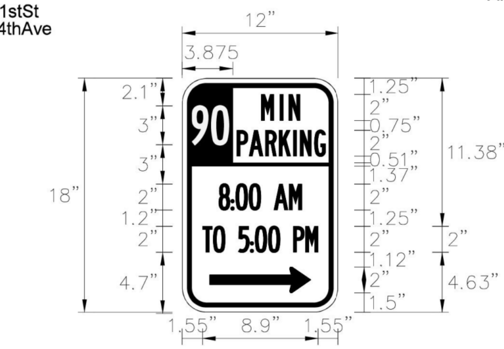
								LENGTH	SIZE	SERIES
M	I	N								
6.07	7.49	8.19						2.98	2	B 2000
9	0									
0.72	2.22							2.88	3	B 2000
P	A	R	K	I	N	G				
4.2	5.13	6.38	7.44	8.52	9.05	10.15		6.81	2	B 2000
8	:	0	0	A	M					
2.81	3.73	4.11	5.13	7.05	8.21			6.38	2	B 2000
T	O	5	:	0	0	P	M			
1.56	2.39	4.31	5.22	5.59	6.6	8.52	9.46	8.88	2	B 2000

SIGN NUMBER	SS23
WIDTH X HEIGHT	1'-0" x 1'-6"
BORDER WIDTH	0.38" (inset 0.38")
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: XI Reflective
	COLOR: White
LEGEND/BORDER	TYPE: XI Reflective
	COLOR: Green

SYMBOL	X	Y	WID	HT	ANGLE
ND_0.75IN	2.13	1.5	2	7.76	270

STATION(S):
109+39 Lt - OCL_1stSt
42+86 Rt - OCL_4thAve

AREA: 1.5 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Reg_12_Small_Green_Parking.ssi

LETTER POSITION (X)

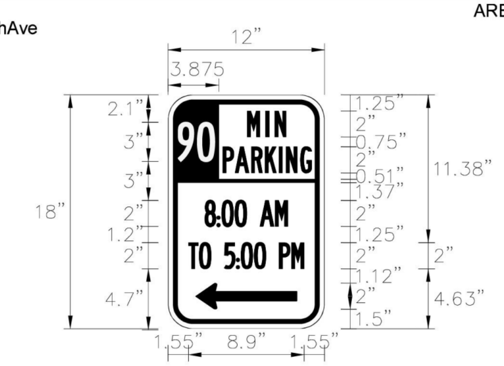
								LENGTH	SIZE	SERIES
M	I	N								
6.07	7.49	8.19						2.98	2	B 2000
9	0									
0.72	2.22							2.88	3	B 2000
P	A	R	K	I	N	G				
4.2	5.13	6.38	7.44	8.52	9.05	10.15		6.81	2	B 2000
8	:	0	0	A	M					
2.81	3.73	4.11	5.13	7.04	8.21			6.38	2	B 2000
T	O	5	:	0	0	P	M			
1.56	2.38	4.3	5.22	5.59	6.6	8.52	9.46	8.88	2	B 2000

SIGN NUMBER	SS24
WIDTH X HEIGHT	1'-0" x 1'-6"
BORDER WIDTH	0.38" (inset 0.38")
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: XI Reflective
	COLOR: White
LEGEND/BORDER	TYPE: XI Reflective
	COLOR: Green

SYMBOL	X	Y	WID	HT	ANGLE
ND_0.75IN	2.13	1.5	2	7.75	90

STATION(S):
40+75 Rt - OCL_4thAve

AREA: 1.5 Sq.Ft.



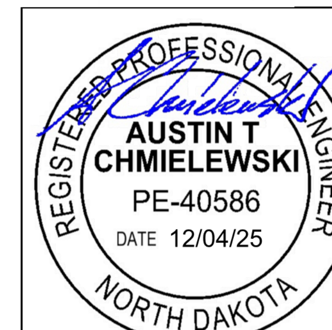
Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Reg_12_Small_Green_Parking.ssi

LETTER POSITION (X)

								LENGTH	SIZE	SERIES
M	I	N								
6.07	7.49	8.19						2.98	2	B 2000
9	0									
0.72	2.22							2.88	3	B 2000
P	A	R	K	I	N	G				
4.2	5.13	6.38	7.44	8.52	9.05	10.15		6.81	2	B 2000
8	:	0	0	A	M					
2.81	3.73	4.11	5.13	7.05	8.21			6.39	2	B 2000
T	O	5	:	0	0	P	M			
1.56	2.39	4.31	5.22	5.59	6.6	8.52	9.46	8.88	2	B 2000



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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
4TH AVENUE NW

KLJ

PERMANENT SIGNING SPECIAL SIGNS

DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

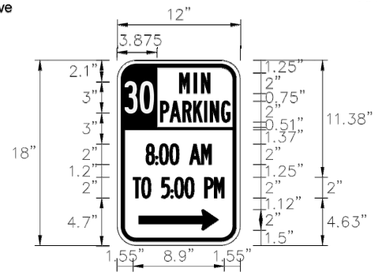
SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	110	14

SIGN NUMBER	SS25
WIDTH X HEIGHT	1'-0" x 1'-6"
BORDER WIDTH	0.38" (inset 0.38")
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: XI Reflective
	COLOR: White
LEGEND/BORDER	TYPE: XI Reflective
	COLOR: Green

SYMBOL	X	Y	WID	HT	ANGLE
ND_0.75IN	2.13	1.5	2	7.76	270
	0	0	3.53	2	0
	0	0	2.77	2	0
	0	0	3.53	2	0

STATION(S):
42+87 Lt - OCL_4thAve

AREA: 1.64 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Reg_12_Small_Green_Parking.ssl

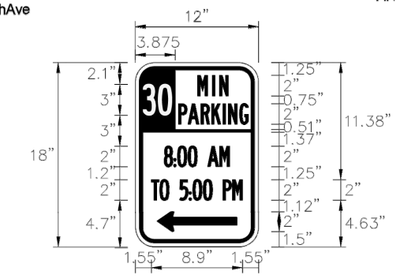
LETTER POSITION (X)																						LENGTH	SIZE	SERIES
M	I	N																				2.98	2	B 2000
6.07	7.49	8.19																						
3	0																					2.88	3	B 2000
0.72	2.22																							
P	A	R	K	I	N	G																6.81	2	B 2000
4.2	5.13	6.38	7.44	8.52	9.05	10.15																		
8	:	0	0	A	M																	6.38	2	B 2000
2.81	3.73	4.11	5.13	7.05	8.21																			
T	O	5	:	0	0	P	M															8.88	2	B 2000
1.56	2.39	4.31	5.22	5.59	6.6	8.52	9.46																	

SIGN NUMBER	SS26
WIDTH X HEIGHT	1'-0" x 1'-6"
BORDER WIDTH	0.38" (inset 0.38")
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: XI Reflective
	COLOR: White
LEGEND/BORDER	TYPE: XI Reflective
	COLOR: Green

SYMBOL	X	Y	WID	HT	ANGLE
ND_0.75IN	2.13	1.5	2	7.75	90
	0	0	3.53	2	0
	0	0	2.77	2	0
	0	0	3.53	2	0

STATION(S):
43+47 Lt - OCL_4thAve

AREA: 1.64 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Reg_12_Small_Green_Parking.ssl

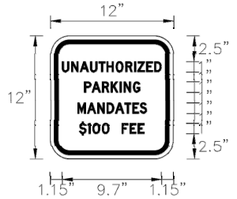
LETTER POSITION (X)																						LENGTH	SIZE	SERIES
M	I	N																				2.98	2	B 2000
6.07	7.49	8.19																						
3	0																					2.88	3	B 2000
0.72	2.22																							
P	A	R	K	I	N	G																6.81	2	B 2000
4.2	5.13	6.38	7.44	8.52	9.05	10.15																		
8	:	0	0	A	M																	6.38	2	B 2000
2.81	3.73	4.11	5.13	7.04	8.21																			
T	O	5	:	0	0	P	M															8.88	2	B 2000
1.56	2.38	4.3	5.22	5.59	6.6	8.52	9.46																	

SIGN NUMBER	SS27
WIDTH X HEIGHT	1'-0" x 1'-0"
BORDER WIDTH	0.44" (inset 0.38")
CORNER RADIUS	1.5"
MOUNTING	Ground
BACKGROUND	TYPE: XI Reflective
	COLOR: White
LEGEND/BORDER	TYPE: XI Non-reflective
	COLOR: Black

SYMBOL	X	Y	WID	HT	ANGLE

STATION(S):
101+99 Rt - OCL_1stSt
104+04 Lt - OCL_1stSt
105+69 Rt - OCL_1stSt
107+79 Lt - OCL_1stSt
40+75 Rt - OCL_4thAve

AREA: 1 Sq.Ft.



