

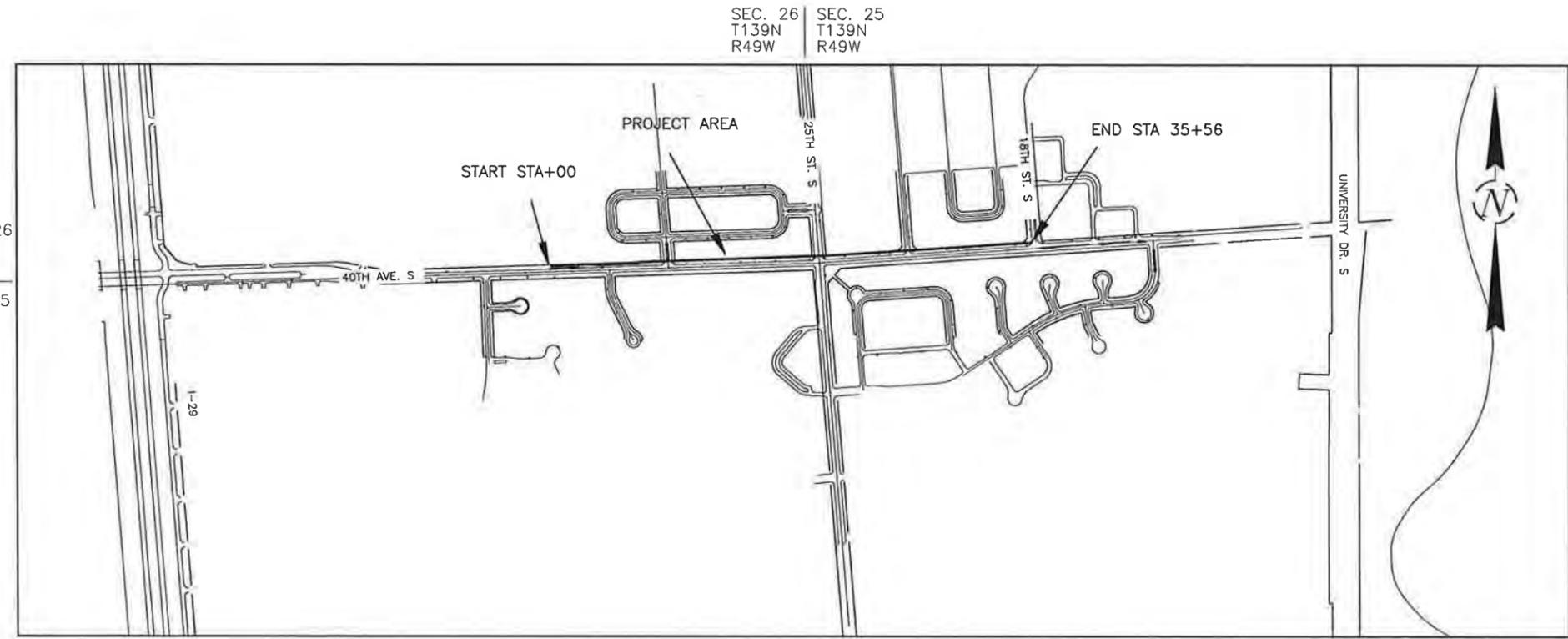
**JOB # 24**  
**NORTH DAKOTA**  
**DEPARTMENT OF TRANSPORTATION**  
**TAU-8-984(151)154**  
 City of Fargo Improvement District NO. SN-15-A1  
 Cass County  
 40TH AVE S - DRAIN 27 TO 18TH ST S

STATE	PROJECT NO.	PCN	SECTION NO.	SHEET NO.
ND	TAU-8-984(151)154	20769	001	1

GOVERNING SPECIFICATIONS:  
 2014 Standard Specifications adopted by the North Dakota Department of Transportation and the Supplemental Specifications effective on the date the project is advertised, TAU-8-984-(151)154

PROJECT NUMBER \ DESCRIPTION	NET MILES	GROSS MILES
TAU-8-984-(151)154 \ Shared Use Path		.65

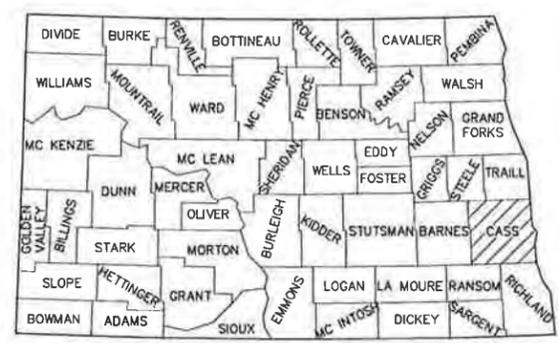
BRIDGE MODIFICATIONS, SHARED USE PATH, STREET LIGHTING & INCIDENTALS



SEC. 26  
 T139N  
 R49W  
 SEC. 35  
 T139N  
 R49W

SEC. 25  
 T139N  
 R49W  
 SEC. 36  
 T139N  
 R49W

SEC. 35  
 T139N  
 R49W  
 SEC. 36  
 T139N  
 R49W



DESIGNERS  
 JASON BAKER /S/  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

I hereby certify that the attached plans were prepared by me or under my direct supervision and that I am a duly registered professional engineer under the laws of the state of ND.  
 APPROVED DATE 8-6-15  
 JEREMY M. GORDEN /S/

This document was originally issued and sealed by JEREMY M. GORDEN Registration Number PE-5328 on 08/06/15 and the original document is stored in the Engineering Dept. at City Hall.

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-8-984(151)154	002	1

**LIST OF STANDARD DRAWINGS**

**TABLE OF CONTENTS**

<b><u>Section No.</u></b>	<b><u>Sheet No.</u></b>	<b><u>Description</u></b>
1	1	Title Sheet
2	1	Table of Contents
6	1-4	Notes
8	1	Quantities
20	1-2	Details
40	1-4	Removals
60	1-8	Plan and Profile
76	1-2	Erosion and Sediment Control
100	1	Work Zone Traffic Control
140	1	Street Lighting
170	1-4	Bridge Layout

<b><u>Standard No.</u></b>	<b><u>Description</u></b>
D-704-1	Attenuation Device
D-704-7	Breakaway Systems for Construction Zone Signs – Perforated Tube
D-704-8	Breakaway Systems for Construction Zone Signs – U-Channel Post
D-704-11	Construction Sign Details – Warning Signs
D-704-13	Barricade and Channelizing Device Details
D-704-17	Sign Layout For One Lane Closure Two Lane Roadway
D-704-34	Sign Layout For One Lane Closure
D-708-6	Erosion and Siltation Controls – Median or Ditch Inlet Protection
D-748-1	Valley Gutter and Curb & Gutter
D-750-2	Sidewalk and Curb Ramps
D-750-3	Curb Ramp Details

**NOTES**

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-8-984(151)154	006	1

**105-P01 NOISE RESTRICTION**  
 No construction activities or moving of equipment shall occur between the hours of 10:00 pm and 7:00 am except for sawing of new concrete. When sawing is planned to occur during these hours, the Contractor shall distribute written notices to residents located within ½ block of the work by 7:30 pm.

**105-P02 SHOP DRAWINGS & PRODUCT DATA**  
 One set of shop drawings and product data, checked and stamped approved by the Contractor, shall be submitted to the Engineer for evaluation and approval of all materials and equipment required in the plans and specifications prior to installation and construction. Any unique construction techniques shall be submitted, along with drawings, to the Engineer for approval. If the Contractor submits changes to any structural drawings they shall be required to be stamped by a Professional Engineer.

Shop drawings and product data shall include manufacturer's or fabricator's drawings, diagrams, schedules, operational curves, test reports, catalog cuts, or descriptive data showing model, size, type, weight, ratings, and other information as may be considered necessary to determine compliance with the contract documents and to enable proper installation of the material or equipment being proposed.

In submitting shop drawings, product data, and samples, the Contractor represents that they have determined and verified all materials, field measurements, and field construction criteria related thereto, or will do so, and that they have checked and coordinated the information contained within such submittals with the work and the contract documents.

**105-P03 LANE CLOSURES ON 25<sup>TH</sup> STREET S**  
 Lane closures on 25<sup>th</sup> Street South will be limited to 7 days for each side. A total of 14 days is possible if closures are nonconcurrent.

**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.

**202-P01 REMOVAL OF CONCRETE**  
 The Contractor will remove the concrete barrier in a manner that prevents any damage to the parts of the structure to remain. After the barrier has been removed, the top of the concrete deck, at the existing barrier location, will be ground smooth. The reinforcing steel from the existing concrete barrier will be cut off and covered with epoxy paint so it is not exposed to the sidewalk surface. All work for barrier removal, deck grinding, reinforcing steel cut off and epoxy paint shall be included in the price bid for "Removal of Concrete, LS". The removal of all

existing 4.5' wide sidewalk, ADA curb ramps and the approach shown in plans shall be included in the price bid for "Removal of Concrete, SY".

**202-P02 SIGN RELOCATIONS**  
 Sign Relocations shall include the post and anchor removal and shall be included with price bid for "Traffic Control, LS."

**203-P01 TOPSOIL**  
 Topsoil shall be removed in areas of excavation or embankment. It is assumed that there is 4 inches of top soil. The actual depth may vary. Salvaged topsoil shall be placed in the sidewalk removal location. Upon completion of the paving and grading operations, the topsoil shall be spread evenly over the areas to be seeded at a minimum depth of 4 inches. There will be a need to import topsoil. The removal, stockpiling and spreading of the salvaged topsoil shall be paid by the plan quantity for bid item "Topsoil, CY."

**203-P02 GRADING**  
 The Contractor shall be responsible for maintaining drainage of the site during construction. Additional final grading may also be necessary along the concrete path in order to ensure proper drainage as directed by the Engineer. This work may be in the form of minor swales or re-grading of existing topsoil. There will be no additional compensation made for miscellaneous grading and shall be included with price bid for "Sidewalk Concrete 4IN, SY".

**251- P01 SEEDING CLASS 1 – HYDRAULIC MULCH**  
 The Contractor shall seed and mulch the area from the back of curb to the right of way within the project limits. All work regarding seeding and hydraulic mulch will be paid by plan quantity for the bid items "Seeding Class 1, Acre" and "Hydraulic Mulch, Acre."

**251-P02 MOWING**  
 If areas of hydroseeding are completed and the turf becomes established, the contractor will be required to mow and maintain the seeded areas. Mowing shall be done within 48 hours of notification by the Engineer in the field. Any clippings that land on locations other than the grassed area shall be removed. Mowing shall be done when grass is longer than 3" and/or as directed by Engineer in the field. If the turf has not been established prior to project completion the mowing requirement shall be waived as directed by the Engineer. All cost for labor, equipment and materials necessary to complete the work shall be included in the price bid for "Seeding Class 1, Acre".

**602-P01 SURFACE FINISH "D"**  
 Surface Finish "D" is required on all surfaces of the barrier. The surface finish color will be white, color number 27925, and will meet Federal Standard No. 595 B

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STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-8-984(151)154	006	2

## NOTES

colors. This work will be included in the unit price bid for "Class AAE-3 Concrete."

**612-P01**

**REINFORCING STEEL**

Dimensions for bent bars are given out to out and to tangent intersections unless otherwise noted. Fabrications and tolerances will be in accordance with the CRSI Manual of Standard Practice. The proposed concrete barrier will be doweled and epoxied into the existing bridge deck. The costs involved with drilling into the existing bridge deck and epoxy adhesive will be included in the unit price bid for "Reinforcing Steel-Grade 60 Epoxy Coated."

**624-P01**

**RESET RAILING**

All work regarding reset of existing barrier railing will meet the requirements as specified in Section 624, "Free Standing Retrofit" and will be paid for by bid item "Reset Pedestrian Railing".

**704-200**

**PORTABLE PRECAST CONCRETE MEDIAN BARRIERS**

The number of precast concrete median barriers required on the project shall be 15 ten x 2.5 foot units. The Contractor shall supply and install according to manufacturer's specifications.

All labor and equipment needed for obtaining, loading, transporting, installing, moving, removing, unloading, and maintaining the portable precast concrete median barriers shall be provided by the Contractor and included in the price bid for the item "Portable Precast Concrete Median Barriers, LF."

**704-900**

**ATTENUATION DEVICE TYPE B**

Install either of the following devices:

- The barrel type shown on standard D-704-01; or
- The water filled attenuation device described in this note.

Install liquid filled attenuation devices that are 2.5 feet wide.

At the Preconstruction Conference, provide the Engineer a Certificate of Compliance stating that the devices are NCHRP Report 350 or MASH approved and a copy of an acceptance letter from FHWA showing approval for use on the NHS. Use devices rated for the MPH designation used in the item description. Install devices according to the manufacturer's specifications.

Provide replacement pieces for each location, up to a maximum of 20 pieces per project. Include a minimum of 2 nose pieces in the replacement pieces. Stage replacement pieces on the project site.

Immediately replace any damaged pieces. The Department will reimburse the Contractor for damaged pieces based on the invoice price plus 10 percent. All other costs associated with installing and maintaining replacement pieces will be at no additional cost to the Department.

**708-P01**

**INLET PROTECTION**

Inlet protection shall be placed per the details. All devices that are installed shall remain in place until the turf has been established. If the turf has not been established by November 1<sup>st</sup> all devices that are installed in a street section and are determined to have the potential to cause damage to snow removal equipment shall be removed and reinstalled as directed by the Engineer in the spring. This work is considered normal maintenance and the contractor shall not be entitled to additional compensation.

**714-P01**

**PVC TUBING**

A 4 inch diameter hole will be drilled through the bridge deck in order to install PVC drainage tubing. The existing drainage tubes, on the north barrier, will be removed and filled with an approved grout Concrete within the existing drainage circle will be removed to a minimum depth of 2 inches. The contractor will place grout in the area of the removed concrete. Penetrating water repellent will be applied over the repaired concrete areas. The work needed for concrete drilling, installation of new PVC drainage tubing, removal of existing drainage tubing, concrete removal, grout installation, steel plate installation and penetrating water repellent application will be included in the unit price bid for "Pipe PVC 4in Edge Drain."

The 4in PVC Pipe will also be used when applicable so existing sump lines can be run under new path in sleeves.

**750-P01**

**DETECTABLE WARNING PANEL**

Cast Iron Detectable Warning Panel will be used on the ADA curb ramps and will be paid by bid item "Detectable Warning Panel, SF." No plastic detectable warning panels will be allowed.

**750-P02**

**SIDEWALK CONCRETE 4"**

There are sections around manholes in the new shared use path that are called out to have double the rebar and be 8" thick. These sections will be paid double the square yards for the bid item "Sidewalk Concrete 4IN". The quantities shown in the plan sheets reflect this.

**770-P01**

**REMOVE FEED POINT**

Contractor shall be responsible for removal of feed point, concrete foundation, conduit, conductor, backfilling and compaction in the disturbed area. The removed feed point shall be delivered to The City of Fargo Street Lighting Department located at 4630 15<sup>th</sup> Avenue North Fargo, North Dakota. It is estimated that three feedpoints will be removed. All work and materials needed to remove the feedpoints will be paid by bid item "Revise Lighting System".

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**NOTES**

STATE	PROJECT NO.	SECTION NO.	SHEET NO.
ND	TAU-8-984(151)154	006	3

**770-P02 INNERDUCT**  
 1.5" and 2" Schedule 40 Innerduct, Smooth Outside and color RED. Innerduct will be required as shown on plans and will be connected to stubbed out conduit at all concrete base and feed point locations. Installation of Innerduct shall be at a minimum depth of 24" below finished grade. The innerduct will be placed in line with bases behind curb unless contractor gets approval from project engineer to adjust placement. Boring will be the required method of installation in all established areas. Duct Seal all innerduct/conduit entering or exiting foundations, feedpoints and pull boxes.

An estimated quantity of 1538 LF of innerduct will be used and all work and materials needed to install the innerduct will be paid by bid item "Revise Lighting System".

**770-P03 CONDUCTOR**  
 All conductor shall be continuous color coded (black, red and green). The conductor between standards shall be #4 and #6 USE. Verify the number and size of conductor between each standard, as shown on plan layout sheets. All wiring within standards between distribution conductors and luminaires shall be #10 AWG stranded copper, 600-VOLT, type RHW.

Conductor connections in street light bases shall be Tyco Electronics GelCap SL splice cover kit with connector. All other conductor splices shall be, UL listed, with PowerGel sealant type connections meeting all codes for desired application. An estimated quantity of 4614 LF of conductor will be used and all work and materials needed to install the conductor will be paid by bid item "Revise Lighting System".

**770-P04 FURNISH AND INSTALL FEED POINT**  
 Street Lighting Pedestal type, four circuit feed point cabinet, shall be concrete pad mounted. Feed Point cabinet shall also include a factory installed, interior mounted meter trim which meets the requirements of the local utility company (CCEC). Meter to be provided by the local utility company.

All exposed conduit shall be 2" galvanized steel. Concrete foundation/pad, conduit and conductor from feed point to transformer, riser (if required) and other miscellaneous items shall be incidental to the price bid for feed point. The feed point will be measured as a complete unit installed and operational. Verify feed point location and elevation with the project engineer and Xcel Energy before installation.

Prefabricated feed point enclosure to be assembled by Milbank, UL 508 Listed, Service entrance rated, States Electric, UL 508, or approved equal. It is estimated that one feed point will be installed. All work and materials needed to install the feed point will be paid by bid item "Revise Lighting System".

**770-P05 FURNISH AND INSTALL LUMINAIRE TYPE "A"**  
 LUMINAIRE TYPE "A": AEL, Autobahn Series ATB2, 216W LED, 1000mA, 4000k, Type II, Gray  
 Catalogue No.: ATB2 60BLEDE10 MVOLT R2  
 This luminaire will require the Holophane bracket arm model BR-1055-HG for horizontal tenon mount, approved equal. Schreder, Teceo 2, does not require additional bracket arm.

It is estimated that eight luminaires will be installed. All work and materials needed to install the luminaires will be paid by bid item "Revise Lighting System".

**770-P06 CONCRETE BASES**  
 Bases shall be 24" dia. and 6' deep. Contractor shall supply all anchor bolts for relocated and new standards. Bolt circle and projection shall be verified with manufacturer specifications. It is estimated that eight concrete bases will be installed. All work and materials needed to install the bases will be paid by bid item "Revise Lighting System".

**770-P07 RELOCATE STREET LIGHT**  
 The contractor shall be responsible for the removal and relocating of the existing standard and the removal of existing luminaire along with the installation of the new luminaire. It is estimated that six street lights will be relocated.

All relocated street lights shall have all new conductors, connectors, fuse holders, fuses and any miscellaneous materials needed to make luminaire operational. All work and materials needed to relocate the street lights will be paid by bid item "Revise Lighting System".

**770-P08 REMOVE BASES**  
 It is estimated that six bases will be removed. Incidental to the price bid, the contractor shall be responsible for the removal and disposal of all concrete bases along with the back filling and compaction. All work and materials needed to remove the bases will be paid by bid item "Revise Lighting System".

**770-P09 FURNISH AND INSTALL LIGHTING STANDARD TYPE "A"**  
 Lighting Standard Type "A": Millerbernd, 30", Stainless Steel Standard with Breakaway "H" base, 2-3/8" OD Slipfitter, no mast arm, Frost finish. It is estimated that two lighting standards will be installed. All work and materials needed to install the lighting standard will be paid by bid item "Revise Lighting System".

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## ENVIRONMENTAL COMMITMENTS

	STATE	PROJECT NO.	SECTION NO.	SHEET NO.
	ND	TAU-8-984(151)154	6	4

**ENVIRONMENTAL COMMITMENTS (EC):** Based on the NEPA documentation, no additional permits or environmental commitments have been identified beyond what is covered by the NDDOT's Standard Specification of Road and Bridge Construction.

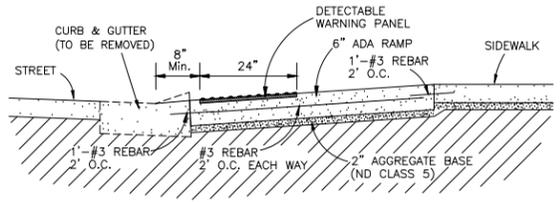
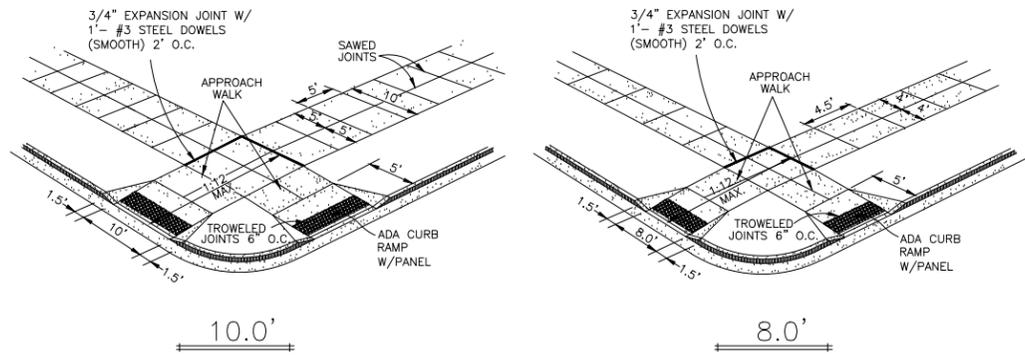
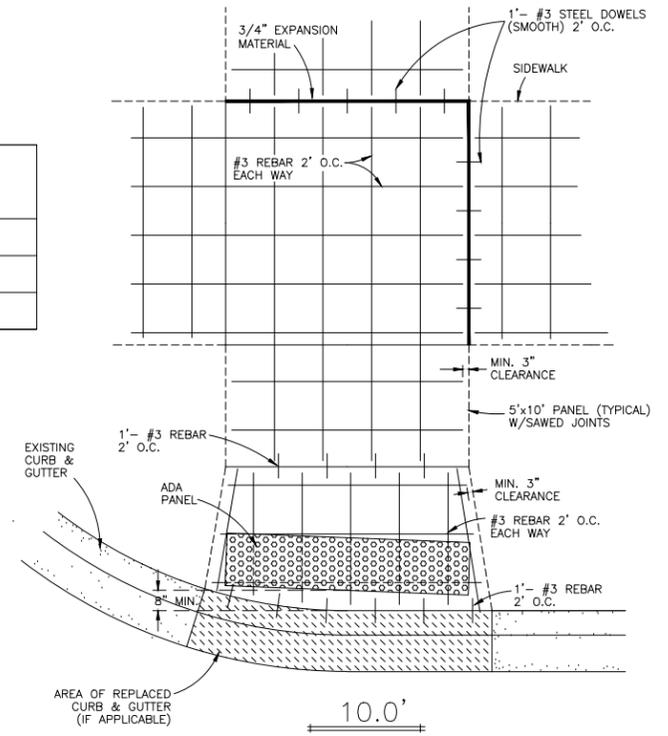
Wetland Number	Cowardin Classification	Wetland Type	Wetland Size (acres)	Wetland Feature	USACE Jurisdictional Wetlands	Impacts to Wetlands	
						Temp.	Perm.
**NO WETLANDS PRESENT**							
TOTALS:			0.00			0.00	0.00

STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
<b>ND</b>	<b>TAU-8-984(151)154</b>	<b>008</b>	<b>1</b>

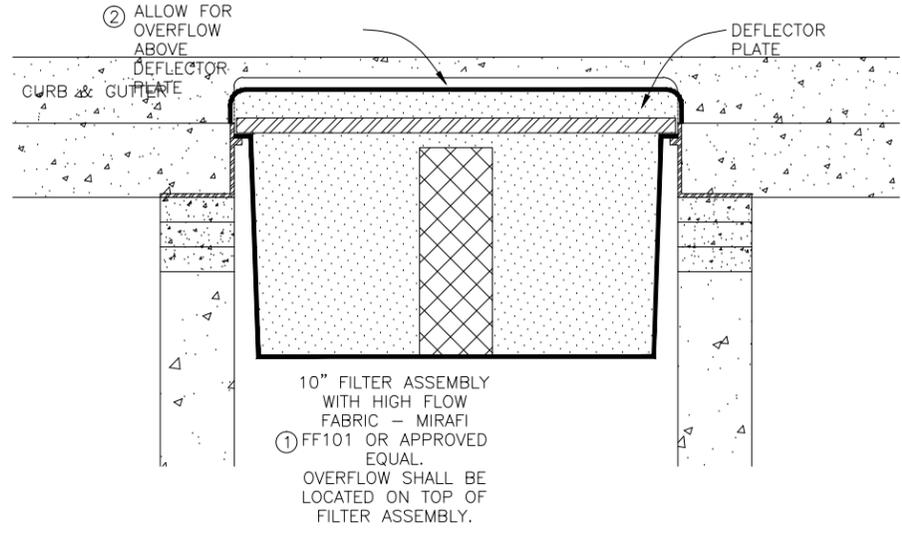
**QUANTITIES**

<u>SPEC</u>	<u>CODE</u>	<u>DESCRIPTION</u>	<u>UNIT</u>	<u>TOTAL QUANTITIES</u>
103	100	CONTRACT BOND	L SUM	1
202	111	REMOVAL OF CONCRETE	L SUM	1
202	112	REMOVAL OF CONCRETE	SY	1766
202	130	REMOVAL OF CURB & GUTTER	LF	267
203	109	TOPSOIL	CY	837
251	100	SEEDING CLASS 1	ACRE	1.6
253	201	HYDRAULIC MULCH	ACRE	1.6
602	130	CLASS AAE-3 CONCRETE	CY	7.2
612	116	REINFORCING STEEL - GRADE 60 EPOXY COATED	LBS	2460
624	121	RESET PEDESTRIAN RAILING	LF	69.5
650	704	OVERLAY CONCRETE	CY	2.1
650	720	CLASS 1 REMOVAL	SY	37.8
702	100	MOBILIZATION	L SUM	1
704	1037	ATTENUATION DEVICE TYPE B 35	EA	2
704	1100	TRAFFIC CONTROL	L SUM	1
704	3501	PORTABLE PRECAST CONCRETE MEDIAN BARRIER	LF	150
708	1540	INLET PROTECTION - SPECIAL	EA	14
708	1541	REMOVE INLET PROTECTION - SPECIAL	EA	14
714	6589	PIPE PVC 4IN EDGE DRAIN	LF	70
748	100	CURB & GUTTER	LF	267
750	115	SIDEWALK CONCRETE 4IN	SY	3681.5
750	140	SIDEWALK CONCRETE 6IN	SY	64
750	2115	DETECTABLE WARNING PANELS	SF	172
770	4525	REVISE LIGHTING SYSTEM	EA	1

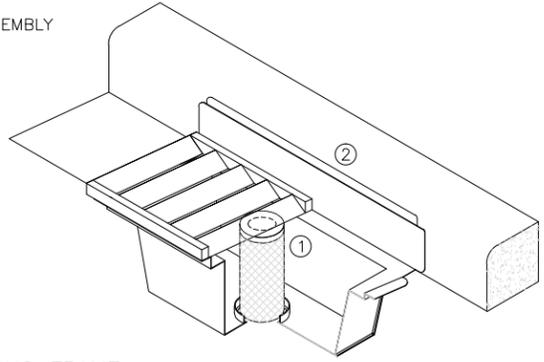
SIDEWALK WIDTH	PANELS (L'xW')
6'	5'x6'
8'	4.5'x4'
10'	5'x5'



SECTION NO. 2300 DRAWING NO. 5.2  
 REV.D. 2013  
**SIDEWALK & CURB RAMP DETAIL**  
 (6', 8', or 10')  
 CITY OF FARGO  
 ENGINEERING DEPARTMENT  
 APPROVED \_\_\_\_\_ DATE \_\_\_\_\_



OVERFLOW ① - CENTER OF FILTER ASSEMBLY  
 OVERFLOW ② - TOP OF CURB BOX



**INSTALLATION:**

- REMOVE THE INLET GRATE
- INSERT THE DEVICE INTO THE CASTING FRAME
- INSTALL GRATE INTO CASTING FRAME OVER TOP OF DEVICE

**MAINTENANCE:**

- CHECK REGULARLY & AFTER RAIN EVENTS. IF THE DEVICE IS FILLED WITH 1/3 OF ITS CAPACITY WITH SEDIMENT, EMPTY THE DEVICE.
- REMOVE DEBRIS AROUND THE INLET GRATE PRIOR TO REMOVING DEVICE

SECTION NO. 3300 DRAWING NO. \_\_\_\_\_  
 REV.D. 2012 6.4  
**STORM SEWER INLET PROTECTION: TYPE C**  
 CITY OF FARGO  
 ENGINEERING DEPARTMENT  
 APPROVED \_\_\_\_\_ DATE \_\_\_\_\_

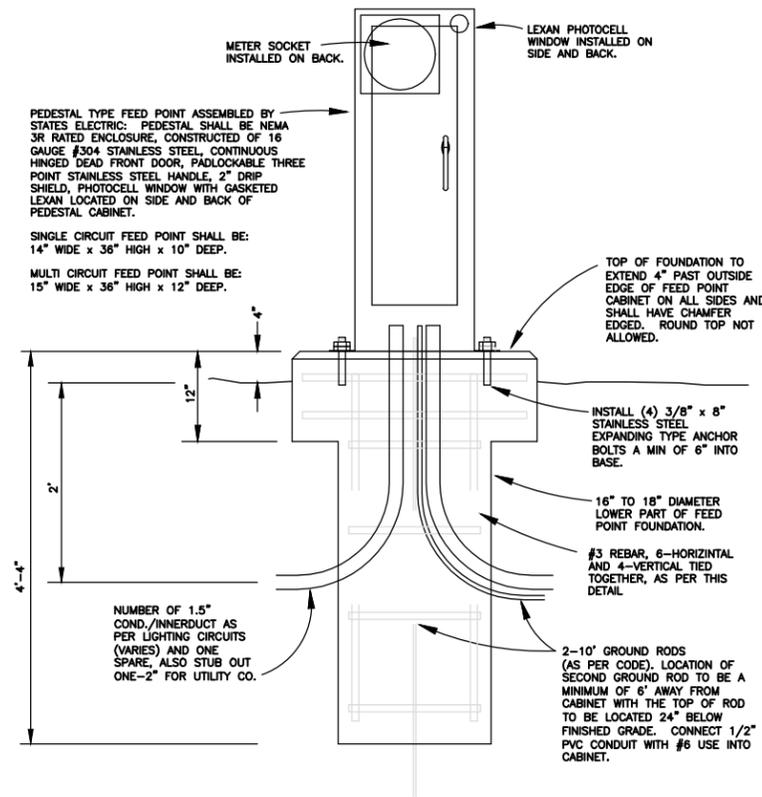
REVISIONS		
③	②	①

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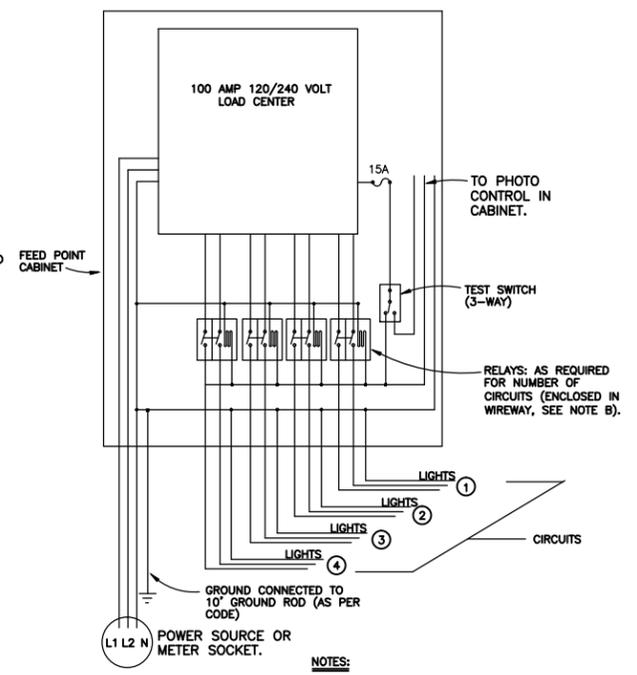
**Details**  
 SHARED USE PATH  
 CITY OF FARGO IMPROVEMENT DISTRICT SN-15-A1  
 DESIGN BY: JMB CHECKED BY: JMG  
 DRAWN BY: JMB ORIG DATE: 08/15

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STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	TAU-8-984(151)154	020	2



**FEED POINT ELEVATION**  
NO SCALE

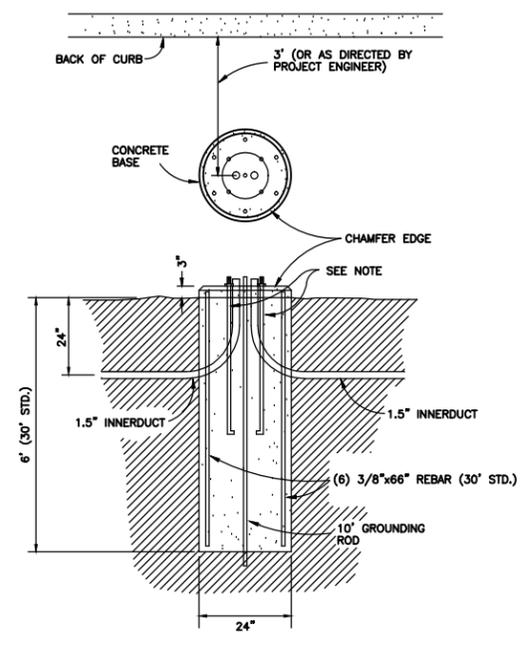


**NOTES:**

A. CIRCUIT BREAKERS TO BE 60A, 2-POLE. TEST SWITCH CIRCUIT TO BE 15A 1-POLE. ALL BREAKERS ARE TO BE RATED AT 22,000 AC.

B. MECHANICAL CONTACTORS TO BE NORMAL OPEN TYPE, 60A, 2-POLE, 240V TO GROUND. QUANTITY OF RELAYS AS REQUIRED FOR NUMBER OF CIRCUITS.

