

# MINNESOTA DEPARTMENT OF TRANSPORTATION

## CONSTRUCTION PLANS FOR BITUMINOUS PAVEMENT RECLAMATION AND MILLING, BITUMINOUS SURFACING, AGGREGATE BASE, PUBLIC UTILITES, SIGNING, STRIPING, EROSION CONTROL, AND RESTORATION

### 2025 STREET RECONSTRUCTION PROJECT ST. FRANCIS, MINNESOTA

S.A.P. 235-156-001 LOCATED ON WOODBINE STREET FROM RUM RIVER BOULEVARD TO BRIDGE STREET  
 S.A.P. 235-101-003 LOCATED ON 233RD AVENUE FROM TRUNK HIGHWAY 47 TO AMBASSADOR BOULEVARD  
 S.A.P. 235-102-002 LOCATED ON 229TH AVENUE FROM TRUNK HIGHWAY 47 TO AMBASSADOR BOULEVARD  
 S.A.P. 235-121-001 LOCATED ON 229TH LANE FROM AMBASSADOR BOULEVARD TO RUM RIVER BOULEVARD  
 SECTIONS 5 & 32 - TOWNSHIPS 33 & 34 - RANGE 24

### GOVERNING SPECIFICATIONS

THE 2020 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL APPLY.

ALL FEDERAL, STATE AND LOCAL LAWS, REGULATIONS, AND ORDINANCES SHALL BE COMPLIED WITH IN THE CONSTRUCTION OF THIS PROJECT.

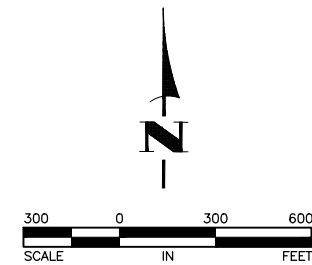
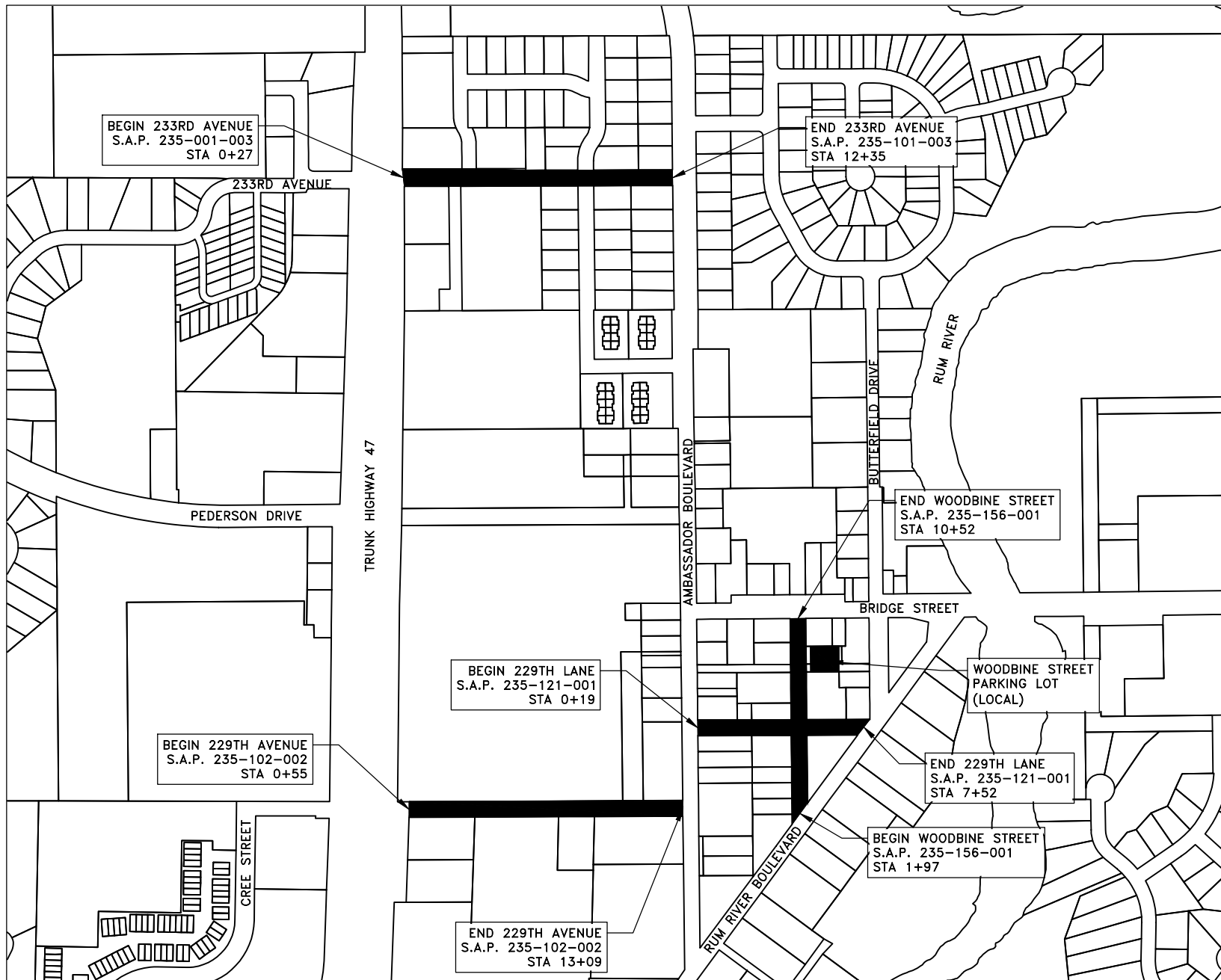
ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE LATEST EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE LATEST FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.

ALL REQUIREMENTS OF THE PROJECT MANUAL FOR THE 2025 STREET RECONSTRUCTION PROJECT.

### SHEET INDEX

THIS PLAN CONTAINS 37 SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	ESTIMATED QUANTITIES, CONSTRUCTION NOTES, AND PROJECT LEGEND
3	TYPICAL SECTIONS
4-8	DETAILS
9-14	MNDOT PEDESTRIAN RAMP DETAILS
15-17	EXISTING CONDITIONS AND REMOVALS
18-26	CONSTRUCTION PLANS
27-32	SIGNAGE AND STRIPING PLANS
X1-X5	CROSS SECTIONS



CITY OF ST. FRANCIS,  
ANOKA COUNTY,  
MINNESOTA

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-2, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."

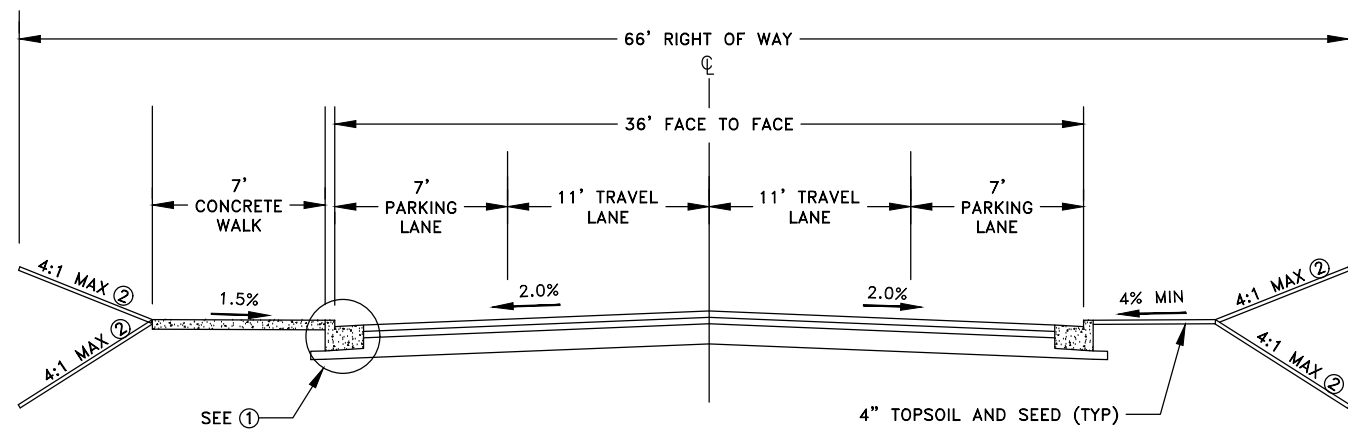
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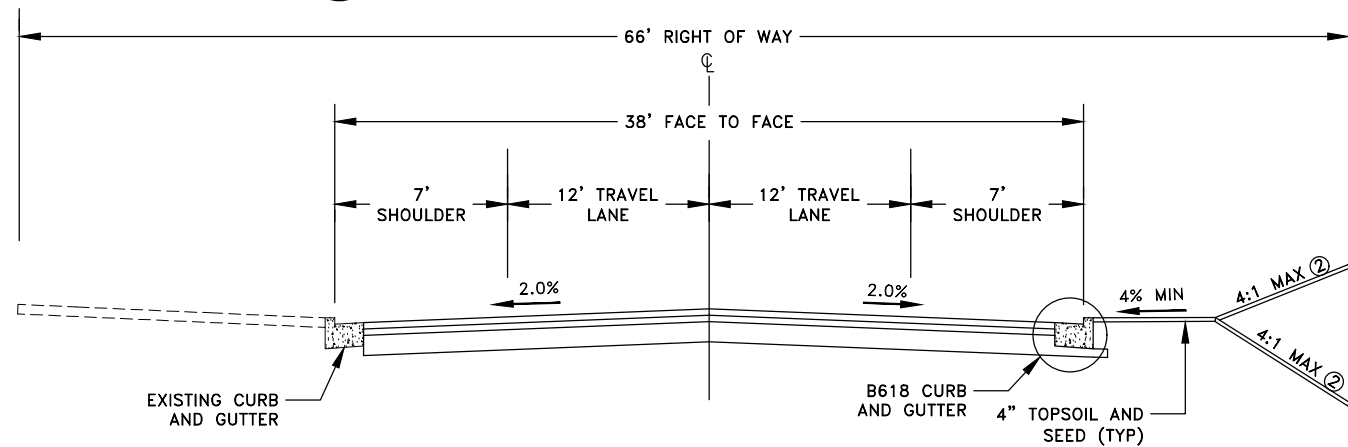
*Craig J. Jochem*  
 CRAIG J. JOCHUM, P.E.  
 HAKANSON ANDERSON  
 DESIGN ENGINEER

23461      DATE 2/12/25  
 LIC. NO.

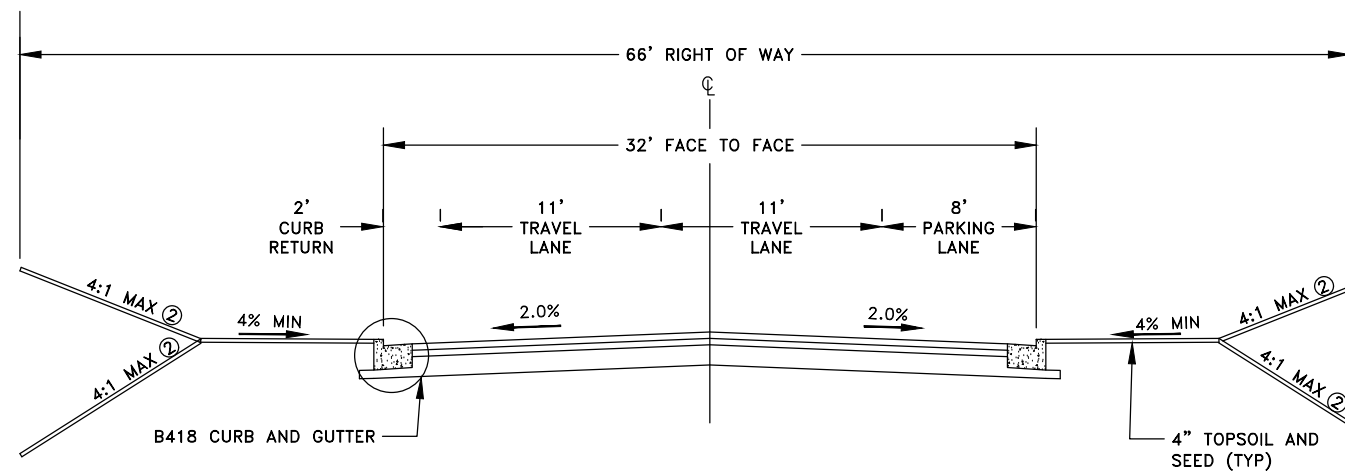
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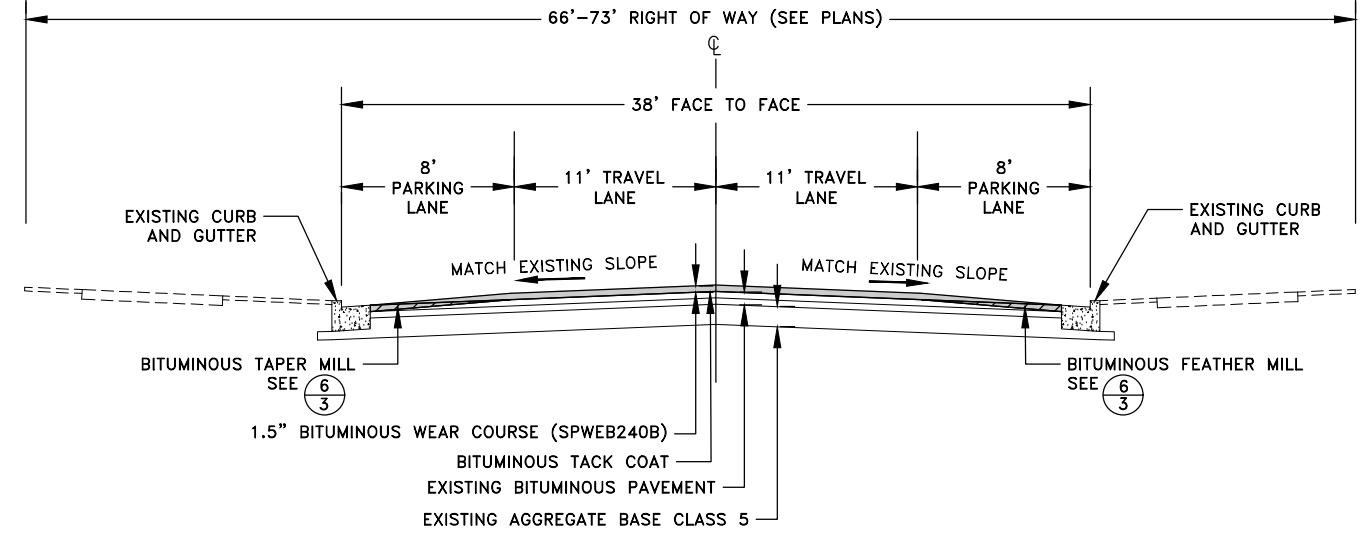
1  
3 TYPICAL SECTION - WOODBINE STREET STA 1+97 TO 7+82



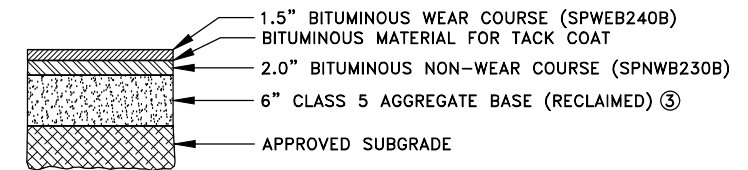
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3 TYPICAL SECTION - WOODBINE STREET STA 7+82 TO 10+52



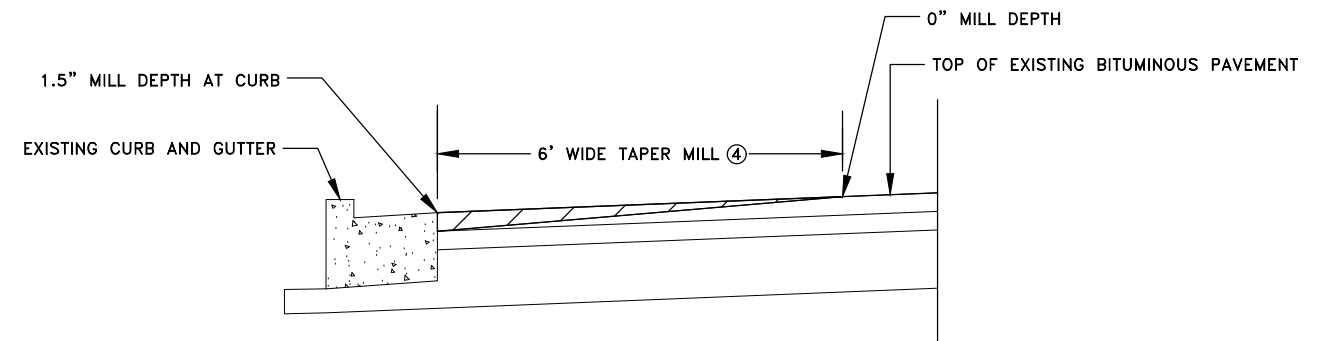
3  
3 TYPICAL SECTION - 229TH LANE



4  
3 TYPICAL SECTION - 229TH AVENUE AND 233RD AVENUE



5  
3 TYPICAL SECTION



6  
3 TAPER MILL

REFERENCE NOTES:

- ① CURB AND GUTTER WILL BE B418 FROM STA 1+97 TO 6+00 AND B618 FROM STA 6+00 TO 7+82.
- ② BOULEVARD SLOPE VARIES. SEE CROSS SECTIONS FOR ADDITIONAL DETAILS.
- ③ CONTRACTOR SHALL USE RECLAIM MATERIAL FOR CLASS 5 AGGREGATE BASE. CONTRACTOR SHALL IMPORT CLASS 5 WHEN QUANTITIES OF RECLAIM ARE NOT ADEQUATE.
- ④ TAPER SHALL BE PAID PER ITEM 2232-MILL BITUMINOUS PAVEMENT (SPECIAL).