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

PANEL STYLE: ND_Reg_12_Small.ssl

LETTER POSITION (X)																						LENGTH	SIZE	SERIES
U	N	A	U	T	H	O	R	I	Z	E	D											9.68	1	D 2000
1.16	2.08	2.91	3.91	4.74	5.51	6.41	7.34	8.19	8.52	9.37	10.16													
P	A	R	K	I	N	G																5.44	1	D 2000
3.28	4.02	5.02	5.87	6.74	7.14	8.04																		
M	A	N	D	A	T	E	S															6.74	1	D 2000
2.63	3.56	4.56	5.48	6.29	7.2	7.97	8.69																	
$	1	0	0		F	E	E															6.32	1	D 2000
2.84	3.67	4.14	5.05	5.86	6.98	7.75	8.54																	

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/04/25
NORTH DAKOTA

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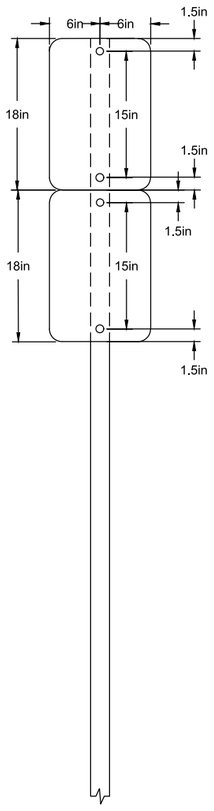
DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
4TH AVENUE NW

KLJ

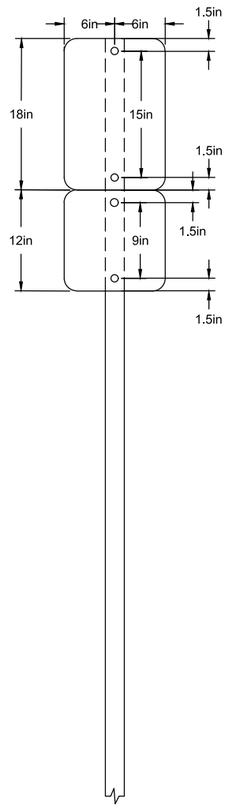
PERMANENT SIGNING SPECIAL SIGNS

DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

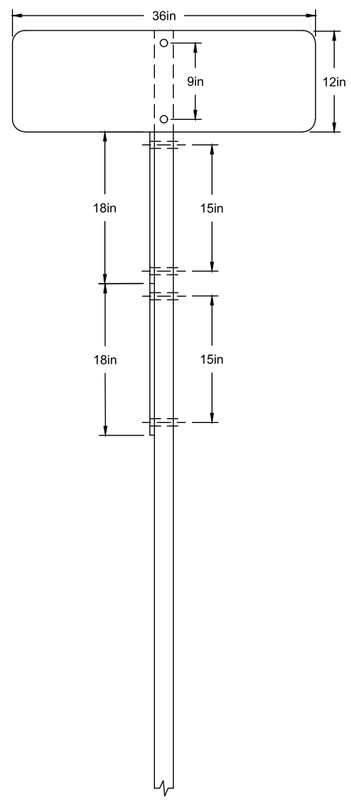
SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	110	15



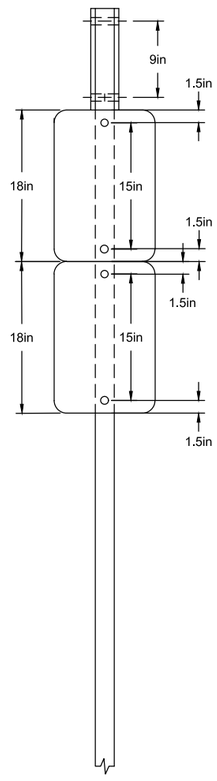
SPECIAL ASSEMBLY A
AREA = 3.0 SF
(PERFORMATED STEEL TUBE)

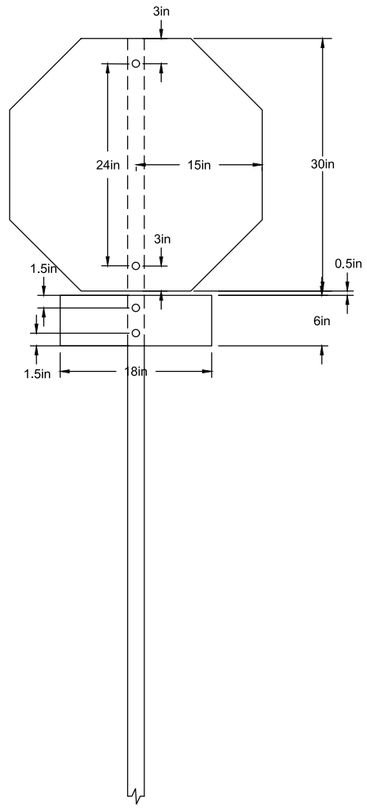


SPECIAL ASSEMBLY B
AREA = 2.5 SF
(PERFORMATED STEEL TUBE)



SPECIAL ASSEMBLY E
AREA = 6.0 SF
(PERFORMATED STEEL TUBE)





SPECIAL ASSEMBLY F
AREA = 6.0 SF
(PERFORMATED STEEL TUBE)

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 12/04/25
NORTH DAKOTA

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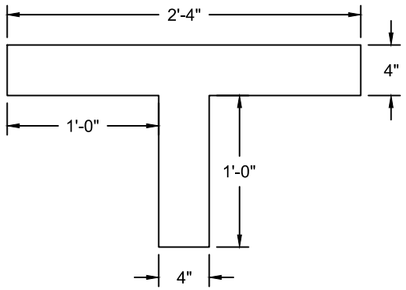
DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
4TH AVENUE NW

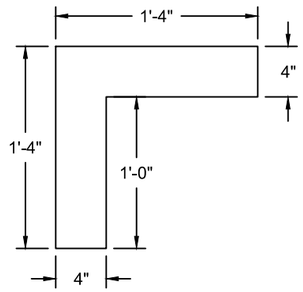
PERMANENT SIGNING SPECIAL ASSEMBLIES

DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	120	1



MID BLOCK MARKING
(1.11 SF)
NOT TO SCALE



END BLOCK MARKING
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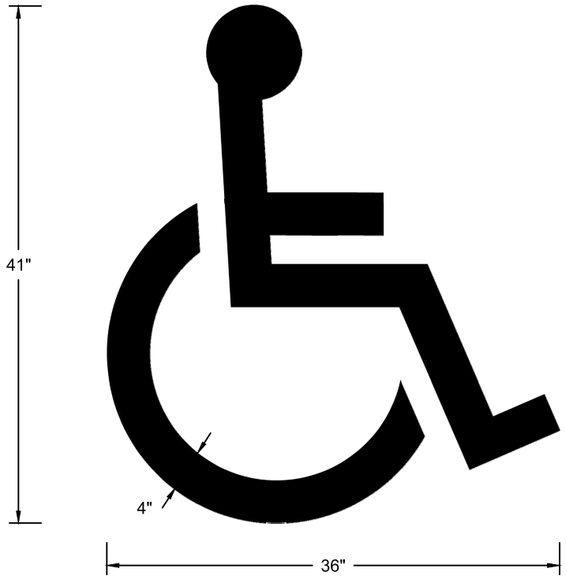