**WIRING SCHEMATIC: MULTI CIRCUIT FEED POINT**  
NO SCALE



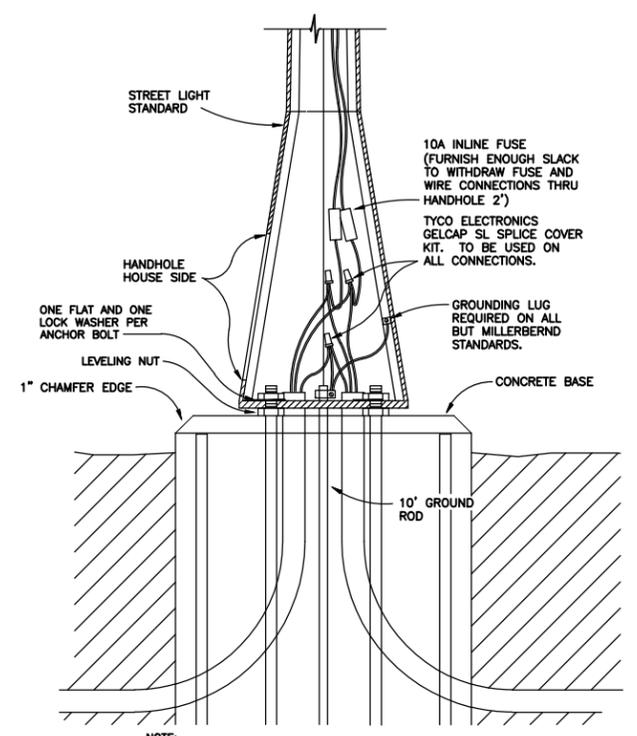
**NOTE:**

1. 3/4"x 24" ANCHOR BOLTS (10', 12' & 16' ORNAMENTAL POLE)

2. 1"x 40" ANCHOR BOLTS (26' AND 30' STANDARD)

3. BASES LOCATED AT THE END OF CIRCUIT SHALL HAVE SPARE CONDUIT, CAP END.

**6' CONCRETE BASE DETAIL**  
NO SCALE



**NOTE:**

1. ALL CONDUIT LOCATED IN STREET LIGHT BASES, FEED POINT FOUNDATIONS AND PULL BOXES SHALL HAVE BELL ENDS.

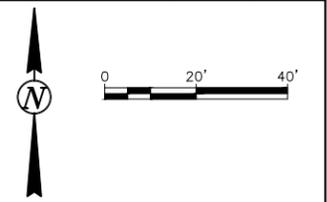
2. ALL STANDARDS SHALL HAVE INDIVIDUAL CONDUCTOR RUNS AND FUSES FOR EACH LUMINAIRE.

**STANDARD FOUNDATION DETAIL**  
NO SCALE

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<b>DETAILS</b>		
SHARED USE PATH		
IMPROVEMENT DISTRICT #: SN-15-A1		
DESIGN BY: DJH	CHECKED BY: JMG	
DRAWN BY: DJH	ORIG DATE: 08/15	
<b>CITY OF</b> <b>Fargo</b>	SECTION NO.	SHEET NO.
	020	2

STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	TAU-8-984(151)154	040	1



**QUANTITIES:**  
 CONC REMOVAL: 419.5 SY  
 CURB & GUTTER REMOVAL: 139 LF

ALL ELEVATIONS ARE BASED ON  
 THE U.S.G.S. VERTICAL DATUM OF 1988.  
 (UNLESS NOTED OTHERWISE)

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Removals

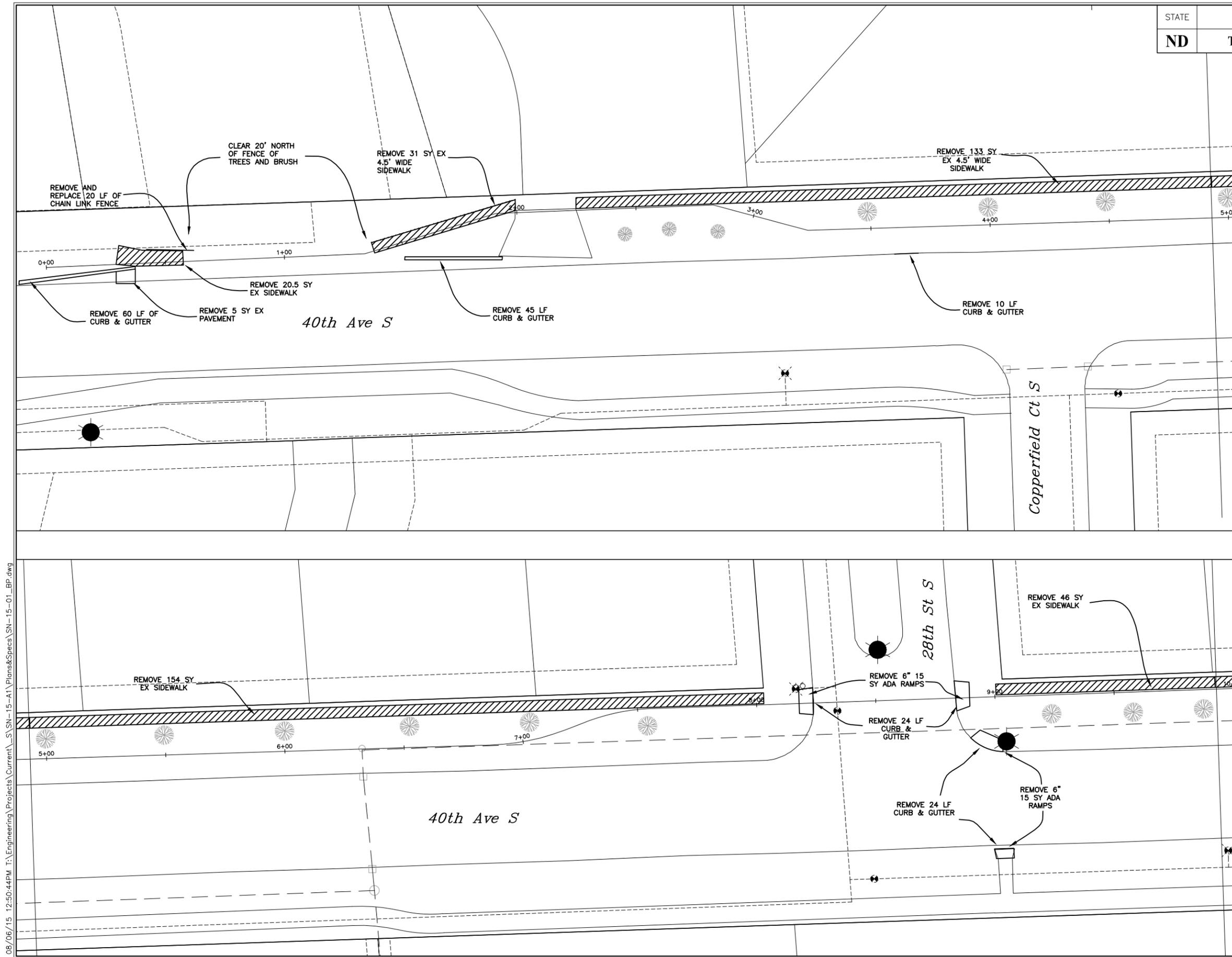
SHARED USE PATH

IMPROVEMENT DISTRICT SN-15-A1

DESIGN BY: JMB      CHECKED BY: JMG  
 DRAWN BY: JMB      ORIG DATE: 08/15



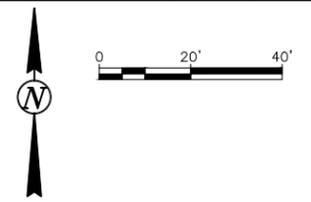
SECTION NO.	SHEET NO.
040	1



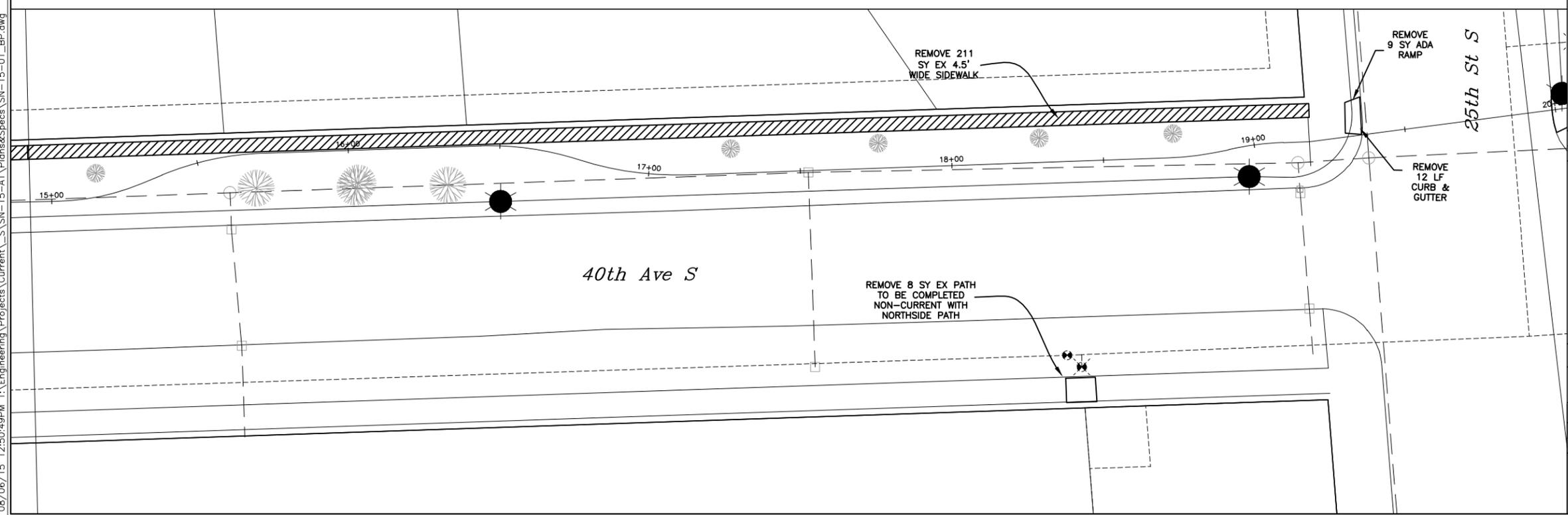
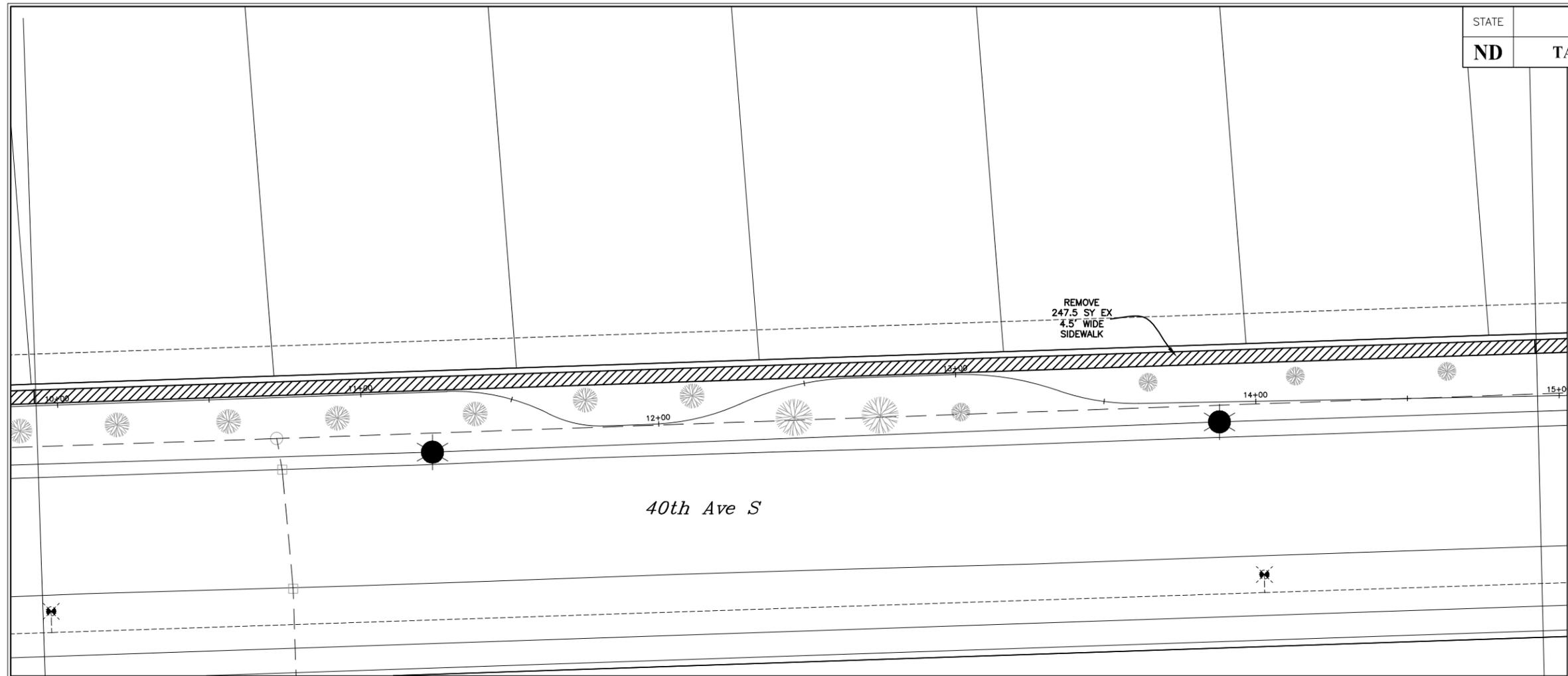
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STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
<b>ND</b>	<b>TAU-8-984(151)154</b>	<b>040</b>	<b>2</b>



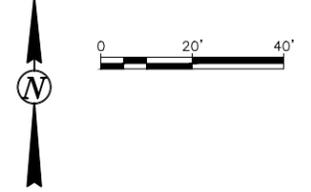
**QUANTITIES:**  
 CONC REMOVAL: 475.5 SY  
 CURB & GUTTER REMOVAL: 12 LF



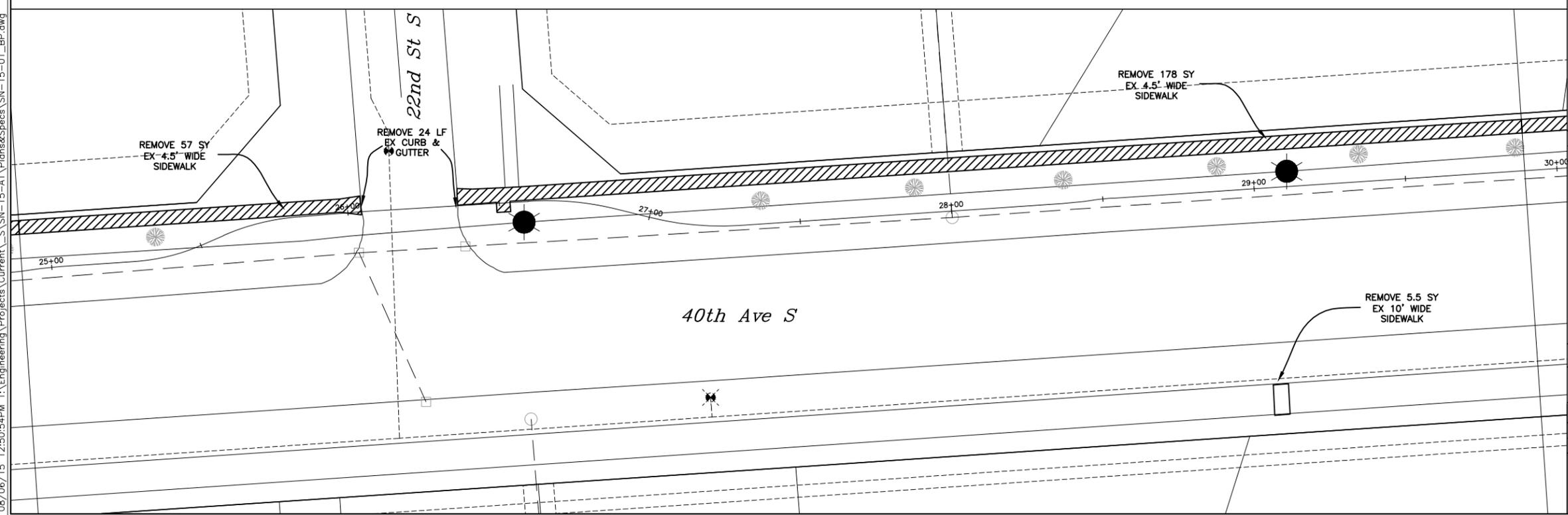
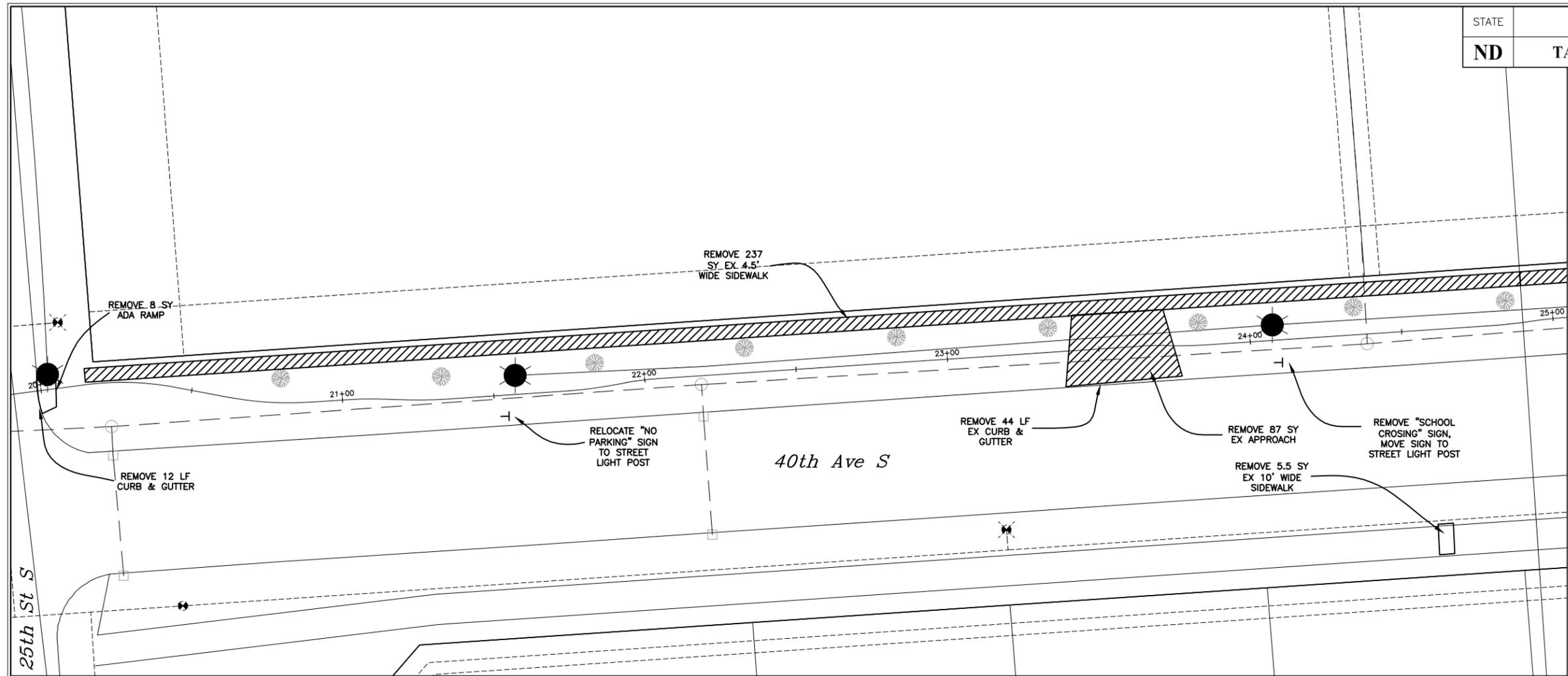
ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

REVISIONS	
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<b>Removals</b>	
SHARED USE PATH	
IMPROVEMENT DISTRICT <b>SN-15-A1</b>	
DESIGN BY: JMB	CHECKED BY: JMG
DRAWN BY: JMB	ORIG DATE: 08/15

STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	TAU-8-984(151)154	040	3



**QUANTITIES:**  
 CONC REMOVAL: 578 SY  
 CURB & GUTTER REMOVAL: 80 LF



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Removals

SHARED USE PATH

IMPROVEMENT DISTRICT SN-15-A1

DESIGN BY: JMB CHECKED BY: JMG  
 DRAWN BY: JMB ORIG DATE: 08/15

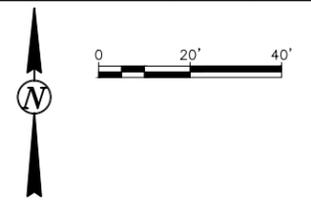


SECTION NO.	SHEET NO.
040	3

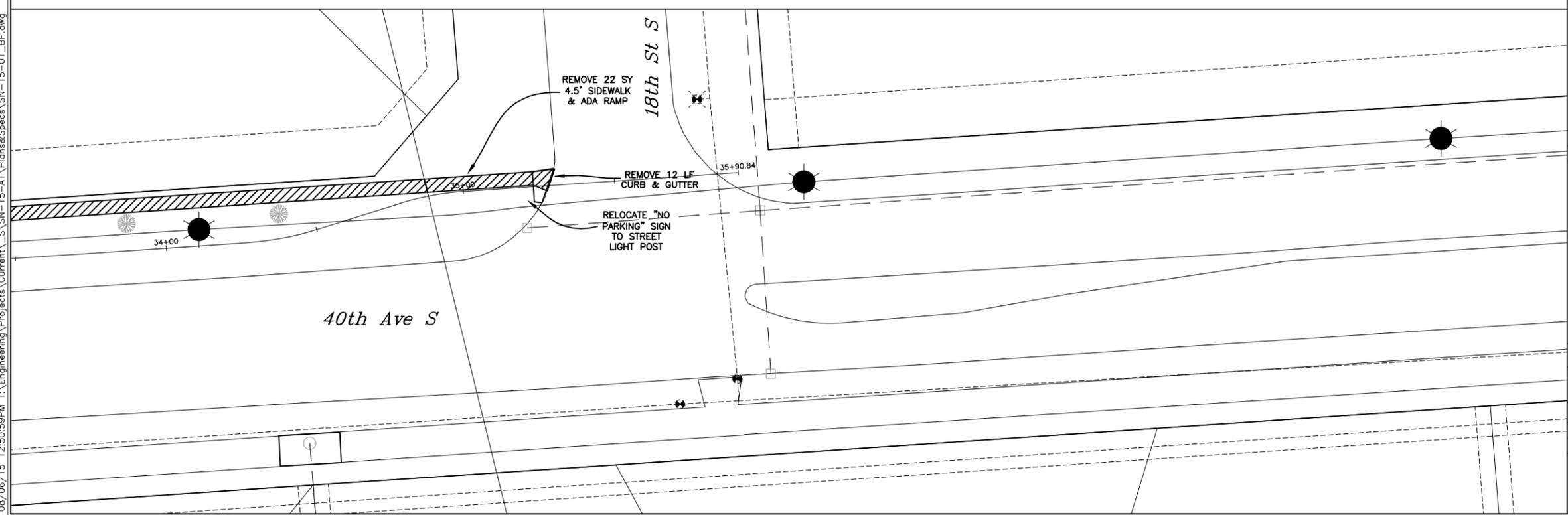
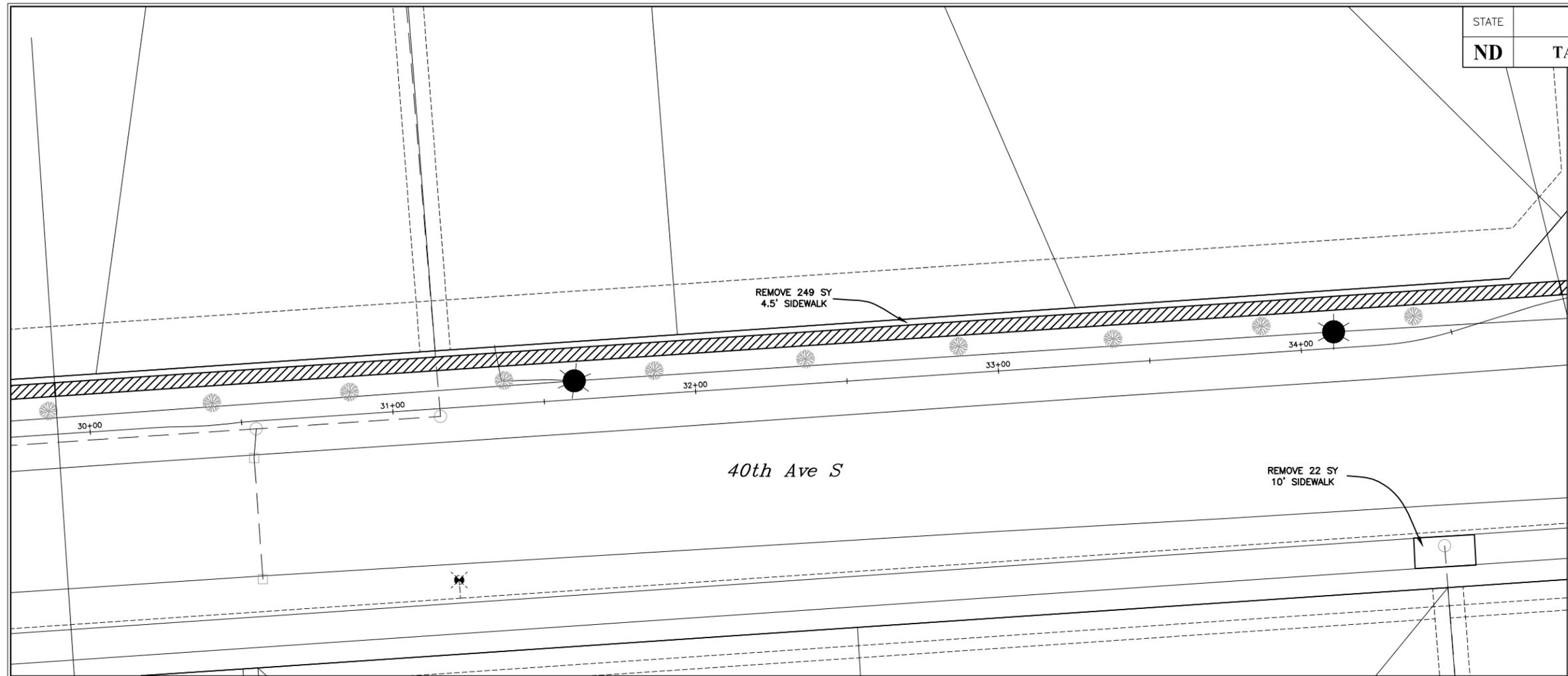
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STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	TAU-8-984(151)154	040	4



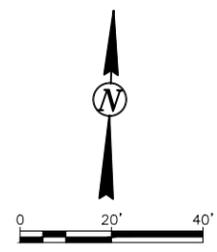
**QUANTITIES:**  
 CONC REMOVAL: 293 SY  
 CURB & GUTTER REMOVAL: 12 LF



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<b>Removals</b>	
SHARED USE PATH	
IMPROVEMENT DISTRICT <b>SN-15-A1</b>	
DESIGN BY: JMB	CHECKED BY: JMG
DRAWN BY: JMB	ORIG DATE: 08/15
<b>CITY OF Fargo</b>	SECTION NO. <b>040</b>
	SHEET NO. <b>4</b>

STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	TAU-8-984(151)154	060	1



**QUANTITIES:**  
 SIDEWALK CONC 4": 401 SY  
 CURB & GUTTER: 115 LF  
 SEEDING: 731 SY

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REVISIONS		
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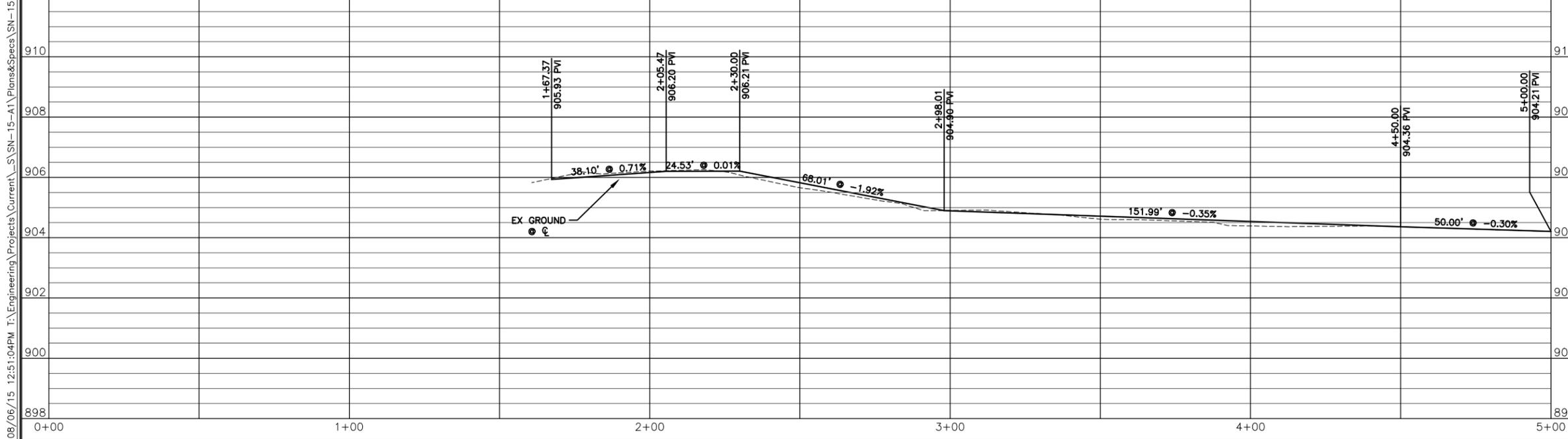
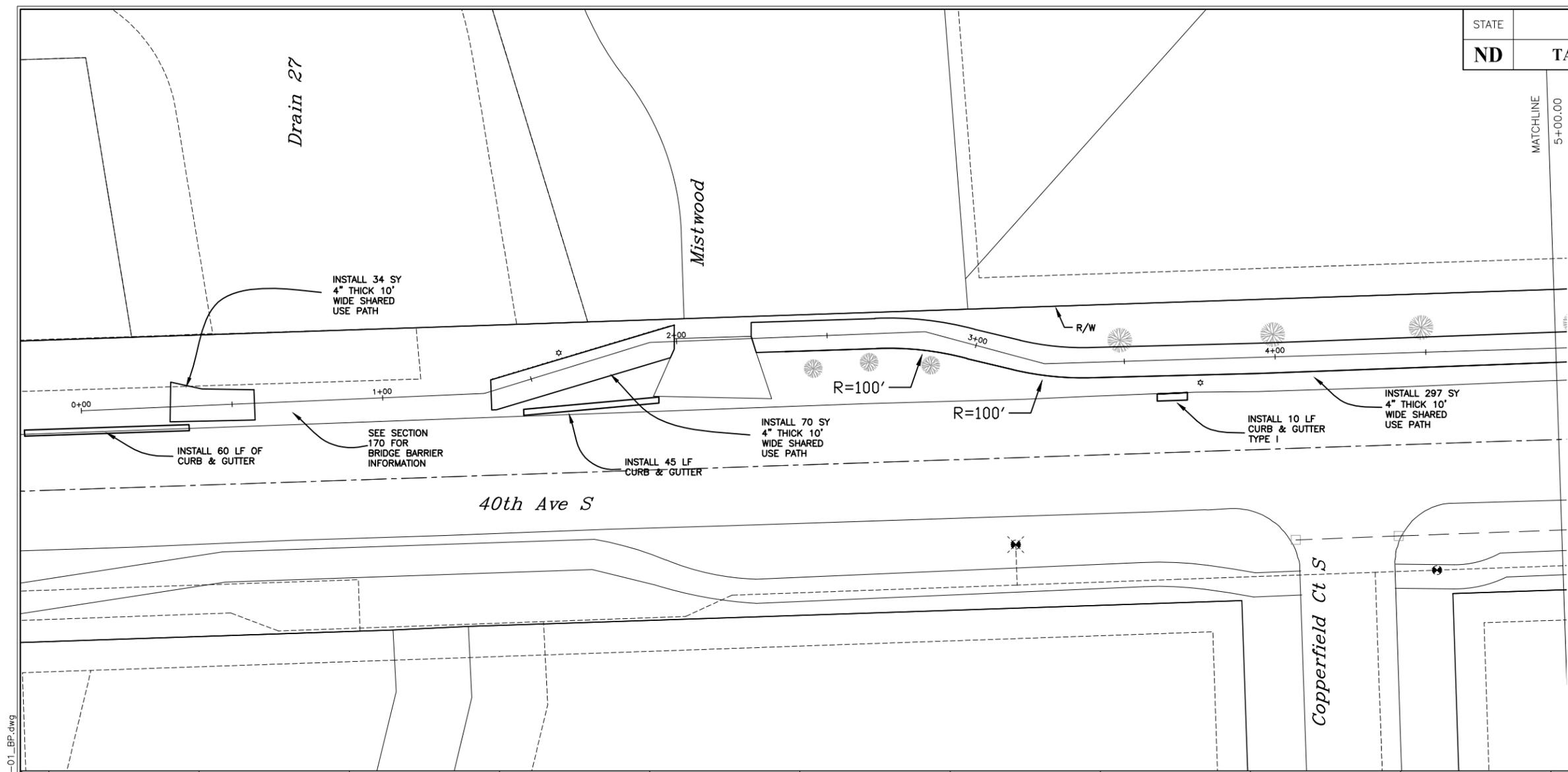
0+00 to 5+00.00

SHARED USE PATH

IMPROVEMENT DISTRICT SN-15-A1

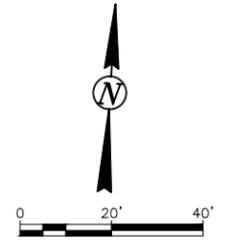
DESIGN BY: JMB	CHECKED BY: JMG
DRAWN BY: JMB	ORIG DATE: 08/15

	SECTION NO.	SHEET NO.
	060	1



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STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	TAU-8-984(151)154	060	2



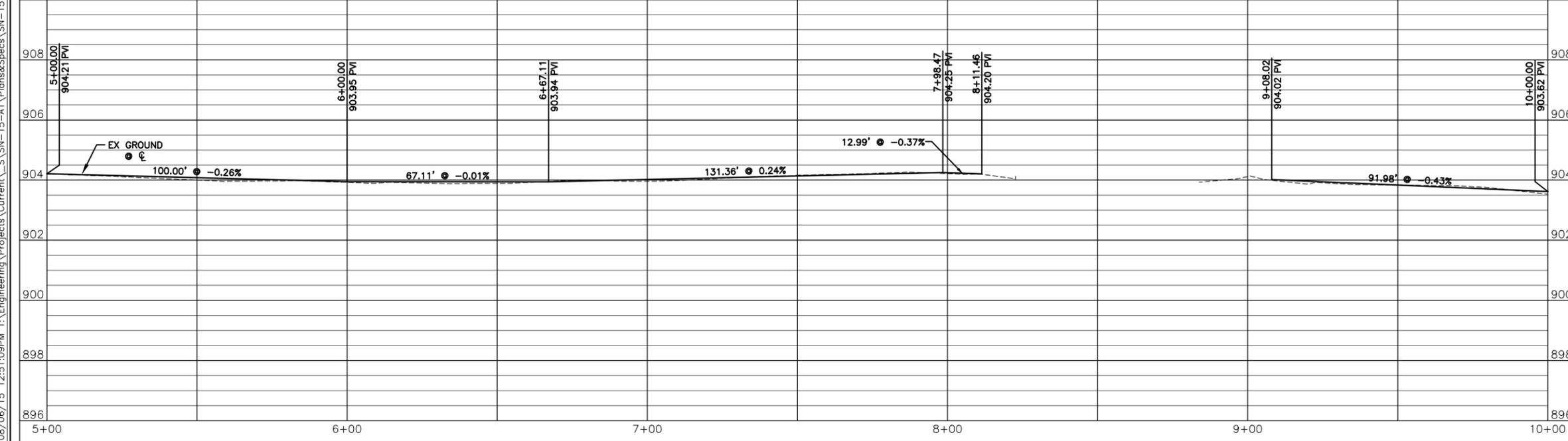
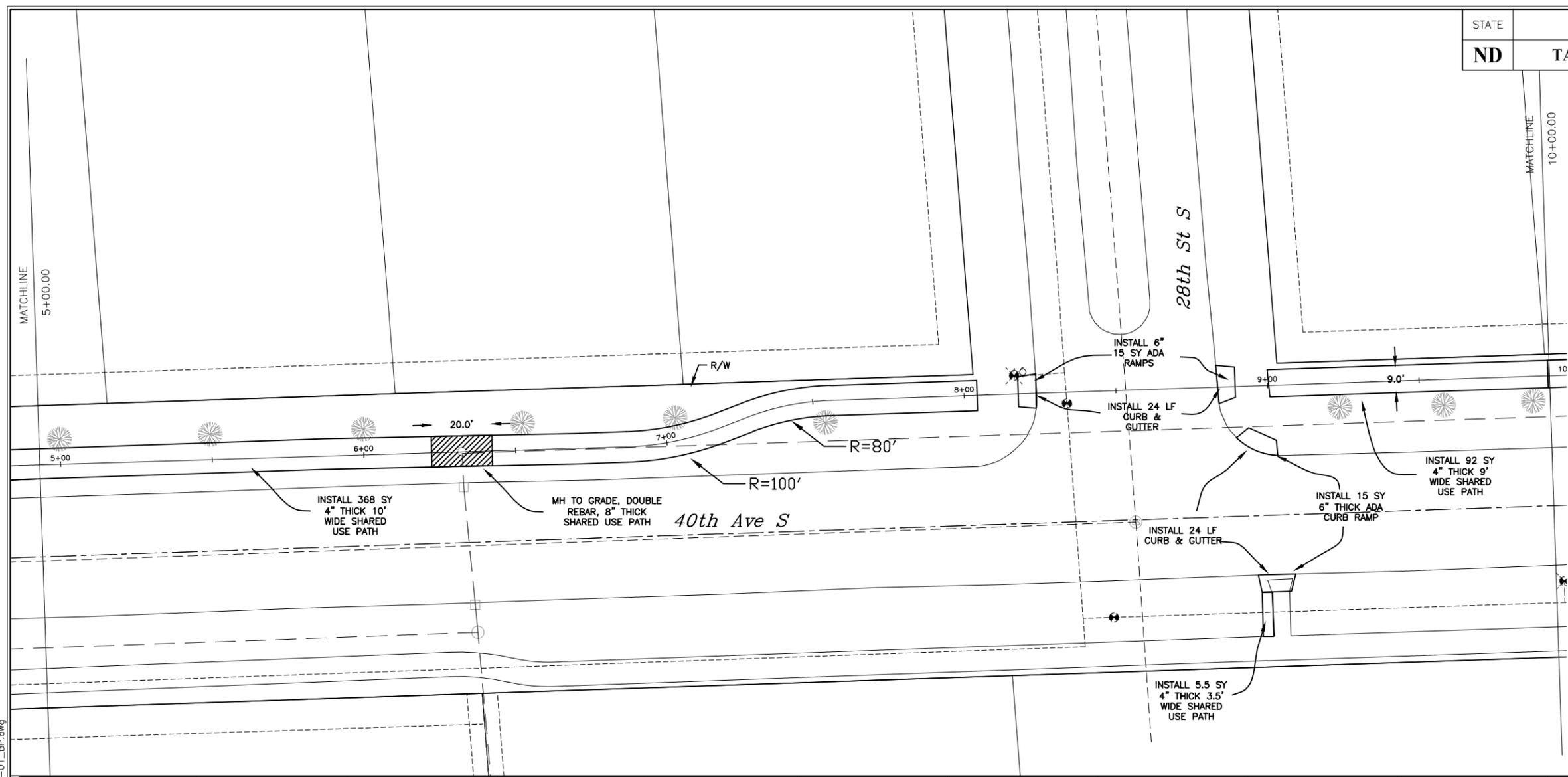
**QUANTITIES:**  
 SIDEWALK CONC 4": 465.5 SY  
 SIDEWALK CONC 6": 30 SY  
 DET WARNING PANEL: 72 SF  
 CURB & GUTTER: 48 LF  
 SEEDING: 985 SY

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REVISIONS		
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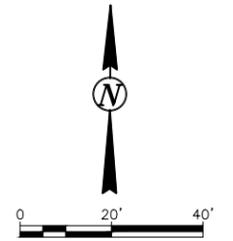
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<b>5+00.00 to 10+00.00</b>	
SHARED USE PATH	
<b>IMPROVEMENT DISTRICT SN-15-A1</b>	
DESIGN BY: JMB	CHECKED BY: JMG
DRAWN BY: JMB	ORIG DATE: 08/15
<b>CITY OF Fargo</b>	
SECTION NO. <b>060</b>	SHEET NO. <b>2</b>



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STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	TAU-8-984(151)154	060	3



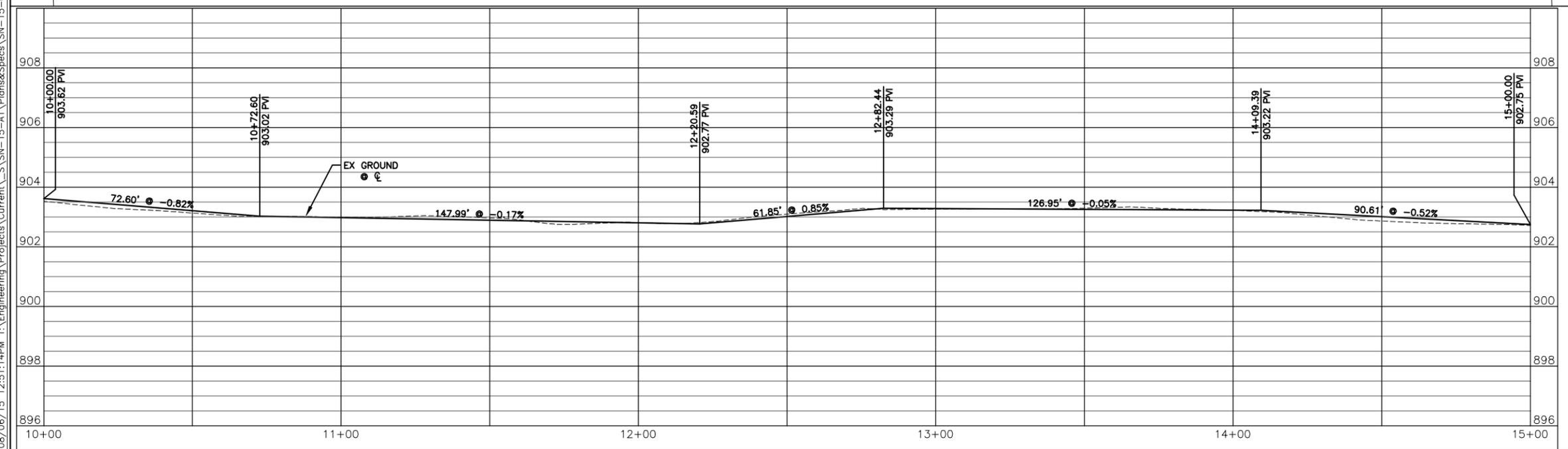
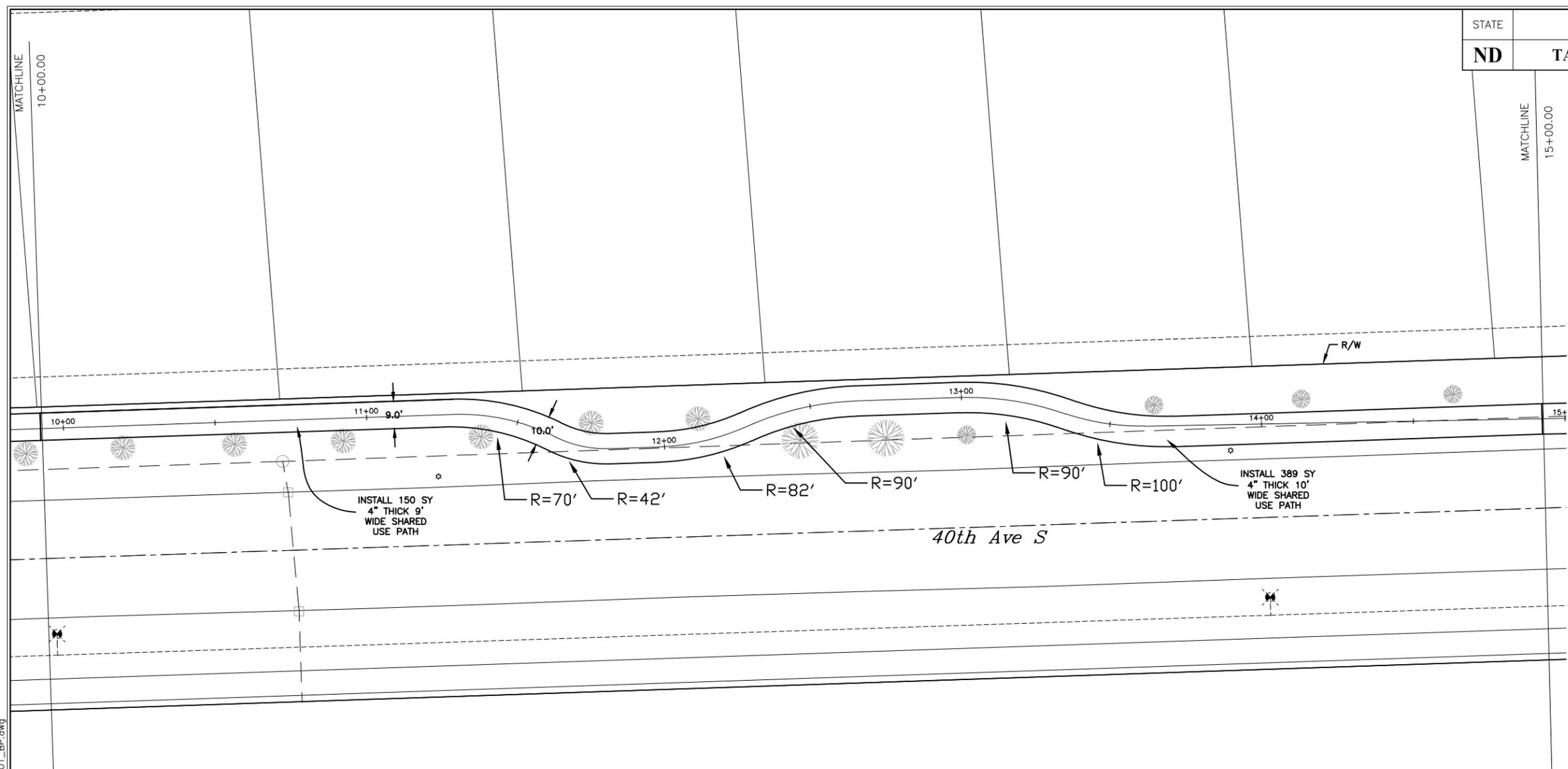
**QUANTITIES:**  
 SIDEWALK CONC 4": 539 SY  
 SEEDING: 1223 SY

ALL ELEVATIONS ARE BASED ON  
 THE U.S.G.S. VERTICAL DATUM OF 1988.  
 (UNLESS NOTED OTHERWISE)

REVISIONS  
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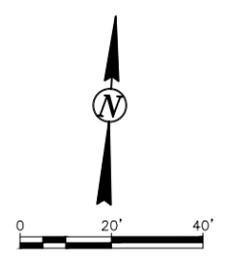
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10+00.00 to 15+00.00	
SHARED USE PATH	
IMPROVEMENT DISTRICT SN-15-A1	
DESIGN BY: JMB	CHECKED BY: JMG
DRAWN BY: JMB	ORIG DATE: 08/15
<b>CITY OF Fargo</b>	
SECTION NO. <b>060</b>	SHEET NO. <b>3</b>



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STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	TAU-8-984(151)154	060	4



**QUANTITIES:**  
 SIDEWALK CONC 4": 504.5 SY  
 SIDEWALK CONC 6": 9 SY  
 DET WARNING PANEL: 20 SF  
 CURB & GUTTER: 12 LF  
 SEEDING: 1032 SY

ALL ELEVATIONS ARE BASED ON  
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**15+00.00 to 20+00.00**

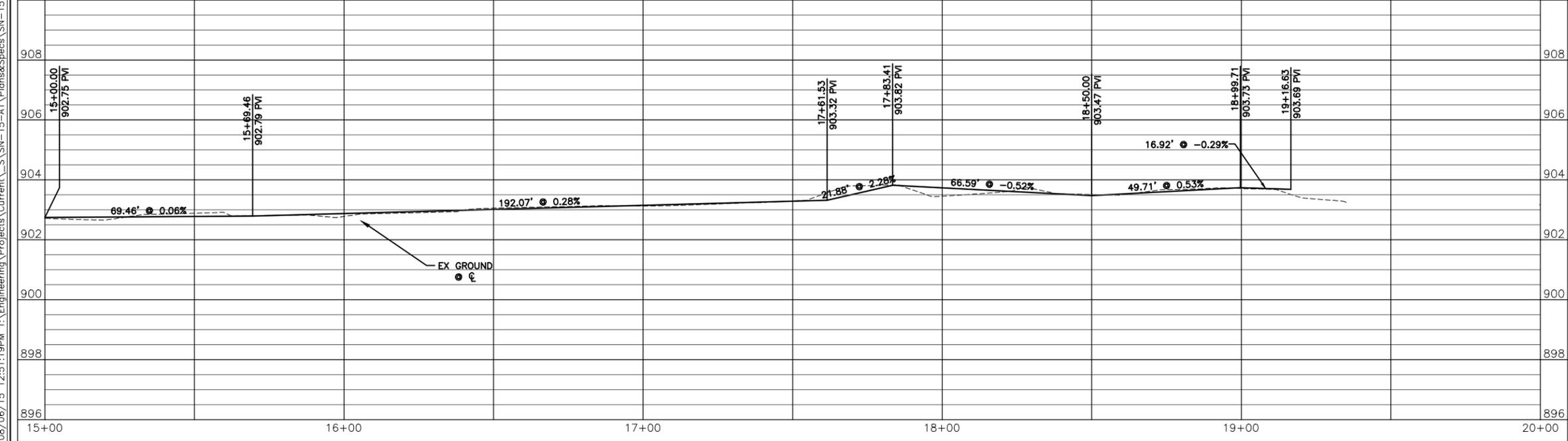
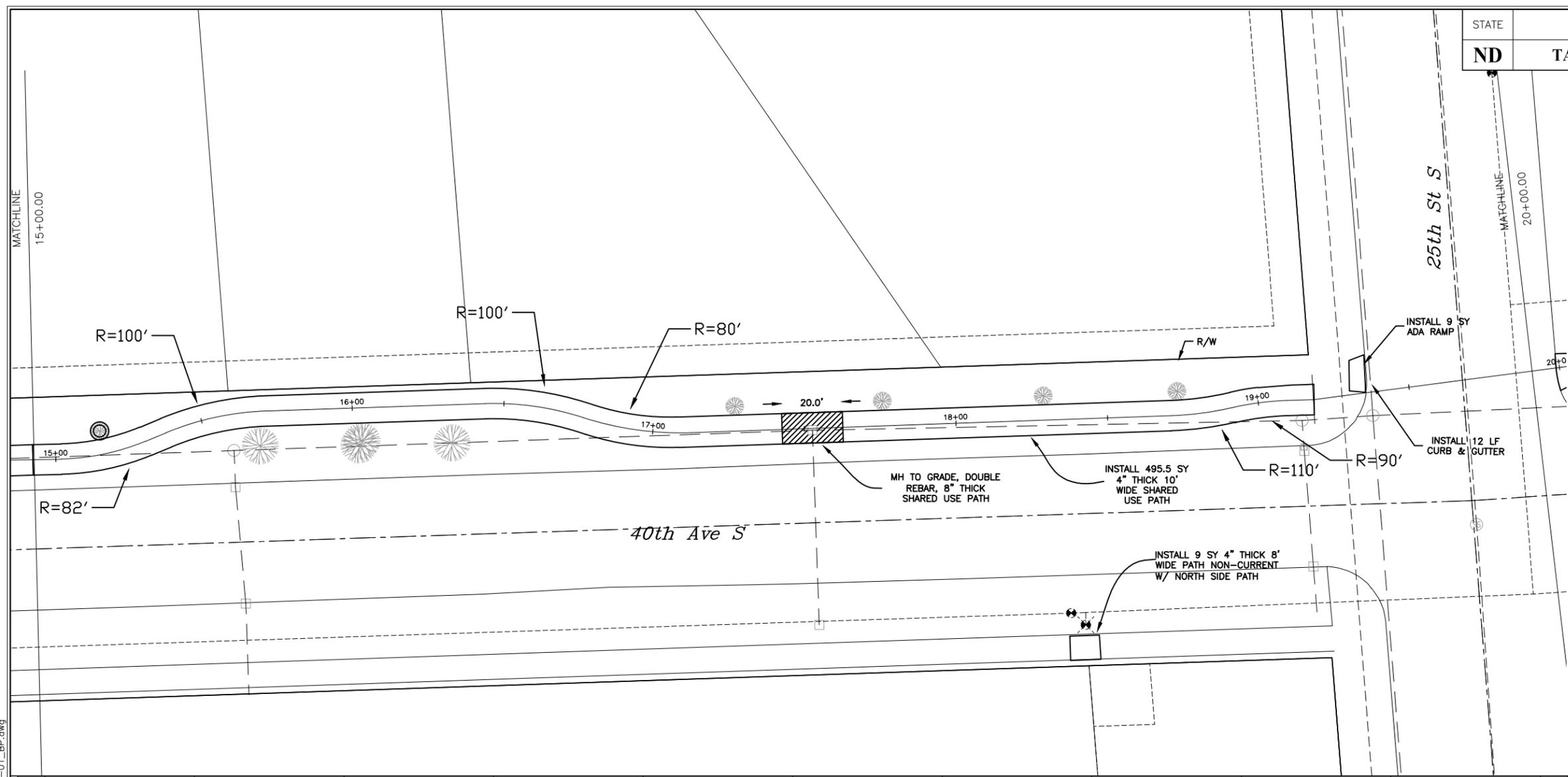
SHARED USE PATH

IMPROVEMENT DISTRICT **SN-15-A1**

DESIGN BY: JMB	CHECKED BY: JMG
DRAWN BY: JMB	ORIG DATE: 08/15

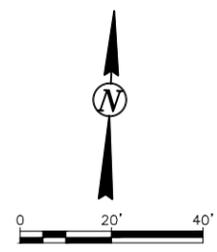
**CITY OF Fargo**

SECTION NO.	SHEET NO.
060	4



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STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	TAU-8-984(151)154	060	5



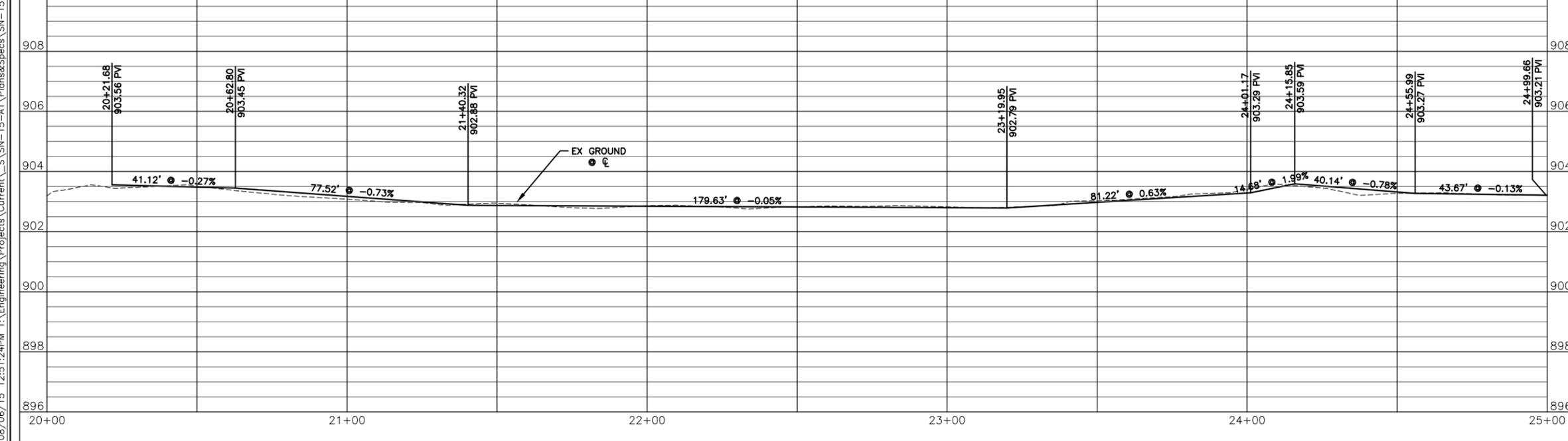
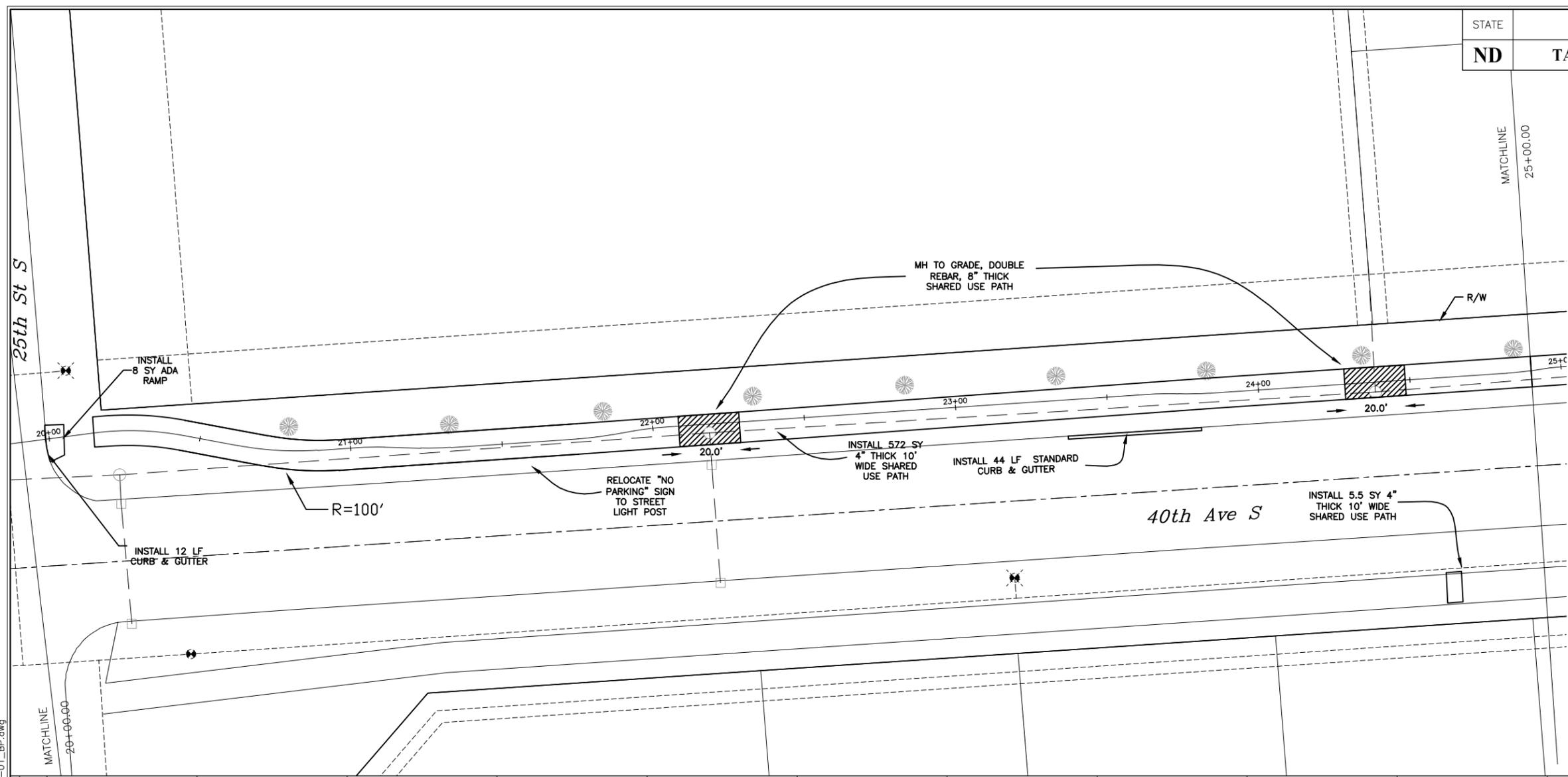
**QUANTITIES:**  
 SIDEWALK CONC 4": 577.5 SY  
 SIDEWALK CONC 6": 8 SY  
 DET WARNING PANEL: 20 SF  
 CURB & GUTTER: 56 LF  
 SEEDING: 1143 SY

ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

REVISIONS		
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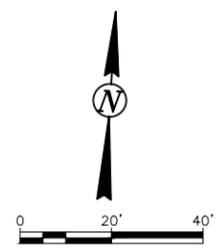
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20+00.00 to 25+00.00	
SHARED USE PATH	
IMPROVEMENT DISTRICT SN-15-A1	
DESIGN BY: JMB	CHECKED BY: JMG
DRAWN BY: JMB	ORIG DATE: 08/15
SECTION NO. 060	SHEET NO. 5



08/06/15 12:51:24PM T:\Engineering\Projects\Current\SN-15-A1\Plans&Specs\SN-15-01\_BP.dwg

STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	TAU-8-984(151)154	060	6



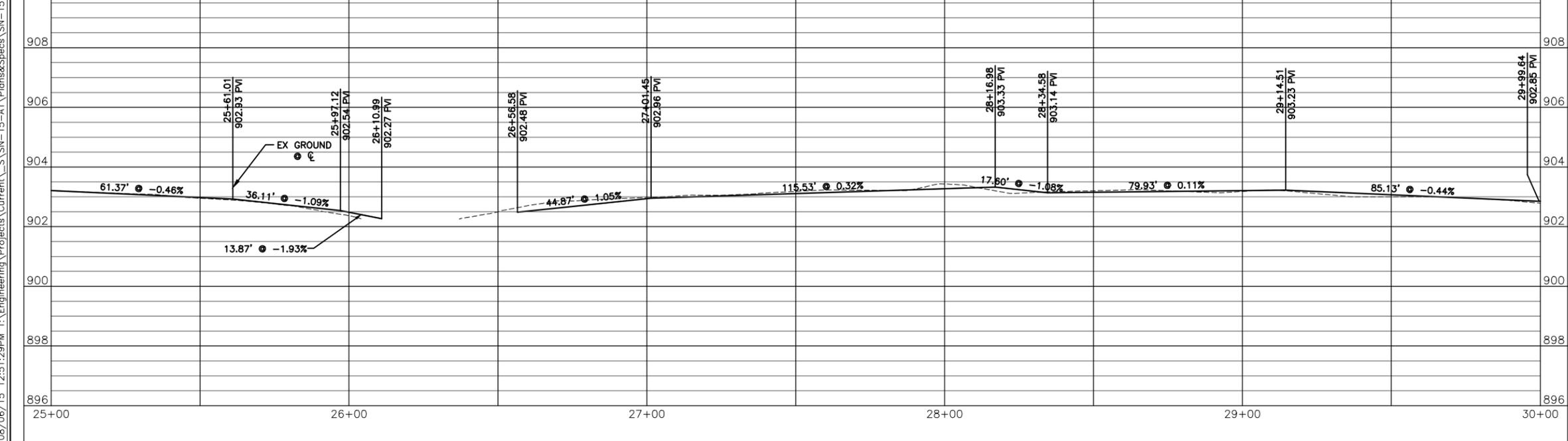
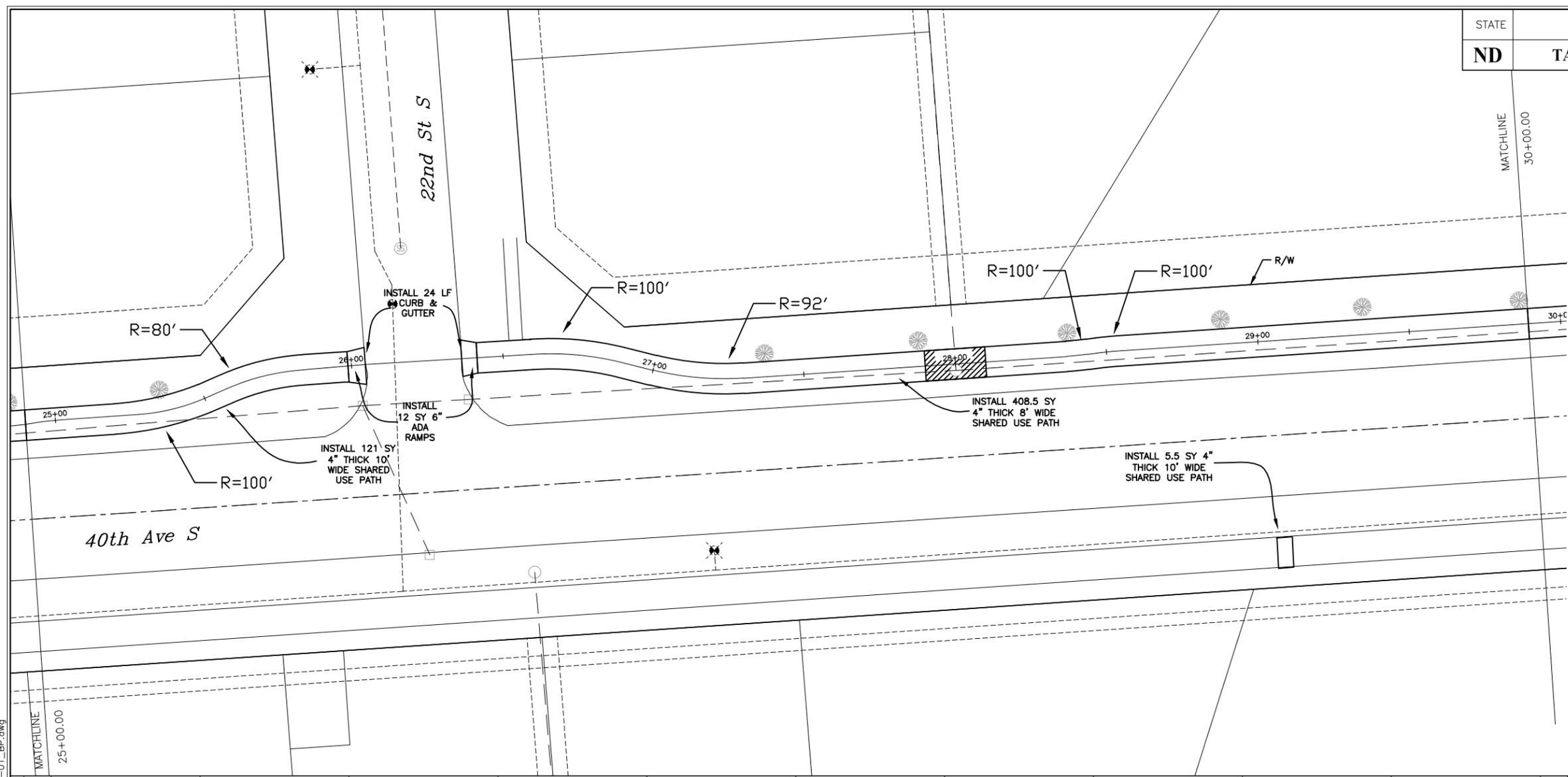
**QUANTITIES:**  
 SIDEWALK CONC 4": 535 SY  
 SIDEWALK CONC 6": 12 SY  
 DET WARNING PANEL: 40 SF  
 CURB & GUTTER: 24 LF  
 SEEDING: 1124 SY

ALL ELEVATIONS ARE BASED ON THE U.S.G.S. VERTICAL DATUM OF 1988. (UNLESS NOTED OTHERWISE)

REVISIONS		
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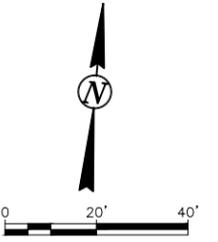
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25+00.00 to 30+00.00		
SHARED USE PATH		
IMPROVEMENT DISTRICT SN-15-A1		
DESIGN BY: JMB	CHECKED BY: JMG	
DRAWN BY: JMB	ORIG DATE: 08/15	
	SECTION NO.	SHEET NO.
	060	6



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STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	TAU-8-984(151)154	060	7



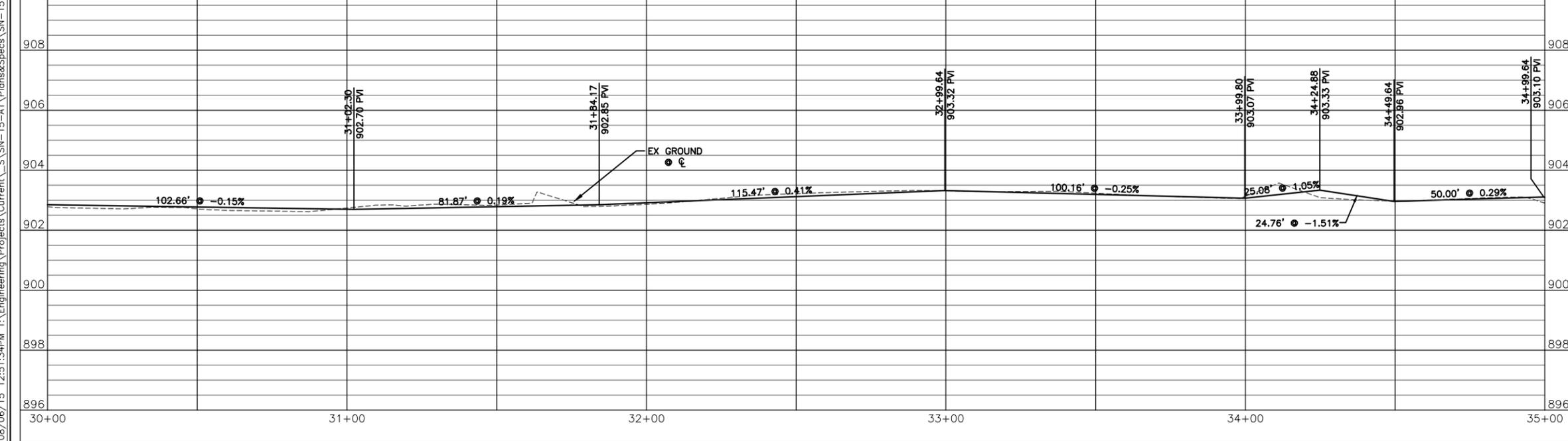
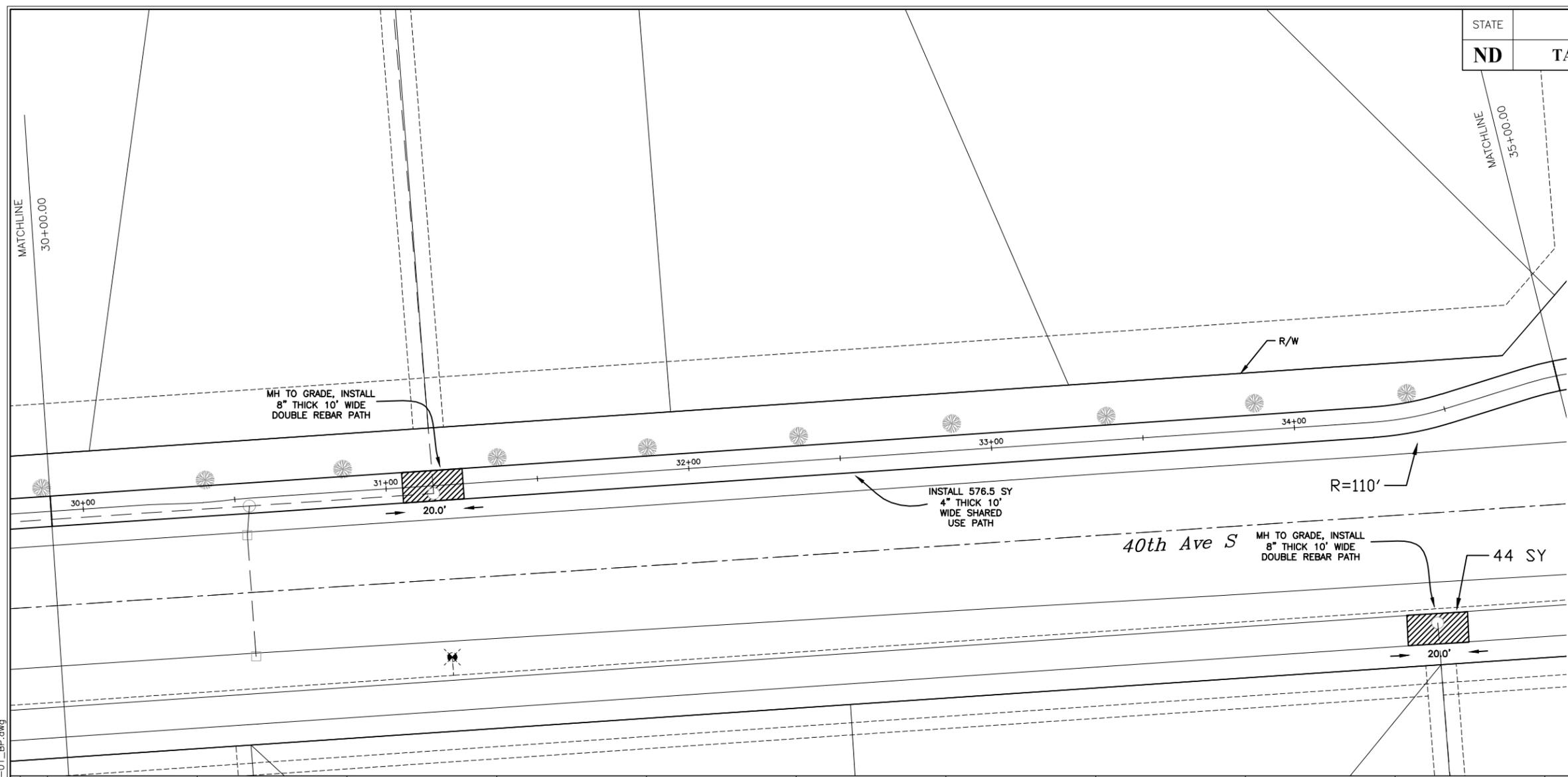
**QUANTITIES:**  
 SIDEWALK CONC 4": 620.5 SY  
 SEEDING: 1223 SY

ALL ELEVATIONS ARE BASED ON  
 THE U.S.G.S. VERTICAL DATUM OF 1988.  
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REVISIONS		
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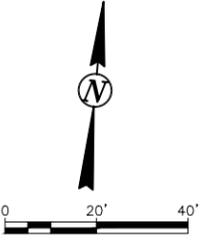
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30+00.00 to 35+00.00		
SHARED USE PATH		
IMPROVEMENT DISTRICT SN-15-A1		
DESIGN BY: JMB	CHECKED BY: JMG	
DRAWN BY: JMB	ORIG DATE: 08/15	
CITY OF Fargo		
SECTION NO.	SHEET NO.	
060	7	



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STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	TAU-8-984(151)154	060	8



**QUANTITIES:**  
 SIDEWALK CONC 4": 38.5 SY  
 SIDEWALK CONC 6": 5 SY  
 DET WARNING PANEL: 20 SF  
 CURB & GUTTER: 12 LF  
 SEEDING: 76 SY

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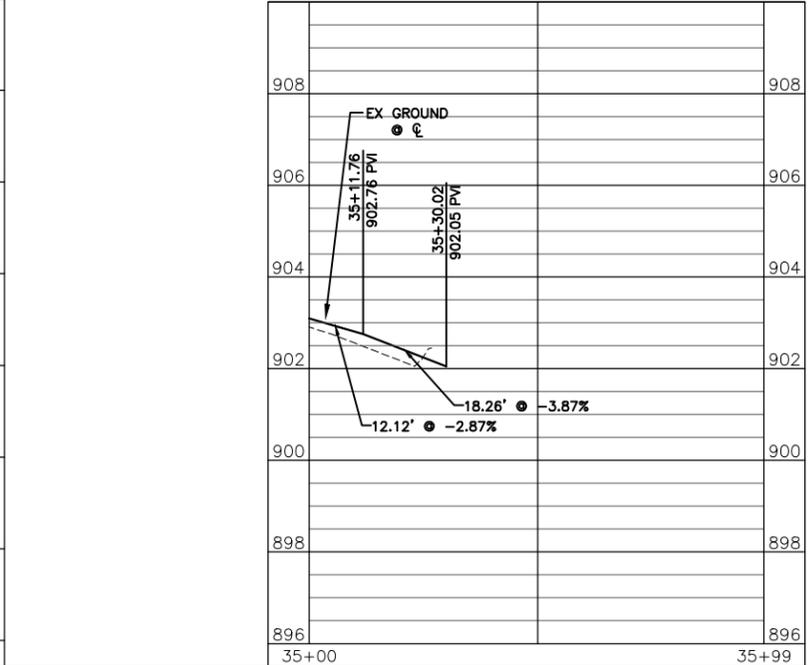
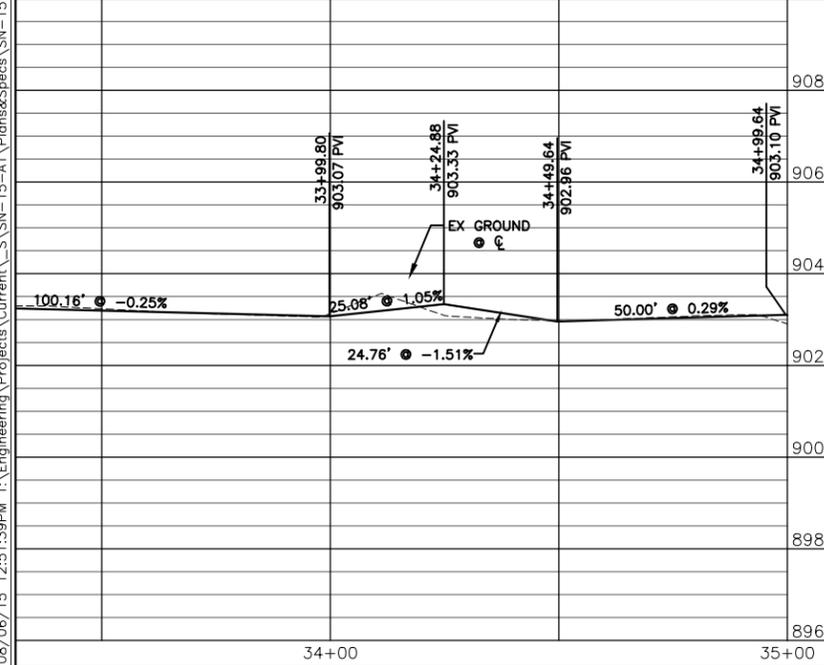
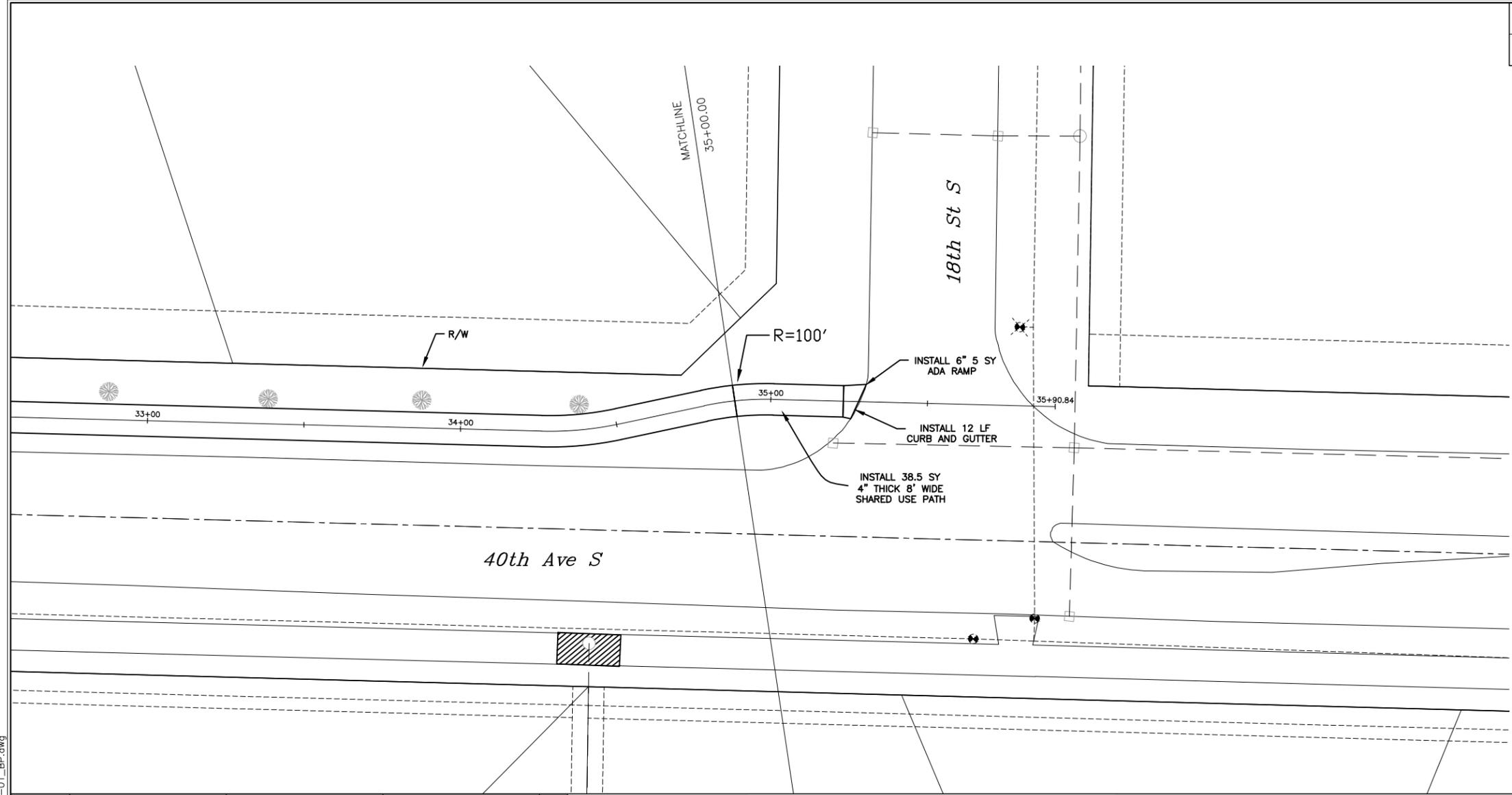
**35+00.00 to 35+55.68**

SHARED USE PATH

IMPROVEMENT DISTRICT SN-15-A1

DESIGN BY: JMB CHECKED BY: JMG  
 DRAWN BY: JMB ORIG DATE: 08/15

	SECTION NO.	SHEET NO.
	060	8



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STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	TAU-8-984(151)154	76	1



LEGEND:

	INLET PROTECTION - EXISTING INLET
	INLET PROTECTION - NEW INLET
	EX STORM INLET
	EX STORM MH
	EX STORM SEWER
	PROPOSED STORM SEWER
	CONSTRUCTION LIMITS
	FLOW DIRECTION
	TEMPORARY CONSTRUCTION ENTRANCE

**OWNER/DEVELOPER/ENGINEER:**  
 CITY OF FARGO  
 ENGINEERING DEPARTMENT  
 200 NORTH 3RD ST  
 FARGO, ND 58102  
 ATTN: JASON BAKER  
 (O): 701-241-1545  
 (F): 701-241-8101  
 Email: JBAKER@cityoffargo.com

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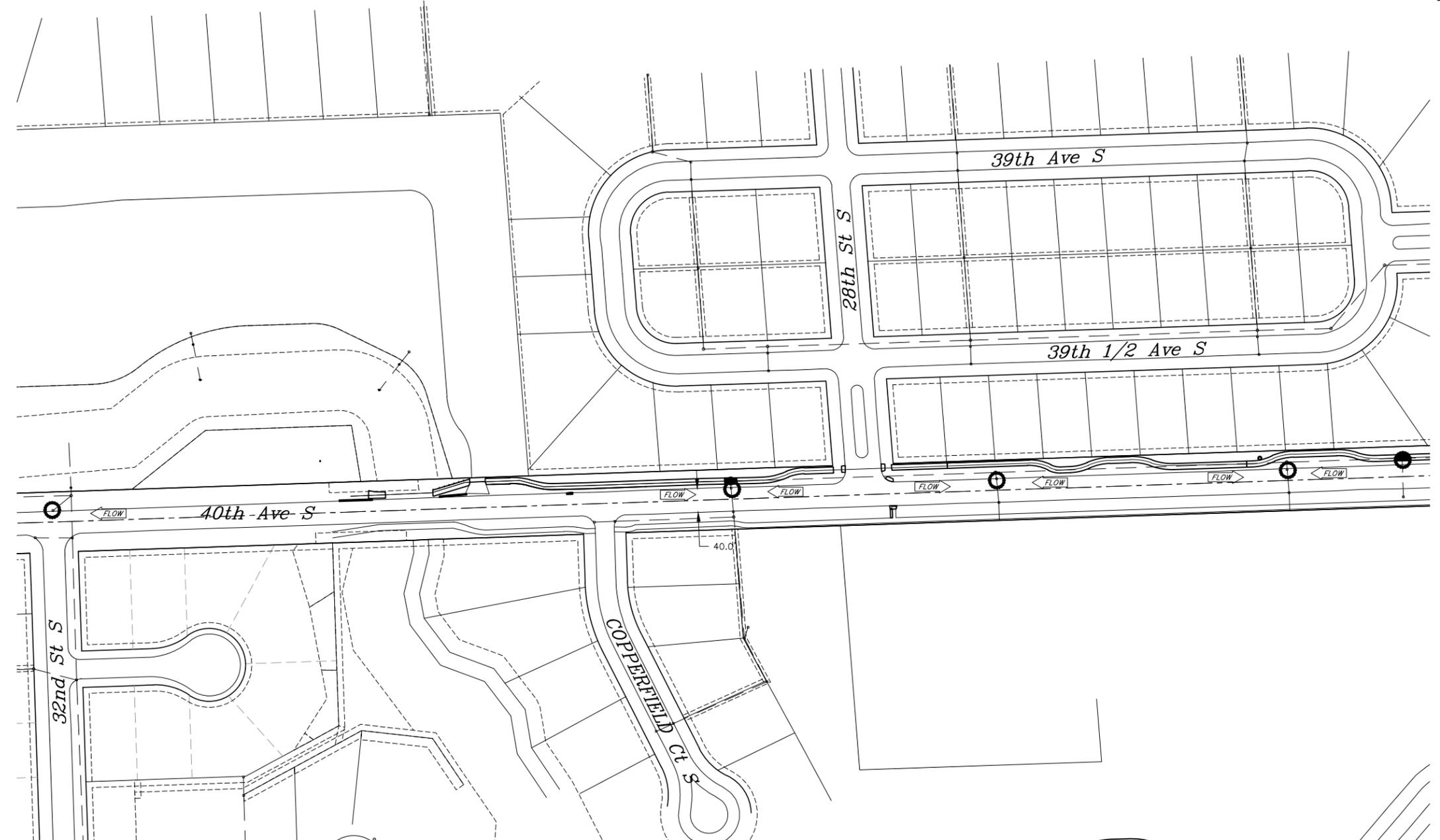
**Temporary Erosion Control**

SHARED USE PATH

**IMPROVEMENT DISTRICT SN-15-A1**

DESIGN BY: JMB	CHECKED BY: JMG
DRAWN BY: JMB	ORIG DATE: 08/15

	SECTION NO.	SHEET NO.
	076	1



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**PROJECT DESCRIPTION:**

THIS PROJECT CONSISTS OF THE REMOVAL OF AN EXISTING SIDEWALK AND THE INSTALLATION OF A NEW SHARED USE PATH.

**TOTAL SITE AREA:**

THE TOTAL SITE AREA IMPACTED BY CONSTRUCTION IS 1.60 ACRES.

**EXISTING SITE CONDITIONS:**

- ESTABLISHED GRASS

**OFFSITE AREAS:**

NO OFFSITE AREAS WILL BE UTILIZED FOR THE CONSTRUCTION OF THIS PROJECT

**CRITICAL AREAS:**

CRITICAL EROSION AREAS INCLUDE AREAS WHERE SLOPES EXCEED 5:1. CUT AND FILL SLOPES FOR THIS PROJECT IS DESIGNED AT A 5:1 MAXIMUM. OTHER CRITICAL AREAS INCLUDE LOCATIONS DESIGNED TO RECEIVE CONCENTRATED RUNOFF (SWALES & PIPE OUTFALLS). ADDITIONAL POINTS OF CONCERN ARE LOCATED AT THE INGRESS AND EGRESS LOCATIONS FOR CONSTRUCTION TRAFFIC. THESE AREAS WILL BE PROTECTED FROM EROSION BY MEASURES INDICATED ON THE PLANS.

**FLOOD CERTIFICATE:**

THIS PROJECT LIES WITHIN FLOOD ZONES AE PER FIRM PANEL NUMBER 38017C 0779 G REVISED JANUARY 16, 2015.

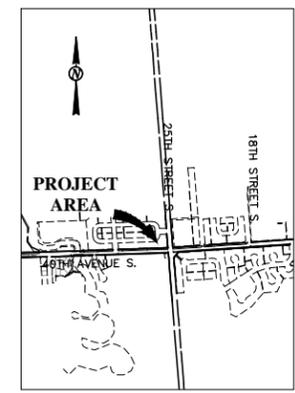
**RECEIVING WATERS:**

STORM WATER FROM THIS SITE WILL BE COLLECTED IN AN EXISTING STORM SEWER SYSTEM. THE ULTIMATE RECEIVING WATERS FOR THIS PROJECT WILL BE THE RED RIVER.

**GENERAL NOTES:**

- REFER TO SPECIAL INSTRUCTIONS SHEETS FOR SEQUENCING OF EROSION CONTROL MEASURES.
- CONSTRUCTION PHASING SHALL ADHERE TO THE DETAILS IN THE SPECIAL INSTRUCTIONS TO BIDDERS.
- REFER TO THE SPECIAL INSTRUCTIONS FOR SWPPP RESPONSIBILITIES AND PERMITTING REQUIREMENTS.
- CONTRACTOR SHALL INSPECT SITE EROSION CONTROL WEEKLY AND AFTER EACH RAIN EVENT MEASURING 1/4" CONTRACTOR SHALL MAINTAIN A LOG OF ALL COMPLETED INSPECTIONS.

- A COPY OF THE INSPECTION LOG, EROSION CONTROL PLAN, AND SWPPP SHALL REMAIN ON SITE AT ALL TIMES.
- THE OFFICIAL RAIN GAGE FOR THIS SITE IS LOCATED AT: HECTOR INTERNATIONAL AIRPORT
- CONTRACTOR SHALL NOTIFY CITY EROSION INSPECTOR ONCE REPAIRS/MODIFICATIONS HAVE BEEN MADE AND SHALL KEEP A LOG OF ALL MODIFICATIONS/REPAIRS ON SITE.
- A COMPLETED N.O.T. SHALL BE SUBMITTED BY THE CONTRACTOR TO THE STATE AND THE CITY OF FARGO PRIOR TO FINAL ACCEPTANCE.
- CONTRACTOR SHALL MAINTAIN ALL EROSION CONTROL DEVICES ON THIS SITE UNTIL FINAL ACCEPTANCE.
- CONTRACTOR SHALL UPDATE THIS EROSION CONTROL PLAN AS NEEDED TO REFLECT MEASURES IMPLEMENTED IN THE FIELD DURING CONSTRUCTION.