S.A.P. 235-101-003  
S.A.P. 235-102-002  
S.A.P. 235-121-001  
S.A.P. 235-156-001

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*Craig J. Jochem*  
CRAIG J. JOCHUM, P.E.  
Date 2/12/25 Lic. No. 23461

DESIGNED BY: CJJ  
DRAWN BY: SGJ  
CHECKED BY: TAE

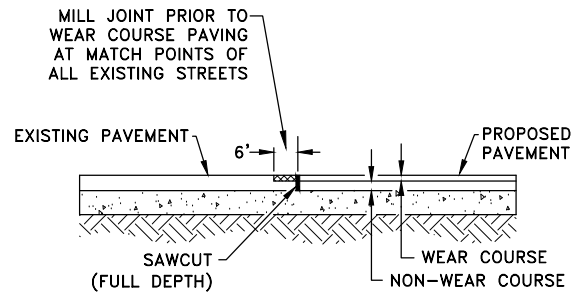


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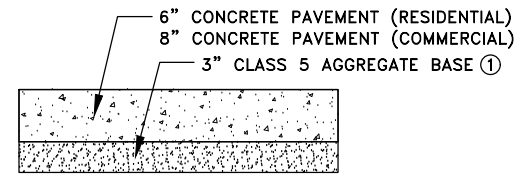
2025 STREET RECONSTRUCTION PROJECT

TYPICAL SECTIONS  
CITY OF ST. FRANCIS, MINNESOTA

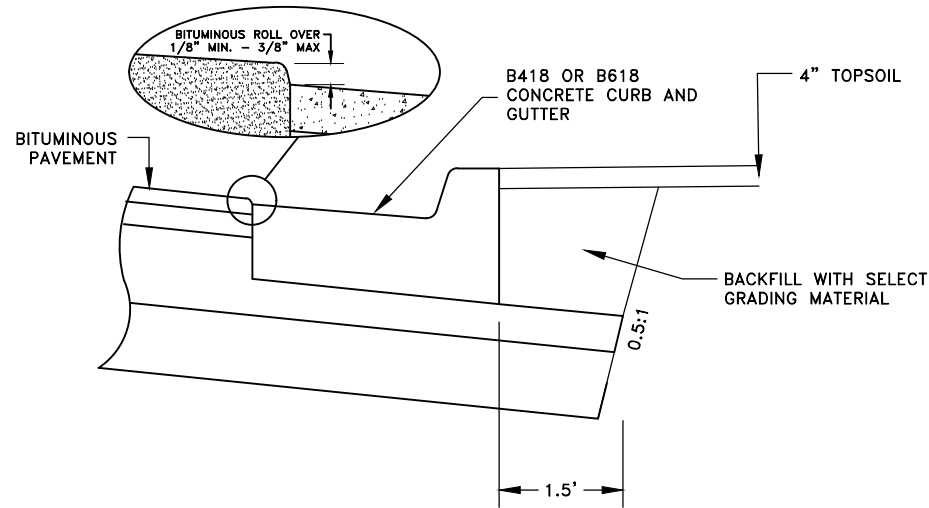
SHEET 3 OF 32 SHEETS  
SF326



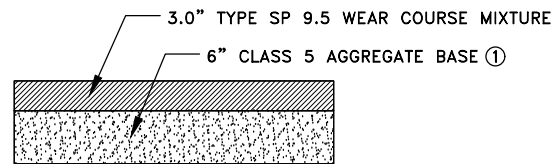
1  
4  
MILL DETAIL



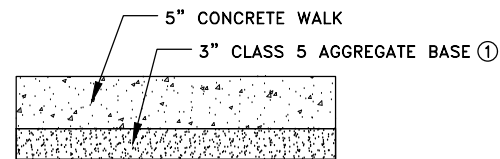
5  
4  
TYPICAL CONCRETE DRIVEWAY



2  
4  
PAVING AT CURB



3  
4  
TYPICAL BITUMINOUS DRIVEWAY



4  
4  
TYPICAL CONCRETE WALK

S.A.P. 235-101-003  
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REFERENCE NOTES:  
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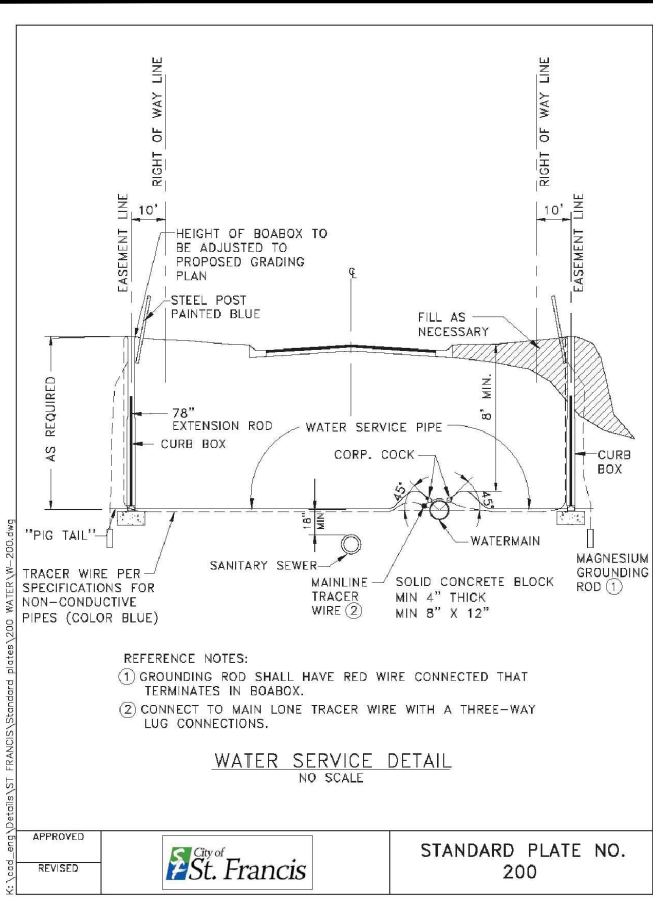


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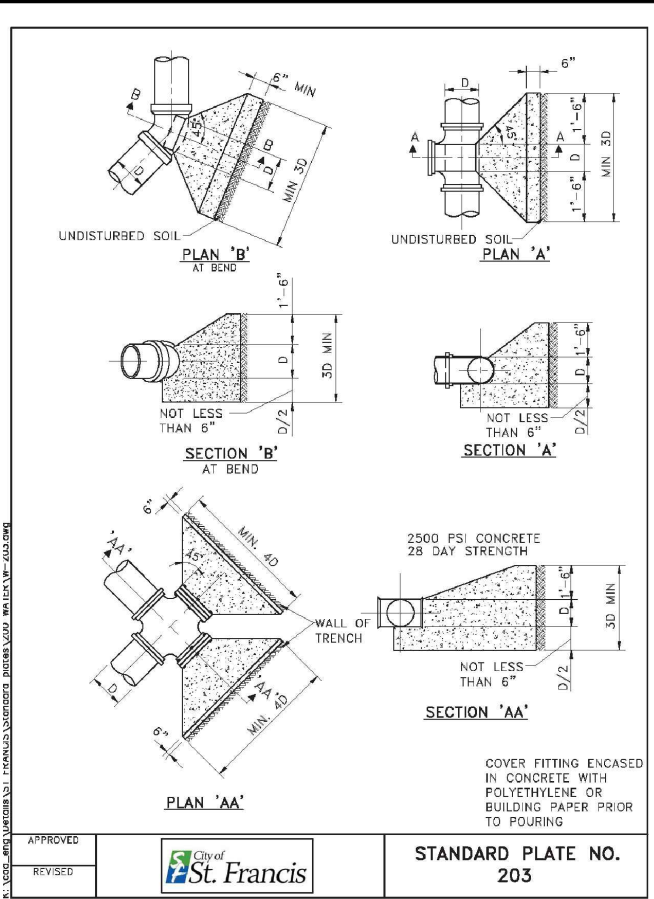
2025 STREET RECONSTRUCTION PROJECT

DETAILS  
CITY OF ST. FRANCIS, MINNESOTA

SHEET 4 OF 32 SHEETS



APPROVED		STANDARD PLATE NO. 200
REVISED		



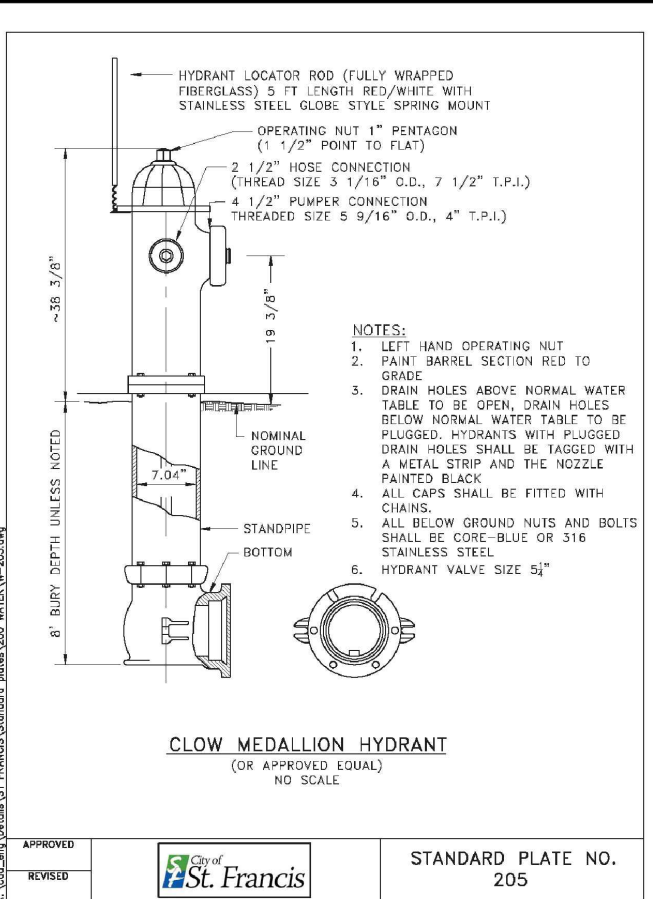
APPROVED		STANDARD PLATE NO. 203
REVISED		

PIPE SIZE	TEE or PLUG	CROSS W/ 2 PLUGS (i.e. 90° BEND)	1/8 BEND (45° BEND) AND 1/16 BEND (22.5°)
6"	0.22 CuYds	0.15 CuYds	0.05 CuYds
8"	0.27 CuYds	0.29 CuYds	0.08 CuYds
10"	0.32 CuYds	0.48 CuYds	0.14 CuYds
12"	0.37 CuYds	0.75 CuYds	0.21 CuYds
16"	0.53 CuYds	1.73 CuYds	0.49 CuYds
20"	0.82 CuYds	3.36 CuYds	0.95 CuYds
24"	1.34 CuYds	5.77 CuYds	1.63 CuYds

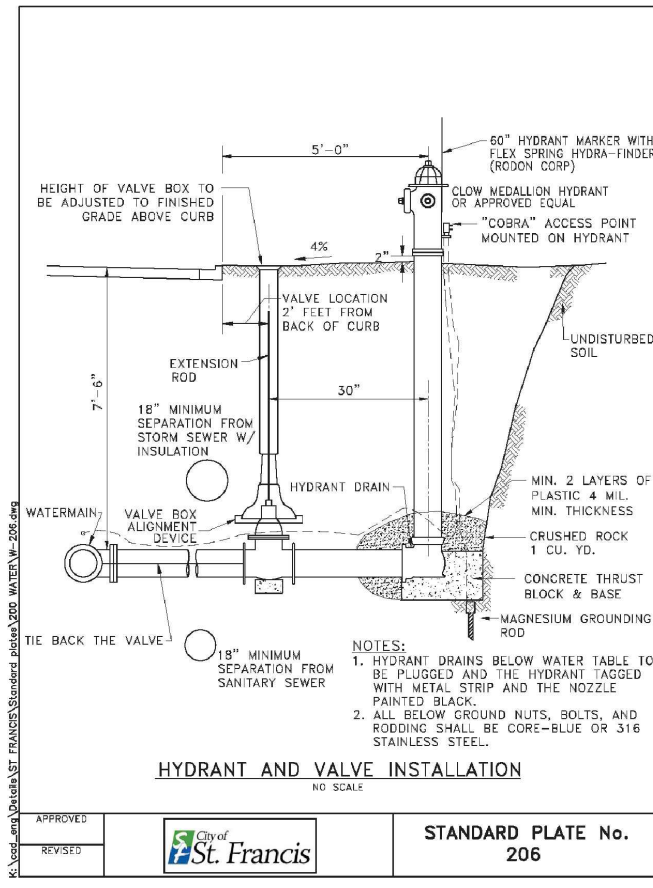
NOTE:  
 1. COVER FITTINGS ENCASED IN CONCRETE WITH POLYETHYLENE OR BUILDING PAPER PRIOR TO POURING.  
 2. CONCRETE BLOCKING SHALL BE POURED AGAINST FIRM, UNDISTURBED GROUND.  
 3. CONCRETE SHALL MEET THE REQUIREMENTS FOR GRADE B CONCRETE IN CONFORMANCE WITH Mn/DOT 2461.  
 4. ALL METAL PARTS OF THE ROD OR STRAP TYPE RESTRAINTS SHALL BE GALVANIZED OR COATED WITH ASPHALTIC TYPE RUSTPROOFING.

WATERMAIN CONCRETE BLOCKING QUANTITIES

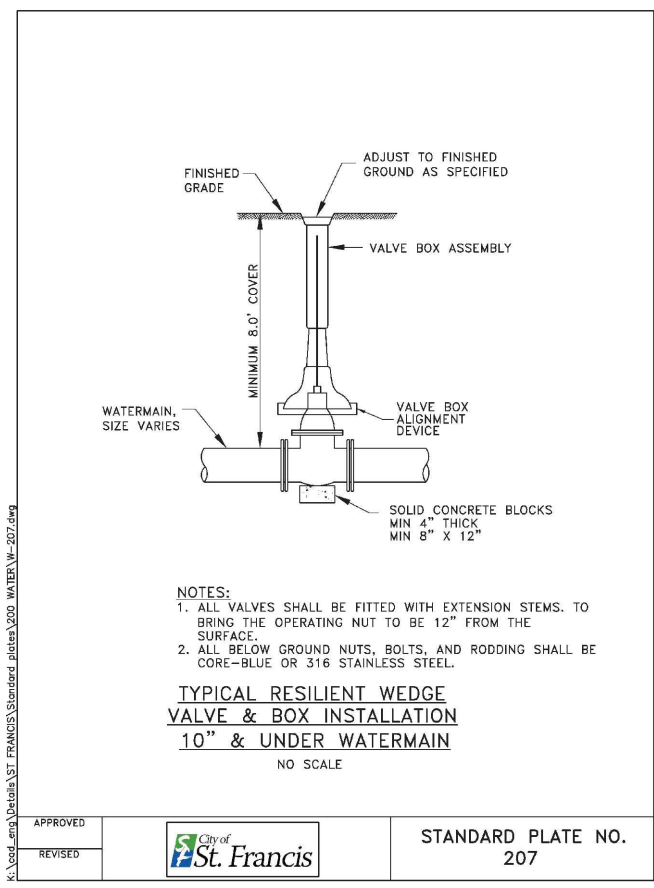
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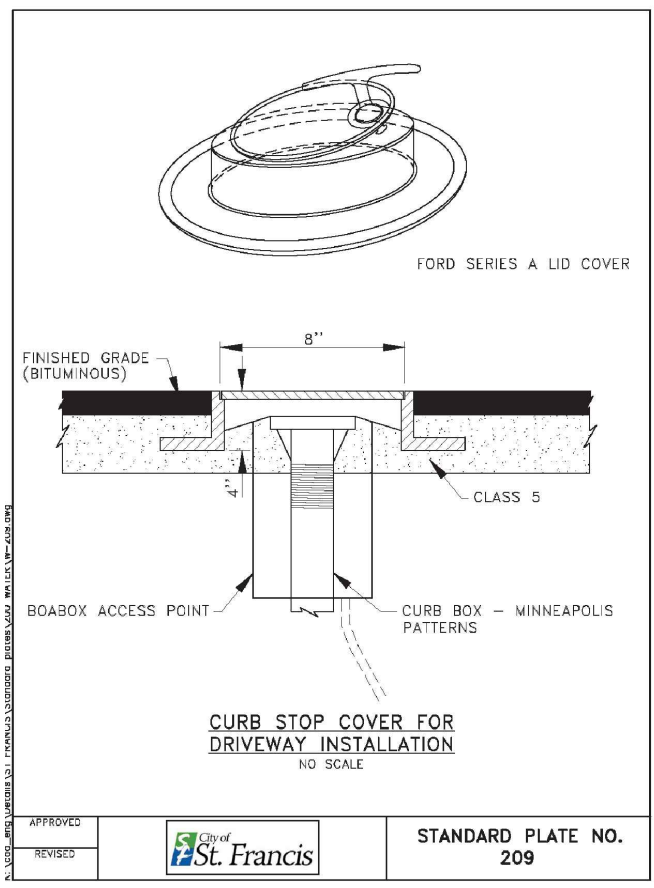
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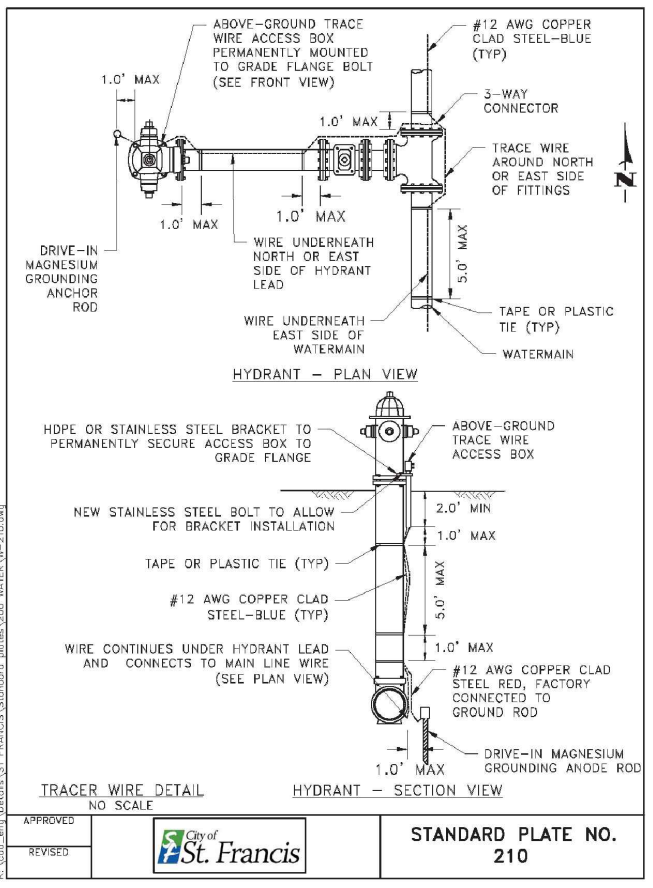
APPROVED		STANDARD PLATE No. 206
REVISED		