ACCESSIBILITY PARKING MARKING
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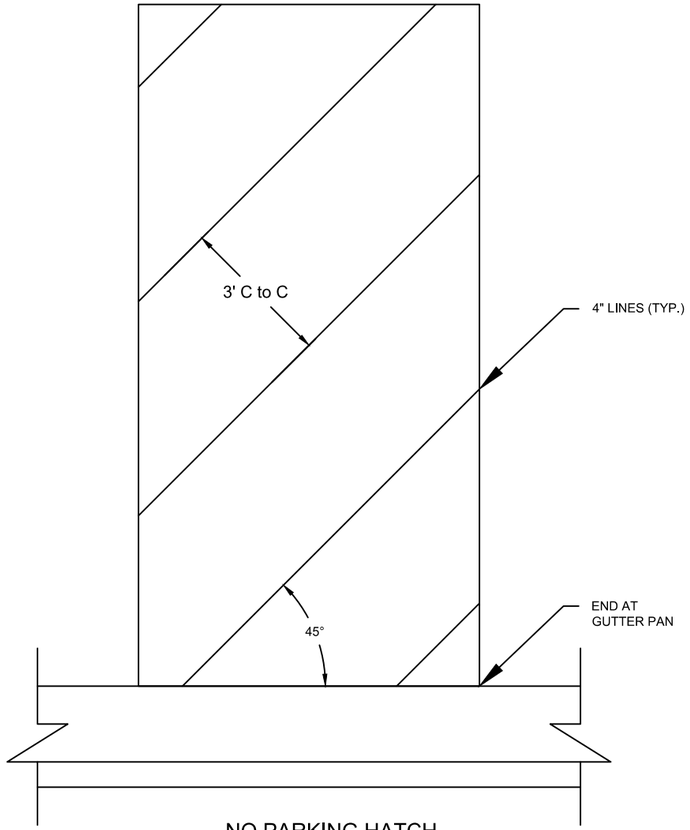
NOT TO SCALE



NO PARKING HATCH
NOT TO SCALE

NOTES:
1. PROVIDE WHITE COLOR FOR STANDARD PARKING SPACES
2. PROVIDE BLUE PAINT COLOR FOR ACCESSIBILITY PARKING SPACES

REGISTERED PROFESSIONAL ENGINEER
AUSTIN T CHMIELEWSKI
PE-40586
DATE 11/06/25
NORTH DAKOTA

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA

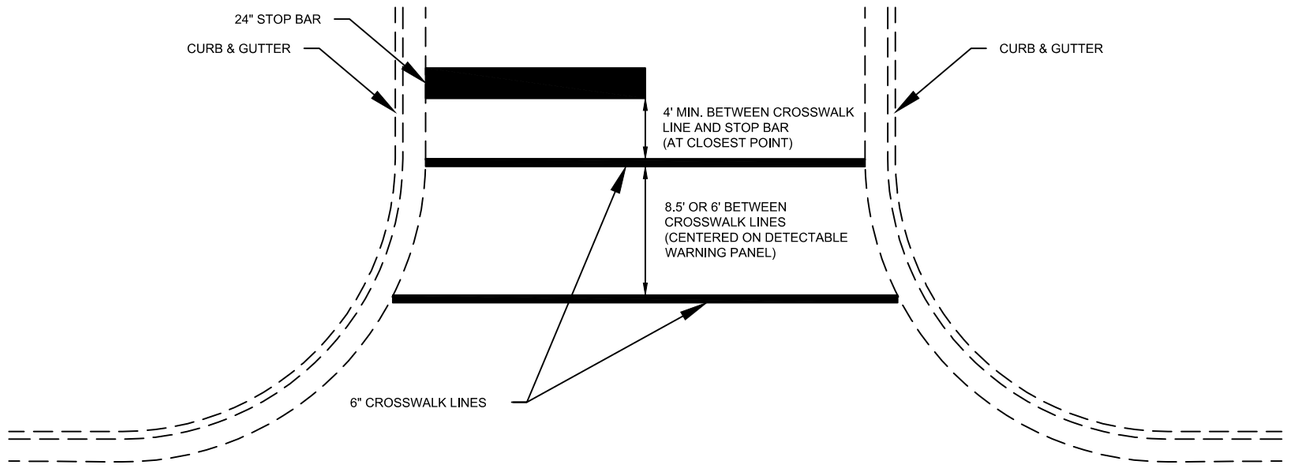
KLJ

PAVEMENT MARKING DETAILS

DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

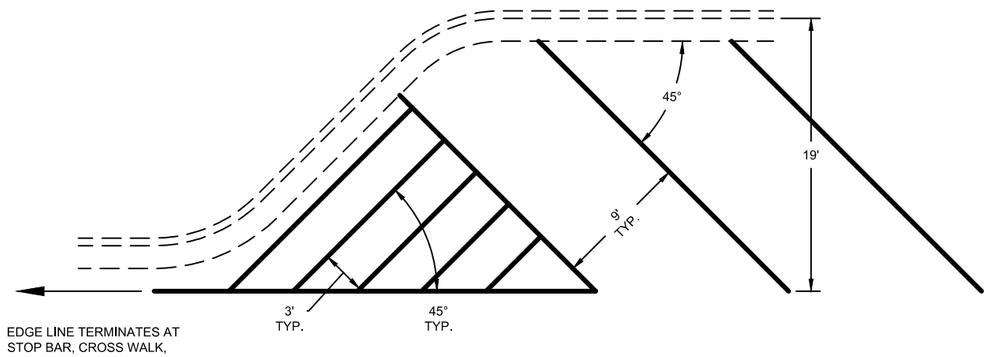
Nov 05, 2025 - 4:51pm - K:\Projects\City\ND\Mandan\1904-02191-MandanDowntownSID236\CAD\Design\Plans\Sections\120\1904-02191_120MK_MarkingDetail.dwg

SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	120	2



TYPICAL PAVEMENT MARKINGS AT CROSSWALKS

NOT TO SCALE



PARKING DETAIL

NOT TO SCALE

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DOWNTOWN STREET RECONSTRUCTION

CITY OF MANDAN, NORTH DAKOTA

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PAVEMENT MARKING DETAILS

DRWN. BY	CHK'D BY	PROJECT NO.
RB	AC	1904-02191

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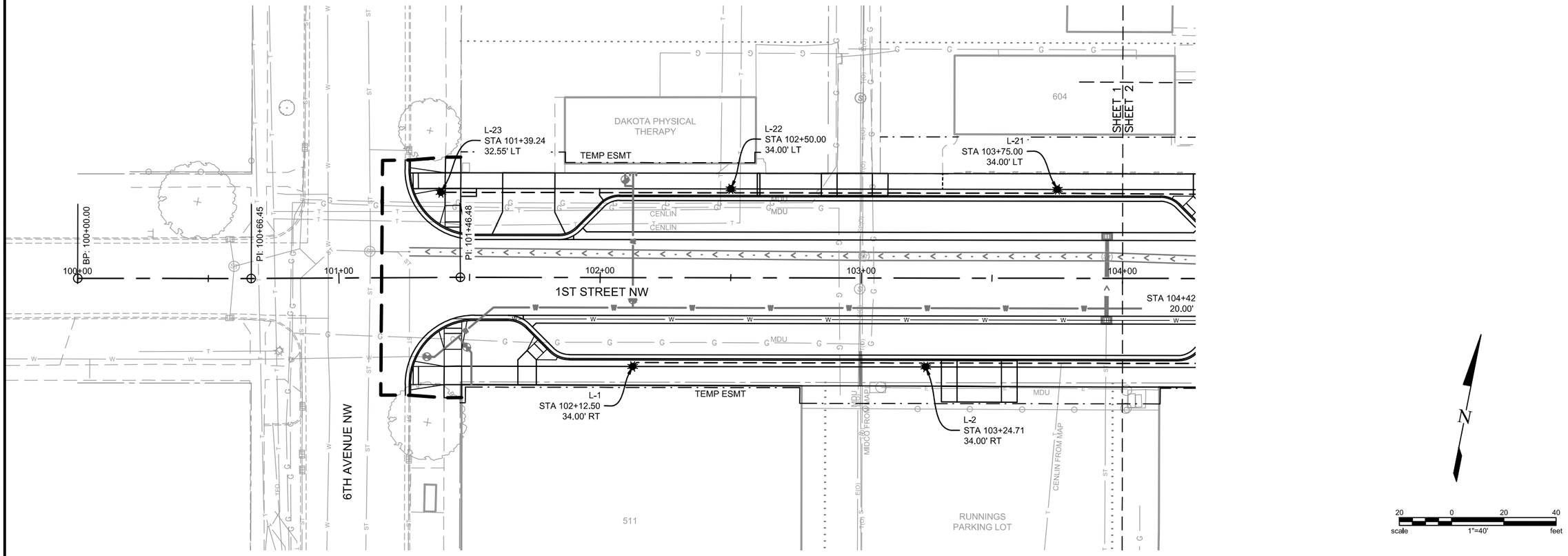
SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	140	1