VICINITY MAP

STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	TAU-8-984(151)154	76	2



**LEGEND:**

-  PROPOSED SILT FENCE
-  BIO ROLL
-  INLET PROTECTION - EXISTING INLET
-  INLET PROTECTION - NEW INLET
-  EX STORM INLET
-  EX STORM MH
-  EX STORM SEWER
-  PROPOSED STORM SEWER
-  CONSTRUCTION LIMITS
-  FLOW DIRECTION
-  TEMPORARY CONSTRUCTION ENTRANCE

**OWNER/DEVELOPER/ENGINEER:**  
 CITY OF FARGO  
 ENGINEERING DEPARTMENT  
 200 NORTH 3RD ST  
 FARGO, ND 58102  
 ATTN: JASON BAKER  
 (O): 701-241-1545  
 (F): 701-241-8101  
 Email: JBAKER@cityoffargo.com

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③	②	①

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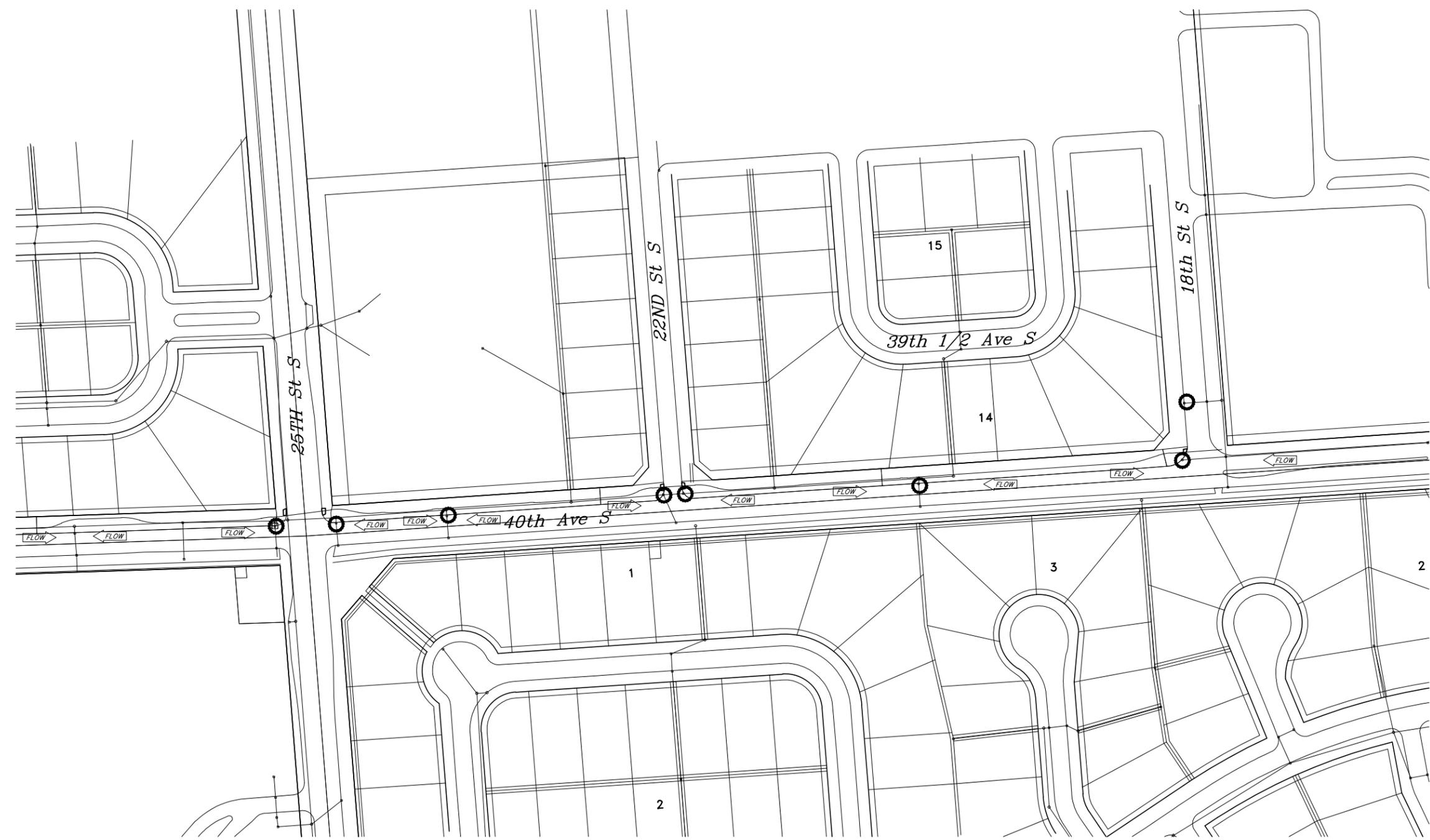
**Temporary Erosion Control**

SHARED USE PATH

**IMPROVEMENT DISTRICT SN-15-A1**

DESIGN BY: JMB	CHECKED BY: JMG
DRAWN BY: JMB	ORIG DATE: 08/15

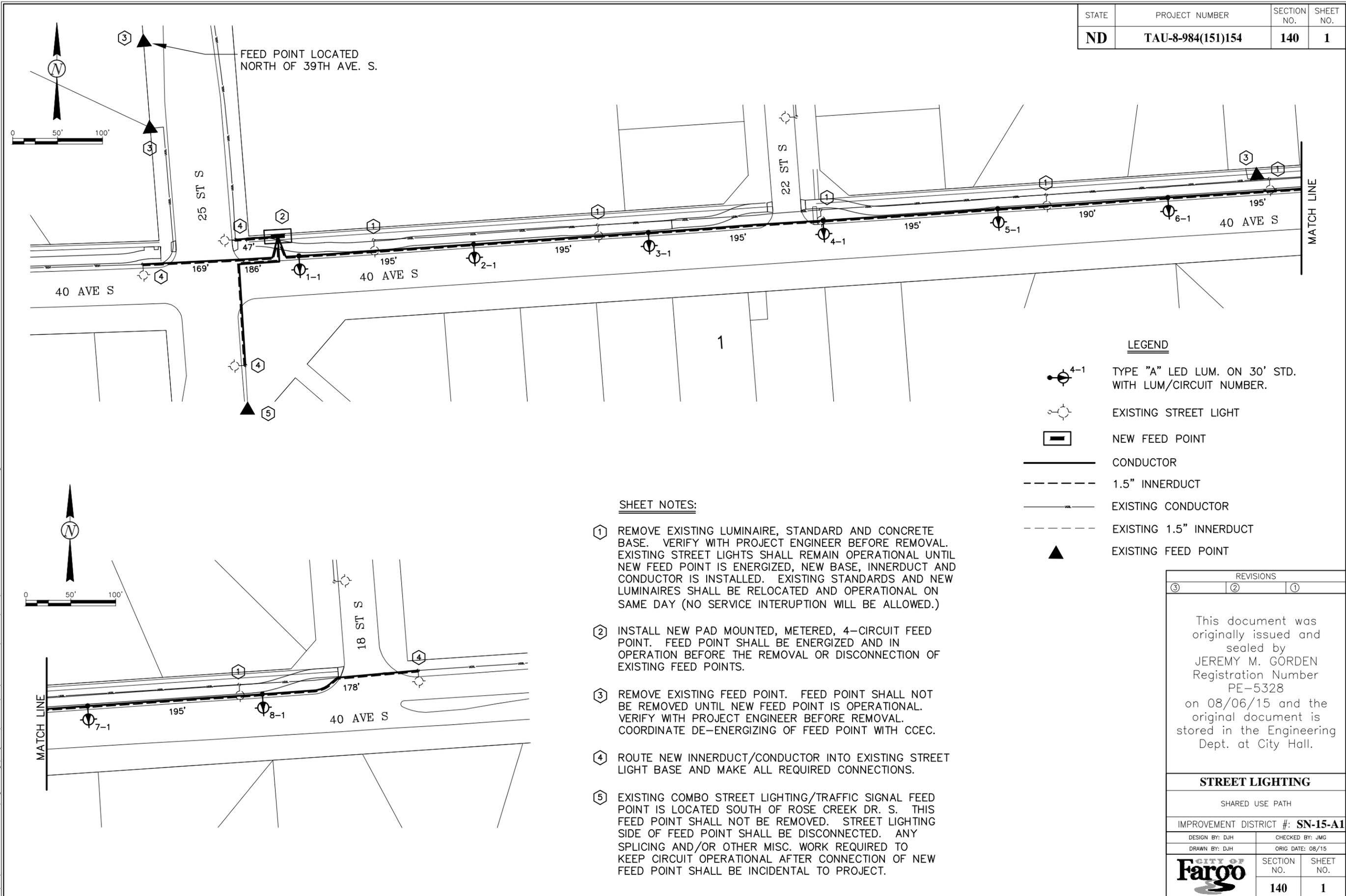
	SECTION NO.	SHEET NO.
	076	2



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STATE	PROJECT NUMBER	SECTION NO.	SHEET NO.
ND	TAU-8-984(151)154	140	1



**LEGEND**

- TYPE "A" LED LUM. ON 30' STD. WITH LUM/CIRCUIT NUMBER.
- EXISTING STREET LIGHT
- NEW FEED POINT
- CONDUCTOR
- 1.5" INNERDUCT
- EXISTING CONDUCTOR
- EXISTING 1.5" INNERDUCT
- EXISTING FEED POINT

**SHEET NOTES:**

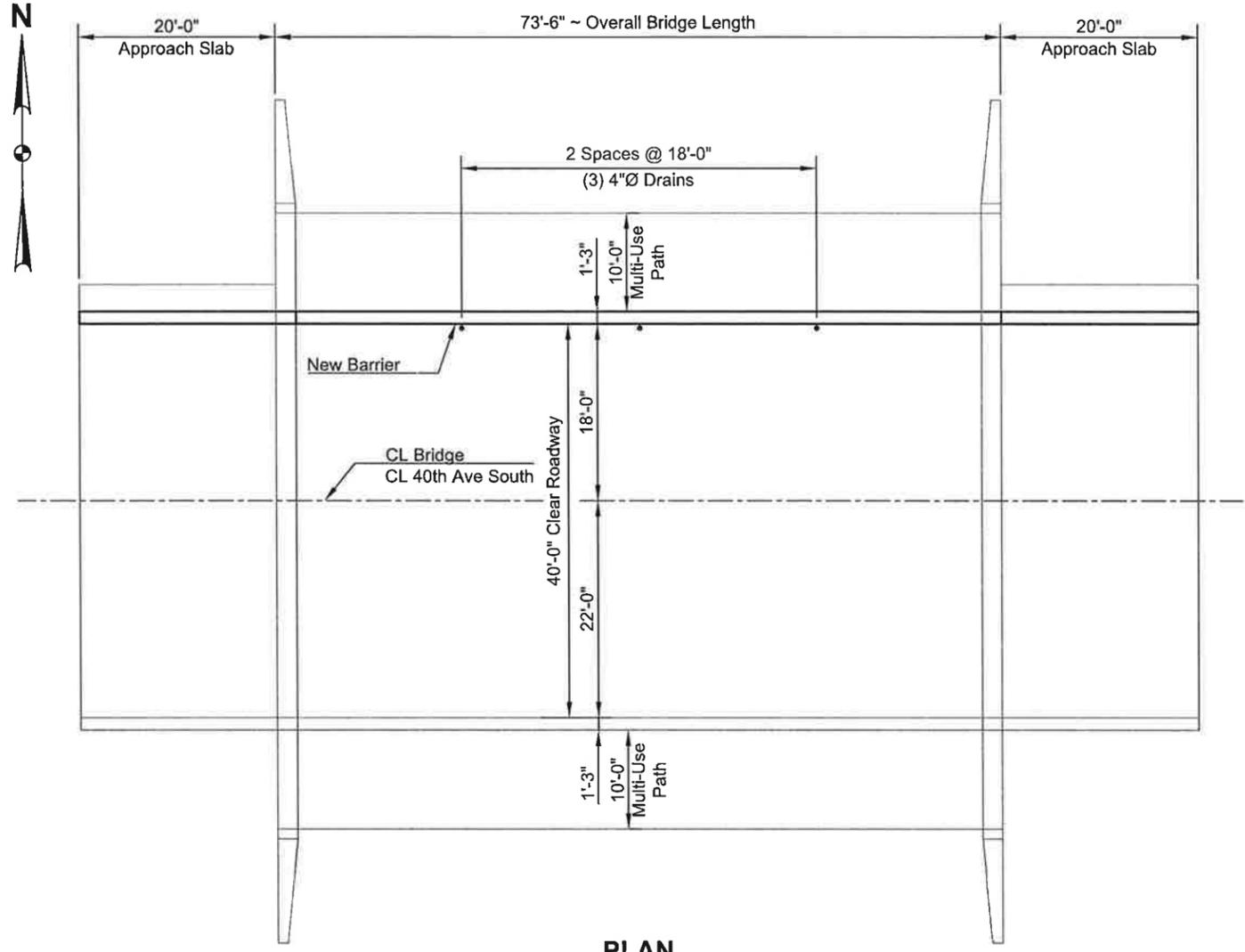
- ① REMOVE EXISTING LUMINAIRE, STANDARD AND CONCRETE BASE. VERIFY WITH PROJECT ENGINEER BEFORE REMOVAL. EXISTING STREET LIGHTS SHALL REMAIN OPERATIONAL UNTIL NEW FEED POINT IS ENERGIZED, NEW BASE, INNERDUCT AND CONDUCTOR IS INSTALLED. EXISTING STANDARDS AND NEW LUMINAIRES SHALL BE RELOCATED AND OPERATIONAL ON SAME DAY (NO SERVICE INTERRUPTION WILL BE ALLOWED.)
- ② INSTALL NEW PAD MOUNTED, METERED, 4-CIRCUIT FEED POINT. FEED POINT SHALL BE ENERGIZED AND IN OPERATION BEFORE THE REMOVAL OR DISCONNECTION OF EXISTING FEED POINTS.
- ③ REMOVE EXISTING FEED POINT. FEED POINT SHALL NOT BE REMOVED UNTIL NEW FEED POINT IS OPERATIONAL. VERIFY WITH PROJECT ENGINEER BEFORE REMOVAL. COORDINATE DE-ENERGIZING OF FEED POINT WITH CCEC.
- ④ ROUTE NEW INNERDUCT/CONDUCTOR INTO EXISTING STREET LIGHT BASE AND MAKE ALL REQUIRED CONNECTIONS.
- ⑤ EXISTING COMBO STREET LIGHTING/TRAFFIC SIGNAL FEED POINT IS LOCATED SOUTH OF ROSE CREEK DR. S. THIS FEED POINT SHALL NOT BE REMOVED. STREET LIGHTING SIDE OF FEED POINT SHALL BE DISCONNECTED. ANY SPlicing AND/OR OTHER MISC. WORK REQUIRED TO KEEP CIRCUIT OPERATIONAL AFTER CONNECTION OF NEW FEED POINT SHALL BE INCIDENTAL TO PROJECT.

REVISIONS		
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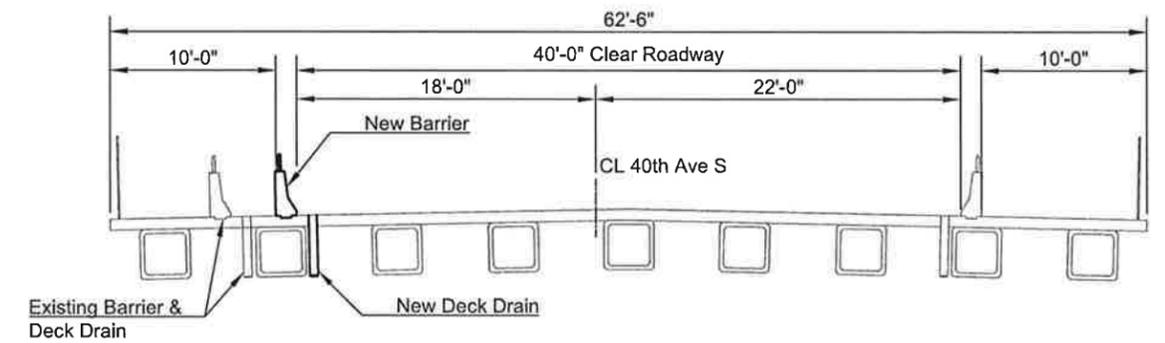
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STREET LIGHTING		
SHARED USE PATH		
IMPROVEMENT DISTRICT #: SN-15-A1		
DESIGN BY: DJH	CHECKED BY: JMG	
DRAWN BY: DJH	ORIG DATE: 08/15	
	SECTION NO.	SHEET NO.
	140	1

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PLAN



TYPICAL SLAB SECTION

DESIGN STRENGTHS:  
 f<sub>c</sub> = 4,000 psi ~ Class AAE-3 Concrete  
 f<sub>y</sub> = 60,000 psi ~ Reinforcing Steel  
 Load Factor Design

ALL ELEVATIONS ARE BASED ON  
 THE U.S.G.S. VERTICAL DATUM OF 1988.  
 (UNLESS NOTED OTHERWISE)

REVISIONS	
③	①
②	①
SEAL	
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BRIDGE LAYOUT	
40TH AVE SOUTH BRIDGE MODIFICATIONS	
PROJECT NUMBER	SN-15-A0
DESIGN BY: KR	CHECKED BY: CM
DRAWN BY: DW	ORIG DATE: 7/22/2015
	SECTION NO.
	SHEET NO.
170	1

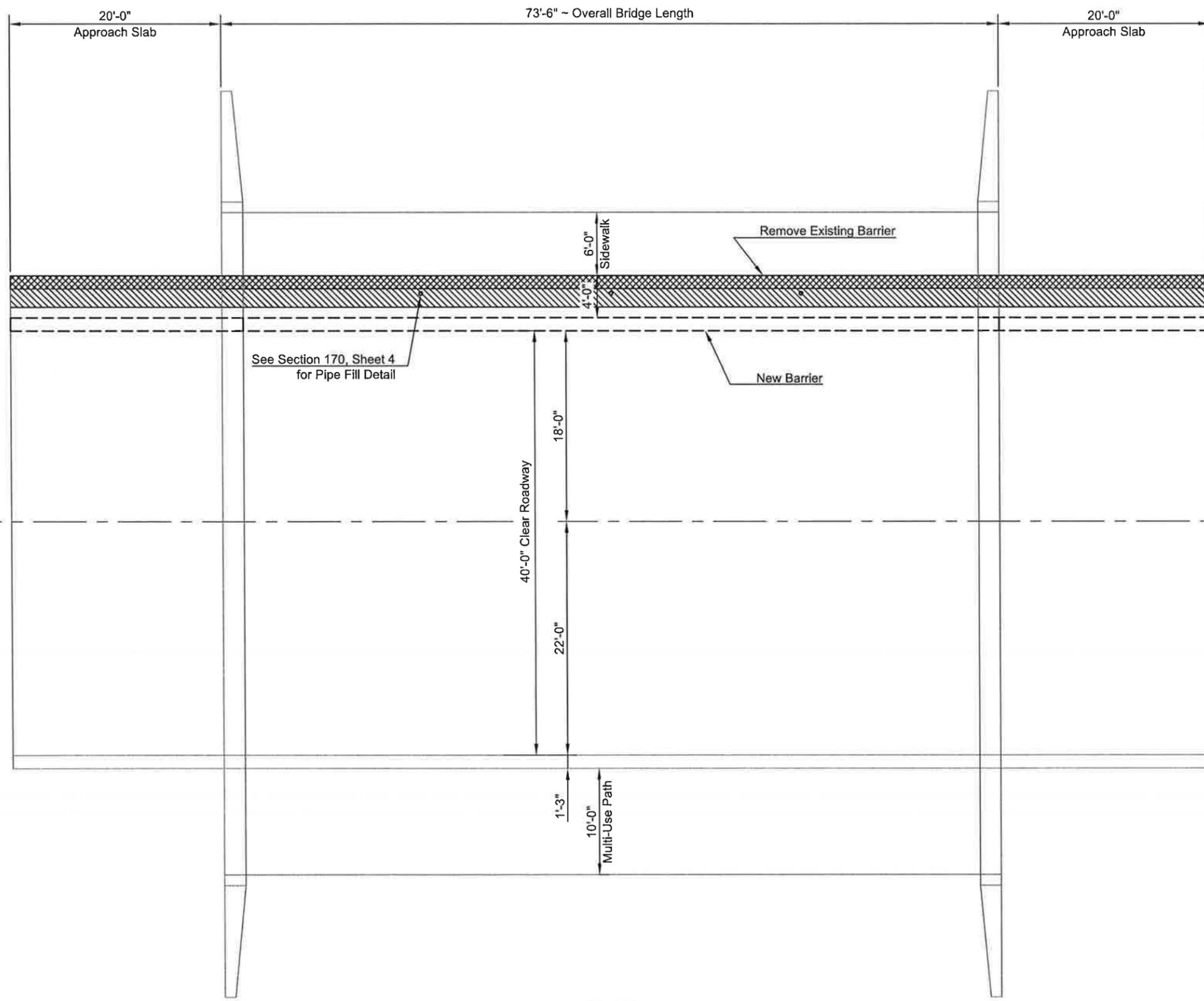
STRUCTURAL QUANTITIES ONLY

SPEC	CODE	ITEM DESCRIPTION	UNIT	QUANTITY
202	0111	REMOVAL OF CONCRETE	LSUM	1
602	0130	CLASS AAE-3 CONCRETE	CY	7.2
612	0116	REINFORCING STEEL-GRADE 60 EPOXY COATED	LBS	2,460
624	0121	RESET PEDESTRIAN RAILING	LF	69.5
650	0704	OVERLAY CONCRETE	CY	2.1
650	0720	CLASS 1 REMOVAL	SY	37.8
714	6589	PIPE PVC 4IN DRAIN	LF	12

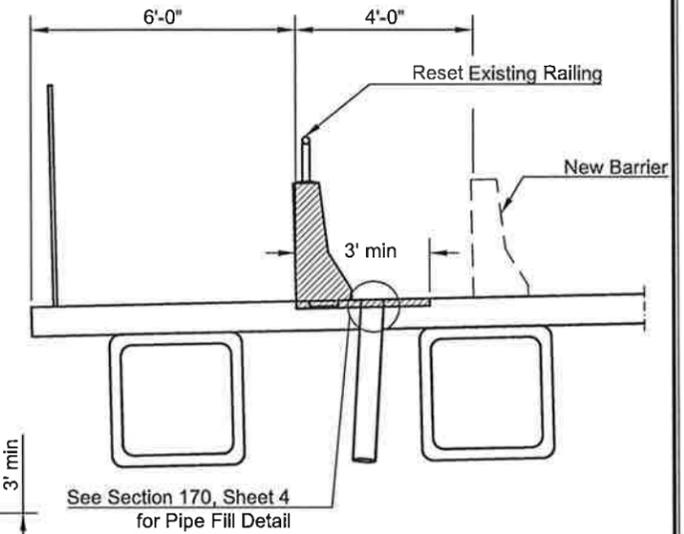
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PLAN



EXISTING SLAB SECTION

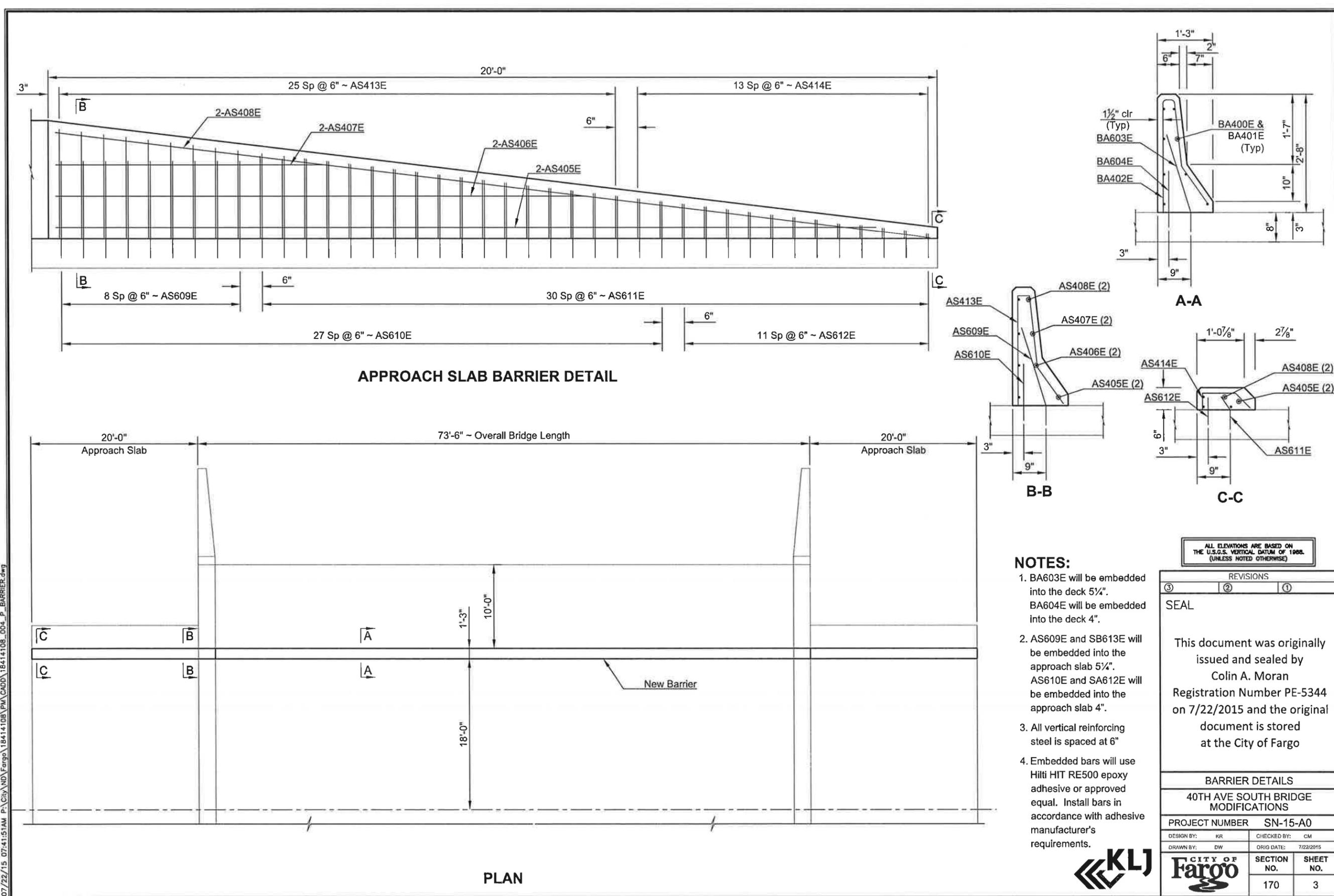
**NOTE:**

1. Existing pedestrian railing will be removed and installed on new barrier.
2. Concrete will be removed down to a 2" depth below existing deck surface.
3. Hatched area indicates concrete to be removed. Removal area will be made wide enough to include area underneath barrier and drainage circle around existing drainage pipes. Care will be taken so as not to damage the existing transverse reinforcing steel during removal of concrete.
4. According to existing plans the existing barrier contains reinforcing steel that ties into deck. If removal equipment is not able to cut steel, steel will need to be removed and prepped for concrete overlay.

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REVISIONS	
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②	②
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REMOVALS	
40TH AVE SOUTH BRIDGE MODIFICATIONS	
PROJECT NUMBER	SN-15-A0
DESIGN BY: KR	CHECKED BY: CM
DRAWN BY: DW	ORIG DATE: 7/22/2015
CITY OF <b>Fargo</b>	SECTION NO.
	170
KLJ	SHEET NO.
	2

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**APPROACH SLAB BARRIER DETAIL**

**PLAN**

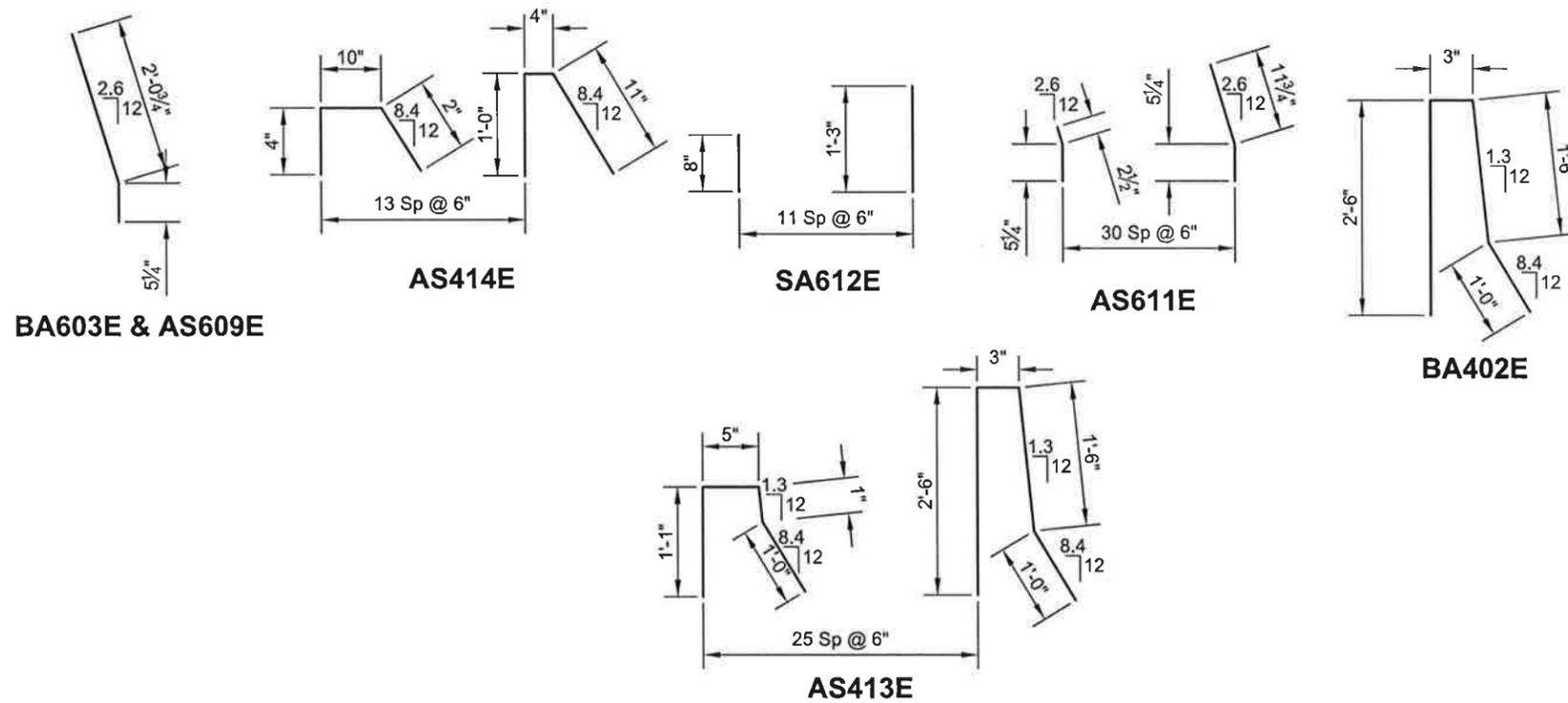
**NOTES:**

1. BA603E will be embedded into the deck 5 1/4".  
BA604E will be embedded into the deck 4".
2. AS609E and SB613E will be embedded into the approach slab 5 1/4".  
AS610E and SA612E will be embedded into the approach slab 4".
3. All vertical reinforcing steel is spaced at 6"
4. Embedded bars will use Hilti HIT RE500 epoxy adhesive or approved equal. Install bars in accordance with adhesive manufacturer's requirements.