APPROVED		STANDARD PLATE NO. 207
REVISED		



APPROVED		STANDARD PLATE NO. 209
REVISED		



APPROVED		STANDARD PLATE NO. 210
REVISED		

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 CHECKED BY: TAE

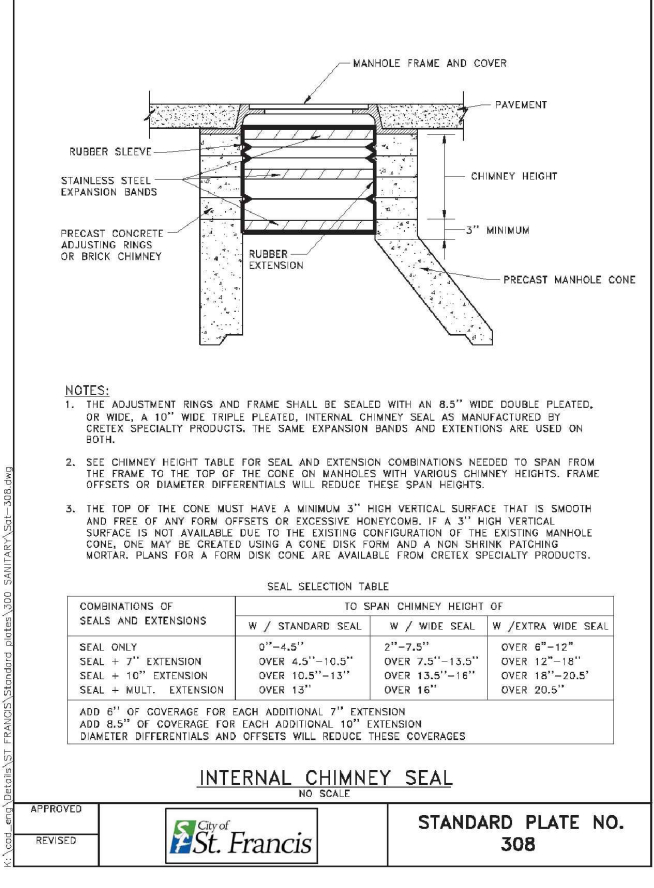
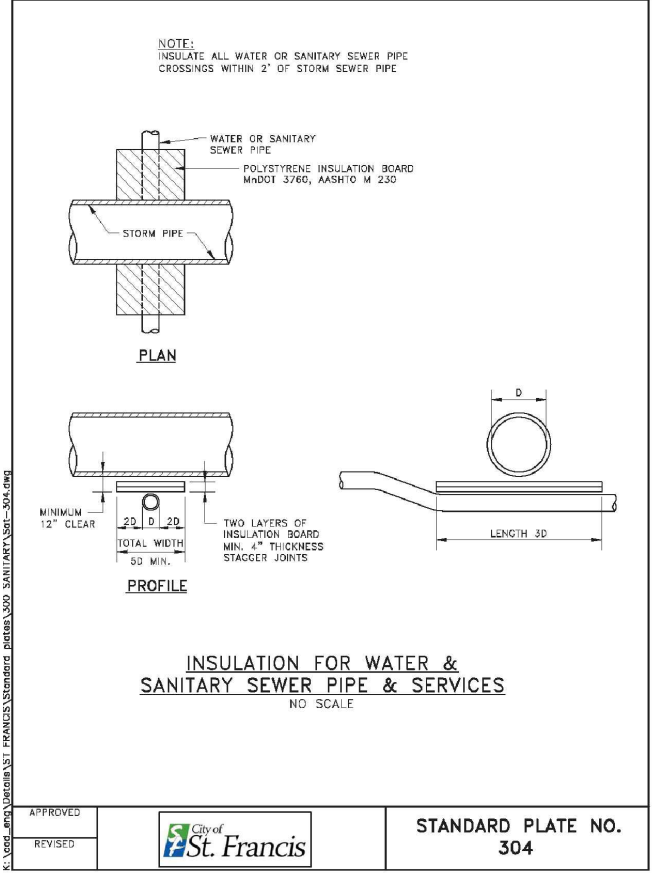
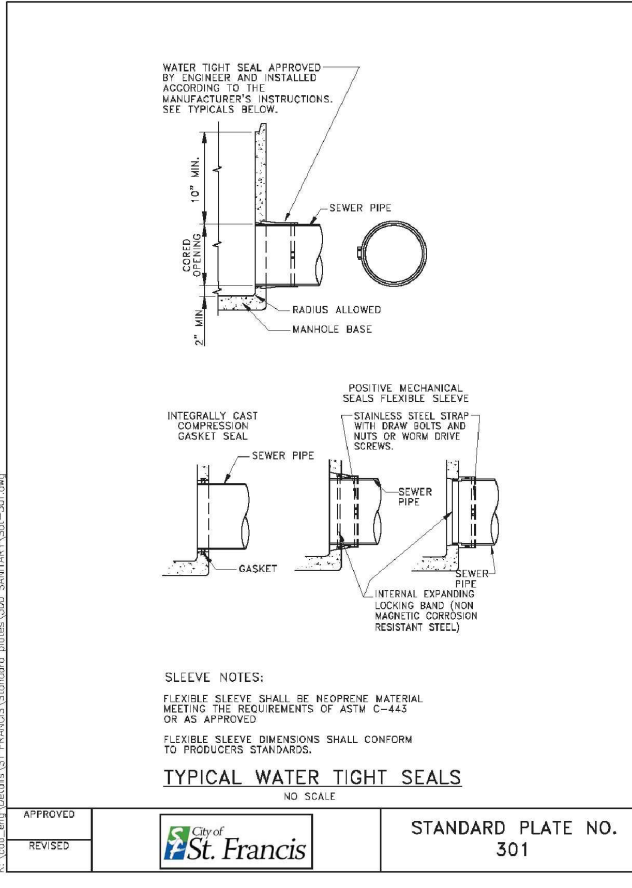
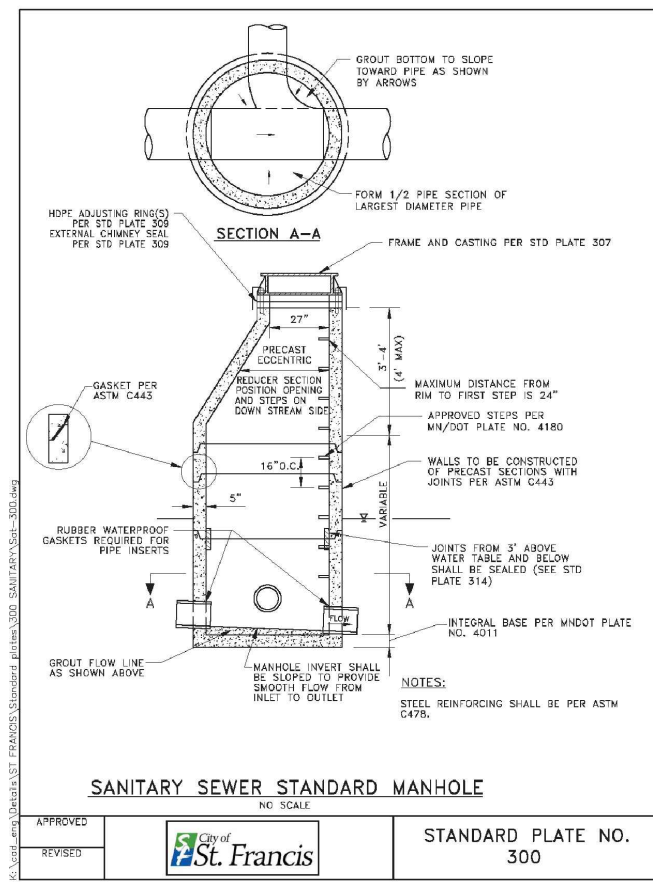
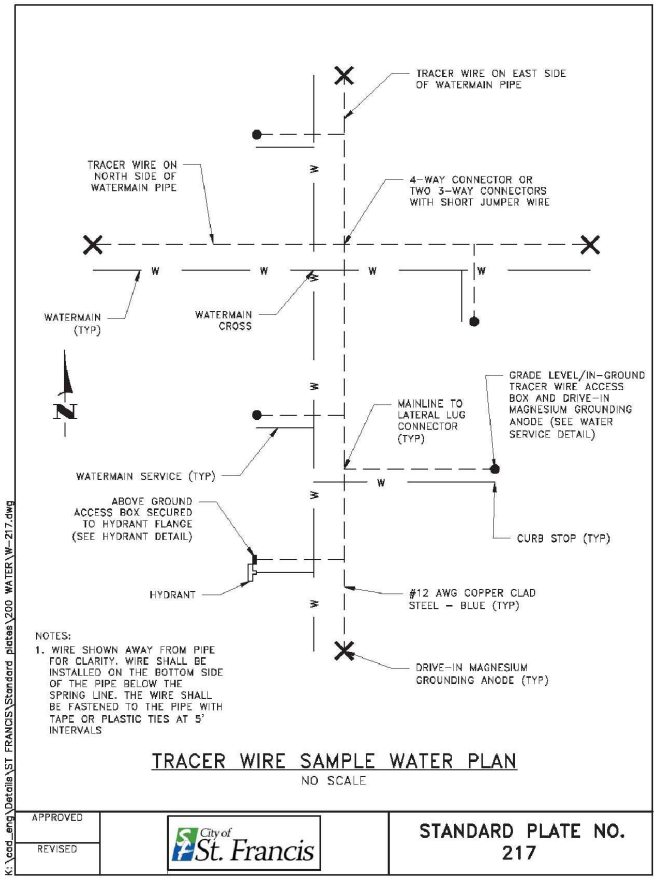
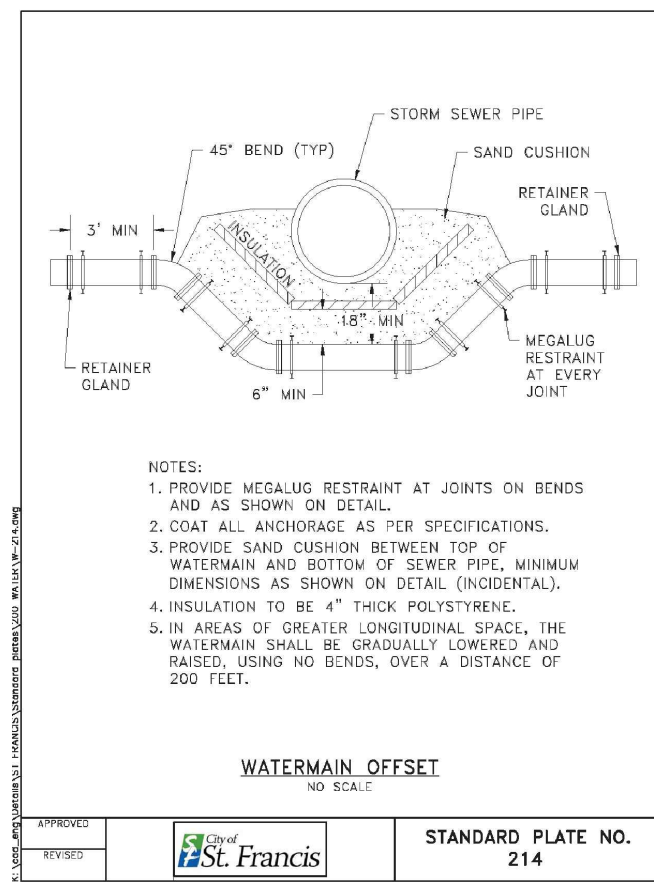
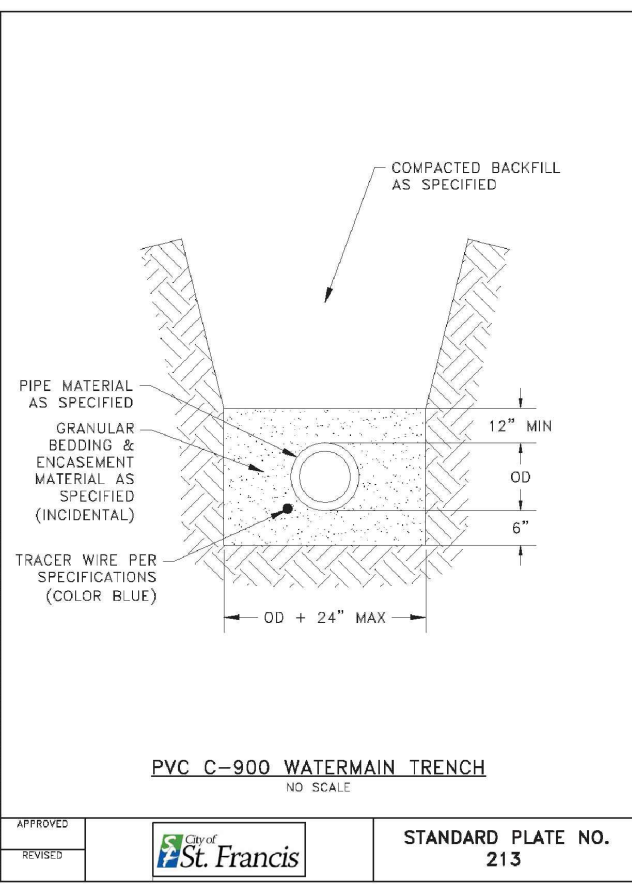
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2025 STREET RECONSTRUCTION PROJECT

DETAILS  
 CITY OF ST. FRANCIS, MINNESOTA

SHEET 5 OF 32 SHEETS

S.A.P. 235-101-003  
 S.A.P. 235-102-002  
 S.A.P. 235-121-001  
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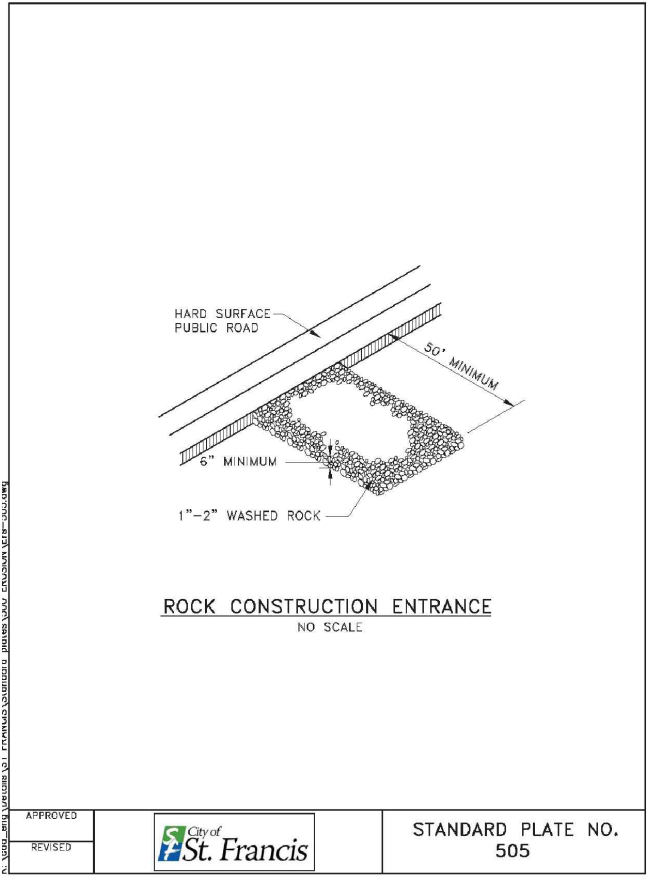
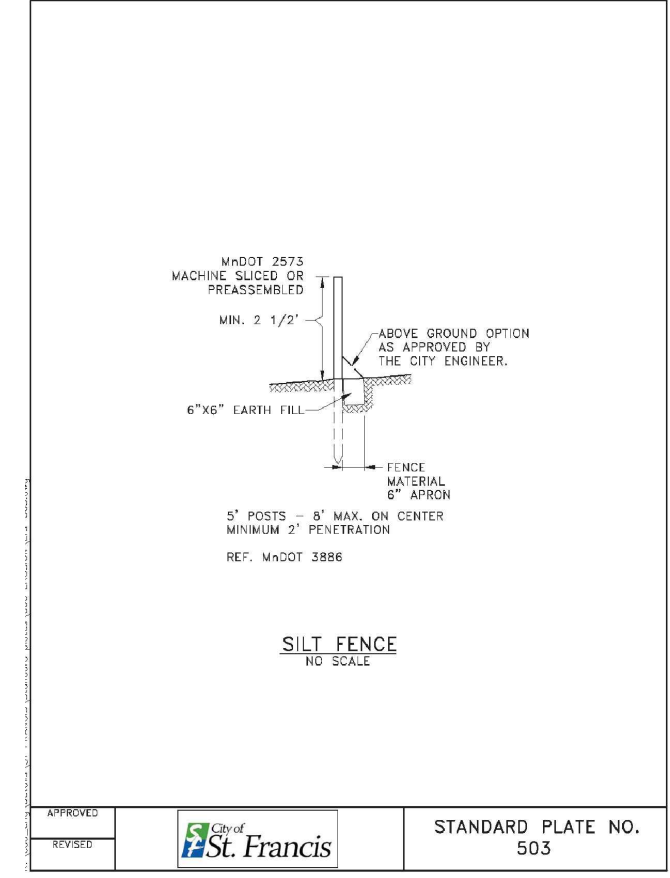
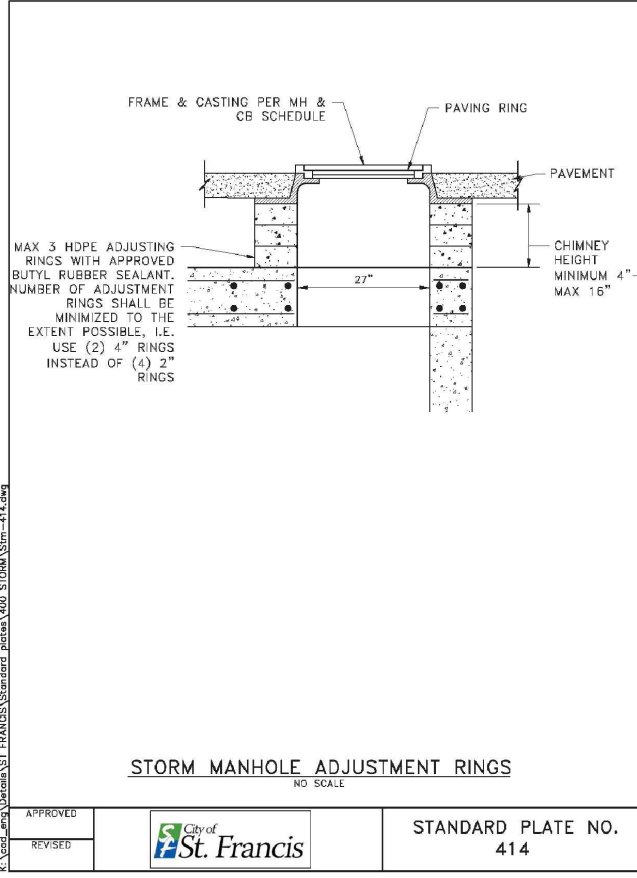
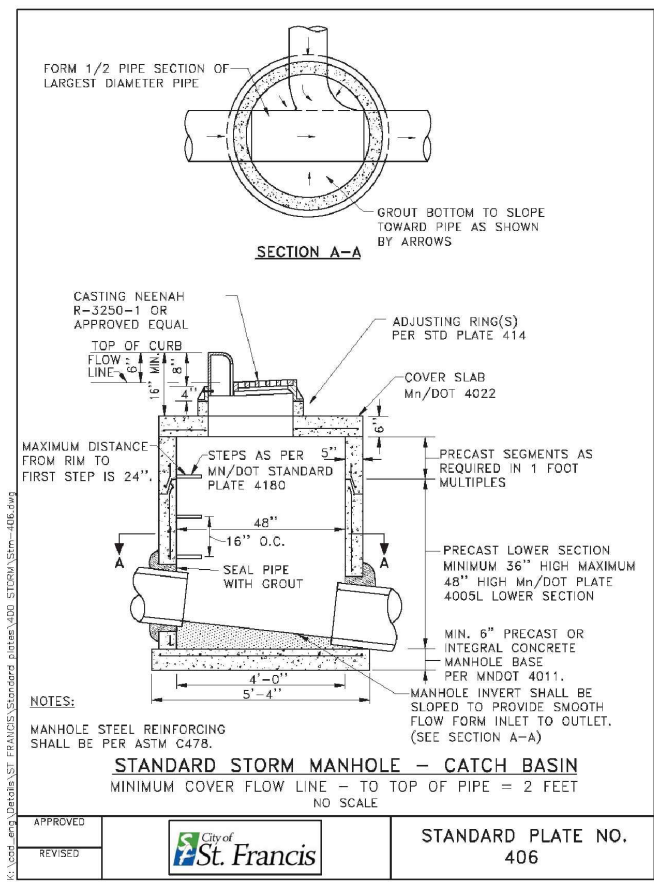
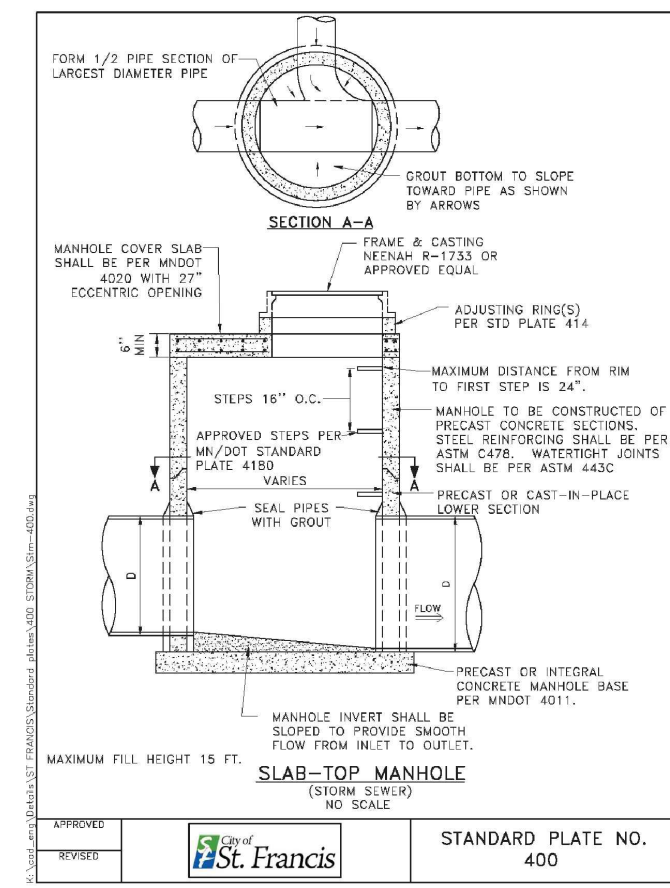
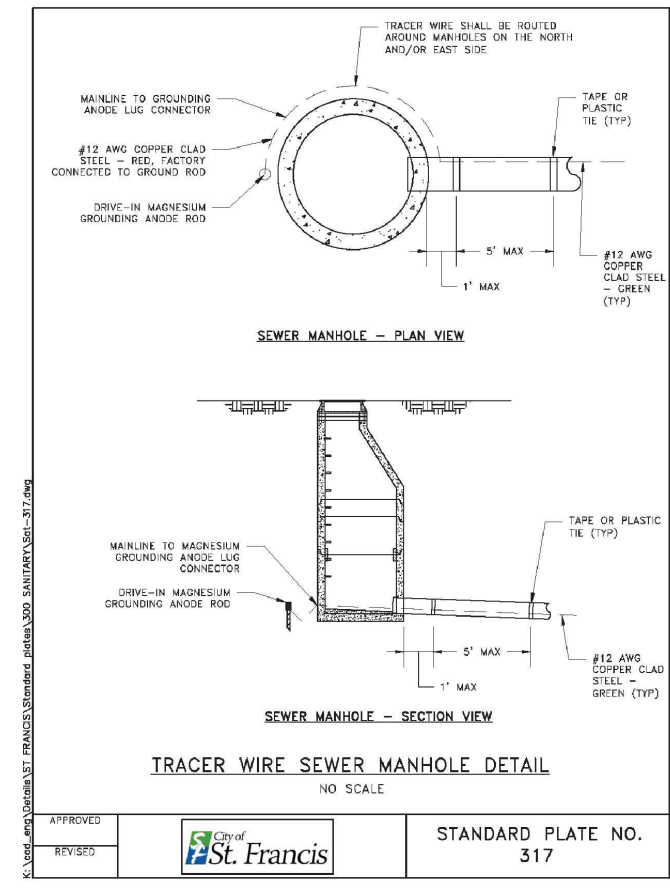
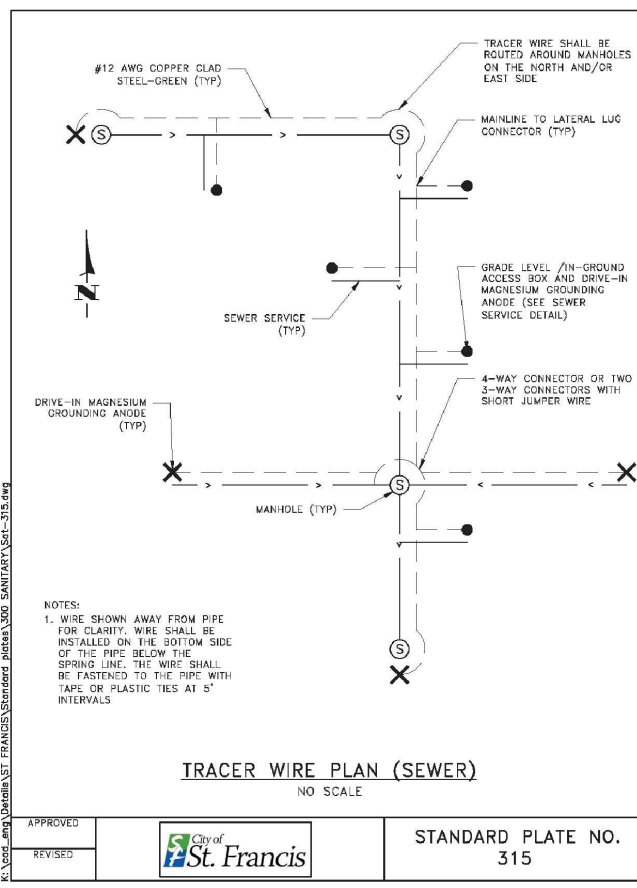
**DETAILS**  
CITY OF ST. FRANCIS, MINNESOTA