LIGHTING CABLE & CONDUIT SCHEDULE

ITEM	STATION OFFSET	CONDUIT RUN TOTAL LF	CONDUIT RUN SIZE (IN)	UNDERGROUND CONDUCTOR RUN TOTAL LF	UNDERGROUND CONDUCTOR RUN SIZE/TYPE	CIRCUIT
L1	Sta 102+12.5, 34.0'Rt	114	2"	244	(2) Underground Conductor No. 6 RHW/USE (Festoon)	Phase A Outlets
to	to			244	(2) Underground Conductor No. 6 RHW/USE (Light)	LC1
L2	Sta 103+24.7, 34.0'Rt			122	(1) Underground Conductor No.6 THW (Ground)	
L2	Sta 103+24.7, 34.0'Rt	130	2"	276	(2) Underground Conductor No. 6 RHW/USE (Festoon)	Phase A Outlets
to	to			276	(2) Underground Conductor No. 6 RHW/USE (Festoon)	Phase B Outlets
				276	(2) Underground Conductor No. 6 RHW/USE (Light)	LC1
L3	Sta 104+42.0, 20.0'Rt			138	(1) Underground Conductor No.6 THW (Ground)	
L23	Sta 101+39.2, 32.6' Lt	112	2"	240	(2) Underground Conductor No. 6 RHW/USE (Festoon)	Phase A Outlets
to	to			240	(2) Underground Conductor No. 6 RHW/USE (Light)	LC2
L22	Sta 102+50.0, 34.0' Lt			120	(1) Underground Conductor No.6 THW (Ground)	
L22	Sta 102+50.0, 34.0' Lt	126	2"	268	(2) Underground Conductor No. 6 RHW/USE (Festoon)	Phase A Outlets
to	to			268	(2) Underground Conductor No. 6 RHW/USE (Festoon)	Phase B Outlets
				268	(2) Underground Conductor No. 6 RHW/USE (Light)	LC2
L21	Sta 103+75.0, 34.0' Lt			134	(1) Underground Conductor No.6 THW (Ground)	
L21	Sta 103+75.0, 34.0' Lt	160	2"	336	(2) Underground Conductor No. 6 RHW/USE (Festoon)	Phase A Outlets
to	to			336	(2) Underground Conductor No. 6 RHW/USE (Festoon)	Phase B Outlets
				336	(2) Underground Conductor No. 6 RHW/USE (Light)	LC2
L17	Sta 105+33.0, 19.0' Lt			168	(1) Underground Conductor No.6 THW (Ground)	

REGISTERED PROFESSIONAL ENGINEER
SEAL
KELLY
PE-28883
DATE 12/04/25
NORTH DAKOTA

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

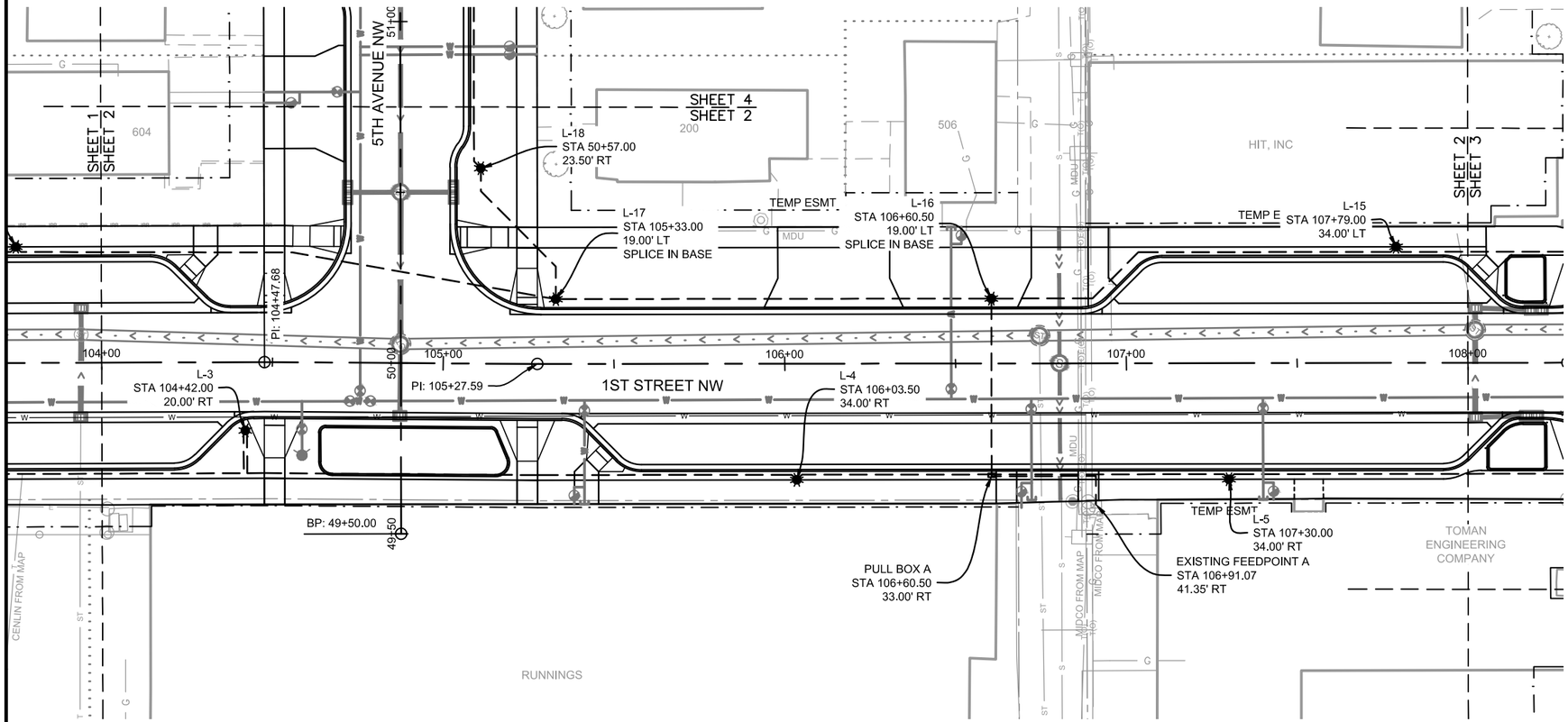
KLJ

STREET LIGHT LAYOUT
STA. 100+00 TO 104+00

DRWN. BY	CHK'D BY	PROJECT NO.
SM	AC	1904-02191

Dec 04, 2025 - 1:38pm - K:\Projects\City\ND\Mandan\1904-02191-MandanDowntownSID236\CAD\Design\Plans\Sections\140\1904-02191_140LT.dwg

SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	140	2



LIGHTING CABLE & CONDUIT SCHEDULE

ITEM	STATION OFFSET	CONDUIT RUN TOTAL LF	CONDUIT RUN SIZE (IN)	UNDERGROUND CONDUCTOR RUN TOTAL LF	UNDERGROUND CONDUCTOR RUN SIZE/TYPE	CIRCUIT
L3	Sta 104+42.0, 20.0'Rt			364	(2) Underground Conductor No. 6 RHW/USE (Festoon)	Phase A Outlets
to	to	174	2"	364	(2) Underground Conductor No. 6 RHW/USE (Festoon)	Phase B Outlets
				364	(2) Underground Conductor No. 6 RHW/USE (Light)	LC1
L4	Sta 106+03.5, 34.0'Rt			182	(1) Underground Conductor No.6 THW (Ground)	
L4	Sta 106+03.5, 34.0'Rt			136	(2) Underground Conductor No. 6 RHW/USE (Festoon)	Phase A Outlets
to	to	58	2"	136	(2) Underground Conductor No. 6 RHW/USE (Festoon)	Phase B Outlets
				136	(2) Underground Conductor No. 6 RHW/USE (Light)	LC1
PB A	Sta 106+60.5, 33.0'Rt			68	(1) Underground Conductor No.6 THW (Ground)	
PB A	Sta 106+60.5, 33.0'Rt			110	(2) Underground Conductor No. 6 RHW/USE (Festoon)	Phase A Outlets
to	to	39	2"	110	(2) Underground Conductor No. 6 RHW/USE (Festoon)	Phase B Outlets
				110	(2) Underground Conductor No. 6 RHW/USE (Light)	LC2
FP A	Sta 106+91.1, 41.4'Rt			55	(1) Underground Conductor No.6 THW (Ground)	
PB A	Sta 106+60.5, 33.0'Rt			124	(2) Underground Conductor No. 6 RHW/USE (Festoon)	Phase A Outlets
to	to	52	2"	124	(2) Underground Conductor No. 6 RHW/USE (Festoon)	Phase B Outlets
				124	(2) Underground Conductor No. 6 RHW/USE (Light)	LC2
L16	Sta 106+60.5, 19.0' Lt			62	(1) Underground Conductor No.6 THW (Ground)	
PB A	Sta 106+60.5, 33.0'Rt			160	(2) Underground Conductor No. 6 RHW/USE (Festoon)	Phase A Outlets
to	to	70	2"	160	(2) Underground Conductor No. 6 RHW/USE (Festoon)	Phase B Outlets
				160	(2) Underground Conductor No. 6 RHW/USE (Light)	LC3
L5	Sta 107+30.0, 34.0'Rt			80	(1) Underground Conductor No.6 THW (Ground)	
L5	Sta 107+30.0, 34.0'Rt			248	(2) Underground Conductor No. 6 RHW/USE (Festoon)	Phase A Outlets
to	to	116	2"	248	(2) Underground Conductor No. 6 RHW/USE (Festoon)	Phase B Outlets
				248	(2) Underground Conductor No. 6 RHW/USE (Light)	LC3
L6	Sta 43+46.7, 29.0'Lt			124	(1) Underground Conductor No.6 THW (Ground)	

LIGHTING CABLE & CONDUIT SCHEDULE

ITEM	STATION OFFSET	CONDUIT RUN TOTAL LF	CONDUIT RUN SIZE (IN)	UNDERGROUND CONDUCTOR RUN TOTAL LF	UNDERGROUND CONDUCTOR RUN SIZE/TYPE	CIRCUIT
L17	Sta 105+33.0, 19.0' Lt			272	(2) Underground Conductor No. 6 RHW/USE (Festoon)	Phase A Outlets
to	to	128	2"	272	(2) Underground Conductor No. 6 RHW/USE (Festoon)	Phase B Outlets
				272	(2) Underground Conductor No. 6 RHW/USE (Light)	LC2
L16	Sta 106+60.5, 19.0' Lt			136	(1) Underground Conductor No.6 THW (Ground)	
L16	Sta 106+60.5, 19.0' Lt			266	(2) Underground Conductor No. 6 RHW/USE (Festoon)	Phase B Outlets
to	to	125	2"	266	(2) Underground Conductor No. 6 RHW/USE (Light)	LC2
L15	Sta 107+79.0, 34.0' Lt			133	(1) Underground Conductor No.6 THW (Ground)	
L15	Sta 107+79.0, 34.0' Lt			332	(2) Underground Conductor No. 6 RHW/USE (Light)	
to	to	156	2"			LC2
PB B	Sta 109+33.5, 31.0'Lt			166	(1) Underground Conductor No.6 THW (Ground)	

REGISTERED PROFESSIONAL ENGINEER
SEAN P. KELLY
PE-28883
DATE 12/04/25
NORTH DAKOTA

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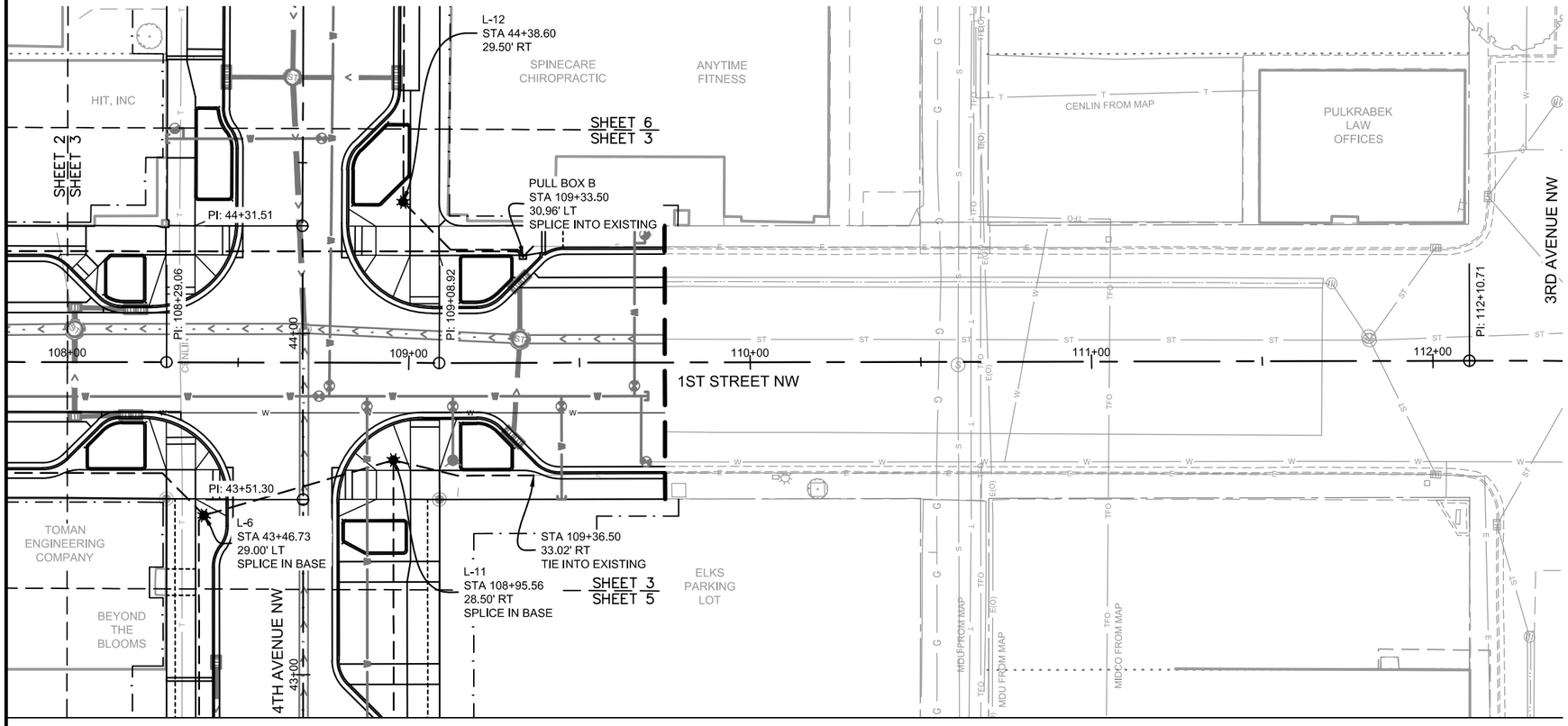
DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

KLJ

STREET LIGHT LAYOUT
STA. 104+00 TO 108+00

DRWN. BY	CHK'D BY	PROJECT NO.
SM	AC	1904-02191

SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	140	3



LIGHTING CABLE & CONDUIT SCHEDULE

ITEM	STATION OFFSET	CONDUIT RUN TOTAL LF	CONDUIT RUN SIZE (IN)	UNDERGROUND CONDUCTOR RUN TOTAL LF	UNDERGROUND CONDUCTOR RUN SIZE/TYPE	CIRCUIT
PB B to L12	Sta 109+33.5, 31.0'Lt to Sta 44+38.6, 29.5' Rt	42	2"	104	(2) Underground Conductor No. 6 RHW/USE (Light)	LC3
				52	(1) Underground Conductor No.6 THW (Ground)	
L6 to L11	Sta 43+46.7, 29.0'Lt to Sta 108+95.6, 28.5'Rt	58	2"	132	(2) Underground Conductor No. 6 RHW/USE (Festoon)	Phase A Outlets
				132	(2) Underground Conductor No. 6 RHW/USE (Festoon)	Phase B Outlets
				132	(2) Underground Conductor No. 6 RHW/USE (Light)	LC3
				66	(1) Underground Conductor No.6 THW (Ground)	
L11 to Tie-in	Sta 108+95.6, 28.5'Rt to Sta 109+36.5, 33.0'Rt	42	2"	92	(2) Underground Conductor No. 6 RHW/USE (Festoon)	Phase A Outlets
				92	(2) Underground Conductor No. 6 RHW/USE (Festoon)	Phase B Outlets
				92	(2) Underground Conductor No. 6 RHW/USE (Light)	LC3
				46	(1) Underground Conductor No.6 THW (Ground)	