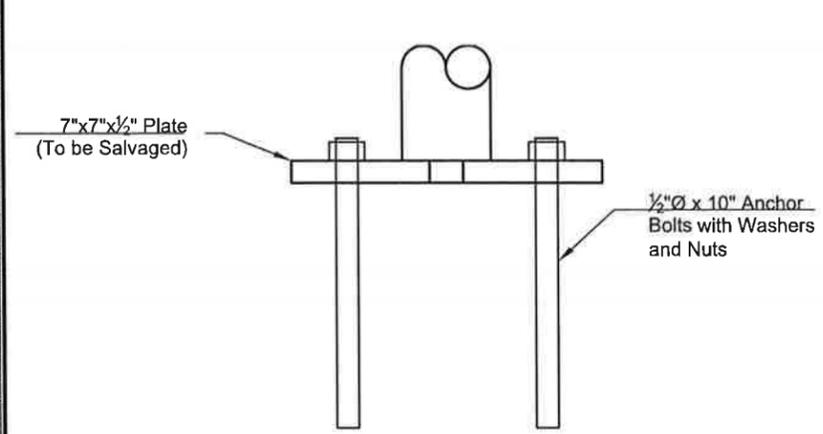
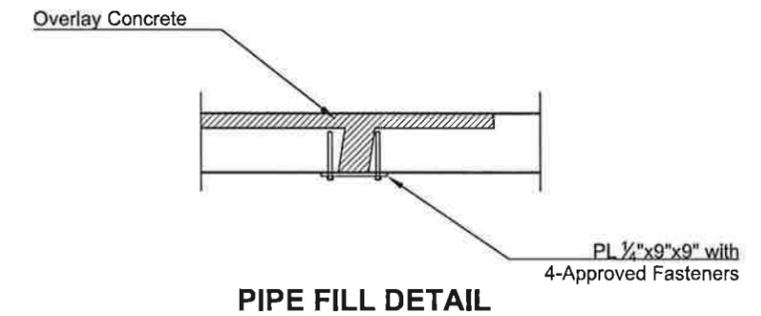
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REVISIONS		
③	②	①
SEAL		
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BARRIER DETAILS		
40TH AVE SOUTH BRIDGE MODIFICATIONS		
PROJECT NUMBER		SN-15-A0
DESIGN BY:	KR	CHECKED BY: CM
DRAWN BY:	DW	ORIG DATE: 7/23/2015
CITY OF <b>Fargo</b>	SECTION NO.	SHEET NO.
	170	3

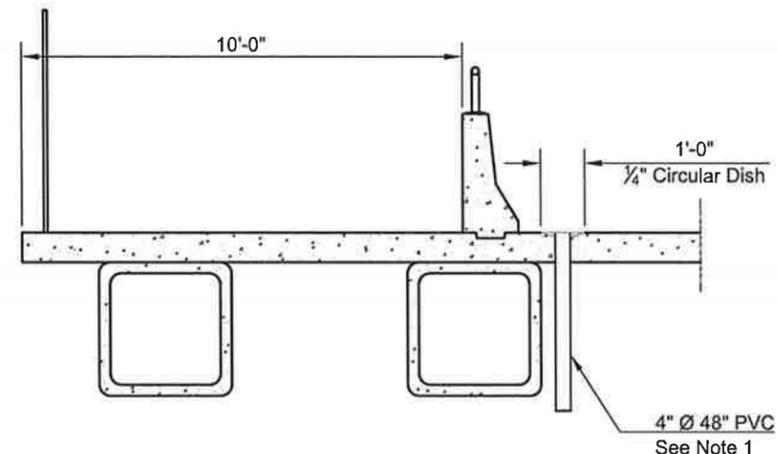




BILL OF REINFORCEMENT					
MARK	SIZE	NO.	LENGTH	SHAPE	LOCATION
BA400E	4	8	40'-0"	—	Longitudinal
BA401E	4	8	35'-3"	—	Longitudinal
BA402E	4	147	5'-3"	—	Vertical
BA603E	6	147	2'-6"	—	Vertical Dowel
BA604E	6	147	1'-4"	—	Vertical Dowel
AS405E	4	4	19'-8"	—	Longitudinal
AS406E	4	4	13'-8"	—	Longitudinal
AS407E	4	4	6'-8"	—	Longitudinal
AS408E	4	4	19'-9"	—	Longitudinal
AS609E	6	18	2'-6"	—	Vertical Dowel
AS610E	6	56	1'-4"	—	Vertical Dowel
AS611E	6	2	50'-5"	Set	Vertical Dowel
AS612E	6	2	11'-6"	Set	Vertical Dowel
AS413E	4	2	101'-10"	Set	Vertical
AS414E	4	2	25'-8"	Set	Vertical



**ANCHORAGE FOR PEDESTRIAN RAILING**



**DECK DRAIN DETAIL**

**NOTE:**  
 1. Contractor will attach new 4" diameter PVC drainage pipes to existing deck. Contractor will submit proposed detail to Engineer prior to installation.

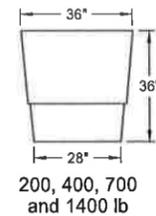
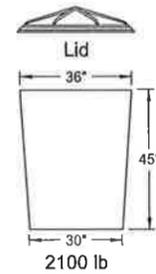
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REVISIONS		
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SEAL		
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DETAILS		
40TH AVE SOUTH BRIDGE MODIFICATIONS		
PROJECT NUMBER	SN-15-A0	
DESIGN BY: KR	CHECKED BY: CM	
DRAWN BY: DW	ORIG DATE: 7/22/2015	
SECTION NO.	SHEET NO.	
	170	4



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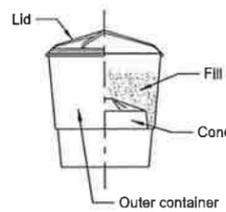
ATTENUATION DEVICE



Outer Containers

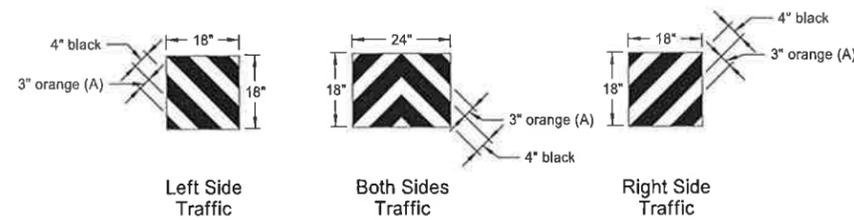


Cones



Typical Assembly

Typical Module Construction Detail

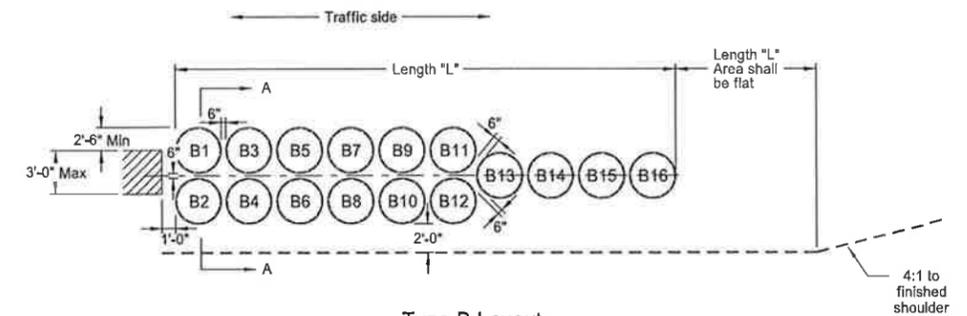


Reflective Sheet Detail

Note:  
The last attenuation device facing traffic shall have a reflective sheet, following the details above, directly applied to the outer container. The sheet may also be applied to a metallic sheet and attached to the container with approved fasteners. The reflective sheeting shall be Type IV as specified in NDDOT Standard Specifications.

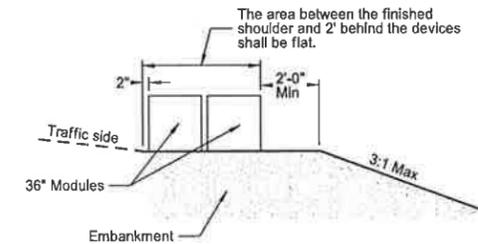
(A) 3" orange sheeting shall be used for temporary installations, and 3" yellow sheeting shall be used for permanent installations.

	Fill Chart				
	Module Weights (LBS)				
	200	400	700	1400	2100
Distance from top edge	8 1/2"	5"	4"	3"	0"



Type B Layout

Note:  
When attenuation devices are placed at plers offset from roadway, they shall be angled 10 degrees towards traffic.



Section A-A (Type B Layout)

Type B Attenuation Device												
Module Number	Dash Number											
	75	70	65	60	55	50	45	40	35	30		25
Module Weights (LBS)												
B1	2100											
B2	2100											
B3	2100	2100	2100	2100	2100	2100	2100	2100	2100			
B4	2100	2100	2100	2100	2100	2100	2100	2100	2100			
B5	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
B6	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
B7	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
B8	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
B9	700	700	700	700	700	700	700	700	700	700	700	700
B10	700	700	700	700	700	700	700	700	700	700	700	700
B11	700	700	700	700	700	700	700	700	700	700	700	700
B12	700	700	700	700	700	700	700	700	700	700	700	700
B13	700	700	700	700	700	700	700	700	700	700	700	700
B14	400	400	400	400	400	400	400	400	400	400	400	400
B15	400	400	400	400	400	400	400	400	400	400	400	400
B16	200	200	200	200	200	200	200	200	200	200	200	200
Length (L)	34.2'	30.7'	30.7'	30.7'	30.7'	30.7'	30.7'	30.7'	30.7'	27.2'	27.2'	
Module Weights (LBS)	Replacement Module											
2100	1	1	1	1	1	1	1	1	1	1	1	
1400	1	1	1	1	1	1	1	1	1	1	1	1
700	2	2	2	2	2	2	2	2	2	2	2	2
400	1	1	1	1	1	1	1	1	1	1	1	1
200	2	2	2	1	1	1	1	1	1	1	1	1

Notes:

- Materials
  - Modules shall be manufactured from a frangible polyethylene material which will shatter upon impact.
  - Modules shall be filled with class 43 aggregate meeting the requirements for aggregate according to NDDOT Standard Specifications. The fill unit weight shall be at least 100 pounds per cubic foot. Fill left over winter shall have a moisture content of 2% or less.
- Modules
 

The modules shall be provided in two sizes to contain volumes of either 2, 4, 7, 14, or 21 cubic feet as a minimum.

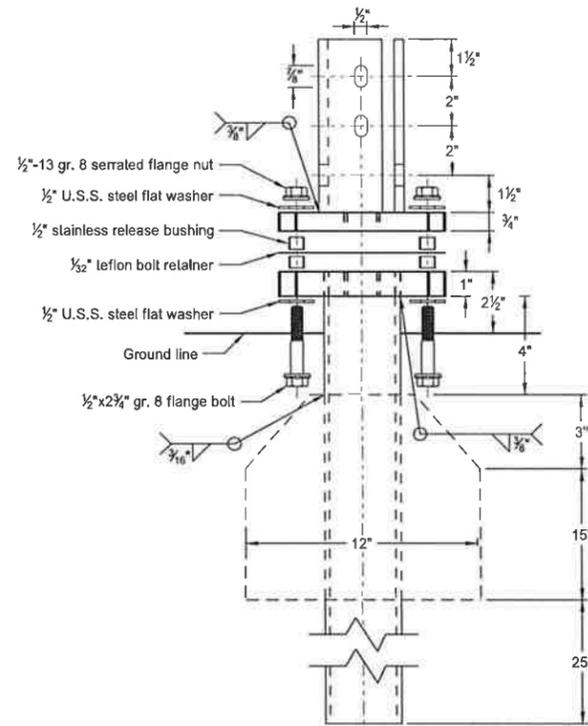
  - The module for the 2, 4 or 7 cubic foot container shall consist of three components:
    - A 14 C.F., yellow outer container.
    - A black lid which locks securely over the top lip of the container.
    - A cone-shaped supporting insert. The insert shall be varied to allow for the three sizes of modules and capable of supporting 200, 400, or 700 pounds of sand mass. The cone inserts shall be placed inside the 14 cubic foot container.
  - The module for the 21 cubic foot container shall consist of two components:
    - A 36" height X 36" width yellow outer container.
    - A black lid which locks securely over the top of the container.
- For temporary use: The modules shall be Energite or Filch attenuation barrels manufactured by Energy Absorption Systems of Chicago, IL, Traffix barrels manufactured by Traffix Devices, Inc. of San Clemente, CA, or an approved equal. The attenuation devices may be placed on pallets to facilitate maintenance. Pallets shall have a maximum thickness of 3 1/2".
- For permanent use: Barrel Attenuation Device installations, the outer sand container portion of the modules shall consist of a one-piece container with separate detachable lid. The modules which meet these requirements are Energite attenuation barrels manufactured by Energy Absorption Systems of Chicago, IL, Traffix barrels manufactured by Traffix Devices, Inc. of San Clemente, CA, or an approved equal. Modules having outer sand containers assembled from multiple pieces shall not be accepted for permanent installations.
- The Typical Module Construction Detail and Type B Layout are based on the Energite Crash Cushion manufactured by Energy Absorption. The manufacturer of other sand filled attenuation modules shall provide any necessary layouts and details required which differ from those shown here.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
9-25-12	
REVISIONS	
DATE	CHANGE
7-18-14	Revised sheeting in reflective sheet detail

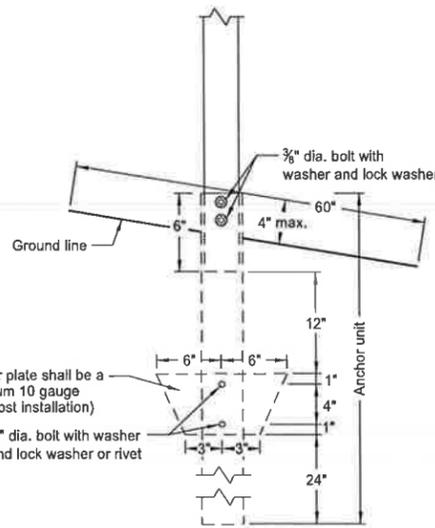
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# BREAKAWAY SYSTEMS FOR CONSTRUCTION ZONE SIGNS

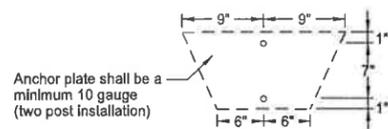
D-704-7



Multi-Directional Slip Base Assembly

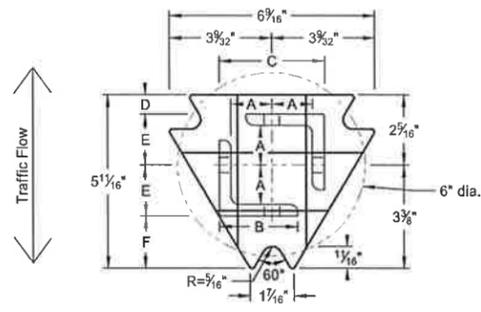


Anchor Unit and Post Assembly

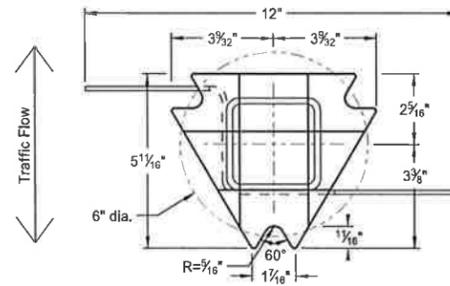


Multi-Directional Slip Base Anchor Unit and Post Sleeve Assembly

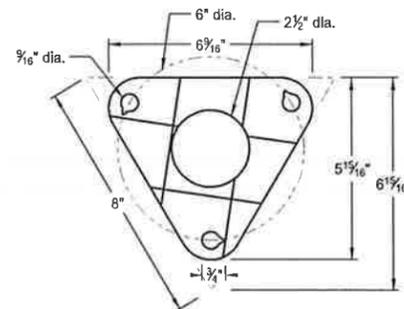
## Perforated Tube



Top Post Receiver  
Plate - ASTM A572 grade 50  
Angle Receiver - 2 1/2" x 2 1/2" x 3/8" ASTM A36 structural angle



Bottom Soil Stub  
Tube - 3" x 3" x 7 gauge ASTM A500 grade B tube  
Stabilizing Wing - 7 gauge H.R.P.O. ASTM A1011  
Plate - ASTM A572 grade 50



Bolt Retainer for Base Connection  
Bolt Retainer - 1/2" Reprocessed Teflon

### Notes:

1. Slip base bolts shall be torqued as specified by the manufacturer.
2. Anchor shall have a yield strength of 43.9 KSI and tensile strength of 59.3 KSI.
3. The 4" vertical clearance is required for the anchor or breakaway base. The 4"x60" measurement shall be made above and below post location and also back and ahead of the post.
4. When used in concrete sidewalk, anchor shall be same except without the wings.
5. Four post signs shall have over 7' between the first and the fourth posts.

Telescoping Perforated Tube						
Number of Posts	Post Size in.	Wall Thickness Gauge	Sleeve Size in.	Wall Thickness Gauge	Slip Base	Anchor Size without Slip Base in.
1	2	12			No	2 1/4
1	2 1/4	12			No	2 1/2
1	2 1/2	12			(A)	3
1	2 1/2	10			Yes	
1	2 1/4	12	2	12	Yes	
1	2 1/2	12	2 1/4	12	Yes	
2	2	12			No	2 1/4
2	2 1/4	12			No	2 1/2
2	2 1/2	12			Yes	
2	2 1/2	12			Yes	
2	2 1/4	10	2	12	Yes	
2	2 1/2	12	2 1/4	12	Yes	
3 & 4	2 1/2	12			Yes	
3 & 4	2 1/2	10			Yes	
3 & 4	2 1/2	12	2 1/4	12	Yes	
3 & 4	2 1/4	12	2	12	Yes	
3 & 4	2 1/2	10	2 1/16	10	Yes	

Properties of Telescoping Perforated Tube						
Tube Size in.	Wall Thickness in.	U.S. Standard Gauge	Weight per Foot lbs.	Moment of Inertia in. <sup>4</sup>	Cross Sec. Area in. <sup>2</sup>	Section Modulus in. <sup>3</sup>
1 1/2 x 1 1/2	0.105	12	1.702	0.129	0.380	0.172
2 x 2	0.105	12	2.416	0.372	0.590	0.372
2 1/4 x 2 1/4	0.105	12	2.773	0.561	0.695	0.499
2 3/16 x 2 3/16	0.135	10	3.432	0.605	0.841	0.590
2 1/2 x 2 1/2	0.105	12	3.141	0.804	0.803	0.643
2 1/2 x 2 1/2	0.135	10	4.006	0.979	1.010	0.785

Top Post Receiver Data Table						
Square Post Sizes (B)	A	B	C	D	E	F
2 3/16" x 10 ga.	1 5/16"	2 1/2"	3 1/2"	2 5/32"	1 33/64"	1 7/8"
2 1/2" x 10 ga.	1 5/16"	2 1/2"	3 3/16"	5/8"	1 2 1/32"	1 3/4"

(A) The breakaway base is required when the support is placed in weak soils. The Engineer shall determine if the soils are weak.

(B) The 2 3/16" x 10 ga. may be inserted into 2 1/2" x 10 ga. for additional wind load.

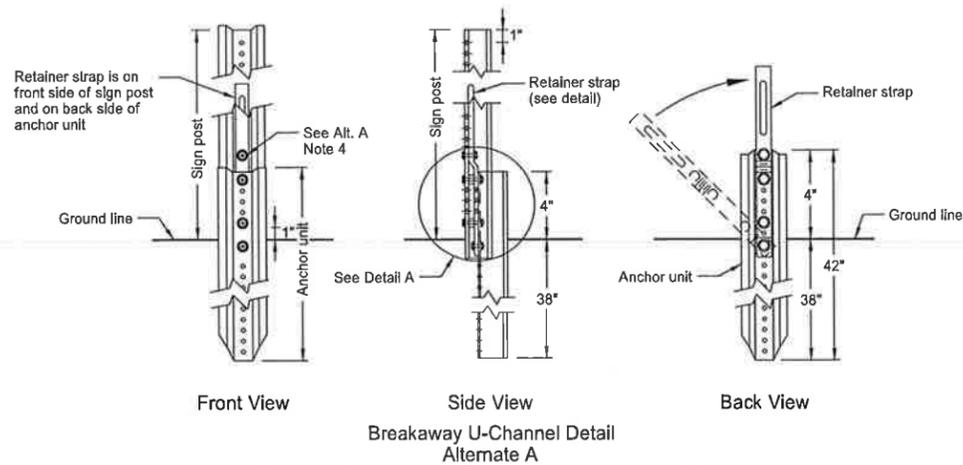
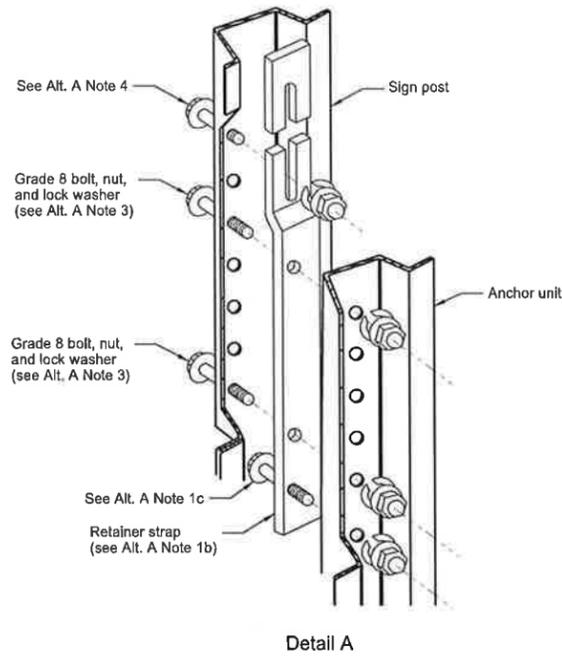
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
2-28-14	
REVISIONS	
DATE	CHANGE

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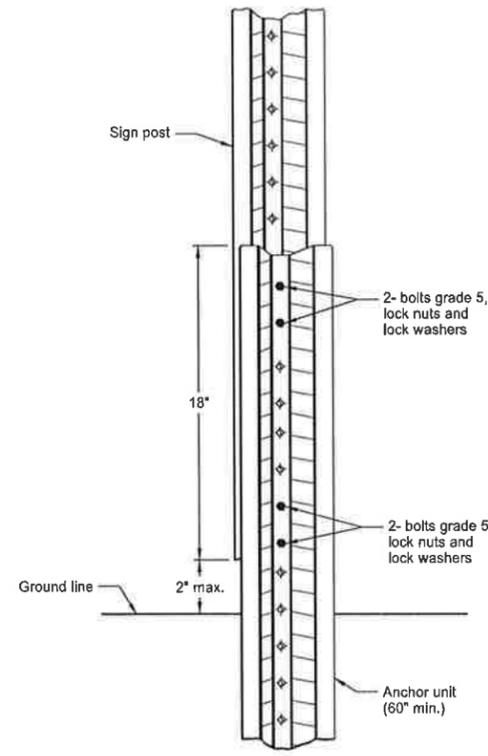
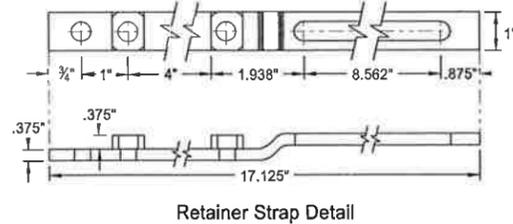
BREAKAWAY SYSTEMS FOR CONSTRUCTION ZONE SIGNS

D-704-8

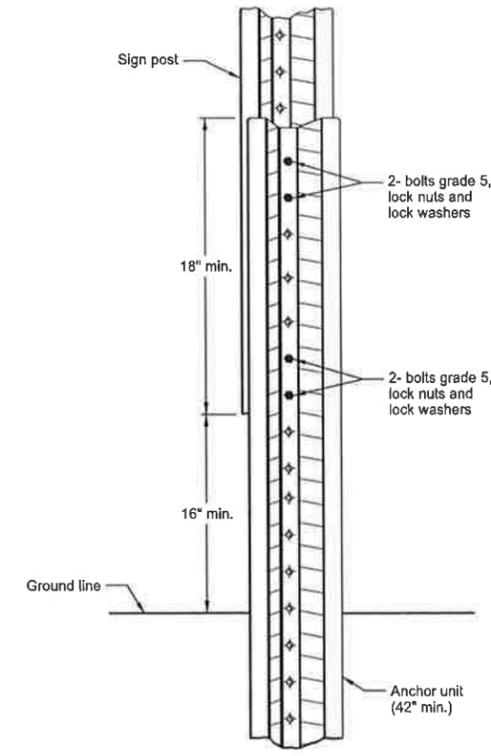
U-Channel Post



A maximum of 2 posts shall be installed within 7'.



Breakaway U-Channel Splice Detail Alternate B (2.5 and 3 lb/ft)  
A maximum of 3 posts shall be installed within 7'.



Breakaway U-Channel Splice Detail Alternate C (2.5 and 3 lb/ft)  
A maximum of 3 posts shall be installed within 7'.

Alternate A Steps of Installation:

1. a) Drive anchor unit to within 12" of ground level.  
b) Proper assembly established by lining up the bottom hole of retainer strap with the 6th hole from the top of the anchor unit.  
c) Assemble strap to back of anchor unit using 3/16"x2" bolt, lock washer and nut.  
d) Rotate strap 90° to left.
2. a) Drive anchor unit to 4" above ground.  
b) Rotate strap to vertical position.
3. a) Place 3/16"x2" bolt, lock washer and nut in bottom of sign post to facilitate alignment of sign post with proper hole in anchor unit.  
b) Alternately tighten two connector bolts.
4. Complete assembly by tightening 3/16"x2" bolt (this fastens sign post to retainer strap).
5. The base post, strap and sign post shall be properly nested. Proper nesting occurs when all flat surfaces of the base post, strap, and sign post at the bolts have full contact across the entire width.

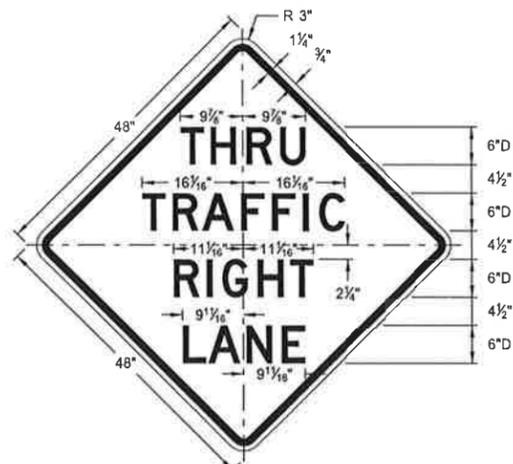
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
2-28-14	
REVISIONS	
DATE	CHANGE

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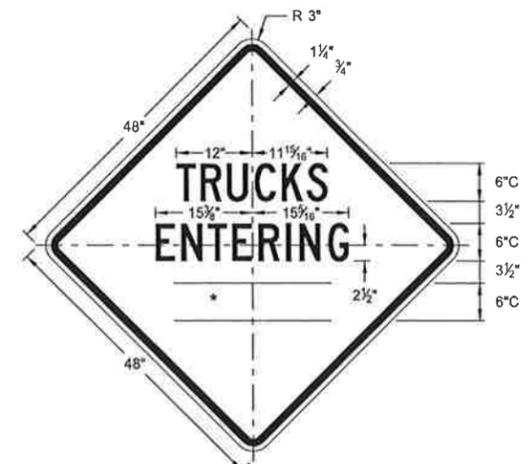
CONSTRUCTION SIGN DETAILS  
WARNING SIGNS

WORD	LETTER SPACING
AHEAD	Standard
200 FT	Standard
350 FT	Standard
500 FT	Standard
1000 FT	Reduce 40%
1500 FT	Reduce 40%
½ MILE	Reduce 50%
1 MILE	Standard

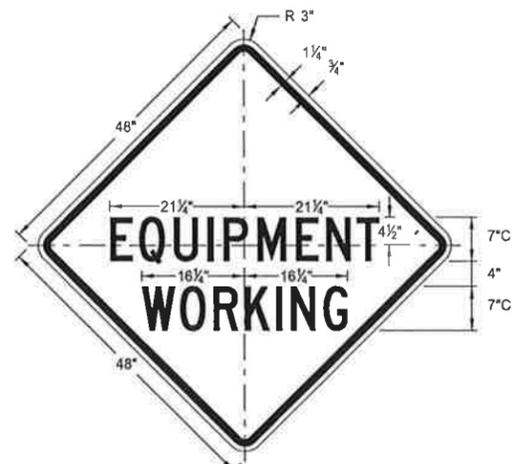
\* DISTANCE MESSAGES



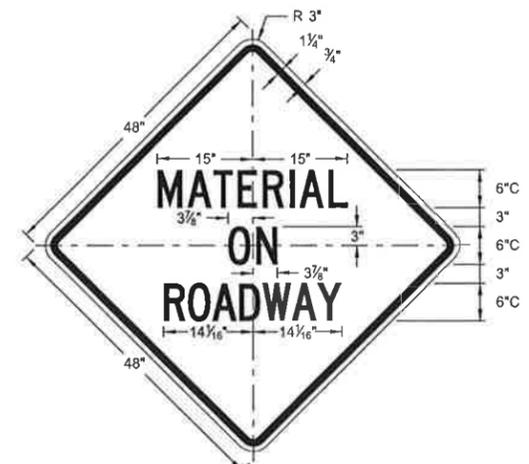
W5-8-48  
Legend: black (non-refl)  
Background: orange



W8-54-48  
Legend: black (non-refl)  
Background: orange



W20-51-48  
Legend: black (non-refl)  
Background: orange

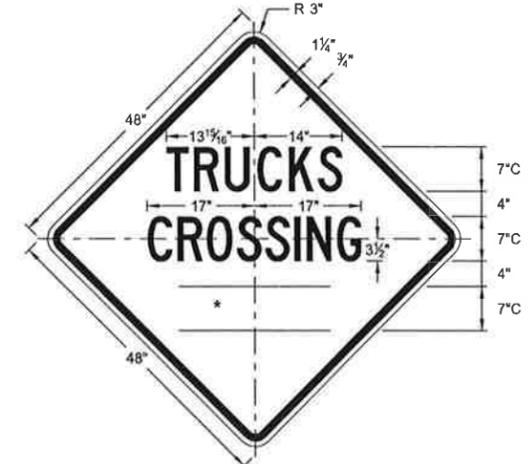


W21-51-48  
Legend: black (non-refl)  
Background: orange

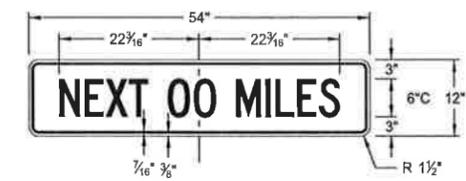


See ARROW  
DETAILS

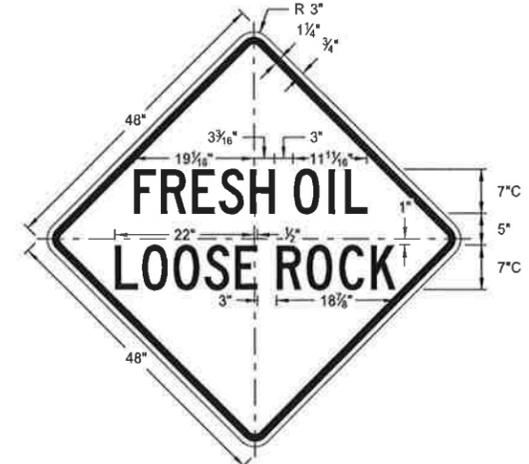
W5-9-48  
Legend: black (non-refl)  
Background: orange



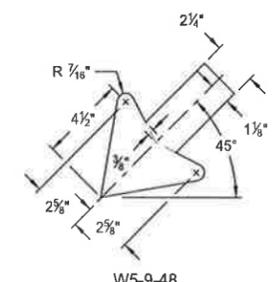
W8-55-48  
Legend: black (non-refl)  
Background: orange



W20-52-54  
Legend: black (non-refl)  
Background: orange



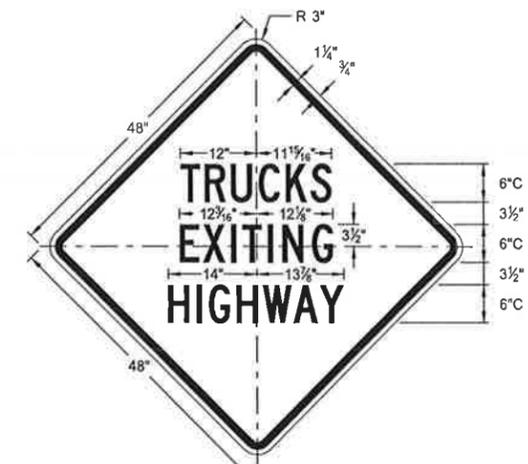
W22-8-48  
Legend: black (non-refl)  
Background: orange



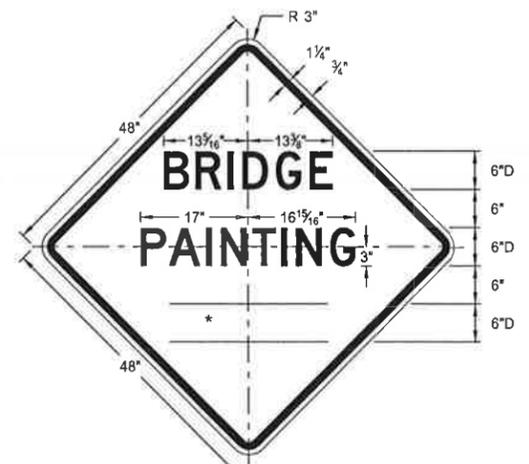
W5-9-48  
ARROW DETAILS



W8-53-48  
Legend: black (non-refl)  
Background: orange



W8-56-48  
Legend: black (non-refl)  
Background: orange

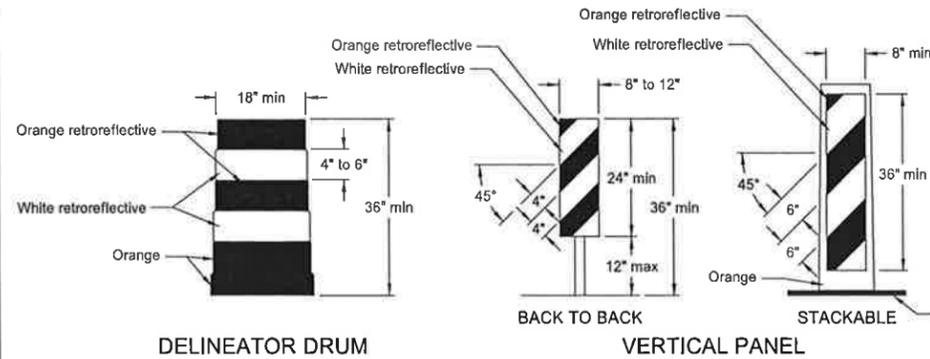


W21-50-48  
Legend: black (non-refl)  
Background: orange

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
8-13-13	
REVISIONS	
DATE	CHANGE

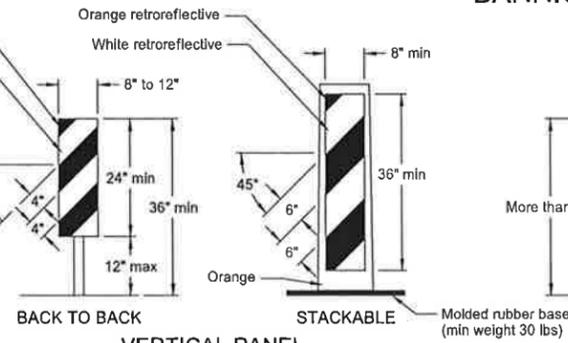
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BARRICADE AND CHANNELIZING DEVICE DETAILS



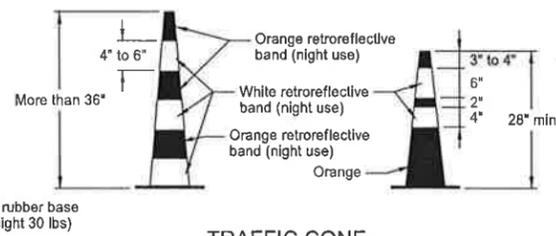
DELINEATOR DRUM

The markings on drums shall be horizontal, circumferential, alternating orange and white retroreflective stripes 4\"/>



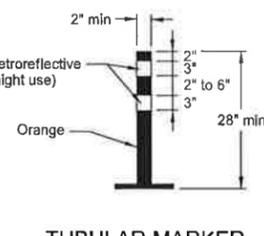
BACK TO BACK VERTICAL PANEL

Markings for vertical panels shall be alternating orange and white retroreflective stripes, sloping downward in the direction vehicular traffic is to pass. Retroreflective sheeting shall be placed on both sides of panel and shall have a minimum of 270 square inches of retroreflective area facing vehicular traffic. Where the height of the retroreflective material on the vertical panel is 36 inches or more, a stripe width of 6 inches shall be used.