SHEET 6 OF 32 SHEETS

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S.A.P. 235-156-001

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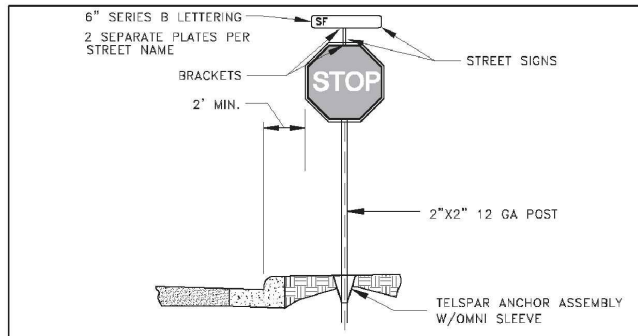


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**DETAILS**  
 CITY OF ST. FRANCIS, MINNESOTA

SHEET 7 OF 32 SHEETS

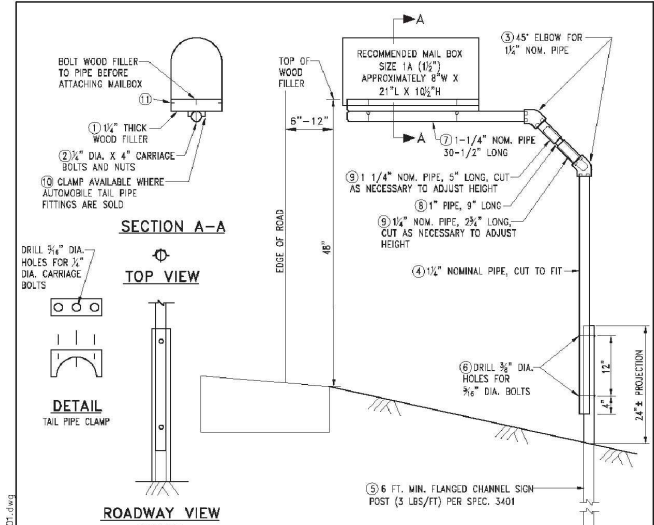


FURNISH AND INSTALL NEW SIGNS				
SIGN NUMBER	SIGN	COLOR	SIZE	COMMENTS
R1-1		WHITE ON RED	30" x 30"	
	SF STREET NAME	WHITE ON GREEN	9" PLATES	ALL INTERSECTIONS

**NOTES:**  
 POSTS SHALL BE CYLINDRICAL TUBE STEEL POSTS, THE POST SHALL BE 12" LONG, WITH 2-3/8" OD, 12 GAUGE COLD ROLLED GALVANIZED STEEL MEETING ASTM A-446 GRADE A.  
 SIGN BASE MATERIAL SHALL BE ALUMINUM, THICKNESS OF THE PLATE SHALL BE 0.06".  
 THE STREET NAME SIGNS SHALL BE NOTCHED AND MOUNTED IN AN E450 BRACKET AND PLACED ABOVE THE STOP SIGN.  
 STREET NAME SIGNS SHALL HAVE HIGH INTENSITY PRISMATIC RETROREFLECTIVE SHEETING (ASTM TYPE IV).  
 STOP SIGNS SHALL HAVE DIAMOND GRADE VIP RETROREFLECTIVE SHEETING (ASTM TYPE IX).  
 SIGNS AND INSTALLATION OF SIGNS SHALL BE IN ACCORDANCE WITH THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES"

**STOP SIGN AND STREET NAME SIGN  
DETAIL**  
NO SCALE

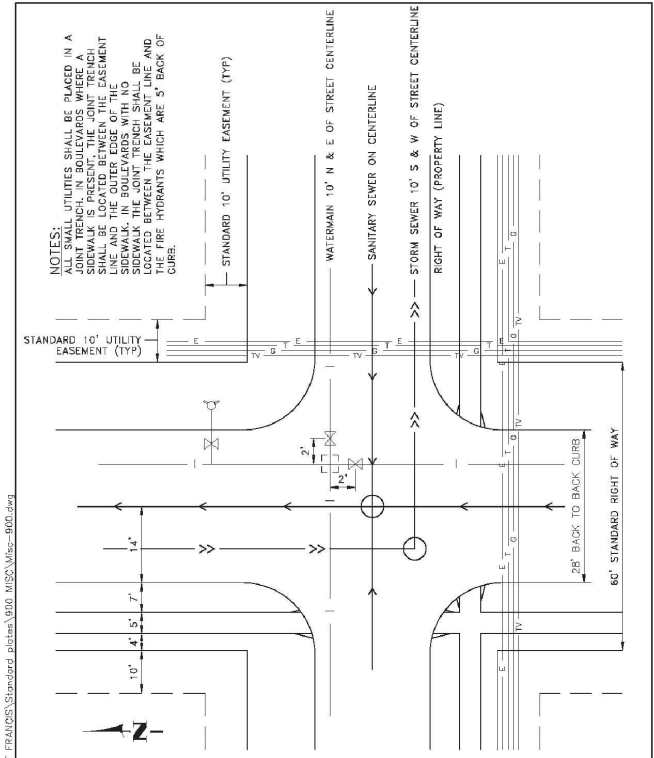
APPROVED		STANDARD PLATE NO. 805
REVISED		



ITEM NO.	NUMBER REQUIRED	DESCRIPTION
1	1	1-1/2" THICK WOOD FILLER CUT TO FIT SING UNDER MAILBOX
2	2	1/4" DIA. X 4" LONG CARRIAGE BOLTS AND NUTS
3	2	45° ELBOW FOR 1-1/4" NOMINAL PIPE
4	1	1-1/4" NOMINAL PIPE, CUT TO FIT
5	1	6 FT. MIN. SIGN POST (SUBS. 7FT.)
6	2	5/16" DIA. BOLT, NUT & LOCKWASHER
7	1	1-1/2" NOMINAL PIPE, 30-17/2" LONG
8	1	1" PIPE, 9" LONG
9	1	1-1/4" NOMINAL PIPE, 5' LONG
10	2	1-1/4" NOMINAL PIPE, 2-3/4" LONG
11	9	NO. 10 X 1" SHEET METAL SCREWS

**MAILBOX SUPPORT**  
STEEL PIPE WITH FITTINGS AND STEEL FENCE POST (SINGLE SUPPORT)  
NO SCALE

APPROVED		STANDARD PLATE NO. 901
REVISED		



**LOCATION OF PUBLIC UTILITIES**  
NO SCALE

APPROVED		STANDARD PLATE NO. 900
REVISED		

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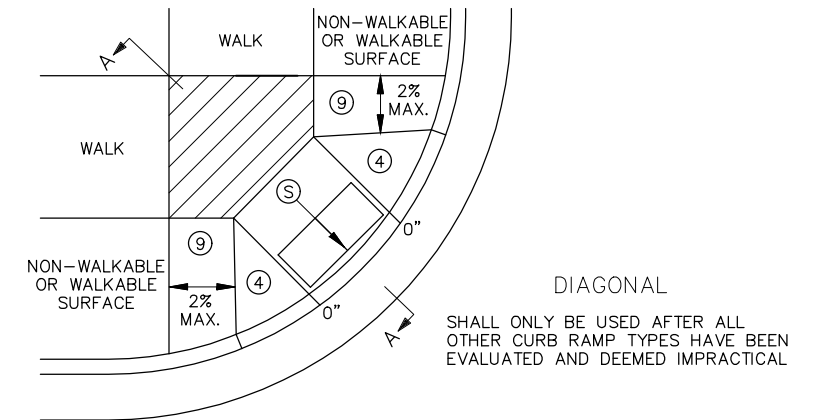
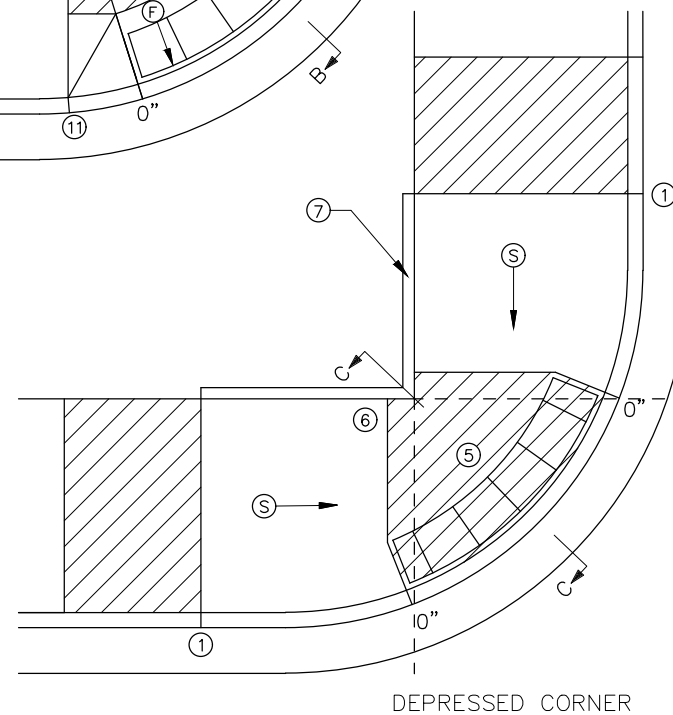
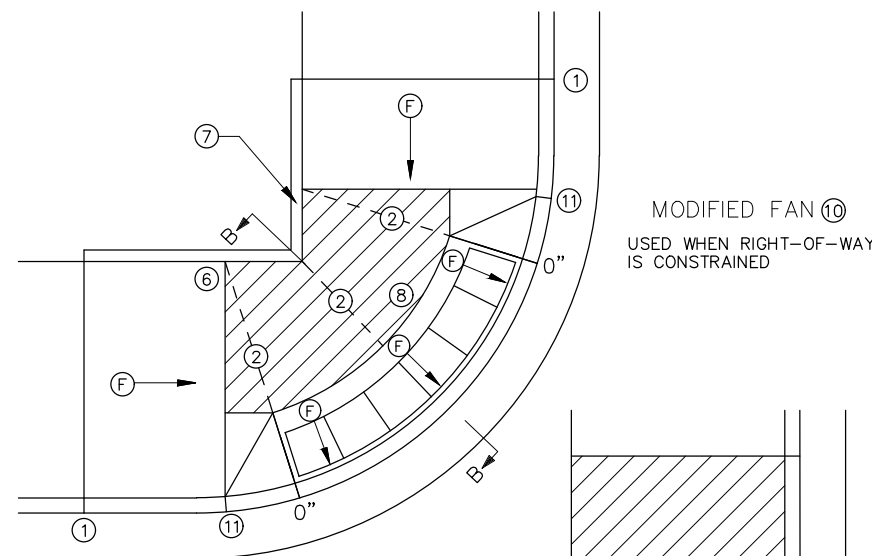
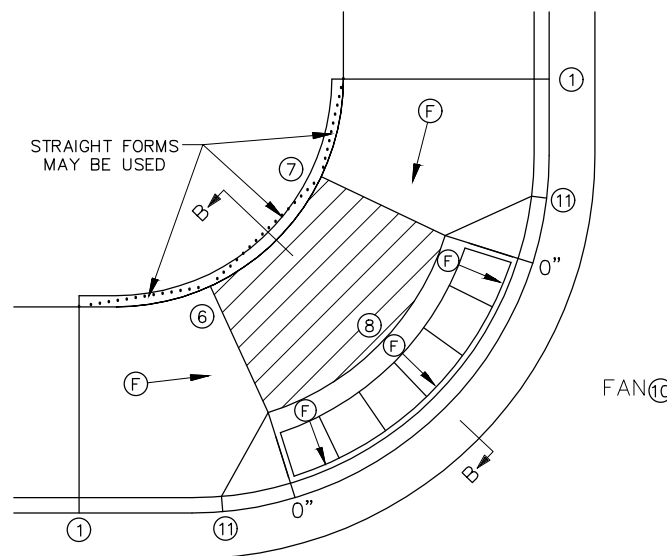
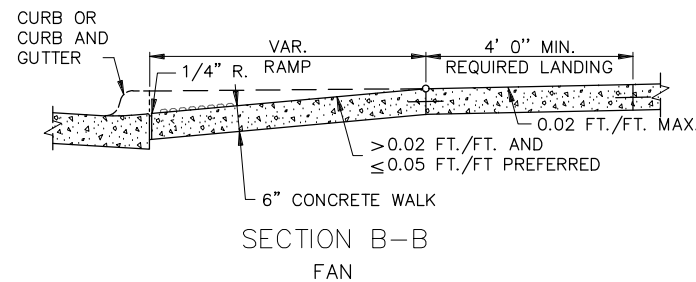
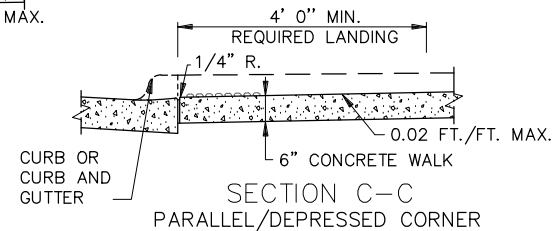
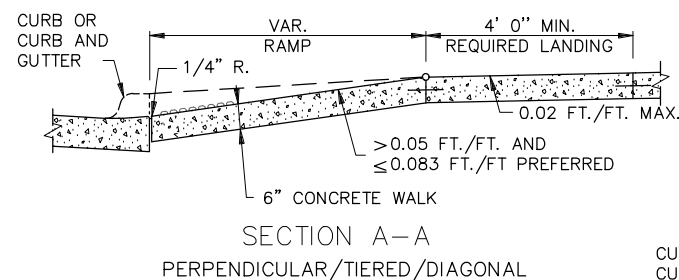
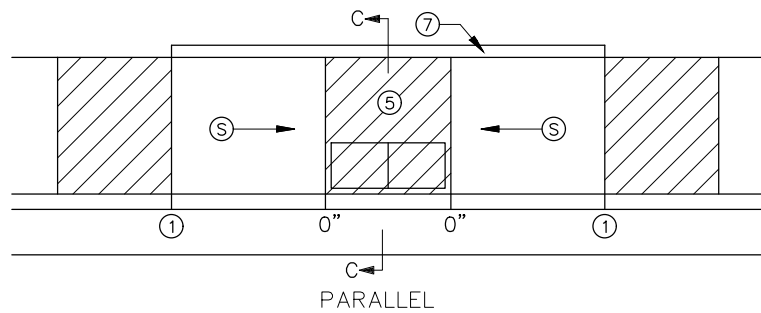
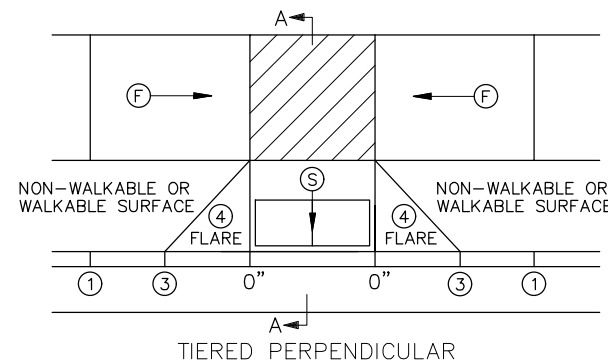
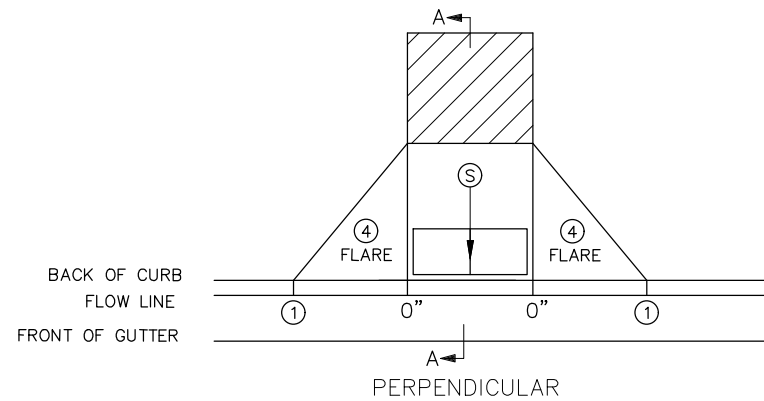
2025 STREET RECONSTRUCTION PROJECT

DETAILS  
 CITY OF ST. FRANCIS, MINNESOTA

SHEET 8 OF 32 SHEETS

S.A.P. 235-101-003  
 S.A.P. 235-102-002  
 S.A.P. 235-121-001  
 S.A.P. 235-156-001

Feb 12, 2025 - 2:33pm  
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NOTES:

- LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE (PAR) CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE GREATER THAN 2%.
- INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6" FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE, ONLY APPLICABLE WHEN THE INITIAL RAMP RUNNING SLOPE IS OVER 5.0%.
- SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL RUNNING SLOPE IS GREATER THAN 5.0%.
- CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS WITHIN THE PAR. 1/4" DEEP VISUAL JOINTS SHALL BE USED AT THE TOPS OF CONCRETE FLARES ADJACENT TO WALKABLE SURFACES.
- ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL, THUS BOTH SIDES OF A SLOPED WALKING SURFACE MUST BE EQUAL LENGTH. (EXCEPT AS STATED IN ⑥ BELOW.)
- TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONSTRUCTED, ALL INITIAL LANDINGS AT A TOP OF A RAMPED SURFACE (RUNNING SLOPE GREATER THAN 2%) SHALL BE FORMED AND PLACED SEPARATELY IN AN INDEPENDENT CONCRETE POUR. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 6 OF 6 FOR ALL SEPARATELY POURED INITIAL LANDINGS.
- WHEN SIDEWALK IS AT BACK OF CURB, TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE. MAINTAIN POSITIVE BOULEVARD DRAINAGE TO TOP OF CURB.
- ALL RAMP TYPES SHOULD HAVE A MINIMUM 3' LONG RAMP LENGTH.
- 4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MIN. OF 24" IN THE PATH OF TRAVEL. DETECTABLE WARNING TO COVER THE ENTIRE PAR WIDTH OF SHARED-USE PATHS AND THE ENTIRE PAR WIDTH OF THE WALK WITH THE EXCEPTION OF 3" MAXIMUM ON EACH OUTSIDE EDGE WHICH ENSURES THE DETECTABLE WARNINGS ARE ENCASED IN CONCRETE WHEN ADJACENT TO TURF. WHEN ADJACENT TO CONCRETE FLARES 0" - 3" OFFSET IS ALLOWED.
- WHEN DESIGNING OR ORDERING RECTANGULAR DETECTABLE WARNING SURFACES SHOULD BE 6" LESS THAN THE INCOMING PAR. ARC LENGTH OF THE RADIAL DETECTABLE WARNINGS SHOULD NOT BE GREATER THAN 20 FEET.
- RECTANGULAR DETECTABLE WARNINGS SHALL BE SETBACK 3" FROM THE BACK OF CURB. RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB.

- ① MATCH FULL HEIGHT CURB.
- ② 4' MINIMUM DEPTH LANDING REQUIRED ACROSS TOP OF RAMP.
- ③ 3" HIGH CURB WHEN USING A 3' LONG RAMP, 4" HIGH CURB WHEN USING A 4' LONG RAMP.
- ④ SEE SHEET 4 OF 6, TYPICAL SIDE TREATMENT OPTIONS, FOR DETAILS ON FLARES AND RETURNED CURBS.
- ⑤ DETECTABLE WARNINGS MAY BE PART OF THE 4' X 4' MIN. LANDING AREA IF IT IS NOT FEASIBLE TO CONSTRUCT THE LANDING OUTSIDE OF THE DETECTABLE WARNING AREA.
- ⑥ THE GRADE BREAK SHALL BE PERPENDICULAR TO THE BACK OF WALK. THIS WILL ENSURE THAT THE GRADE BREAK IS PERPENDICULAR TO THE DIRECTION OF TRAVEL. (TYPICAL FOR ALL)
- ⑦ WHEN ADJACENT TO GRASS, GRADING SHALL ALWAYS BE USED WHEN FEASIBLE. V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. WHEN ADJACENT TO PARKING LOTS, CONCRETE OR BITUMINOUS TAPERS LESS THAN 5% RUNNING SLOPE SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.
- ⑧ A 7' MIN TOP RADIUS GRADE BREAK IS REQUIRED TO BE CONSTRUCTIBLE.
- ⑨ PAVE FULL WALK WIDTH.
- ⑩ "S" SLOPES ON FANS SHALL ONLY BE USED WHEN ALL OTHER FEASIBLE OPTIONS HAVE BEEN EVALUATED AND DEEMED IMPRACTICAL.
- ⑪ INTERMEDIATE CURB HEIGHTS TAPER SHALL RISE AT 8-10% TO A MINIMUM 3" CURB HEIGHT. REDUCE INTERMEDIATE CURB HEIGHT TO 2+ INCHES IF NECESSARY TO MATCH ADJACENT BOULEVARD OR SIDEWALK GRADES.