REGISTERED PROFESSIONAL ENGINEER
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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
1ST STREET NW

KLJ

STREET LIGHT LAYOUT
STA. 108+00 TO 112+00

DRWN. BY	CHK'D BY	PROJECT NO.
SM	AC	1904-02191

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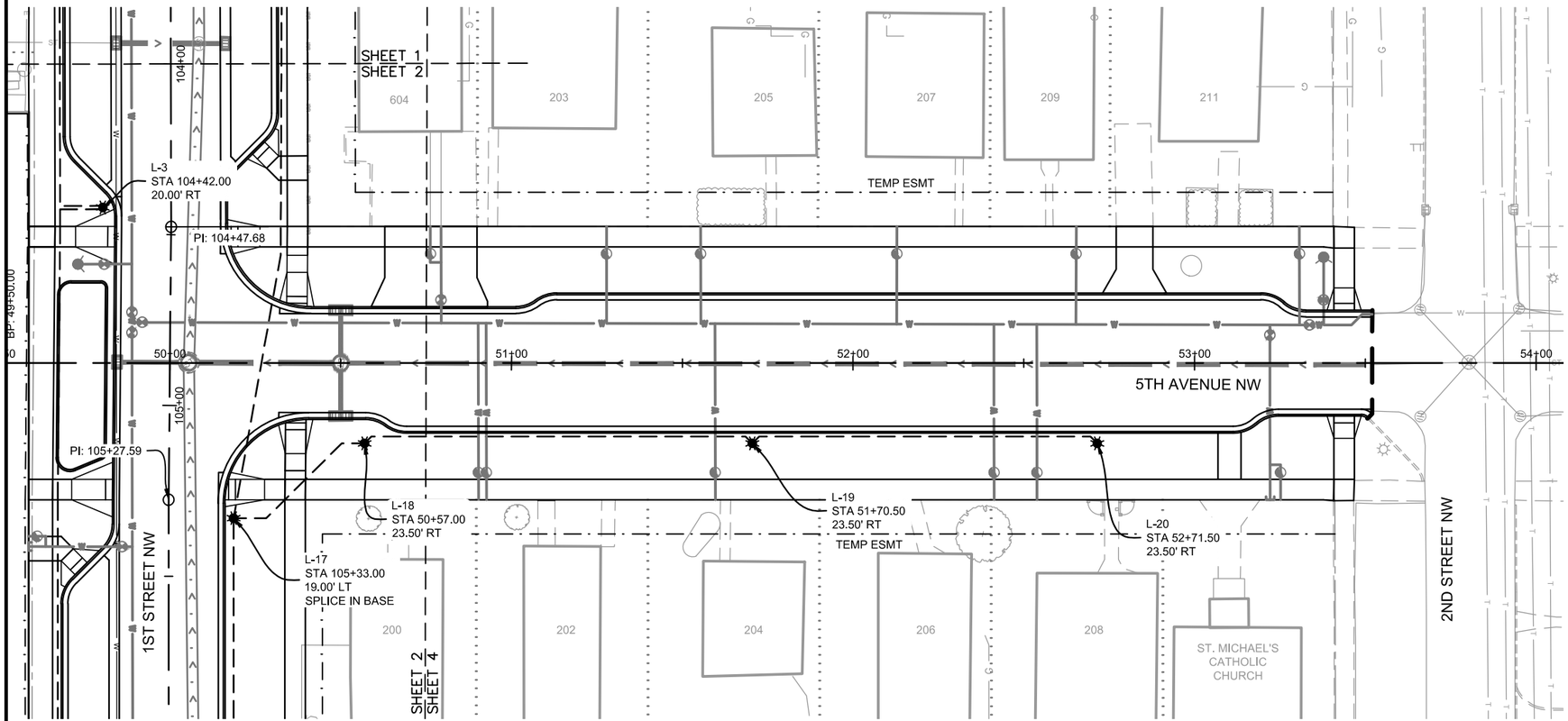
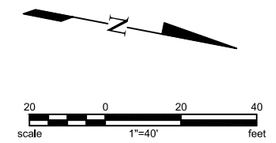
SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	140	4





LIGHTING CABLE & CONDUIT SCHEDULE

ITEM	STATION OFFSET	CONDUIT RUN TOTAL LF	CONDUIT RUN SIZE (IN)	UNDERGROUND CONDUCTOR RUN TOTAL LF	UNDERGROUND CONDUCTOR RUN SIZE/TYPE	CIRCUIT
L17 to L18	Sta 105+33.0, 19.0' Lt to Sta 50+57.0, 23.5' Rt	47	2"	110 55	(2) Underground Conductor No. 6 RHW/USE (Light) (1) Underground Conductor No.6 THW (Ground)	LC2
L18 to L19	Sta 50+57.0, 23.5' Rt to Sta 51+70.5, 23.5' Rt	115	2"	246 123	(2) Underground Conductor No. 6 RHW/USE (Light) (1) Underground Conductor No.6 THW (Ground)	LC2
L19 to L20	Sta 51+70.5, 23.5' Rt to Sta 52+71.5, 23.5' Rt	103	2"	222 111	(2) Underground Conductor No. 6 RHW/USE (Light) (1) Underground Conductor No.6 THW (Ground)	LC2

REGISTERED PROFESSIONAL ENGINEER
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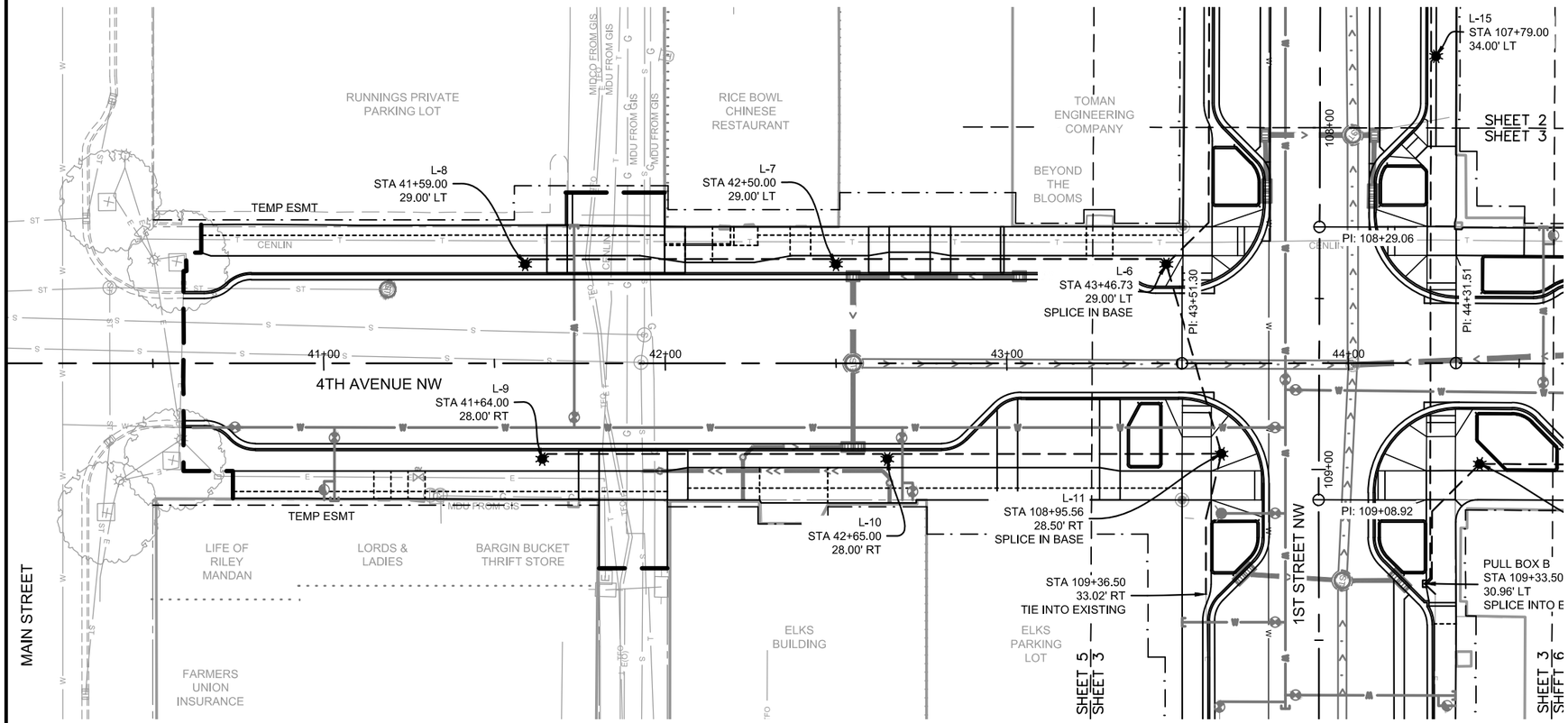
DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
5TH AVENUE NW