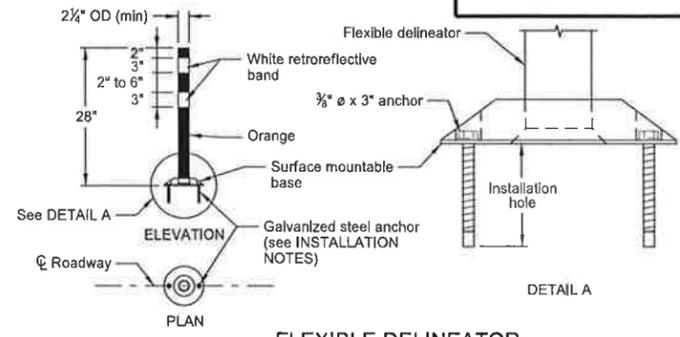
TRAFFIC CONE

Retroreflectization of cones more than 36\"/>



TUBULAR MARKER

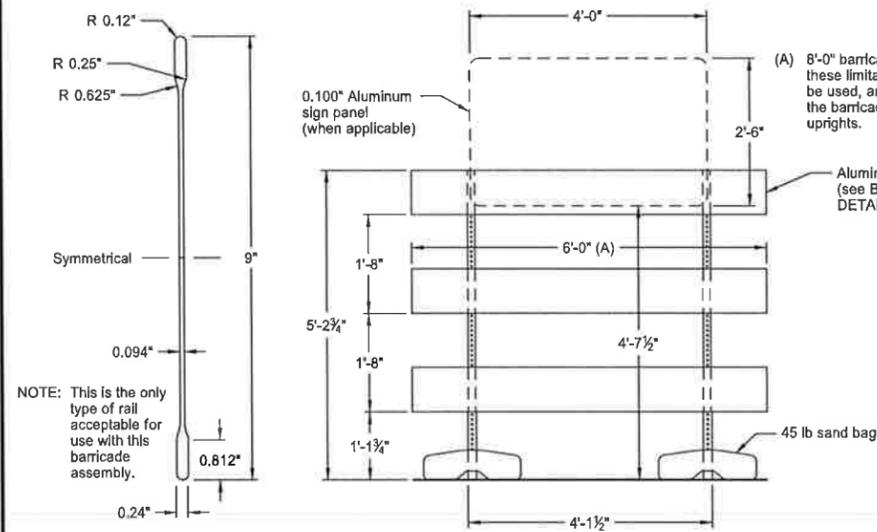
Retroreflectization of tubular markers more than 42\"/>



FLEXIBLE DELINEATOR

INSTALLATION NOTES:

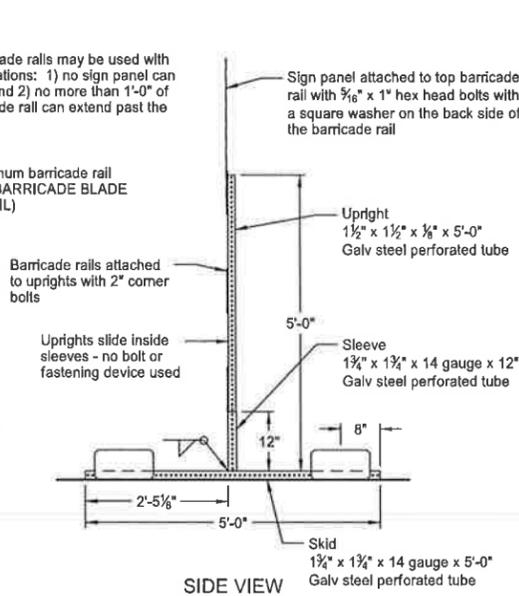
1. Drill installation holes to diameter and depth as required by manufacturer's specifications.
2. For removal, remove anchors and fill installation hole with an epoxy designed to bond to pavement surface.
3. In lieu of bolted down base, the contractor may use an 8\"/>



BARRICADE BLADE DETAIL

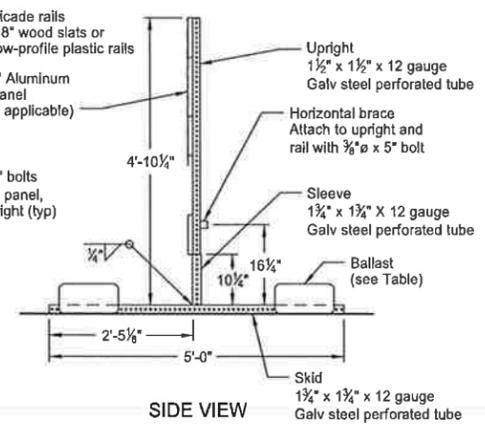
NOTE: This is the only type of rail acceptable for use with this barricade assembly.

ELEVATION VIEW BARRICADE ASSEMBLY DETAIL (Aluminum Barricade Rails)



ELEVATION VIEW

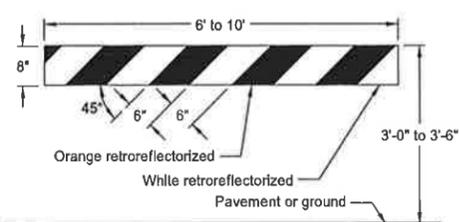
BARRICADE ASSEMBLY DETAIL (Wood or Plastic Rails)



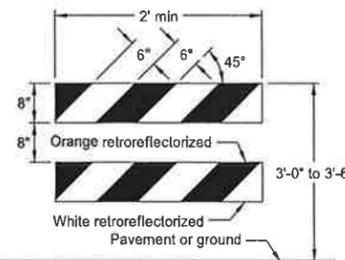
SIDE VIEW

BARRICADE BLADE DETAIL

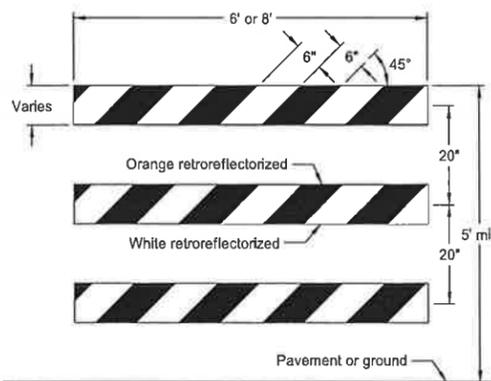
NOTE: Markings for barricades shall be alternating orange and white retroreflective stripes, sloping downward in the direction traffic is to pass. Retroreflective sheeting shall be placed on both sides of the rails and shall have a minimum of 270 square inches of visible retroreflective area facing vehicular traffic. When the barricade length is less than 36\"/>



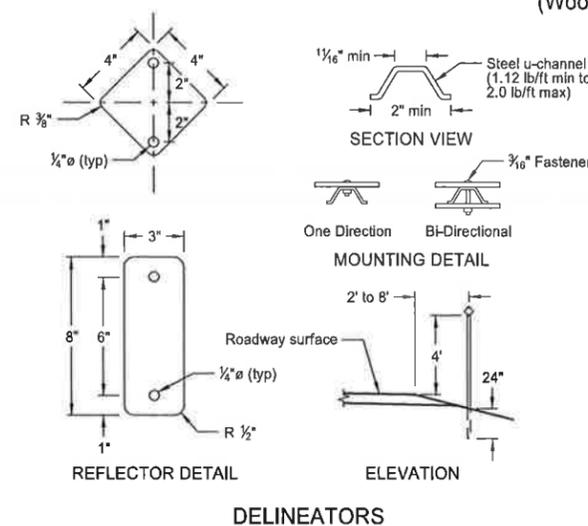
TYPE I BARRICADE



TYPE II BARRICADE BARRICADE RAIL DETAILS



TYPE III BARRICADE



DELINEATORS

MINIMUM BALLAST (For each side of barricade support)

Without Sign	4 - 25 lb sandbags
With Sign	6 - 25 lb sandbags

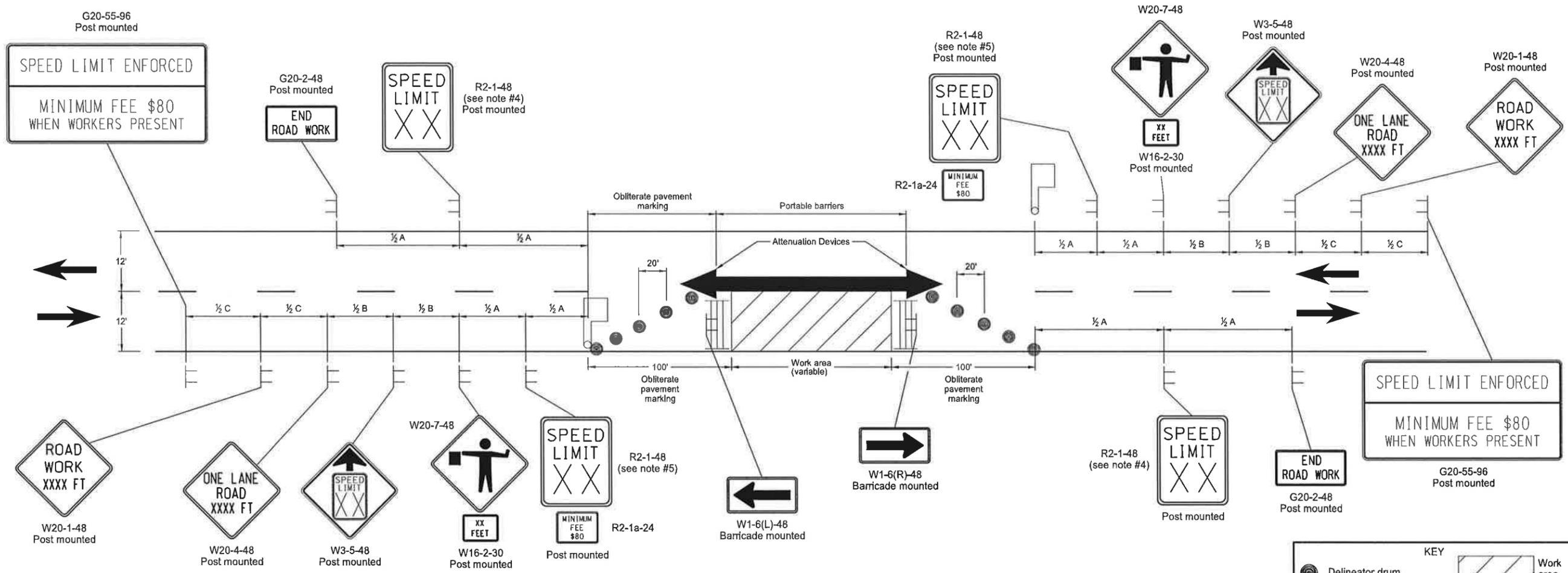
Note: The number of sandbags are based on a wind speed of 55 MPH. The sandbags are assumed to be placed at or near the ends of the skids.

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
10-3-13	
REVISIONS	
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# SIGN LAYOUT FOR ONE LANE CLOSURE TWO LANE ROADWAY

D-704-17



- Notes**
1. Floodlights shall be provided to mark flagger stations at night. The lighting shall not create a disabling glare for drivers. Placement and elimination of potential glare can best be determined by driving through and observing the floodlighted area from each direction on the main roadway after lighting is set up.
  2. Barricades placed on roadway shall be on a movable assembly. Signs placed on the roadway shall be placed on skid mounted assembly.
  3. Existing striping shall be removed as required. Delineators will only be used when inslope is 4:1 or flatter and roadway alignment is visible to approaching vehicles. Vertical panels shall be used where roadways have steep slopes and alignment is not visible to approaching vehicles. Delineators and vertical panels shall be installed back to back.
  4. The speed limit shall be re-established. The exact speed limit shall be determined in the field, dependent on location and conditions.
  5. The reduced speed limit shall be determined dependent on the in place speed limit before construction. The speed limit reduction should not exceed 10 mph below the existing speed limit, unless the design speed of the work zone feature has been reduced below the 10 mph. In this case, the speed limit reduction shall not exceed 30 MPH. Where speed limits are to be reduced more than 30 MPH, a second speed limit sign shall be installed with the desired speed reduction but shall not exceed 30 MPH. The second speed limit sign shall be placed at 1/2 B.
  6. When warning signs are used in urban areas and the signs are not portable, flags shall be installed. The flags shall be 24 inches square, mounted perpendicular to the edges of the diamond sign, and at such a distance above the edge so that when the flag is limp it will not touch the sign. Rural areas will not require flags.

7. Where necessary, safe speed to be determined by the Engineer.
8. The contractor has the option of using portable sign supports in lieu of post mounted signs in accordance with the NDDOT Standard Specifications.
9. Existing speed limit signs within a reduced speed zone shall be covered.
10. G20-55-96 sign is not required if this standard is part of other traffic control layouts, or the work is less than 15 days.

**KEY**

- Delineator drum
- Sign
- Type III barricade
- Work area
- Flagger

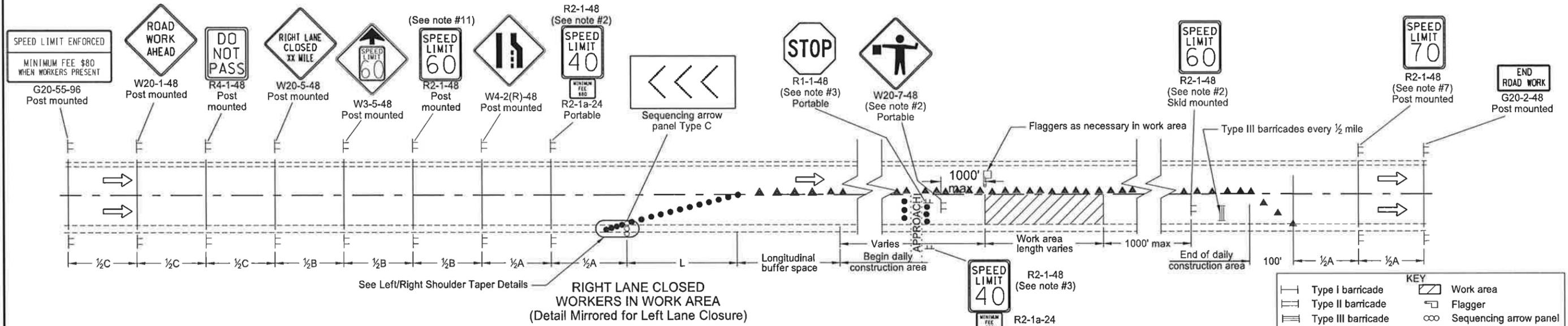
Road Type	Distance Between Signs Min. (ft)		
	A	B	C
Urban - Low Speed (30 mph or less)	150	150	150
Urban - Low Speed (over 30 to 40 mph)	280	280	280
Urban - High Speed (over 40 mph to 50 mph)	360	360	360
Rural - High Speed (over 50 mph to 65 mph)	720	720	720
Urban Expressway and Freeway (55 mph to 60 mph)	850	1350	2200
Rural Expressway and Freeway (70 mph to 75 mph)	1000	1500	2640
Interstate/4-Lane Divided (Maintenance and Surveying)	750	1000	1500

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
9-27-13	
REVISIONS	
DATE	CHANGE

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# SIGN LAYOUT FOR ONE LANE CLOSURE

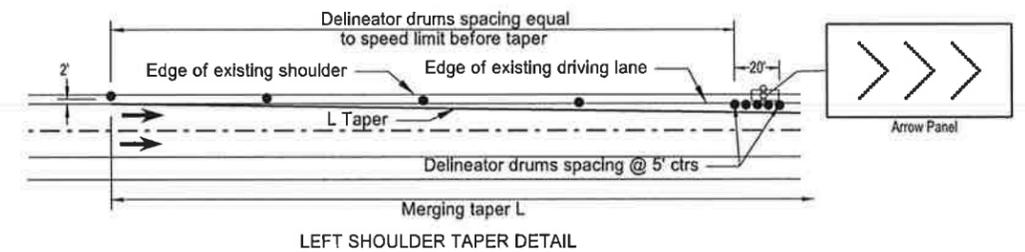
D-704-34



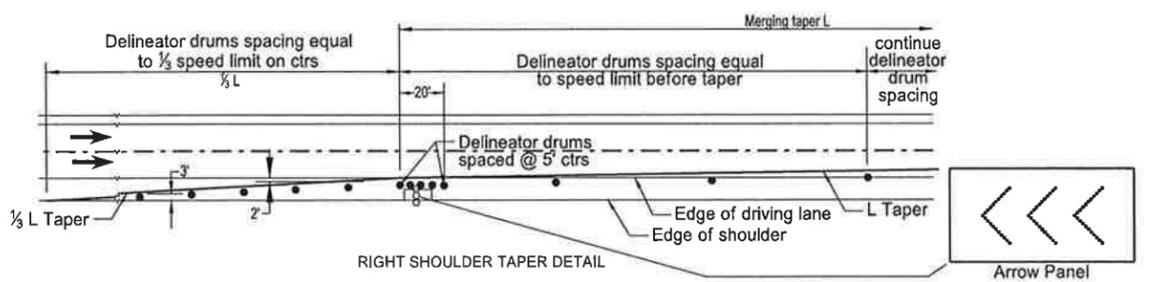
**KEY**

	Type I barricade		Work area
	Type II barricade		Flagger
	Type III barricade		Sequencing arrow panel
	Sign		Tubular markers
	Delineator drum		

- Notes:**
- Advance signs for flagging should be installed when flaggers are present.
  - The advanced flagger sign and the speed limit signs shall be moved as the work area moves through the construction zone. When the work area is not visible from the flagger, the flagger station shall be placed so the work area is visible. The 40 mph speed limit sign shall be spaced at 1/2A in advance of the flagger sign. The 60 mph speed limit sign shall also be moved. Upon completion of the work day or when workers are not present, the 40 mph speed limit and the Minimum Fee \$80 signs shall be covered or removed. The exact speed limit shall be determined in the field, dependent on location and conditions.
  - Approaches: When the work area encompasses an approach, the approach shall be controlled by installing a 40 mph speed limit sign. If this approach is on the side of the lane closure, the existing stop sign shall be covered and a new portable stop sign shall be installed. When the main line 40 mph speed zone is moved past the approach, the approach speed limit sign shall be removed.
  - Variables:  
 S=Numerical value of speed limit or 85th percentile  
 W=The width of taper.  
 L=Minimum length of taper, or SxW for freeways, expressways, and all other roads with speeds of 45 mph or greater, or (WxSxS)/60 for urban, residential, and other streets with speeds of 40 mph or less.
  - Delineator drums, used for tapering traffic shall be spaced at the dimension "S". Tubular markers used for tangents shall be spaced at 2 times dimension "S".
  - Sequencing arrow panels should normally be placed at the beginning of the taper. Where shoulder width does not provide sufficient room, the panel should be moved closer to the work area so that it can be placed on the roadway surface.  
 Type A shall be used on roadways with slow moving traffic speeds and low volume (25 mph or less and 750 ADT or less).  
 Type B shall be used on roadways with moderate traffic speeds and volumes (40 mph or less and 5000 ADT or less).  
 Type C shall be used on roadways with high traffic speeds and volumes (over 40 mph or over 5000 ADT).
  - The speed limit shall be re-established. The exact speed limit shall be determined in the field, dependent on location and conditions.
  - Existing speed limit signs within a reduced speed zone shall be covered.
  - When warning signs are used in urban areas and the signs are not portable, flags shall be installed. The flags shall be 24 inches square, mounted perpendicular to the edges of the diamond sign, and at such a distance above the edge so that when the flag is limp it will not touch the sign. Rural areas will not require flags.
  - The reduced speed limit shall be determined dependent on the in place speed limit before construction. The speed limit reduction should not exceed 10 mph below the existing speed limit, unless the design speed of the work zone feature has been reduced below the 10 mph. In this case, the speed limit reduction shall not exceed 30 mph. Where speed limits are to be reduced more than 30 mph, a second speed limit sign shall be installed with the desired speed reduction, but shall not exceed 30 mph. The second speed limit sign shall be placed at 1/2B.
  - The contractor has the option of using portable sign supports in lieu of post mounted signs in accordance with NDDOT Standard Specifications.
  - Sign G20-55-96 is not required if this standard is part of other traffic control layouts or the work is less than 15 days.



LEFT SHOULDER TAPER DETAIL



RIGHT SHOULDER TAPER DETAIL

**Longitudinal Buffer Space**

Speed (mph)*	Length Min (feet)
20	115
25	155
30	200
35	250
40	305
45	360
50	425
55	495
60	570
65	645
70	730
75	820

\*Posted speed, off-peak 85th percentile speed prior to work starting, or the anticipated operating speed in mph.

**ADVANCE WARNING SIGN SPACING**

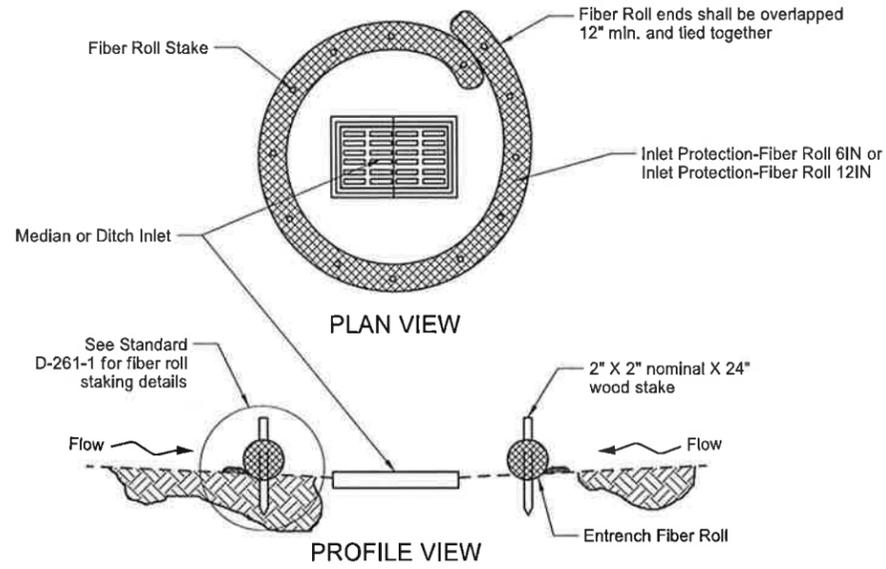
Road Type	Distance Between Signs Min (ft)		
	A	B	C
Urban - Low Speed (30 mph or less)	150	150	150
Urban - Low Speed (over 30 to 40 mph)	280	280	280
Urban - High Speed (over 40 mph to 50 mph)	360	360	360
Rural - High Speed (over 50 mph to 65 mph)	720	720	720
Urban Expressway and Freeway (55 mph to 60 mph)	850	1350	2200
Rural Expressway and Freeway (70 mph to 75 mph)	1000	1500	2640
Interstate/4-Lane Divided (Maintenance and Surveying)	750	1000	1500

**NORTH DAKOTA DEPARTMENT OF TRANSPORTATION**  
 9-26-2012  
 REVISIONS

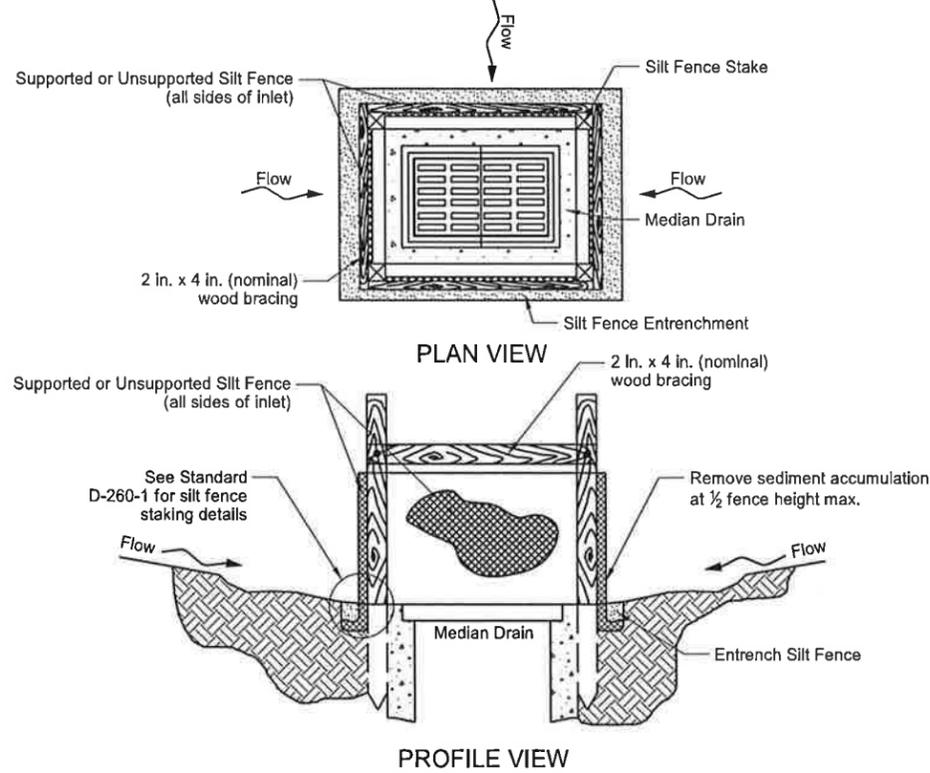
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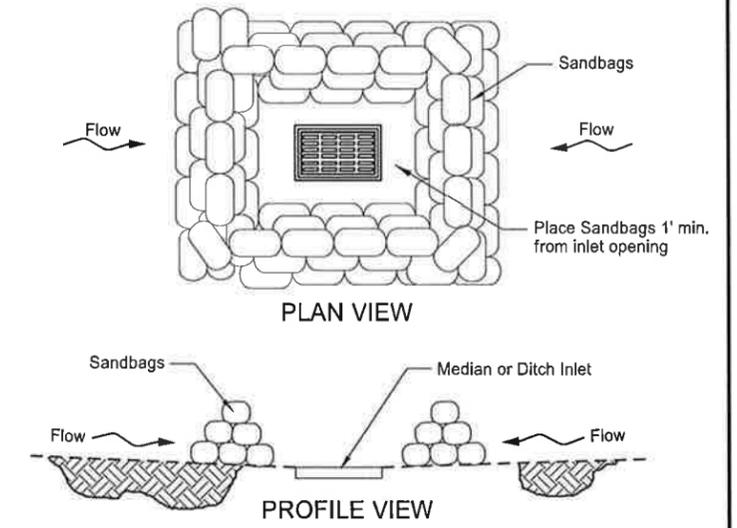
EROSION AND SILTATION CONTROLS  
MEDIAN OR DITCH INLET PROTECTION



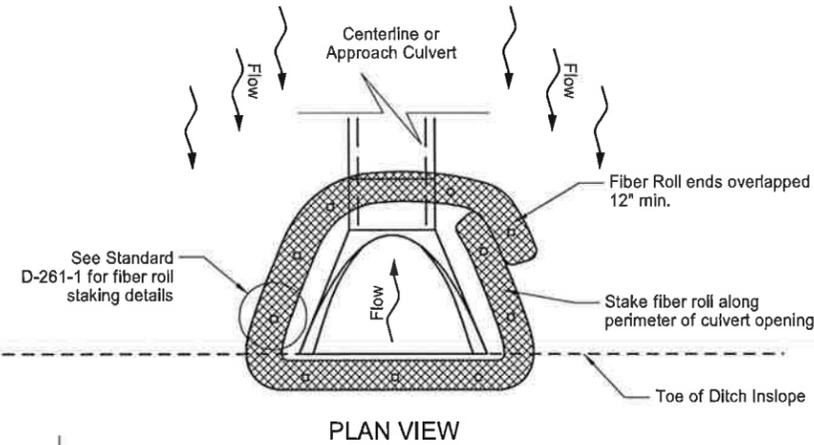
FIBER ROLL PROTECTION  
(MEDIAN OR DITCH INLET)



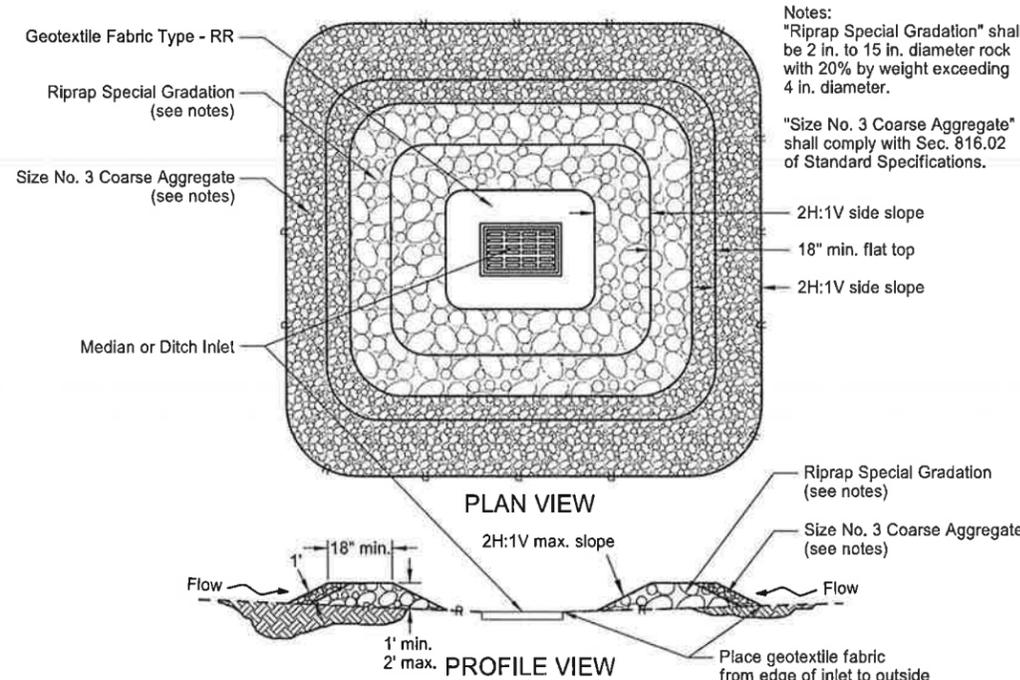
SILT FENCE PROTECTION  
(MEDIAN OR DITCH INLET)



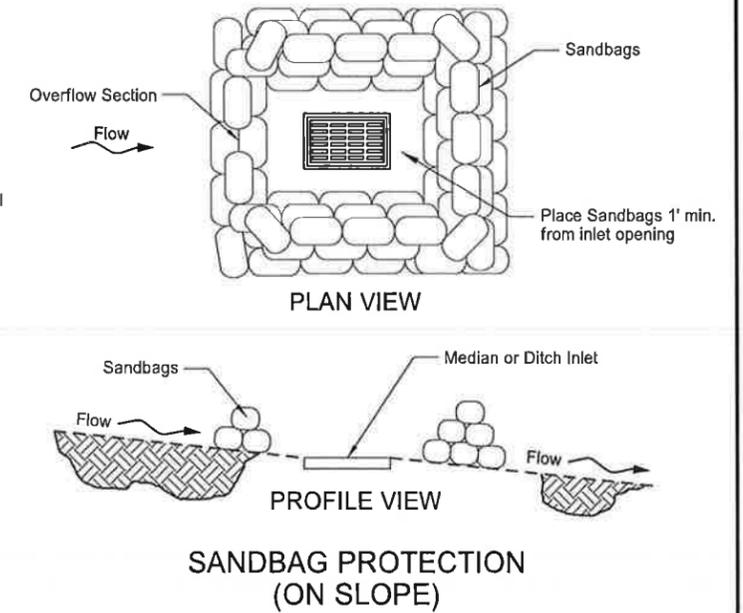
SANDBAG PROTECTION  
(LOW POINT)



FIBER ROLL PROTECTION  
(INLET OF CULVERT)



GRAVEL INLET PROTECTION  
(MEDIAN OR DITCH INLET)

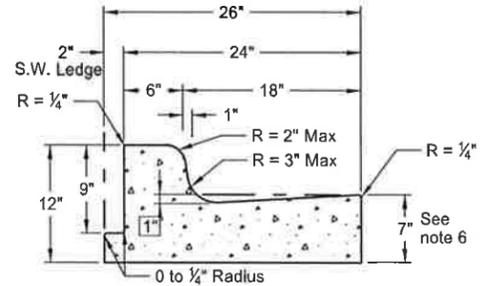


SANDBAG PROTECTION  
(ON SLOPE)

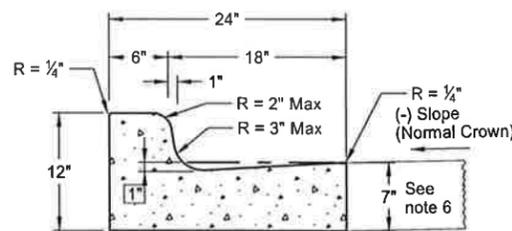
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION	
10-03-13	
REVISIONS	
DATE	CHANGE
06-26-14	Updated reference to standard drawing number for fiber roll staking details.
10-01-14	Updated reference to standard drawing number for silt fence.