LEGEND	
(S)	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.
(F)	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.
(X)	LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PAR.
(X)	CURB HEIGHT

REVISION:  
APPROVED: 11-04-2021  
*Jeff J. Perkins*  
JEFFREY PERKINS  
OPERATIONS DIVISION

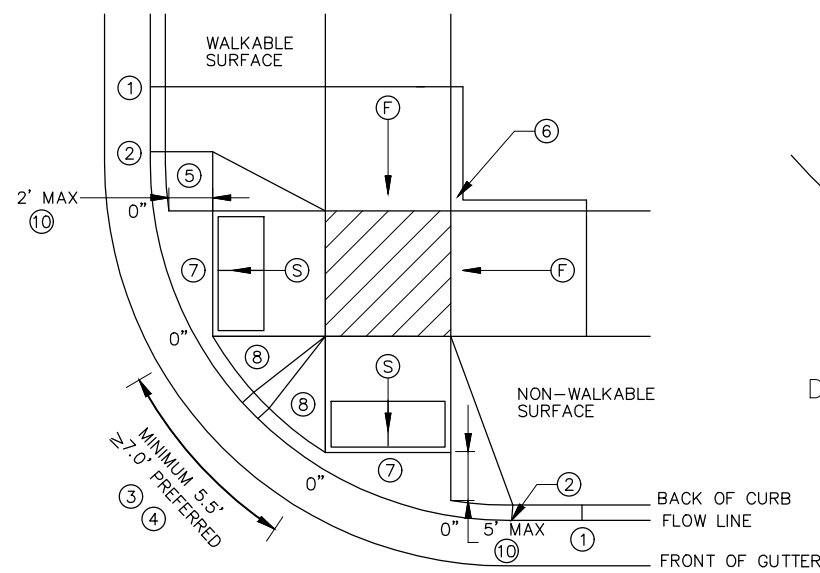
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S.A.P. 235-102-002  
S.A.P. 235-121-001  
S.A.P. 235-156-001



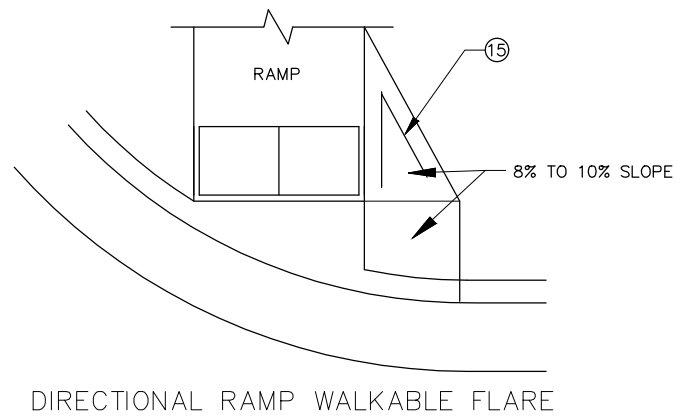
STANDARD PLAN 5-297.250 | 1 OF 6  
APPROVED: 11-04-2021  
REVISOR:  
*Tom Styrbicki*  
THOMAS STYRBICKI  
STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS



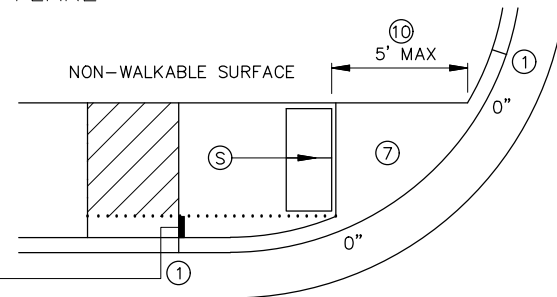


COMBINED DIRECTIONAL

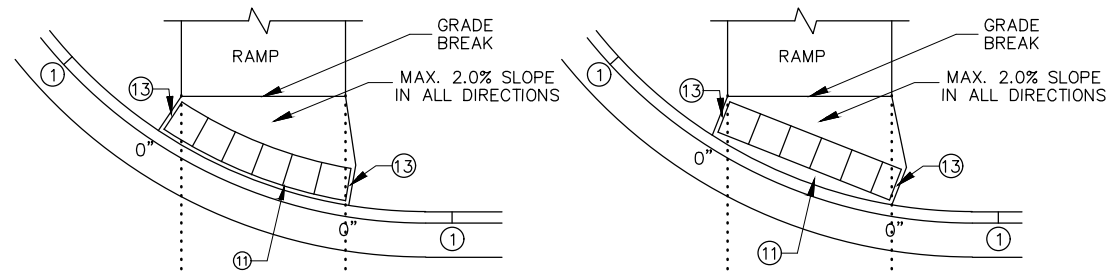


DIRECTIONAL RAMP WALKABLE FLARE

IF NON-CONCRETE BLVD. IS CONSTRUCTED AND IS LESS THAN 2' IN WIDTH AT TOP OF CURB TRANSITION, PAVE CONCRETE RAMP WIDTH TO ADJACENT BACK OF CURB.

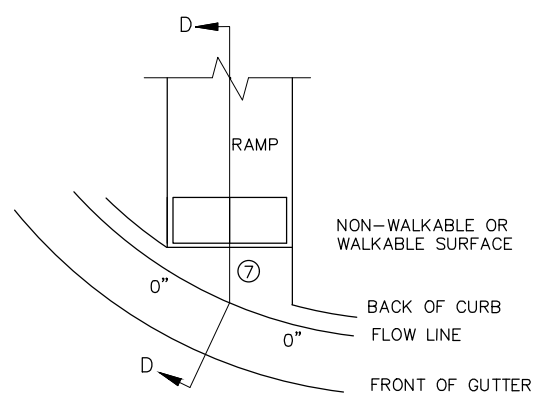


STANDARD ONE-WAY DIRECTIONAL ⑨

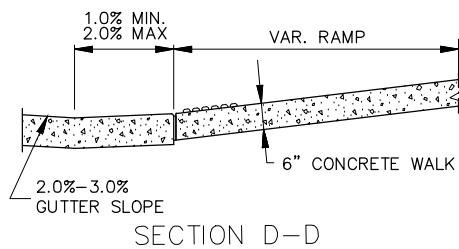


DETECTABLE WARNING PLACEMENT WHEN SETBACK CRITERIA IS EXCEEDED ⑫

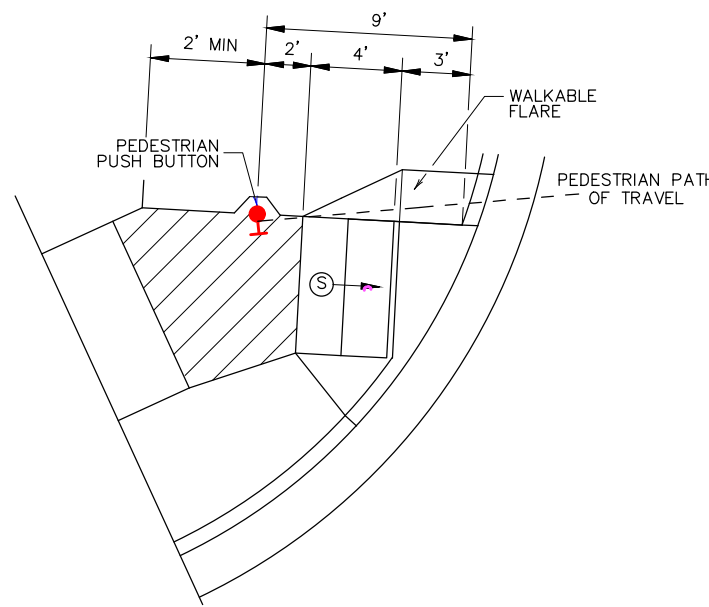
ONE-WAY DIRECTIONAL WITH DETECTABLE WARNING AT BACK OF CURB



CURB FOR DIRECTIONAL RAMPS ⑭



SECTION D-D



SEMI-DIRECTIONAL RAMP ③④⑨

3' DOME SETBACK, 4' LONG RAMP AND PUSH BUTTON 9' FROM THE BACK OF CURB  
 PRIMARILY USED FOR APS APPLICATIONS WHERE THE PAR DOES NOT CONTINUE PAST THE PUSH BUTTON (DEAD-END SIDEWALK)

NOTES:

LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE (PAR) CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE.

INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE, ONLY APPLICABLE WHEN THE INITIAL RAMP RUNNING SLOPE IS OVER 5.0%.

SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30' OF VERTICAL RISE WHEN THE LONGITUDINAL SLOPE IS GREATER THAN 5.0%.

CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS WITHIN THE PAR. 1/4" DEEP VISUAL JOINTS SHALL BE USED AT THE TOP GRADE BREAK OF CONCRETE FLARES ADJACENT TO WALKABLE SURFACES.

ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL. THUS BOTH SIDES OF A SLOPED WALKING SURFACE MUST BE EQUAL LENGTH.

TO ENSURE INITIAL RAMPS AND INITIAL LANDINGS ARE PROPERLY CONSTRUCTED, LANDINGS SHALL BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 6 AND THE ADA SPECIAL PROVISION (PROSECUTION OF WORK).

TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

WHEN THE BOULEVARD IS 4' WIDE OR LESS, THE TOP OF CURB TAPER SHALL MATCH THE RAMP SLOPES TO REDUCE NEGATIVE BOULEVARD SLOPES FROM THE TOP BACK OF CURB TO THE PAR.

ALL RAMP TYPES SHOULD HAVE A MINIMUM 3' LONG RAMP LENGTH.

4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MIN. OF 24" IN THE PATH OF TRAVEL. DETECTABLE WARNING TO COVER THE ENTIRE PAR WIDTH OF SHARED-USE PATHS AND THE ENTIRE PAR WIDTH OF THE WALK WITH THE EXCEPTION OF 3" MAXIMUM ON EACH OUTSIDE EDGE WHICH ENSURES THE DETECTABLE WARNINGS ARE ENCASED IN CONCRETE WHEN ADJACENT TO TURF. WHEN ADJACENT TO CONCRETE FLARES 0' - 3' OFFSET IS ALLOWED.

WHEN DESIGNING OR ORDERING RECTANGULAR DETECTABLE WARNING SURFACES SHOULD BE 6" LESS THAN THE INCOMING PAR. ARC LENGTH OF THE RADIAL DETECTABLE WARNINGS SHOULD NOT BE GREATER THAN 20 FEET.

RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB. SEE NOTES ⑩ & ⑪ FOR INFORMATION REGARDING RECTANGULAR DETECTABLE WARNING PLACEMENT.

- ① MATCH FULL CURB HEIGHT.
- ② 3" HIGH CURB WHEN USING A 3' LONG RAMP  
4" HIGH CURB WHEN USING A 4' LONG RAMP.
- ③ 3" MINIMUM CURB HEIGHT (5.5' MIN. DISTANCE REQUIRED BETWEEN DOMES)  
4" PREFERRED (7' MIN. DISTANCE REQUIRED BETWEEN DOMES).
- ④ THE "BUMP" IN BETWEEN THE RAMPS SHOULD NOT BE IN THE PATH OF TRAVEL FOR COMBINED DIRECTIONAL RAMPS. IF THIS OCCURS MODIFY THE RAMP LOCATION OR SWITCH RAMP TO A FAN/DEPRESSED CORNER.
- ⑤ WHEN USING CONCRETE PAVED FLARES ON THE OUTSIDE OF DIRECTIONAL RAMPS, AND ADJACENT TO A WALKABLE SURFACE, DIRECTIONAL RAMP FLARES SHALL BE USED. SEE THE DETAIL ON THIS SHEET.
- ⑥ GRADING SHALL ALWAYS BE USED WHEN FEASIBLE. V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. WHEN ADJACENT TO PARKING LOTS, CONCRETE OR BITUMINOUS TAPERS SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.
- ⑦ MAX. 2.0% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK AND DRAIN TO FLOW LINE. SHALL BE CONSTRUCTED INTEGRAL WITH CURB AND GUTTER.
- ⑧ 8% TO 10% WALKABLE FLARE.
- ⑨ PLACE DOMES AT THE BACK OF CURB WHEN ALLOWABLE SETBACK CRITERIA IS EXCEEDED.
- ⑩ FRONT EDGE OF DETECTABLE WARNING SHALL BE SET BACK 2' MAXIMUM WHEN ADJACENT TO WALKABLE SURFACE, AND 5' MAXIMUM WHEN ADJACENT TO NON-WALKABLE SURFACE WITH ONE CORNER SET 3' FROM BACK OF CURB. A WALKABLE SURFACE IS DEFINED AS A PAVED SURFACE ADJACENT TO A CURB RAMP WITHOUT RAISED OBSTACLES THAT COULD MISTAKENLY BE TRAVERSED BY A USER WHO IS VISUALLY IMPAIRED.
- ⑪ RECTANGULAR DETECTABLE WARNINGS MAY BE SETBACK UP TO 9" FROM THE BACK OF CURB WITH CORNERS SET 3" FROM BACK OF CURB. IF 9" SETBACK IS EXCEEDED USE RADIAL DETECTABLE WARNINGS.
- ⑫ FOR DIRECTIONAL RAMPS WITH THE DETECTABLE WARNINGS PLACED AT THE BACK OF CURB, THE DETECTABLE WARNINGS SHALL COVER THE ENTIRE WIDTH OF THE WALK/PATH. THIS ENSURES A DETECTABLE EDGE AND HELPS ELIMINATE THE CURB TAPER OBSTRUCTING THE PATH OF PEDESTRIAN TRAVEL.
- ⑬ THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE BACK OF CURB. MAINTAIN 3" BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.
- ⑭ TO BE USED FOR ALL DIRECTIONAL RAMPS, EXCEPT WHERE DOMES ARE PLACED ALONG THE BACK OF CURB.
- ⑮ PLACE 2 NO. 4 BARS 4 INCHES FROM SIDE OF FORMS WITH A MINIMUM 2 INCHES OF CONCRETE COVER ALONG EACH SIDE OF FLARE (INCIDENTAL).

LEGEND	
THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.	
Ⓢ	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.
Ⓣ	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.
▨	LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PAR.
x"	CURB HEIGHT

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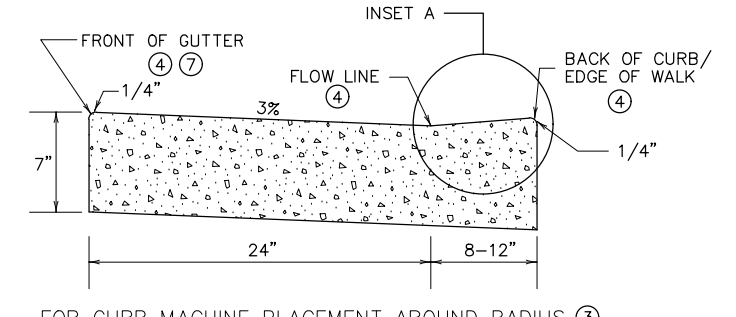
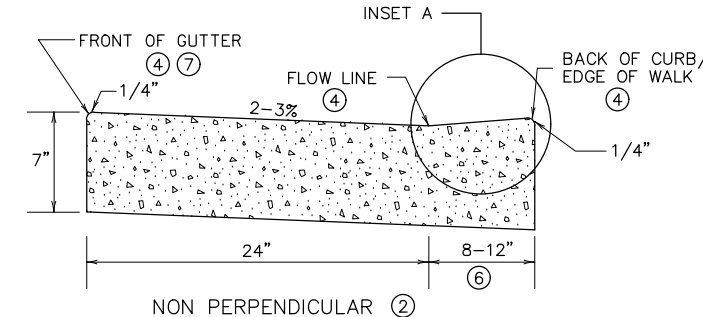
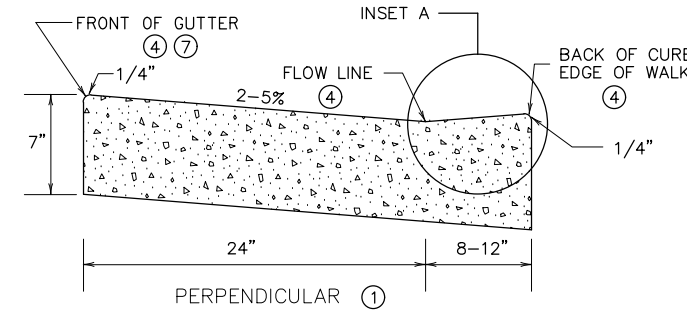
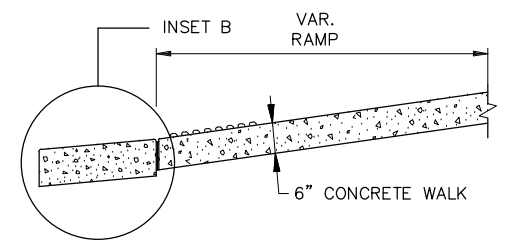
REVISION:  
 APPROVED: 11-04-2021  
 Jeff J. Perkins  
 OPERATIONS DIVISION

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 S.A.P. 235-121-001  
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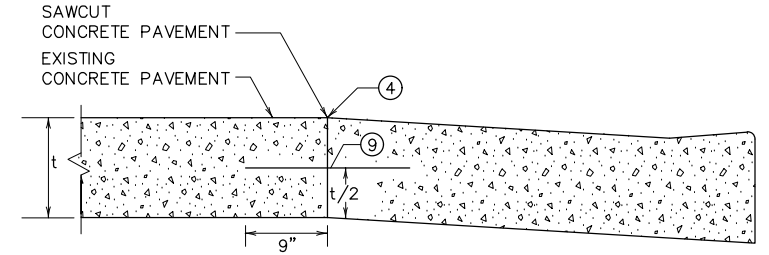
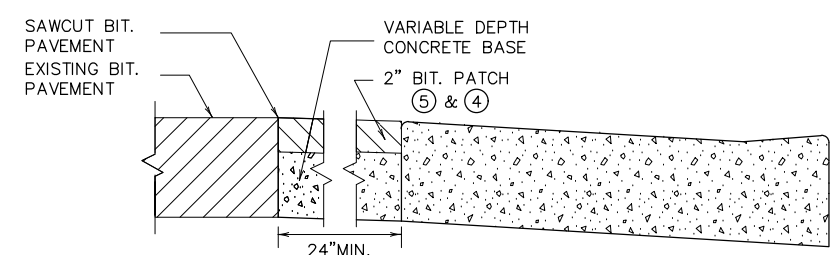
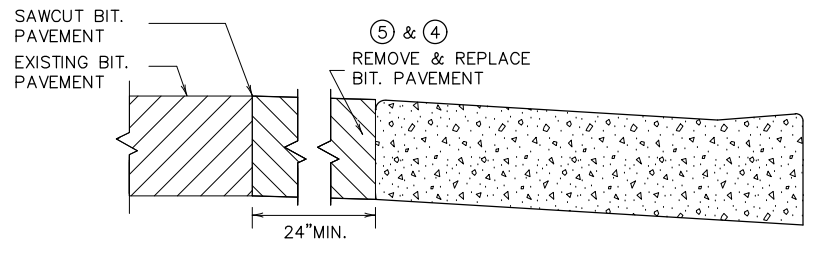
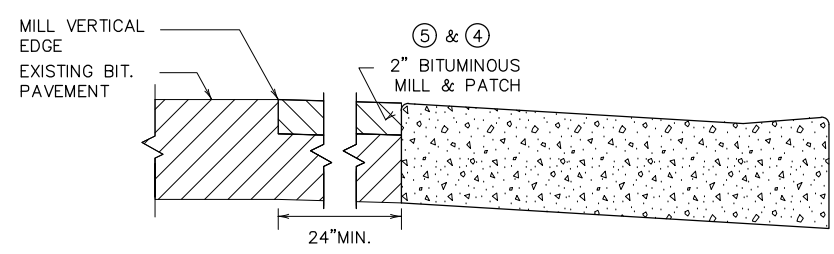
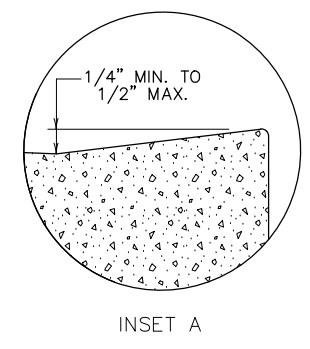
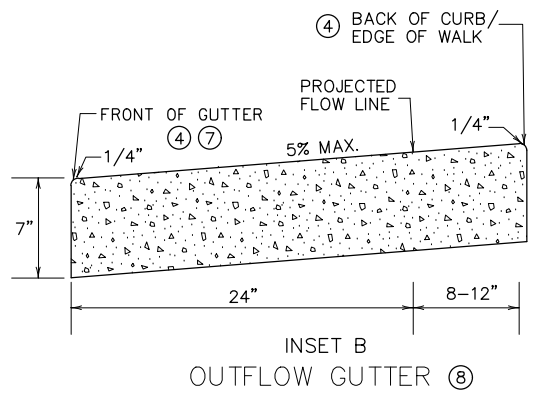