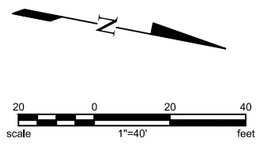
KLJ

STREET LIGHT LAYOUT
STA. 50+75 TO 54+00

DRWN. BY	CHK'D BY	PROJECT NO.
SM	AC	1904-02191

SID 236 C.P. 2019-08	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	UGP-1-988(052)	140	5





LIGHTING CABLE & CONDUIT SCHEDULE

ITEM	STATION OFFSET	CONDUIT RUN TOTAL LF	CONDUIT RUN SIZE (IN)	UNDERGROUND CONDUCTOR RUN TOTAL LF	UNDERGROUND CONDUCTOR RUN SIZE/TYPE	CIRCUIT
L6	Sta 43+46.7, 29.0'Lt	98	2"	212	(2) Underground Conductor No. 6 RHW/USE (Festoon)	Phase A Outlets
to	to			212	(2) Underground Conductor No. 6 RHW/USE (Festoon)	Phase B Outlets
L7	Sta 42+50.0, 29.0'Lt			212	(2) Underground Conductor No. 6 RHW/USE (Light)	LC3
				106	(1) Underground Conductor No.6 THW (Ground)	
L7	Sta 42+50.0, 29.0'Lt	92	2"	200	(2) Underground Conductor No. 6 RHW/USE (Festoon)	Phase B Outlets
to	to			200	(2) Underground Conductor No. 6 RHW/USE (Light)	LC3
L8	Sta 41+59.0, 29.0'Lt			100	(1) Underground Conductor No.6 THW (Ground)	
L11	Sta 108+95.6, 28.5'Rt	99	2"	214	(2) Underground Conductor No. 6 RHW/USE (Festoon)	Phase A Outlets
to	to			214	(2) Underground Conductor No. 6 RHW/USE (Festoon)	Phase B Outlets
L10	Sta 42+65.0, 28.0' Rt			214	(2) Underground Conductor No. 6 RHW/USE (Light)	LC3
				107	(1) Underground Conductor No.6 THW (Ground)	
L10	Sta 42+65.0, 28.0' Rt	102	2"	220	(2) Underground Conductor No. 6 RHW/USE (Festoon)	Phase A Outlets
to	to			220	(2) Underground Conductor No. 6 RHW/USE (Light)	LC3
L9	Sta 41+64.0, 28.0'Rt			110	(1) Underground Conductor No.6 THW (Ground)	

REGISTERED PROFESSIONAL ENGINEER
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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
4TH AVENUE NW

KLJ

STREET LIGHT LAYOUT STA. 40+00 TO 44+00

DRWN. BY	CHK'D BY	PROJECT NO.
SM	AC	1904-02191

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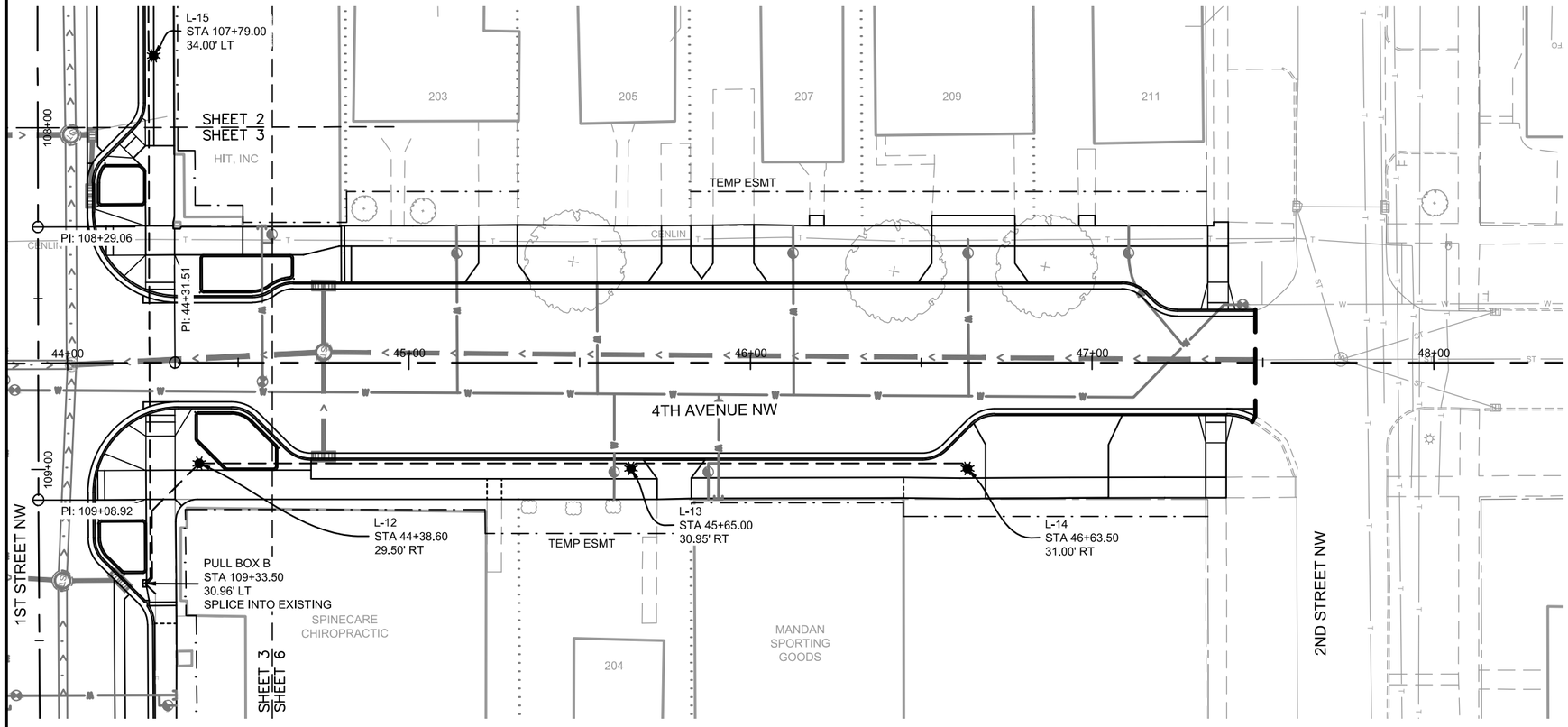
SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	140	6



LIGHTING CABLE & CONDUIT SCHEDULE

ITEM	STATION OFFSET	CONDUIT RUN		UNDERGROUND CONDUCTOR RUN		CIRCUIT
		TOTAL LF	SIZE (IN)	TOTAL LF	SIZE/TYPE	
L12 to L13	Sta 44+38.6, 29.5' Rt to Sta 45+65.0, 31.0' Rt	127	2"	270 135	(2) Underground Conductor No. 6 RHW/USE (Light) (1) Underground Conductor No.6 THW (Ground)	LC2
L13 to L14	Sta 45+65.0, 31.0' Rt to Sta 46.63.5, 31.0' Rt	100	2"	216 108	(2) Underground Conductor No. 6 RHW/USE (Light) (1) Underground Conductor No.6 THW (Ground)	LC2