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on 10/01/14 and the original document is stored at the North Dakota Department of Transportation

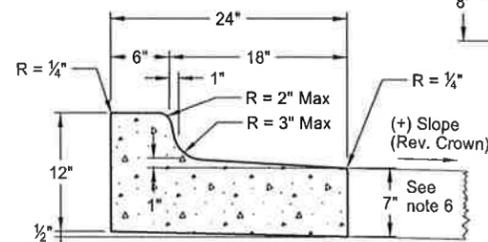
Curb & Gutter and Valley Gutter



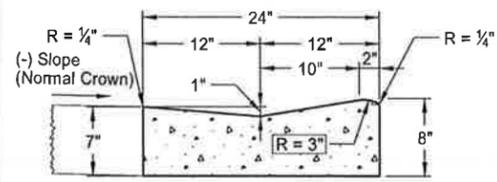
**Curb & Gutter Type 1 (Sec. A & B)**  
Adjacent to Concrete Sidewalk,  
Median, or Parking Lot.  
(Sec. A shown. See Sec. B for  
additional details.)



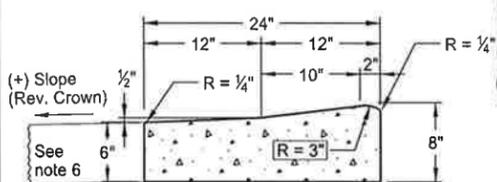
**Curb & Gutter Type 1 (Sec. A)**



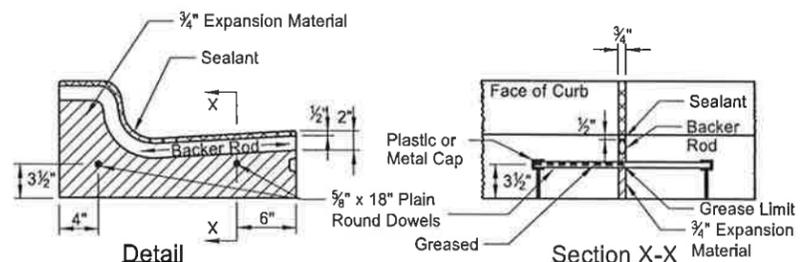
**Curb & Gutter Type 1 (Sec. B)**



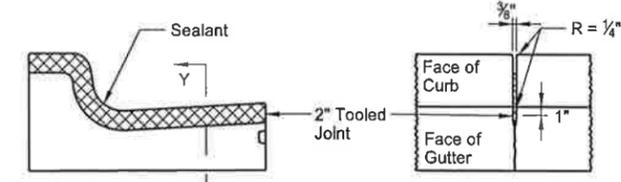
**Mountable Curb & Gutter Type 1 (Sec. A)**



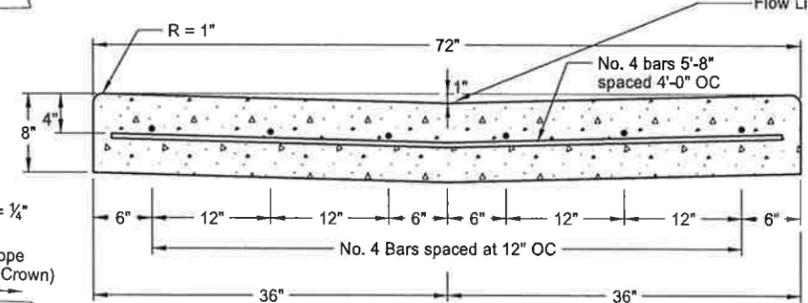
**Mountable Curb & Gutter Type 1 (Sec. B)**



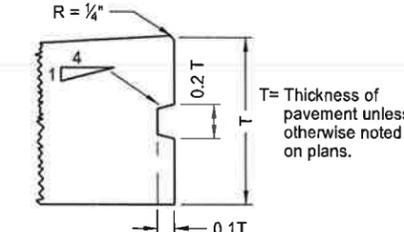
**Isolation Joint**



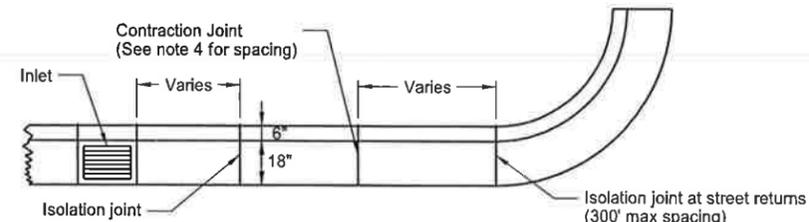
**Contraction Joint**  
(10' Max Spacing)



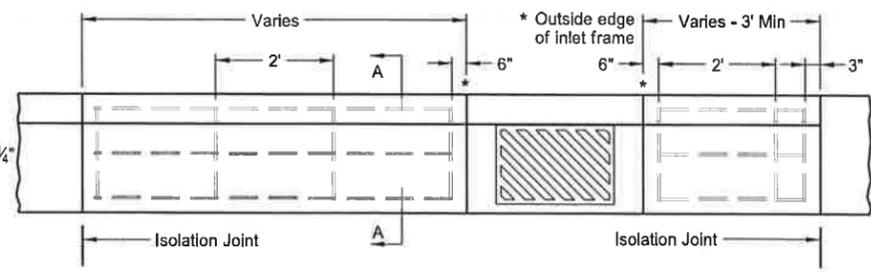
**72" Concrete Valley Gutter Detail**



**Keyway Detail for Curb & Gutter**  
(To be used with PCC Pavement and Drives)

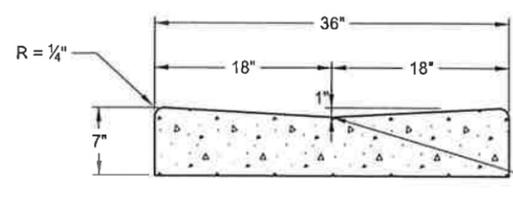


**Joint Location Detail**

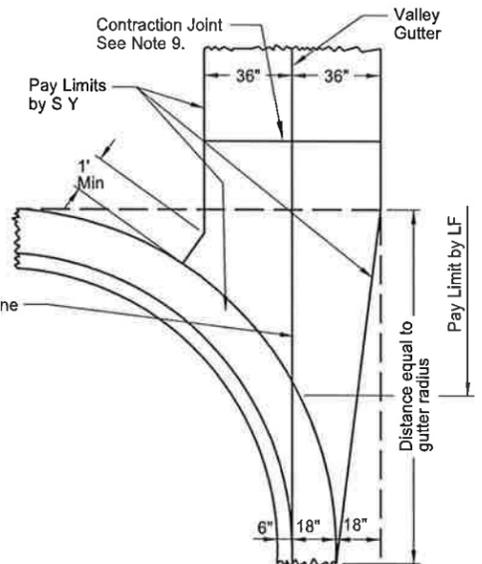


**Curb & Gutter Reinforcing at Inlets**

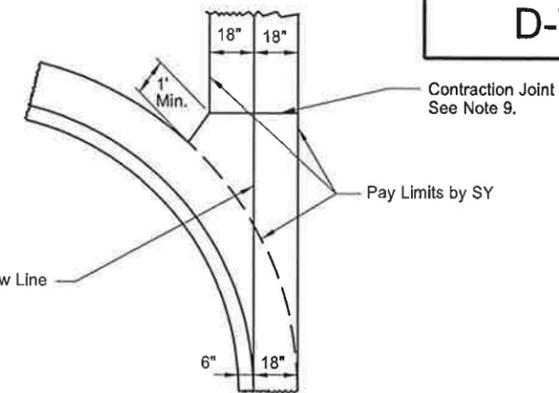
NOTE: All bars shall be #4 deformed reinforcing bars. Splices will not be permitted. Reinforcing bars at inlet locations will not be paid for separately, but shall be included in the price bid for "Curb and Gutter - Type 1." This includes inlets located on radii. The reinforcement shall be extended to the second joint (rebar placed through the first joint) in cases where the 3' min. panel length cannot be obtained.



**36" Concrete Valley Gutter Detail**



**72" Concrete Valley Gutter Plan**



**36" Concrete Valley Gutter Plan**

NOTES:

1. Curb and Gutter Type 1 (Sec. A & B) to be used. Section "A" to be used with (-) pavement slopes and section "B" to be used with (+) pavement slopes.
2. Contraction Joints: Tool the Curb & Gutter 2" as shown on the contraction joint details.
3. Isolation Joints: Isolation joint material shall be 3/4" preformed expansion joint filler conforming to the standard specifications. The opening for the backer rod and joint sealant shall be formed by a pre-cut piece of wood or other material approved by the engineer. Dowel supports are not required on the second pour at a cold joint, plastic or metal caps and greased dowels shall be installed in the cold joint for the second pour.
4. Joint Spacing: For hot bituminous pavements the joint spacing for the curb and gutter shall be 10' max. with the panels on each side of the inlets. For concrete pavements the joint spacing for the curb and gutter shall match the pavement joint on PCC Pavements of approximately 15' spacing.
5. Joint sealing: All contraction and isolation joints shall be sealed as shown in the details. The joint sealant for contraction joints shall conform to section 826.02B. The sealant for expansion joints shall be as specified in note 3 above. The sealant shall be tooled and installed in accordance with the manufacturer's recommendations.
6. Depth of Face of Gutter: For hot bituminous pavement the depth of gutter shall be 7" as shown. For PCC pavements, the Contractor has the option to match the depth of gutter to the depth of the adjacent PCC pavement or to construct a 7" depth as shown.
7. When the curb and gutter abuts PCC pavement, it shall be tied to the PCC pavement. The tie bar shall consist of a No. 3 bar, 1'-6" in length spaced 4' center to center.
8. On street returns and other locations where the new curb and gutter ends and does not abut existing curb and gutter, the end two (2) feet of the curb shall be tapered from 6" in height to 0". A 1/2" preformed isolation joint which is full depth and the same shape as the curb and gutter shall be installed just ahead of the taper. An 18" tie bar shall be installed across the joint.
9. Valley Gutter Joints: Contraction joints are required at approx. 10' intervals. The contraction joints shall be 1/8" min. to 3/8" max. in width. The joints shall be formed by sawing or scoring to a minimum depth of 2". The joint sealant shall be a hot poured elastic type joint sealer in accordance with Section 826.02A.2 of the Standard Specifications. The joint and sealant shall be included in the price bid for Valley Gutter.

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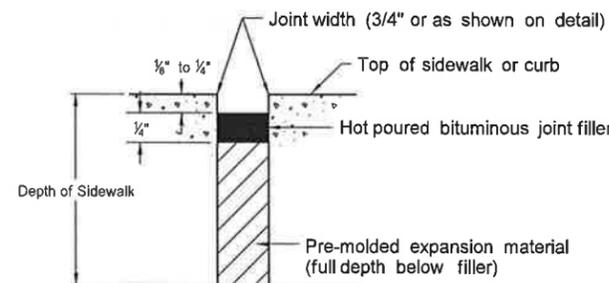
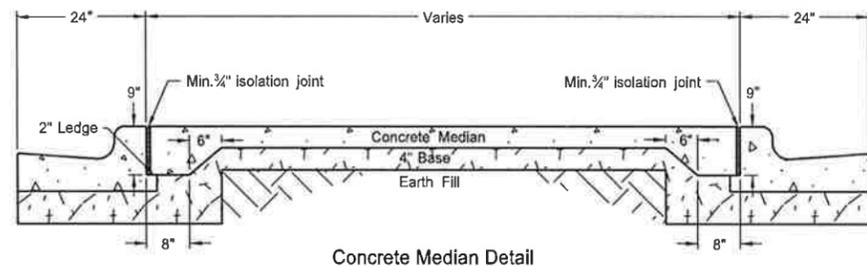
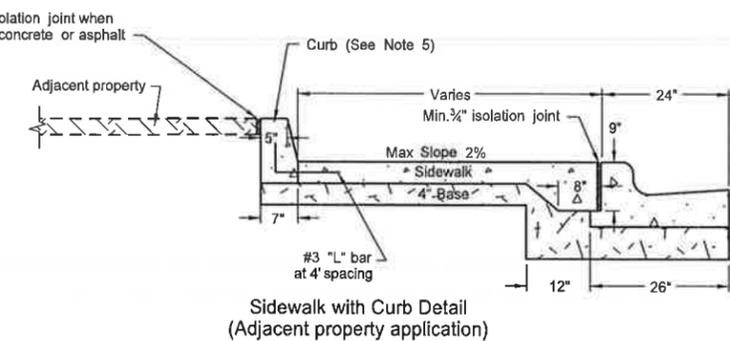
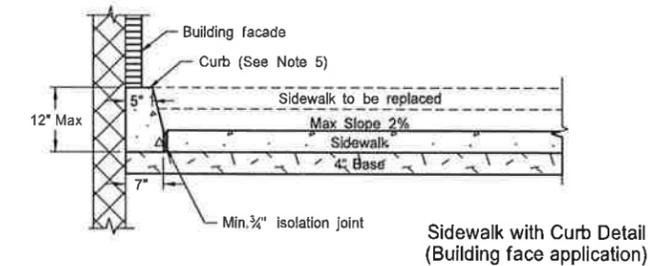
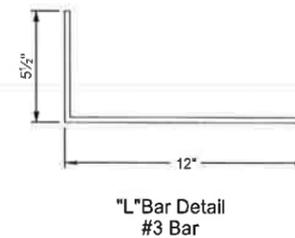
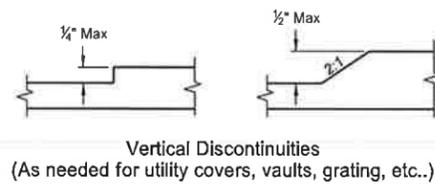
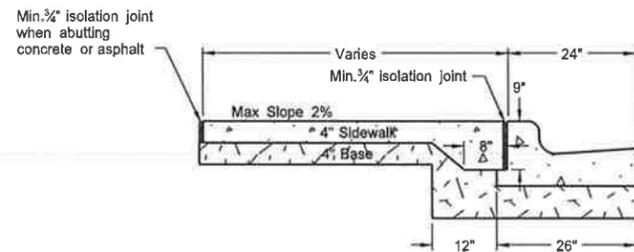
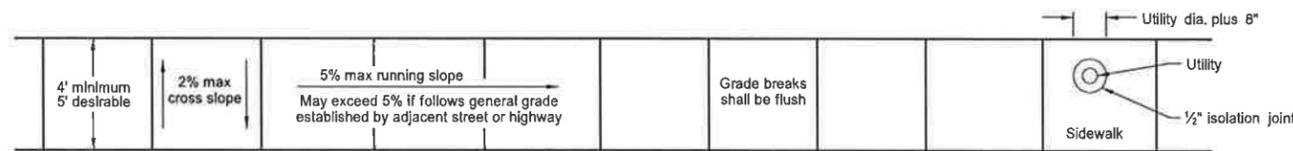
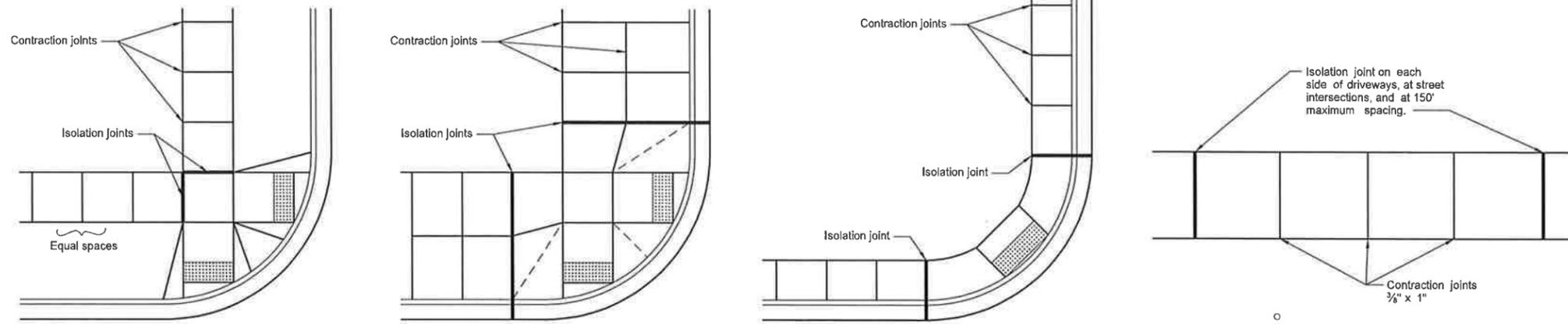
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# SIDEWALK

D-750-2

**NOTES:**

1. Curb ramp and detectable warning panel layouts are for informational purposes only. See Standard Drawing D-750-3 for curb ramp and detectable warning panel details.
2. Joint Spacing: Transverse contraction joint spacing shall vary from 4' to 6' to create approximate square panels.  
Longitudinal contraction joints shall be used where the sidewalk width is 8' or greater, and shall be spaced at half the sidewalk width.  
The contraction joints may be sawed or a grooved joint, and shall be a minimum of 1/3 the depth of the concrete.  
When the sidewalk is adjacent to the curb & gutter, the sidewalk joint spacing shall be varied to match up with the curb & gutter joints.  
Isolation joints should also be used between separately poured concretes, or between old and new concrete.  
The cost for all labor, equipment, and material necessary to construct contraction and isolation joints shall be included in the price bid for sidewalk concrete.
3. 4" sidewalk concrete thickness to be used unless otherwise specified in the plans.
4. 4" base material thickness to be used unless otherwise specified in the plans. All labor and materials necessary to place the base material shall be included in the price bid for "Salvage Base Course" or "Aggregate Base Course CL 5."
5. Landscaping is preferred to modify existing ground slope changes as needed. If not possible, such as adjacent buildings, a vertical curb may be used as shown in the detail below. The curb will be paid for at the unit price bid for the item "Curb - Type I" per lineal foot.



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# CURB RAMP DETAILS

D-750-3

+More Right of Way

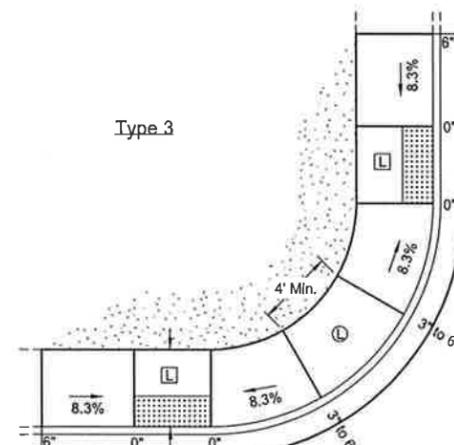
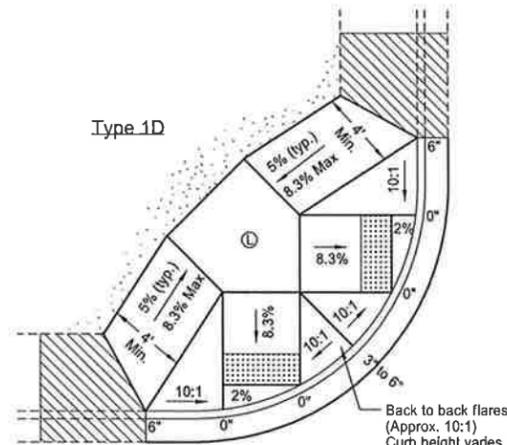
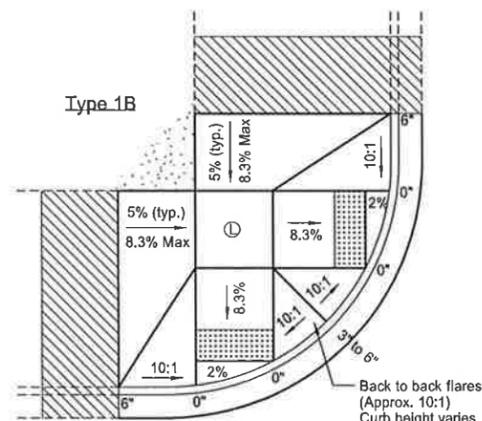
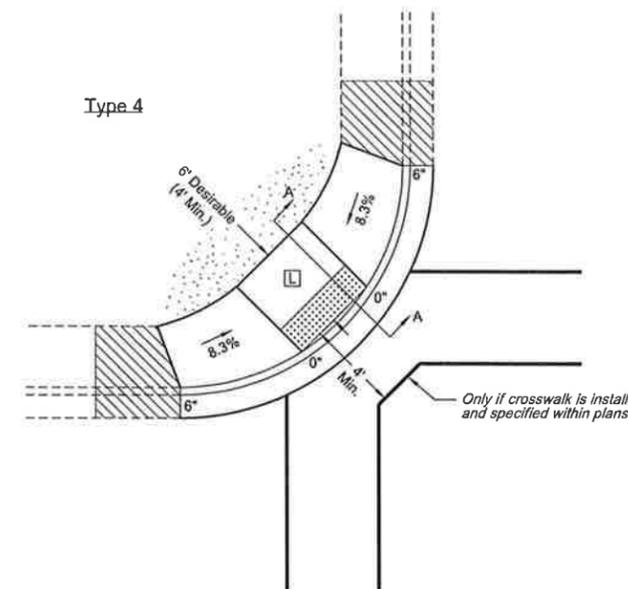
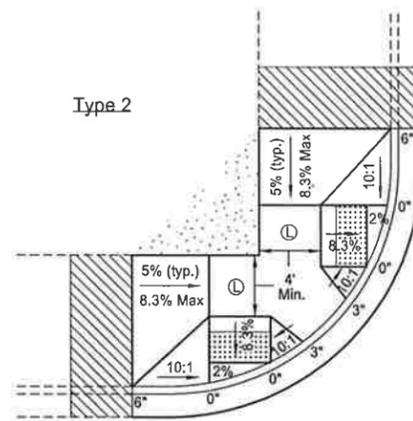
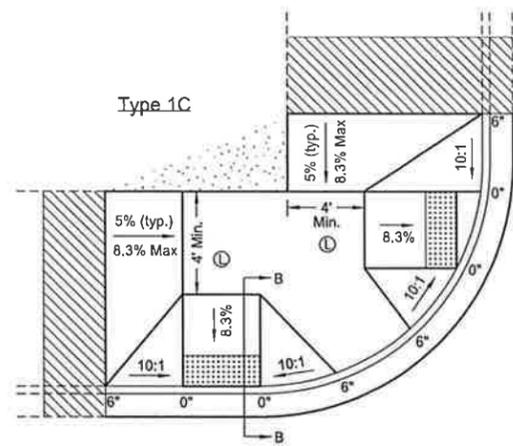
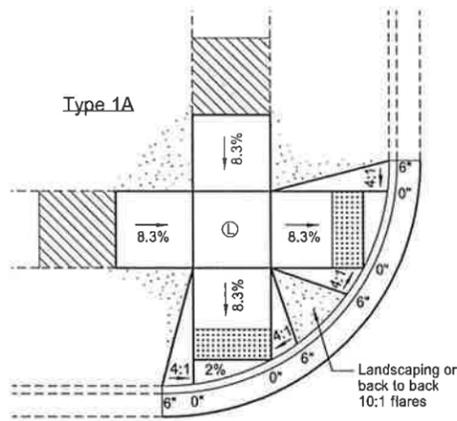
Less Right of Way

**NOTES:**

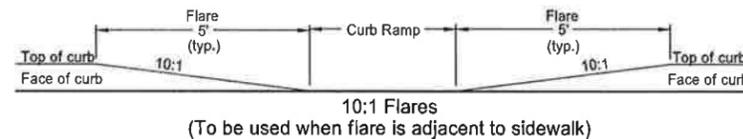
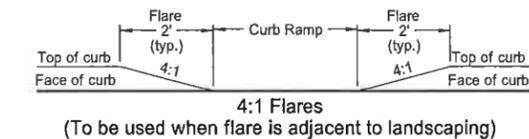
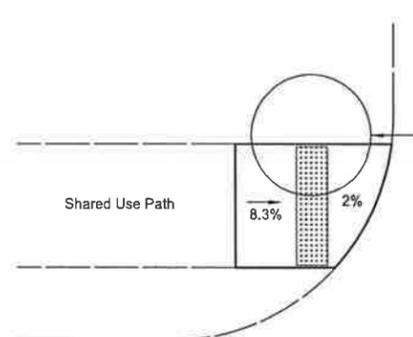
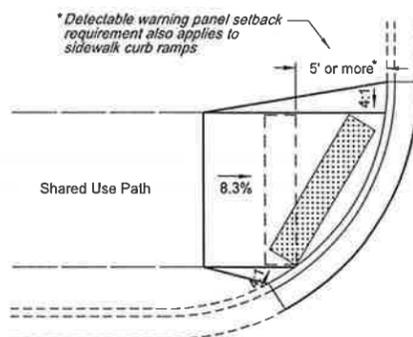
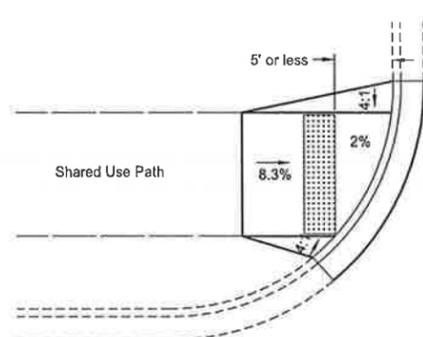
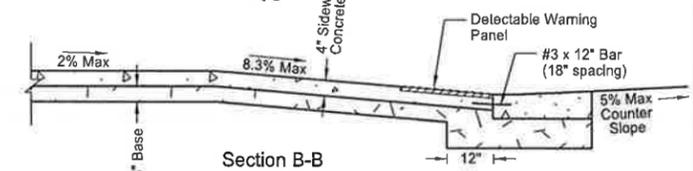
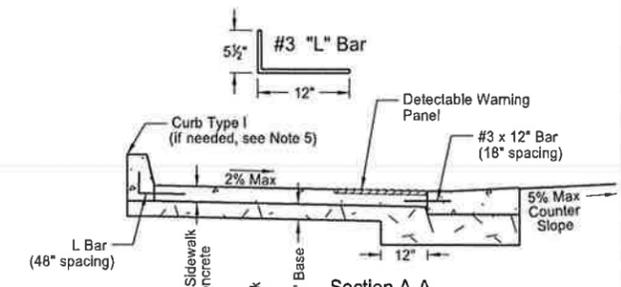
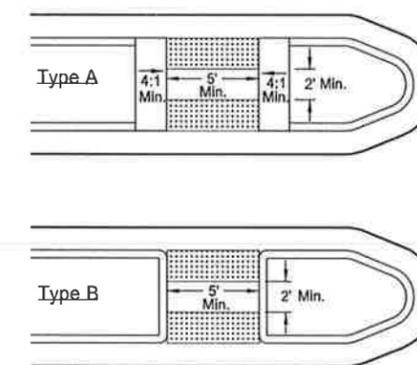
- Ramp width is defined as the useable portion of the ramp, excluding flares if used.  
Curb ramp width should match the existing sidewalk width, 4' width minimum.  
Ramp width for shared-use paths should match the existing shared use path width.  
Ramp length shall be maximum of 15'.
- Landings shall be a minimum of 4' x 4' and shall have a max 2% slope in any direction. Landings are desirably 5' x 5' or larger.
- Detectable warning panels shall match the ramp width. Radial panels may also be used. The detectable warning panel may be located within the lower landing.
- The pedestrian access route shall be continuous 4' min. width. Max 2% cross slope applies to all concrete, excluding flares.
- Landscaping is preferred to modify existing ground slope changes as needed. If not possible, such as adjacent buildings, a vertical curb may be used as shown in the detail below. The curb will be paid for at the unit price bid for the item "Curb - Type I" per lineal foot.

**LEGEND:**

-  : Detectable Warning Panel
-  : Landscaping
-  : Transitional tie-in segment if needed for retrofits. Max grade slope 8.3%.
-  : Upper Landing
-  : Lower Landing
- 0", 3", or 6" : Curb Height
- 8.3% : All slopes shown are max grades. Flatter slopes may be used.



**Median Refuge Islands (Cut-Through)**



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