STANDARD PLAN 5-297.250 2 OF 6  
 APPROVED: 11-04-2021  
 REVISED:  
 Thomas Styrbicki  
 STATE DESIGN ENGINEER

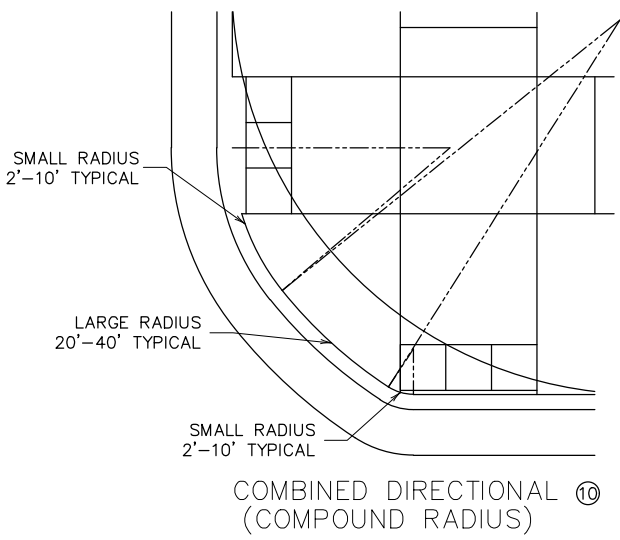
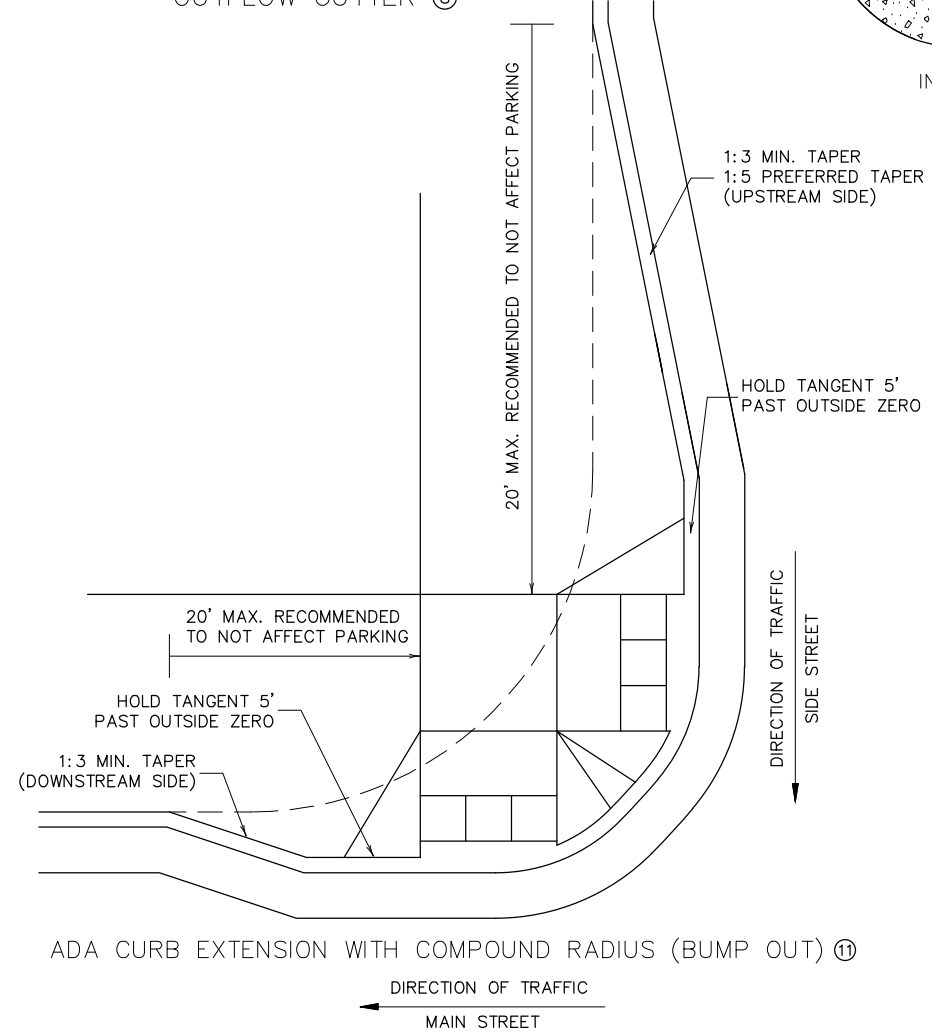
PEDESTRIAN CURB RAMP DETAILS



PEDESTRIAN ACCESS ROUTE CURB & GUTTER DETAIL



PAVEMENT TREATMENT OPTIONS IN FRONT OF CURB & GUTTER FOR USE ON CURB RAMP RETROFITS



- NOTES:
- POSITIVE FLOW LINE DRAINAGE SHALL BE MAINTAINED THROUGH THE PEDESTRIAN ACCESS ROUTE (PAR) AT A 2% MAXIMUM. NO PONDING SHALL BE PRESENT IN THE PAR.
  - ANY VERTICAL LIP THAT OCCURS AT THE FLOW LINE SHALL NOT BE GREATER THAN 1/4 INCH.
  - ① FOR USE AT CURB CUTS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: PERPENDICULAR, TIERED PERPENDICULAR, PARALLEL, AND DIAGONAL RAMPS.
  - ② FOR USE AT CURB RAMPS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED NON PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: FANS & DEPRESSED CORNERS.
  - ③ BEGIN GUTTER SLOPE TRANSITION 10' OUTSIDE OF ALL CURB RAMPS.
  - ④ THERE SHALL BE NO VERTICAL DISCONTINUITIES GREATER THAN 1/4".
  - ⑤ ELEVATION CHANGE TAKES PLACE FROM THE EXISTING TO NEW FRONT OF GUTTER. PATCH IS USED TO MATCH THE NEW GUTTER FACE INTO THE EXISTING ROADWAY.
  - ⑥ VARIABLE WIDTH FOR DIRECTIONAL CURB APPLICATIONS. SEE SHEET 2 FOR DIRECTIONAL CURB SLOPE REQUIREMENTS.
  - ⑦ TOP FRONT OF GUTTER SHALL BE CONSTRUCTED FLUSH WITH PROPOSED ADJACENT PAVEMENT ELEVATION. TOP 1.5" OF THE GUTTER FACE MUST BE A FORMED EDGE. PAR GUTTER SHALL NOT BE OVERLAID.
  - ⑧ SHOULD BE USED AT VERTICALLY CONSTRAINED AREAS WHEN AT A DRAINAGE HIGH POINT OR SUPER ELEVATED ROADWAY SEGMENTS.
  - ⑨ DRILL AND GROUT NO. 4 EPOXY-COATED 18" LONG TIE BARS AT 30" CENTER TO CENTER INTO EXISTING CONCRETE PAVEMENT 1' MINIMUM FROM ALL JOINTS.
  - ⑩ HELPS PROVIDE TWO SEPARATE RAMPS, REDUCES THE DOME SETBACK LENGTH AND MINIMIZES DIRECTIONAL CURB. THIS RADIUS DESIGN CLOSELY FOLLOWS THE TURNING VEHICLE PATH WHILE OPTIMIZING CURB RAMP LENGTH.
  - ⑪ CURB EXTENSIONS SHOULD BE USED IN VERTICALLY CONSTRAINED AREAS, USUALLY IN DOWNTOWN ROADWAY SEGMENTS WHERE ON-STREET PARKING IS AVAILABLE. CURB EXTENSIONS SHOULD BE CONSIDERED FOR APS INTERSECTIONS WHERE SPACE IS LIMITED. PUSH BUTTONS MUST MEET APS CRITERIA AS DESCRIBED IN THE PUSH BUTTON LOCATION DETAIL SHEET.

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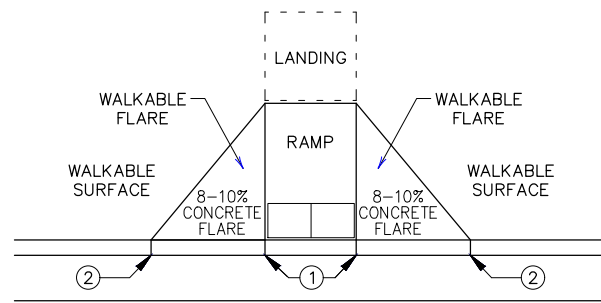
REVISION:  
 APPROVED: 11-04-2021  
 Jeff J. Perkins  
 OPERATIONS DIVISION

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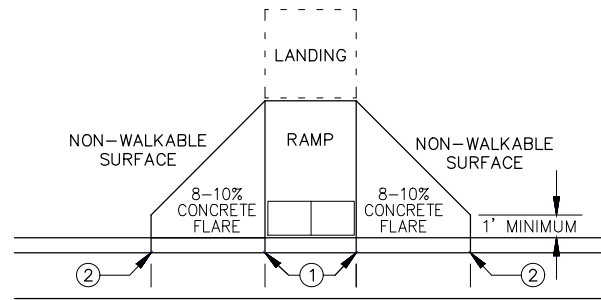


STANDARD PLAN 5-297.250 3 OF 6  
 APPROVED: 11-04-2021  
 REVISOR:  
 Tom Styrbicki  
 THOMAS STYRBICKI  
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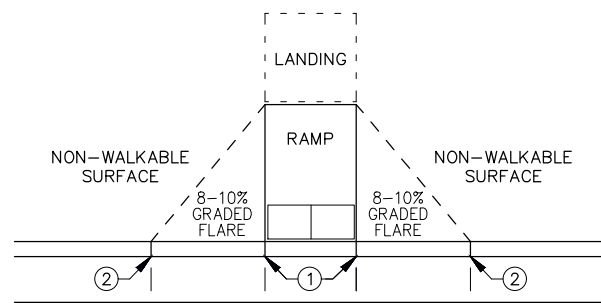
PEDESTRIAN CURB RAMP DETAILS



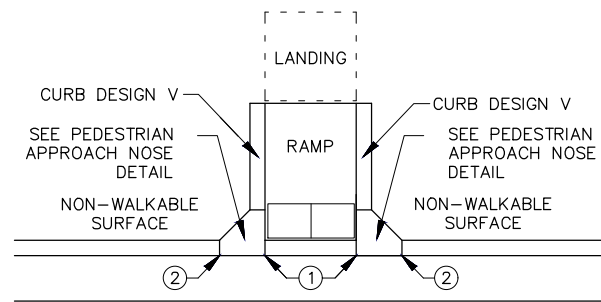
PAVED FLARES  
ADJACENT TO WALKABLE SURFACE



PAVED FLARES  
ADJACENT TO NON-WALKABLE SURFACE

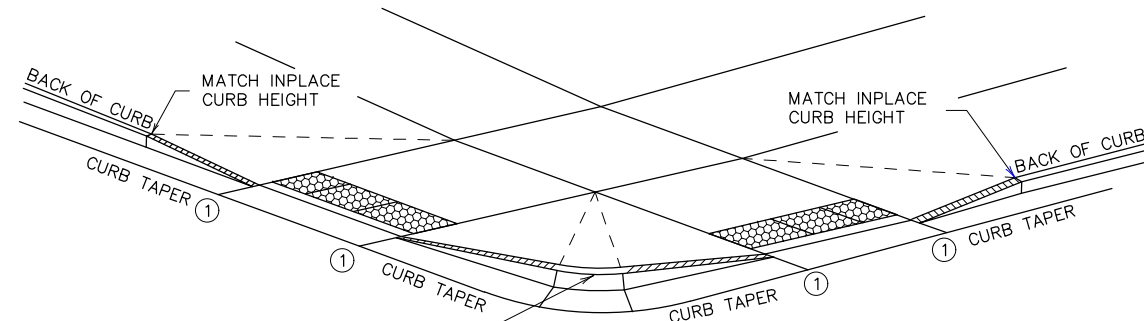


GRADED FLARES



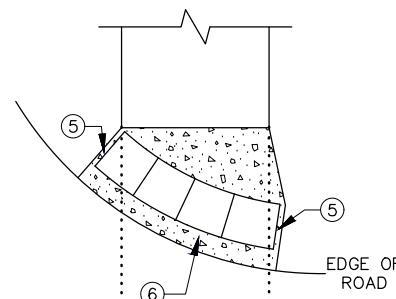
RETURNED CURB ④

TYPICAL SIDE TREATMENT OPTIONS ③ ⑩

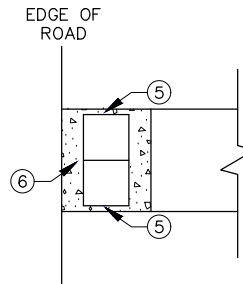


3" MINIMUM CURB HEIGHT, 4" PREFERRED  
(MEASURED AT FRONT FACE OF CURB)  
FOR A MIN. 6" LENGTH (MEASURED ALONG FLOW LINE)

DETECTABLE EDGE WITH CURB AND GUTTER ⑦

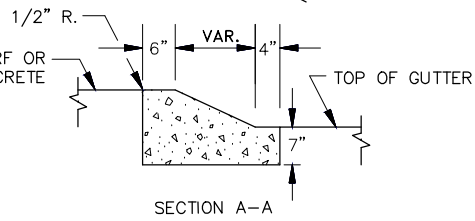
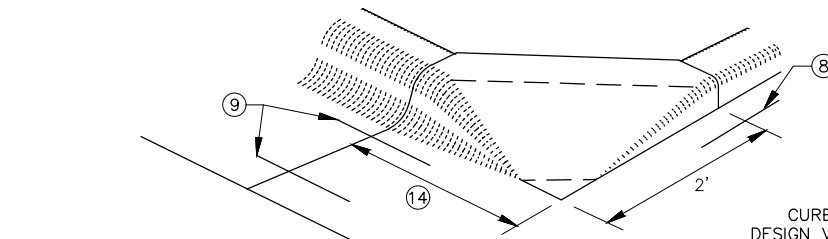


RADIAL DETECTABLE WARNING

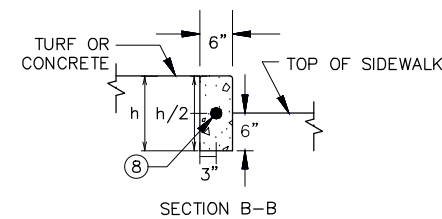


RECTANGULAR DETECTABLE WARNING

DETECTABLE EDGE WITHOUT CURB AND GUTTER

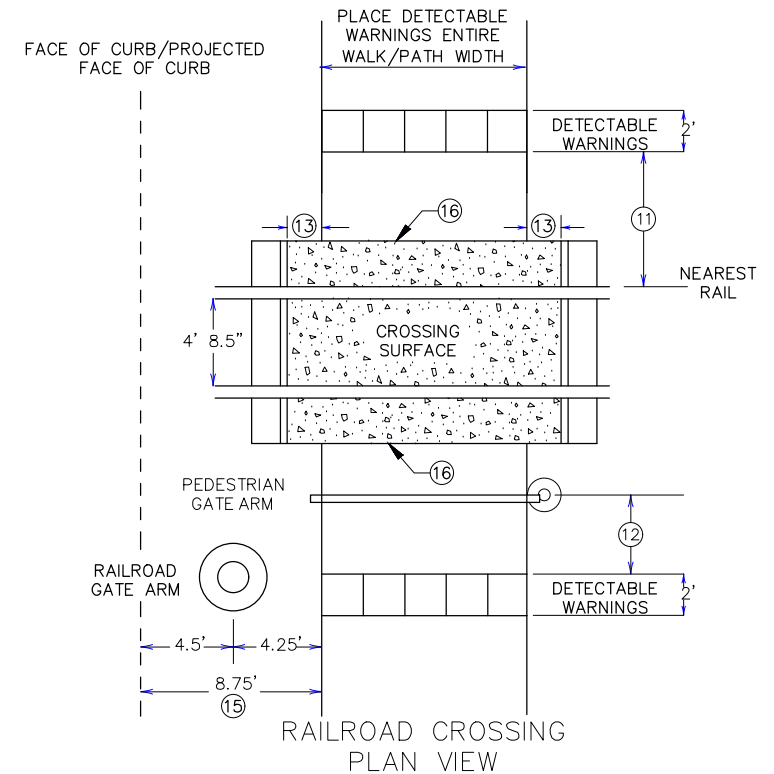


SECTION A-A



SECTION B-B

PEDESTRIAN APPROACH NOSE DETAIL (FOR RETURNED CURB SIDE TREATMENT)



RAILROAD CROSSING PLAN VIEW

NOTES:

INTERMEDIATE CURB HEIGHTS TAPER SHALL RISE AT 8-10% TO A MINIMUM 3 INCH CURB HEIGHT. INCREASE CURB TAPER LENGTH AT LESS THAN 8% OR REDUCE INTERMEDIATE CURB HEIGHT TO 2+ INCHES IF NECESSARY TO MATCH ADJACENT BOULEVARD OR SIDEWALK GRADES.

SEE STANDARD PLATE 7038 AND THIS SHEET FOR ADDITIONAL DETAILS ON DETECTABLE WARNING.

A WALKABLE SURFACE IS DEFINED AS A PAVED SURFACE ADJACENT TO A CURB RAMP WITHOUT RAISED OBSTACLES THAT COULD MISTAKENLY BE TRAVERSED BY A USER WHO IS VISUALLY IMPAIRED.

CONCRETE FLARE LENGTHS ADJACENT TO NON-WALKABLE SURFACES SHOULD BE LESS THAN 8' LONG MEASURED ALONG THE RAMPS FROM THE BACK OF CURB.

- ① 0" CURB HEIGHT. SEE INSET A ON SHEET 3 OF 6.
- ② FULL CURB HEIGHT.
- ③ SIDE TREATMENTS ARE APPLICABLE TO ALL RAMP TYPES AND SHOULD BE IMPLEMENTED AS NEEDED AS FIELD CONDITIONS DICTATE. THE ENGINEER SHALL DETERMINE THE RAMP SIDE TREATMENTS BASED ON MAINTENANCE OF BOTH ROADWAY AND SIDEWALK, ADJACENT PROPERTY CONSIDERATIONS, AND MITIGATING CONSTRUCTION IMPACTS.
- ④ TYPICALLY USED FOR MEDIANS AND ISLANDS.
- ⑤ WHEN NO CONCRETE FLARES ARE PROPOSED, THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE EDGE OF ROADWAY. MAINTAIN 3" MAX. BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.
- ⑥ IF NO CURB AND GUTTER IS PLACED IN RURAL SECTIONS, DETECTABLE WARNINGS SHALL BE PLACED 1' FROM THE EDGE OF BITUMINOUS ROADWAY AND/OR BITUMINOUS SHARED-USE PATH TO PROVIDE VISUAL CONTRAST.
- ⑦ ALL CONSTRUCTED CURBS MUST HAVE A CONTINUOUS DETECTABLE EDGE FOR THE VISUALLY IMPAIRED. THIS DETECTABLE EDGE REQUIRES DETECTABLE WARNINGS WHEREVER THERE IS ZERO-INCH HIGH CURB. CURB TAPERS ARE CONSIDERED A DETECTABLE EDGE WHEN THE TAPER STARTS WITHIN 3" OF THE EDGE OF THE DETECTABLE WARNINGS AND UNIFORMLY RISES TO A 3-INCH MINIMUM CURB HEIGHT. ANY CURB NOT PART OF A CURB TAPER AND LESS THAN 3 INCHES IN HEIGHT IS NOT CONSIDERED A DETECTABLE EDGE AND THEREFORE IS NOT COMPLIANT WITH ACCESSIBILITY STANDARDS.
- ⑧ DRILL AND GROUT 1 - NO. 4 12" LONG REINFORCEMENT BAR (EPOXY COATED) WITH 3" MIN. COVER. REINFORCEMENT BARS ARE NOT NEEDED IF THE APPROACH NOSE IS POURED INTEGRAL WITH THE V CURB.
- ⑨ DRILL AND GROUT 2 - NO. 4 12" LONG REINFORCEMENT BARS (EPOXY COATED) WITH 3" MIN. COVER. REINFORCEMENT BARS ARE NOT NEEDED IF THE APPROACH NOSE IS POURED INTEGRAL WITH THE CURB AND GUTTER.
- ⑩ SIDE TREATMENT EXAMPLES SHOWN ARE WHEN THE INITIAL LANDING IS APPROXIMATELY LEVEL WITH THE FULL HEIGHT CURB (I.E. 6' LONG RAMP FOR 6" HIGH CURB). WHEN THE INITIAL LANDING IS MORE THAN 1" BELOW FULL HEIGHT CURB REFER TO SHEETS 1 & 2 TO MODIFY THE CURB HEIGHT TAPERS AND MAINTAIN POSITIVE BOULEVARD DRAINAGE. CONSTRUCT THESE TAPER AT 0"-3" AT 8-10%, THEN LESS THAN 5% FROM 3" CURB TO FULL CURB HEIGHT.
- ⑪ NEAREST EDGE OF DETECTABLE WARNING SURFACES SHALL BE PLACED 12' MINIMUM TO 15' MAXIMUM FROM THE NEAREST RAIL. FOR SKEWED RAILWAYS IN NO INSTANCE SHALL THE DETECTABLE WARNING BE CLOSER THAN 12' MEASURED PERPENDICULAR TO THE NEAREST RAIL.
- ⑫ WHEN PEDESTRIAN GATES ARE PROVIDED, DETECTABLE WARNING SURFACES SHALL BE PLACED ON THE SIDE OF THE GATES OPPOSITE THE RAIL, 2' FROM THE APPROACHING SIDE OF THE GATE ARM. THIS CRITERIA GOVERNS OVER NOTE ⑪.
- ⑬ CROSSING SURFACE SHALL EXTEND 2' MINIMUM PAST THE OUTSIDE EDGE OF WALK OR SHARED-USE PATH.
- ⑭ 3' FOR MEDIANS AND SPLITTER ISLANDS. NOSE CAN BE REDUCED TO 2' ON FREE RIGHT ISLANDS.
- ⑮ SIDEWALK TO BE PLACED 8.75' MIN. FROM THE FACE OF CURB/PROJECTED FACE OF CURB. THIS ENSURES MIN. CLEARANCE BETWEEN THE SIDEWALK AND GATE ARM COUNTERWEIGHT SUPPORTS.
- ⑯ CONSTRUCT WITH EXPANSION MATERIAL PER MNDOT SPECIFICATION 3702 TYPES A-E. EXPANSION MATERIAL SHALL MATCH FULL HEIGHT OF ADJACENT CONCRETE.