REGISTERED PROFESSIONAL ENGINEER
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NORTH DAKOTA

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DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA
4TH AVENUE NW

KLJ

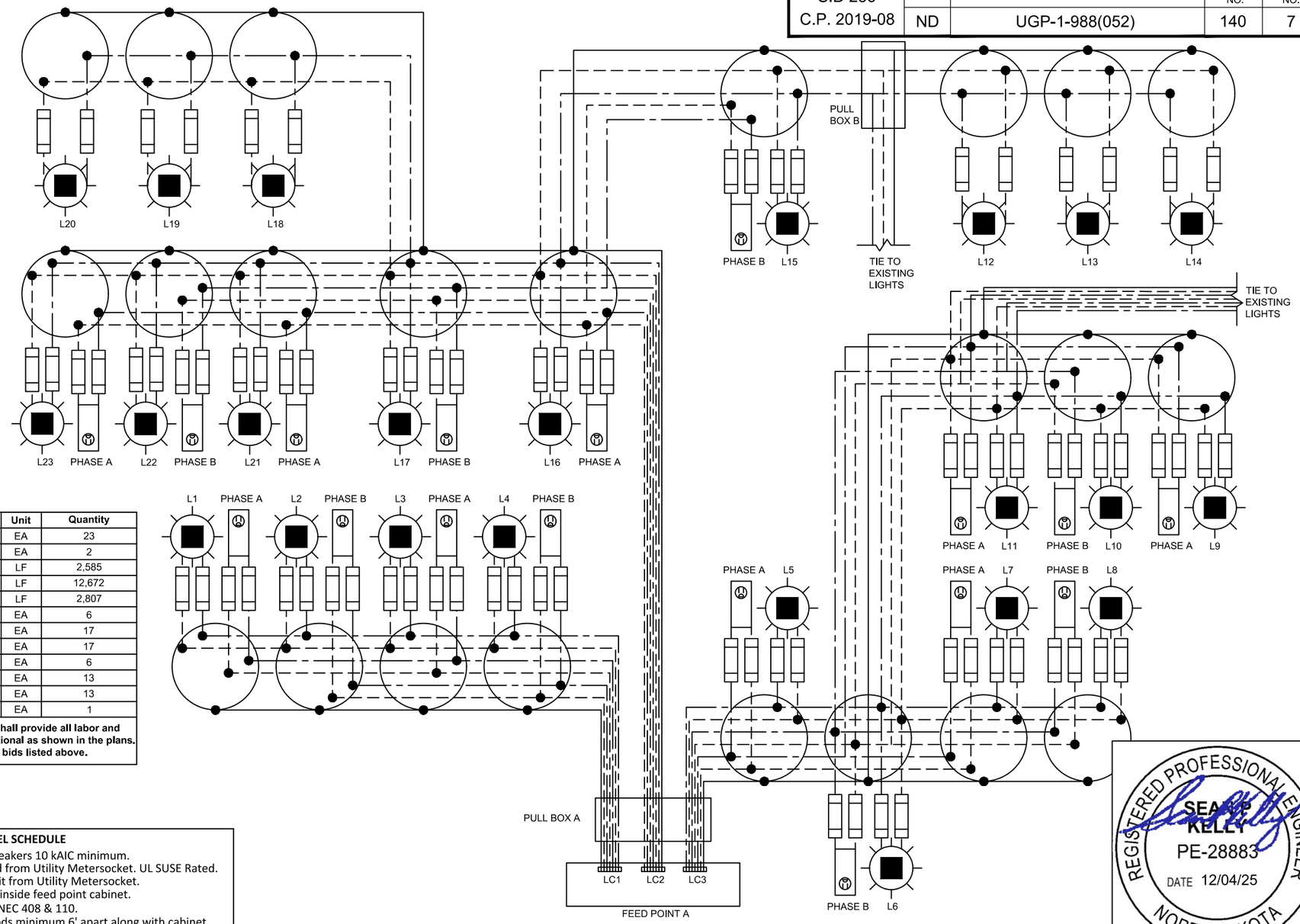
STREET LIGHT LAYOUT
STA. 44+00 TO 47+50

DRWN. BY	CHK'D BY	PROJECT NO.
SM	AC	1904-02191

SID 236	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
C.P. 2019-08	ND	UGP-1-988(052)	140	7

LEGEND

- LED LUMINAIRE (240 VOLT)
- IN-LINE FUSE
- FESTOON
- PHASE A CONDUCTOR #6 (FESTOON)
- PHASE B CONDUCTOR #6 (LIGHT)
- GROUND CONDUCTOR #6



Spec	Code	Item Description	Unit	Quantity
770	0020	CONCRETE FOUNDATION-HIGHWAY LIGHTING	EA	23
770	0100	PULL BOX	EA	2
770	0330	2IN DIAMETER RIGID CONDUIT	LF	2,585
770	0505	UNDERGROUND CONDUCTOR NO6-TYPE RHW	LF	12,672
770	0605	UNDERGROUND CONDUCTOR NO6-TYPE THW	LF	2,807
770	1066	LT STD 6FT MA 30FT MT HT	EA	6
770	4086	ORNAMENTAL LT STD 12FT MT HT	EA	17
770	4210	LED LUMINAIRE	EA	17
770	4542	RELOCATE LUMINAIRE	EA	6
770	4560	REMOVE LIGHT STANDARD	EA	13
770	4582	REMOVE CONCRETE FOUNDATION	EA	13
770	9270	MODIFY EXISTING FEED POINT	EA	1

Items shown are for informational purposes, contractor shall provide all labor and equipment required for the lighting system to be fully operational as shown in the plans. Items shall be included in the corresponding price bids listed above.

MODIFIED EXISTING FEED POINT A PANEL SCHEDULE

100 Amp Main Breaker, 120/240 Volt, 1-Phase, All breakers 10 kAIC minimum.
NEMA 1 enclosure (inside cabinet). 20 space minimum loadcenter. Fed from Utility Metersocket. UL SUSE Rated.
(3) - #2 AWG Cu RHW/USE feeder conductors in Conduit from Utility Metersocket.
Install loadcenter main service conductors in conduit inside feed point cabinet.
Provide Typed Identifications according to NEC 408 & 110.
Per NEC provide and bond #6 AWG ground electrodes to 2 ground rods minimum 6' apart along with cabinet.

CKT	DESCRIPTION	BRK	V-A	AMPS		AMPS	V-A	BRK	DESCRIPTION	CKT
1	LC1	50	113	0.94	L1	2.52	302	50	LC2	2
3		50		0.94	L2	2.52		50		4
5	LC3	50	250	2.08	L1	3.00	360	20	LC1 Outlets Phase A	6
7		50		2.08	L2	3.00	360	20	LC1 Outlets Phase B	8
9	Exst GFCI Receptacle (Feedpoint Internal)				L1	4.50	540	20	LC2 Outlets Phase A	10
11	Existing Photoeye				L2	4.50	540	20	LC2 Outlets Phase B	12
13					L1	6.00	360	20	LC3 Outlets Phase A	14
15					L2	4.50	360	20	LC3 Outlets Phase B	16
	Total Additional Connected VA and Amps		3,185	19.0						
				17.5						

LIGHT STANDARD SCHEDULE

LIGHT NUMBER	TYPE	OPTICS IES-Type	STANDARDS			REMARKS
			TYPE	MTG. HT.	ARM LG.	
L1-L11, L15-L17, L21-L23	LED-4000K	III	Decorative	12'	-	Install light standard on concrete foundation. Luminaire operated at 240V, tilted at 0°
L12-L14, L18-L20	Reset	Reset	Davit Pipe	30'	6'	Install light standard on concrete foundation. Luminaire operated at 240V, tilted at 0°

REGISTERED PROFESSIONAL ENGINEER
SEAL
KELLY
PE-28883
DATE 12/04/25
NORTH DAKOTA

Rev'd.
Rev'd.
Rev'd.
Rev'd.

DOWNTOWN STREET RECONSTRUCTION
CITY OF MANDAN, NORTH DAKOTA

KLJ

PANEL SCHEDULE LIGHTING SCHEMATIC QUANTITIES

DRWN. BY	CHK'D BY	PROJECT NO.
SM	AC	1904-02191