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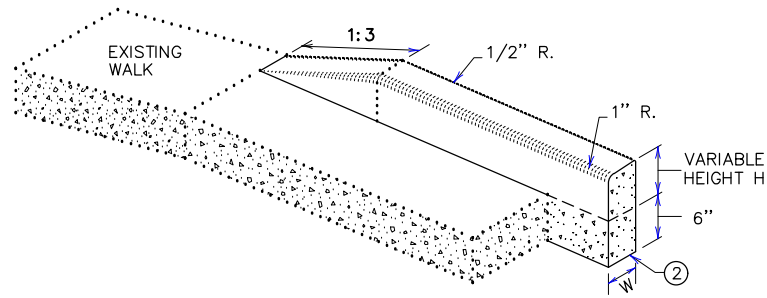
REVISION:  
APPROVED: 11-04-2021  
*Jeff J. Perkins*  
JEFFREY PERKINS  
OPERATIONS DIVISION

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S.A.P. 235-121-001  
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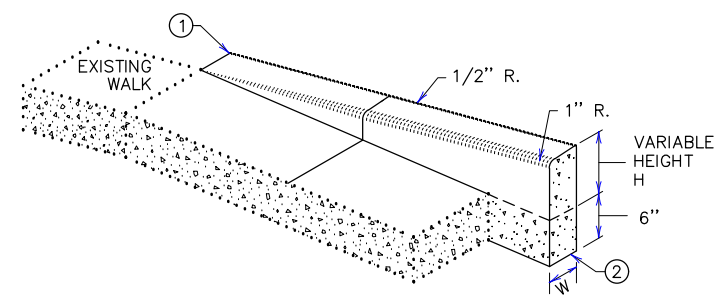


STANDARD PLAN 5-297.250 4 OF 6  
APPROVED: 11-04-2021  
REVISOR:  
*Tom Styrbicki*  
THOMAS STYRBICKI  
STATE DESIGN ENGINEER

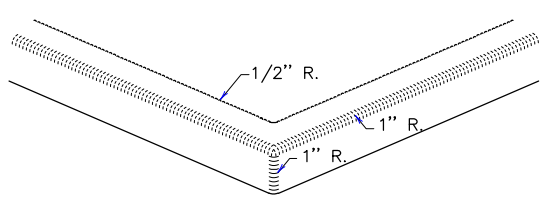
PEDESTRIAN CURB RAMP DETAILS



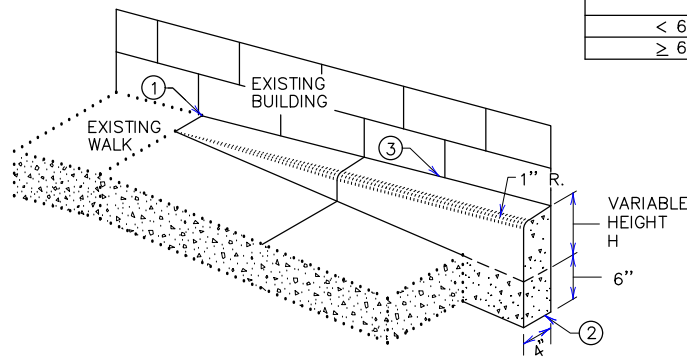
V CURB ADJACENT TO LANDSCAPE  
CURB WITHIN SIDEWALK LIMITS



V CURB ADJACENT TO LANDSCAPE  
CURB OUTSIDE SIDEWALK LIMITS

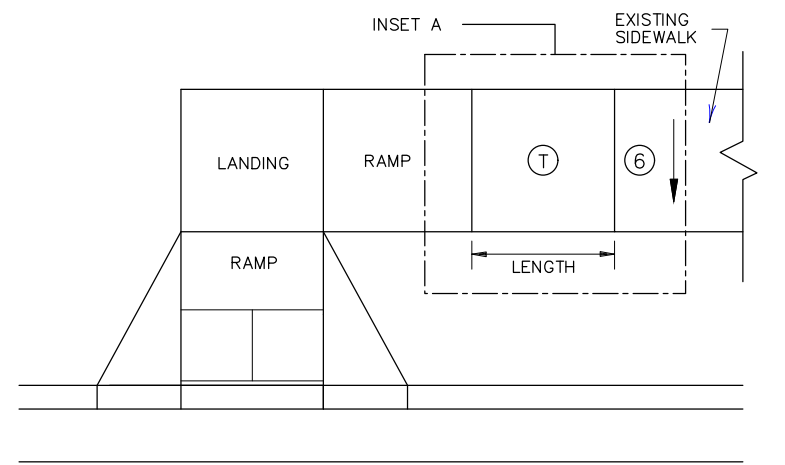


V CURB INTERSECTION

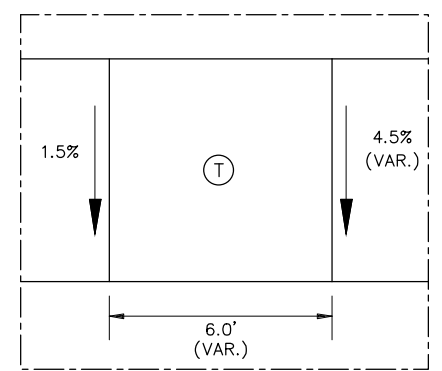


V CURB ADJACENT TO BUILDING  
OR BARRIER

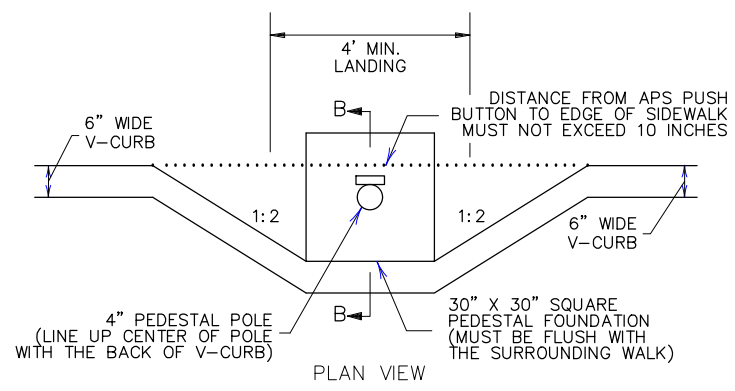
CONCRETE CURB DESIGN V	
CURB HEIGHT H	CURB WIDTH W
< 6"	4"
≥ 6"	6"



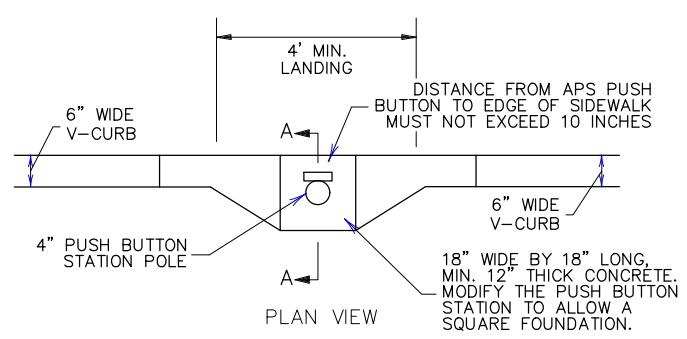
TRANSITION PANEL ④ ⑤



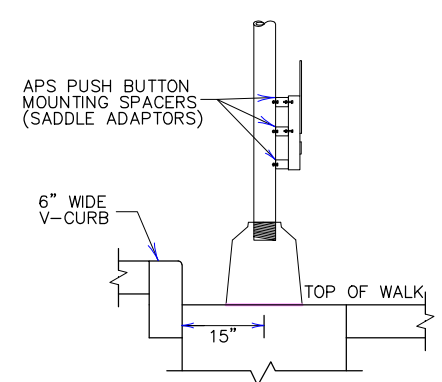
INSET A



PLAN VIEW

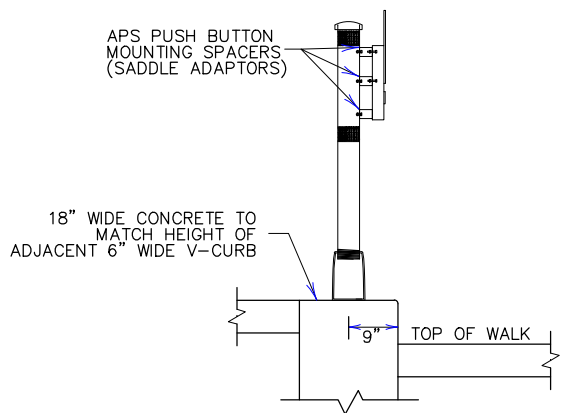


PLAN VIEW



SECTION B-B

SIGNAL PEDESTAL & PUSH BUTTON (V-CURB)



SECTION A-A

PUSH BUTTON STATION (V-CURB)

NOTES:

- A WALKABLE FLARE IS AN 8-10% CONCRETE FLARE THAT IS REQUIRED WHEN THE FLARE IS ADJACENT TO A WALKABLE SURFACE, OR WHEN THE PEDESTRIAN PATH OF TRAVEL OF A PUSH BUTTON TRAVERSES THE FLARE.
- ALL V CURB CONTRACTION JOINTS SHALL MATCH CONCRETE WALK JOINTS.
- WHERE RIGHT-OF-WAY ALLOWS, USE OF V CURB SHOULD BE MINIMIZED. GRADING ADJACENT TURF OR SLOPING ADJACENT PAVEMENT IS PREFERRED.
- V CURB SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS.
- V CURB NEXT TO BUILDING SHALL BE A 4" WIDTH AND SHALL MATCH PREVIOUS TOP OF SIDEWALK ELEVATIONS.
- ① END TAPERS AT TRANSITION SECTION SHALL MATCH INPLACE SIDEWALK GRADES.
- ② ALL V CURB SHALL MATCH BOTTOM OF ADJACENT WALK.
- ③ CONSTRUCT USING APPROVED EXPANSION MATERIAL PER MNDOT TYPE A-E EXPANSION. LEAVE A MINIMUM 1/2" TOP GAP AND SEAL WITH MNDOT APPROVED SILICONE PER MNDOT SPEC 3722.
- ④ THE MAX. RATE OF CROSS SLOPE TRANSITIONING IS 1' LINEAR FOOT OF SIDEWALK PER HALF PERCENT CROSS SLOPE. WHEN PAR WIDTH IS GREATER THAN 6' OR THE RUNNING SLOPE IS GREATER THAN 5%, DOUBLE THE CALCULATED TRANSITION LENGTH.
- ⑤ TRANSITION PANELS ARE TO ONLY BE USED AFTER THE RAMP, OR IF NEEDED, LANDING ARE AT THE FULL CURB HEIGHT (TYPICAL SECTION).
- ⑥ EXISTING CROSS SLOPE GREATER THAN 2.0%.

LEGEND

THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.	
Ⓢ	INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.
▨	LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PARS.
Ⓣ	TRANSITION PANEL(S) - TO BE USED FOR TRANSITIONING THE CROSS-SLOPE OF A RAMP TO THE EXISTING WALK CROSS-SLOPE. RATE OF TRANSITION SHOULD BE 0.5% PER 1 LINEAR FOOT OF WALK. SEE THIS SHEET FOR ADDITIONAL INFORMATION.

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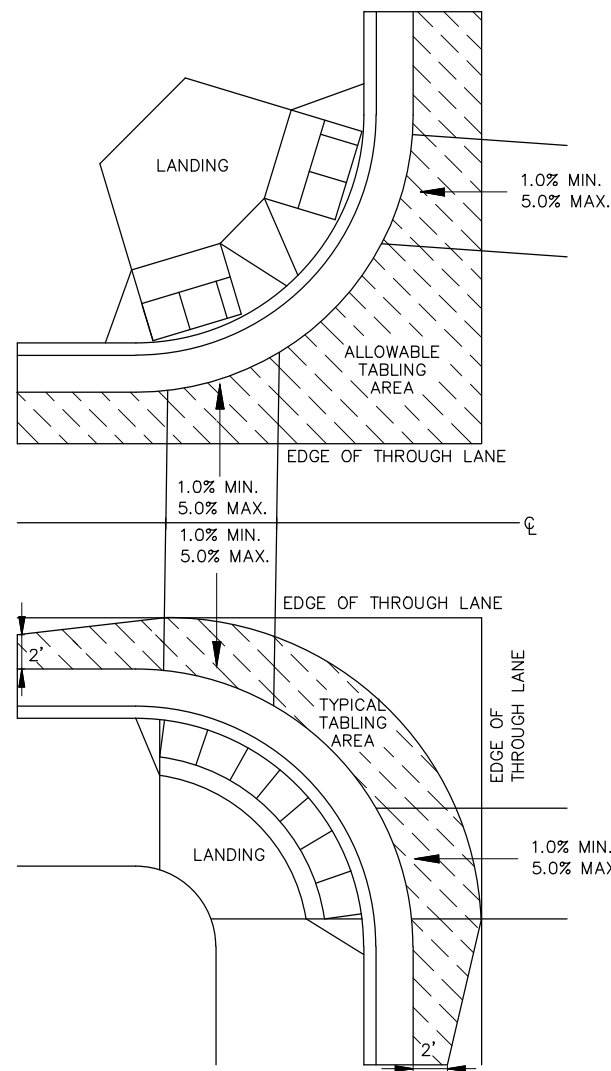
REVISION:  
APPROVED: 11-04-2021  
*Jeff J. Perkins*  
JEFFREY PERKINS  
OPERATIONS DIVISION

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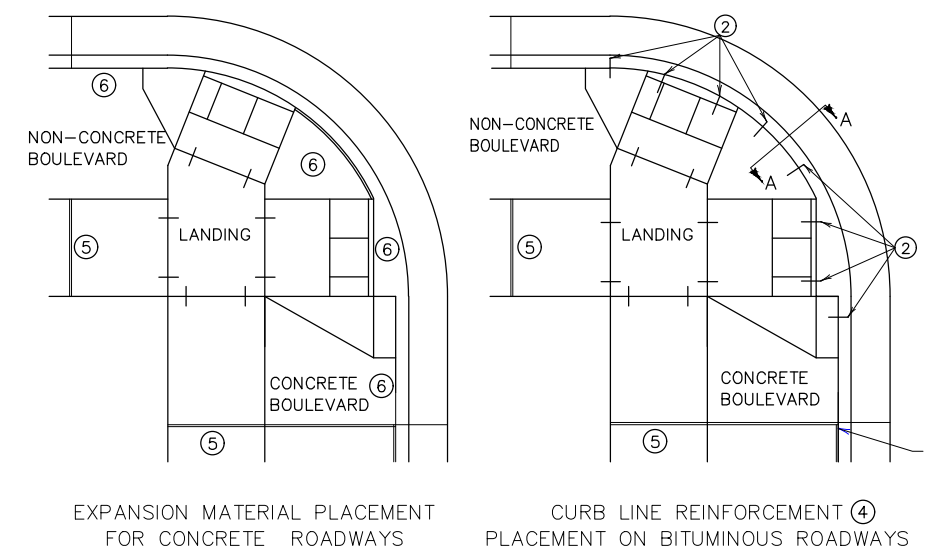


STANDARD PLAN 5-297.250 5 OF 6  
APPROVED: 11-04-2021  
REVISOR:  
*Tom Styrbicki*  
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STATE DESIGN ENGINEER

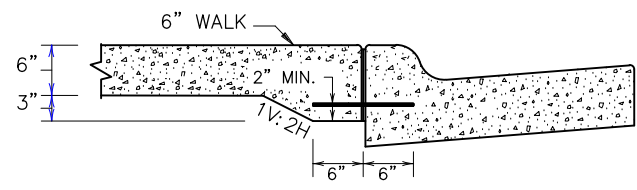
PEDESTRIAN CURB RAMP DETAILS



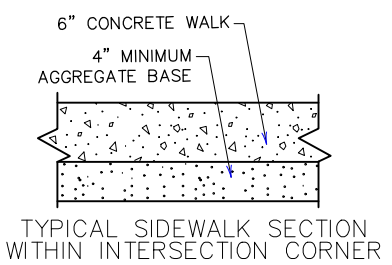
CURB LINE AND ROAD CROSSING ADJUSTMENTS



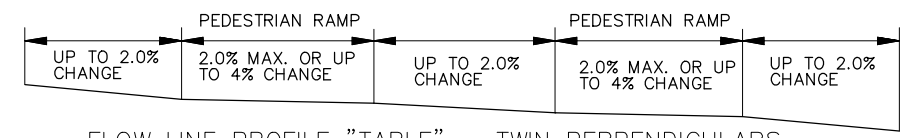
EXPANSION MATERIAL PLACEMENT FOR CONCRETE ROADWAYS CURB LINE REINFORCEMENT ④ PLACEMENT ON BITUMINOUS ROADWAYS



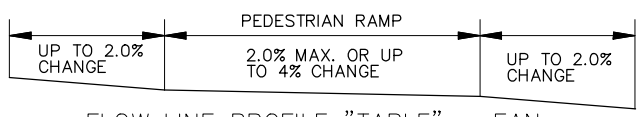
SECTION VIEW A-A THICKENED SECTION THROUGH CURB RAMP FLARES



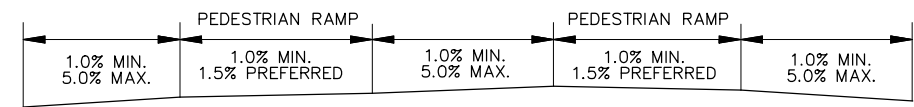
TYPICAL SIDEWALK SECTION WITHIN INTERSECTION CORNER



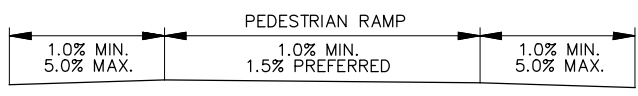
FLOW LINE PROFILE "TABLE" - TWIN PERPENDICULARS



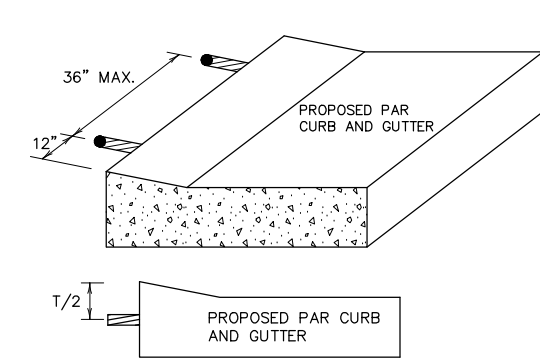
FLOW LINE PROFILE "TABLE" - FAN



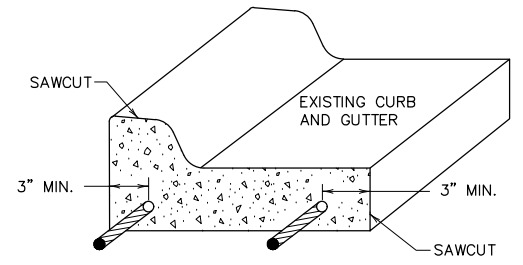
FLOW LINE PROFILE RAISE - TWIN PERPENDICULARS



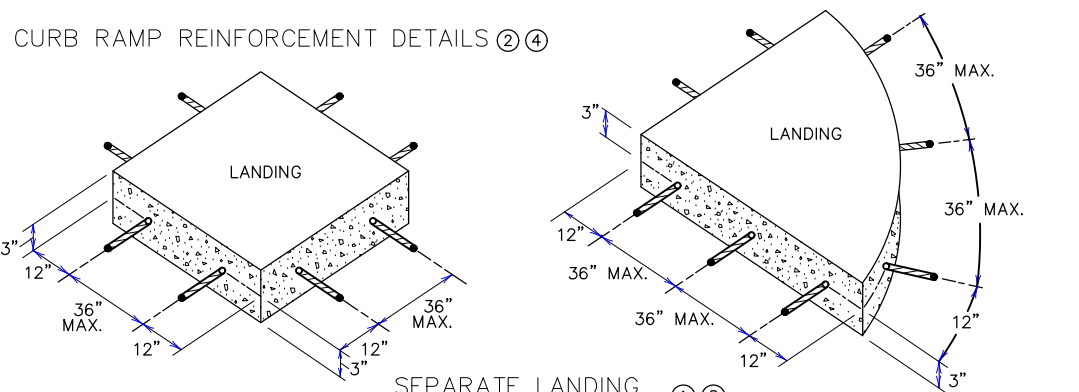
FLOW LINE PROFILE RAISE - FAN



CURB RAMP REINFORCEMENT DETAILS ② ④



CURB AND GUTTER REINFORCEMENT ③



SEPARATE LANDING POUR REINFORCEMENT ① ②

GENERAL NOTES:

- "TABLING" OF CROSSWALKS MEANS MAINTAINING LESS THAN 2% CROSS SLOPE WITHIN A CROSSWALK, IS REQUIRED WHEN A ROADWAY IS IN A STOP OR YIELD CONDITION AND THE PROJECT SCOPE ALLOWS.
- RECONSTRUCTION PROJECTS: ON FULL PAVEMENT REPLACEMENT PROJECTS "TABLING" OF ENTIRE CROSSWALK SHALL OCCUR WHEN FEASIBLE.
- MILL & OVERLAY PROJECTS: "TABLING" OF FLOW LINES, IN FRONT OF THE PEDESTRIAN RAMP, IS REQUIRED WHEN THE EXISTING FLOW LINE IS GREATER THAN 2%. WARPING OF THE BITUMINOUS PAVEMENT CAN NOT EXTEND INTO THE THROUGH LANE. TABLE THE FLOW LINE TO 2% OR AS MUCH AS POSSIBLE WHILE ADHERING TO THE FOLLOWING CRITERIA:
  - 1.0% MIN. CROSS-SLOPE OF THE ROAD
  - 5.0% MAX. CROSS-SLOPE OF THE ROAD
  - "TABLE" FLOW LINE UP TO 4% CHANGE FROM EXISTING SLOPE IN FRONT OF PEDESTRIAN RAMP
  - UP TO 2% CHANGE IN FLOW LINE FROM EXISTING SLOPE BEYOND THE PEDESTRIAN CURB RAMP
- STAND-ALONE ADA RETROFITS: FOLLOW MILL & OVERLAY CRITERIA ABOVE HOWEVER ALL PAVEMENT WARPING IS DONE WITH BITUMINOUS PATCHING ON BITUMINOUS ROADWAYS AND FULL-DEPTH APRON REPLACEMENT ON CONCRETE ROADWAYS.
- RAISING OF CURB LINES SHOULD OCCUR IN VERTICALLY CONSTRAINED AREAS. RAISE THE CURB LINES ENOUGH TO ALLOW COMPLIANT RAMPS OR AS MUCH AS POSSIBLE WHILE ADHERING TO THE FOLLOWING CRITERIA:
  - 1.0% MIN. AND 5.0% MAXIMUM CROSS-SLOPE OF THE ROAD
  - 1.0% MIN. FLOW LINE (ON EITHER SIDE OF PEDESTRIAN RAMP) TO MAINTAIN POSITIVE DRAINAGE
  - 5.0% RECOMMENDED MAX. FLOW LINE
  - LONGITUDINAL THROUGH LANE ROADWAY TAPERS SHOULD BE 1" VERTICAL PER 15' HORIZONTAL

NOTES:

- ① TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONSTRUCTED, ALL INITIAL LANDINGS AT A TOP OF A RAMPED SURFACE (RUNNING SLOPE GREATER THAN 2%) SHALL BE FORMED AND PLACED SEPARATELY IN AN INDEPENDENT CONCRETE POUR. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON THIS SHEET FOR ALL SEPARATELY POURED INITIAL LANDINGS.
- ② DRILL AND GROUT NO. 4 12" LONG REINFORCEMENT BARS (EPOXY COATED) AT 36" MAXIMUM CENTER TO CENTER MINIMUM 12" SPACING FROM CONSTRUCTION JOINTS. BARS TO BE ADJUSTED TO MATCH RAMP GRADE. BARS TO BE PAID BY EACH.
- ③ DRILL AND GROUT 2 - NO. 4 X 12" LONG (6" EMBEDDED) REINFORCEMENT BARS (EPOXY COATED). REINFORCEMENT REQUIRED FOR ALL CONSTRUCTION JOINTS. BARS TO BE PAID BY EACH.
- ④ THIS CURB LINE REINFORCEMENT DETAIL SHALL BE USED ON BITUMINOUS ROADWAYS. FOR CONCRETE ROADWAYS, SEE NOTE 6.
- ⑤ CONSTRUCT WITH EXPANSION MATERIAL PER MNDOT SPECIFICATION 3702 TYPES A-E. EXPANSION MATERIAL SHALL MATCH FULL HEIGHT OF ADJACENT CONCRETE.
- ⑥ USE AN APPROVED TYPE F (1/4 INCH THICK) SEPARATION MATERIAL. SEPARATION MATERIAL SHALL MATCH FULL HEIGHT DIMENSION OF ADJACENT CONCRETE.

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REVISION:

APPROVED: 11-04-2021

*Jeff J. Perkins*

JEFFREY PERKINS  
OPERATIONS DIVISION

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S.A.P. 235-102-002  
S.A.P. 235-121-001  
S.A.P. 235-156-001



STANDARD PLAN 5-297.250 6 OF 6

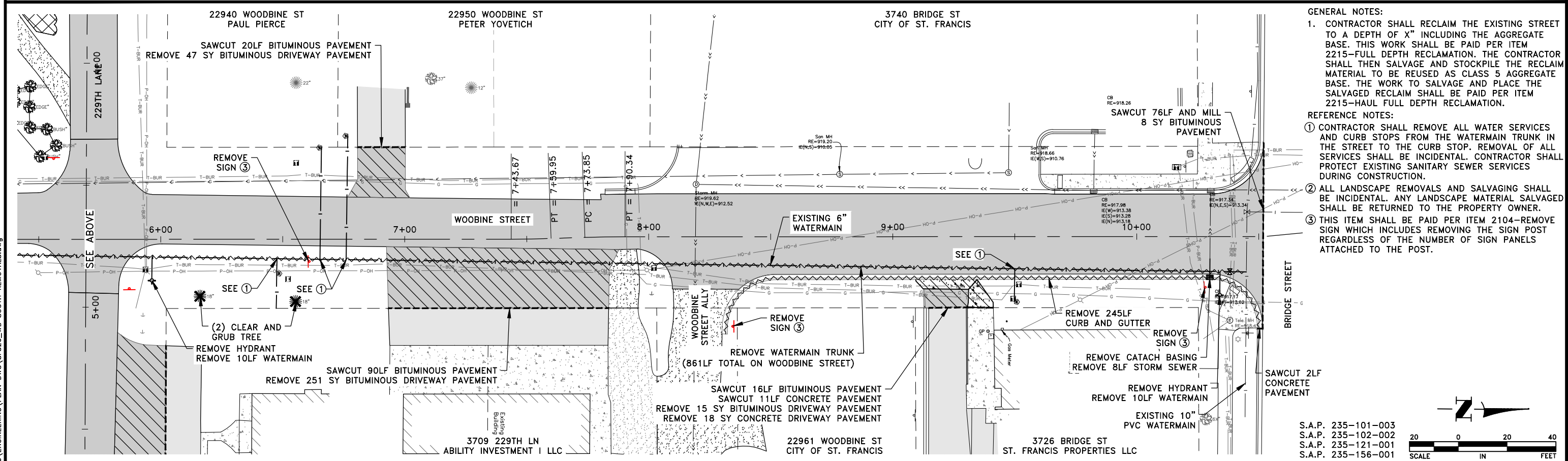
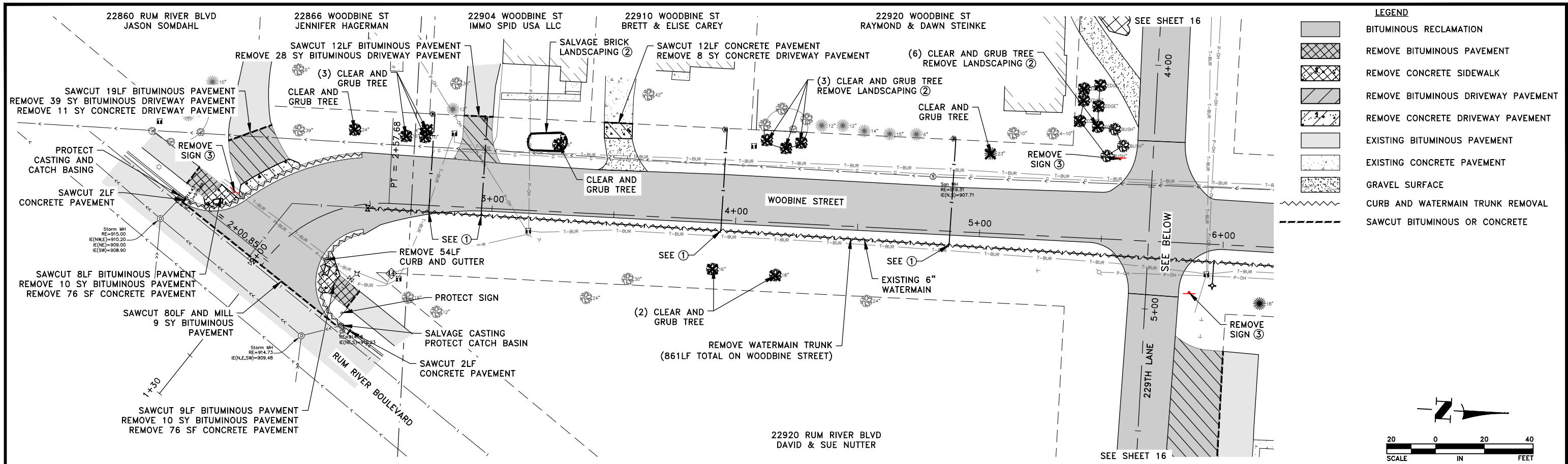
APPROVED: 11-04-2021

REVISOR:

*Tom Styrbicki*

THOMAS STYRBICKI  
STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS



- GENERAL NOTES:**
- CONTRACTOR SHALL RECLAIM THE EXISTING STREET TO A DEPTH OF "X" INCLUDING THE AGGREGATE BASE. THIS WORK SHALL BE PAID PER ITEM 2215-FULL DEPTH RECLAMATION. THE CONTRACTOR SHALL THEN SALVAGE AND STOCKPILE THE RECLAIM MATERIAL TO BE REUSED AS CLASS 5 AGGREGATE BASE. THE WORK TO SALVAGE AND PLACE THE SALVAGED RECLAIM SHALL BE PAID PER ITEM 2215-HAUL FULL DEPTH RECLAMATION.
- REFERENCE NOTES:**
- CONTRACTOR SHALL REMOVE ALL WATER SERVICES AND CURB STOPS FROM THE WATERMAIN TRUNK IN THE STREET TO THE CURB STOP. REMOVAL OF ALL SERVICES SHALL BE INCIDENTAL. CONTRACTOR SHALL PROTECT EXISTING SANITARY SEWER SERVICES DURING CONSTRUCTION.
  - ALL LANDSCAPE REMOVALS AND SALVAGING SHALL BE INCIDENTAL. ANY LANDSCAPE MATERIAL SALVAGED SHALL BE RETURNED TO THE PROPERTY OWNER.
  - THIS ITEM SHALL BE PAID PER ITEM 2104-REMOVE SIGN WHICH INCLUDES REMOVING THE SIGN POST REGARDLESS OF THE NUMBER OF SIGN PANELS ATTACHED TO THE POST.

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DATE	REVISION

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

*Craig J. Jochem*  
**CRAIG J. JOCHEM, P.E.**  
 Date 2/12/25 Lic. No. 23461

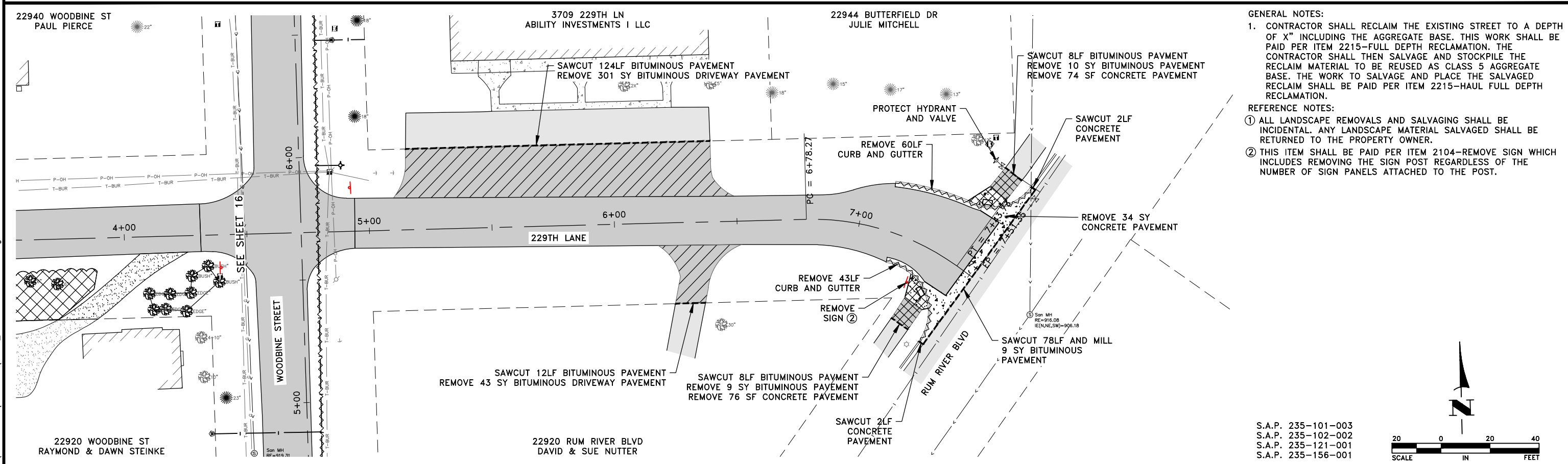
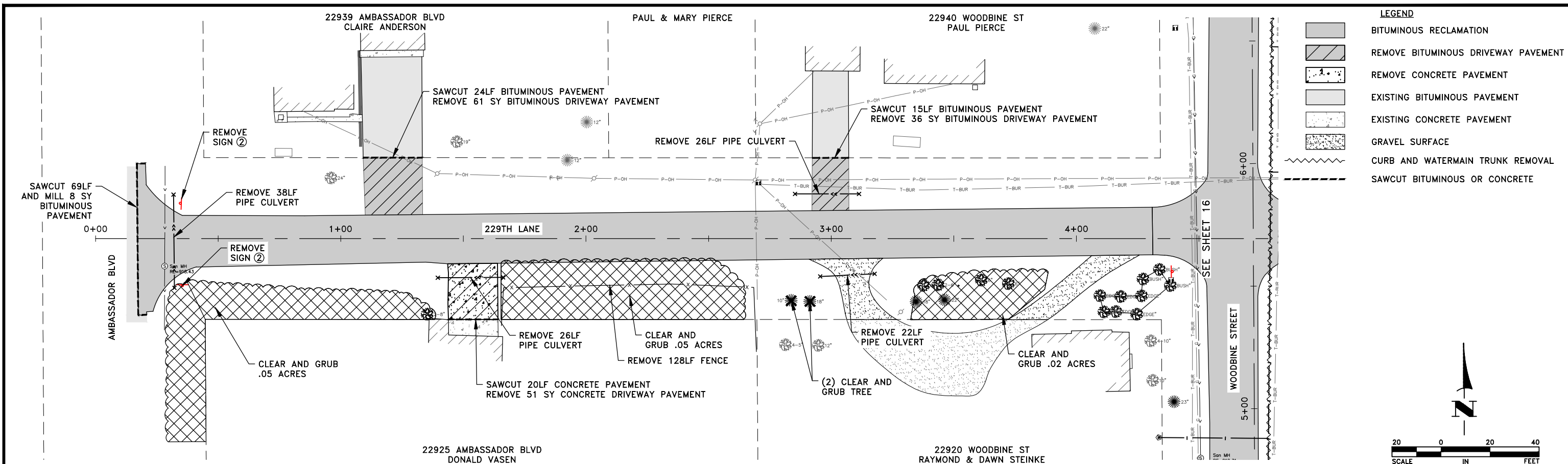
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 DRAWN BY: SGJ  
 CHECKED BY: TAE

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 Civil Engineers and Land Surveyors  
 3601 Thurston Ave., Anoka, Minnesota 55303  
 763-427-5860 FAX 763-427-0520  
 www.hakanson-anderson.com

**2025 STREET RECONSTRUCTION PROJECT**

**EXISTING CONDITIONS AND REMOVALS PLAN**  
 WOODBINE STREET  
 CITY OF ST. FRANCIS, MINNESOTA

SHEET 15 OF 32 SHEETS



**GENERAL NOTES:**

- CONTRACTOR SHALL RECLAIM THE EXISTING STREET TO A DEPTH OF "X" INCLUDING THE AGGREGATE BASE. THIS WORK SHALL BE PAID PER ITEM 2215-FULL DEPTH RECLAMATION. THE CONTRACTOR SHALL THEN SALVAGE AND STOCKPILE THE RECLAIM MATERIAL TO BE REUSED AS CLASS 5 AGGREGATE BASE. THE WORK TO SALVAGE AND PLACE THE SALVAGED RECLAIM SHALL BE PAID PER ITEM 2215-HAUL FULL DEPTH RECLAMATION.

**REFERENCE NOTES:**

- ALL LANDSCAPE REMOVALS AND SALVAGING SHALL BE INCIDENTAL. ANY LANDSCAPE MATERIAL SALVAGED SHALL BE RETURNED TO THE PROPERTY OWNER.
- THIS ITEM SHALL BE PAID PER ITEM 2104-REMOVE SIGN WHICH INCLUDES REMOVING THE SIGN POST REGARDLESS OF THE NUMBER OF SIGN PANELS ATTACHED TO THE POST.

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DATE	REVISION

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

*Craig J. Jochem*  
**CRAIG J. JOCHEM, P.E.**  
 Lic. No. 23461  
 Date 2/12/25

DESIGNED BY: CJJ  
 DRAWN BY: SGJ  
 CHECKED BY: TAE



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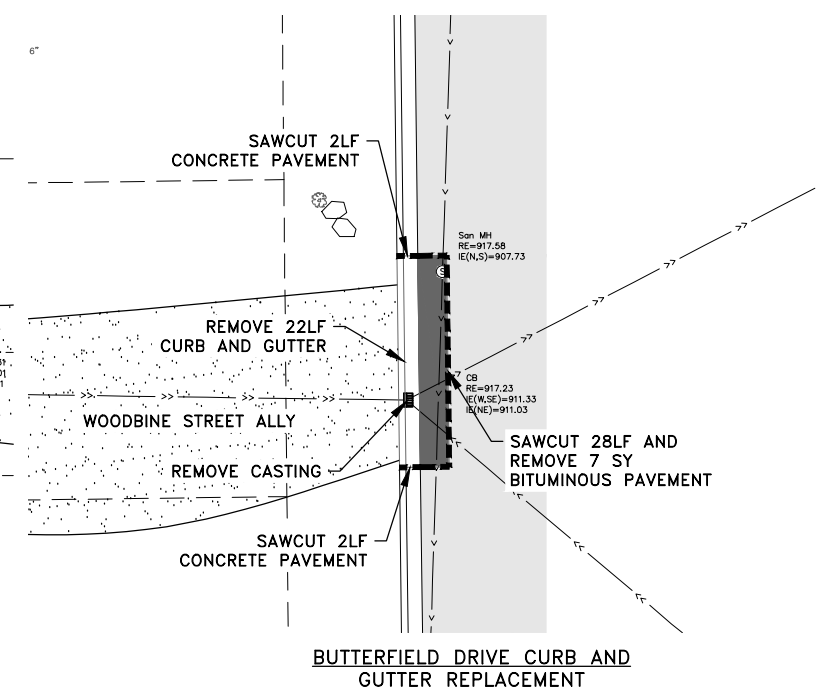
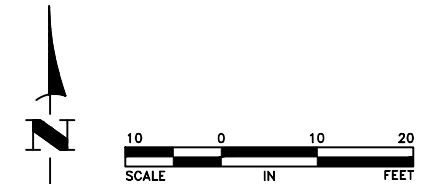
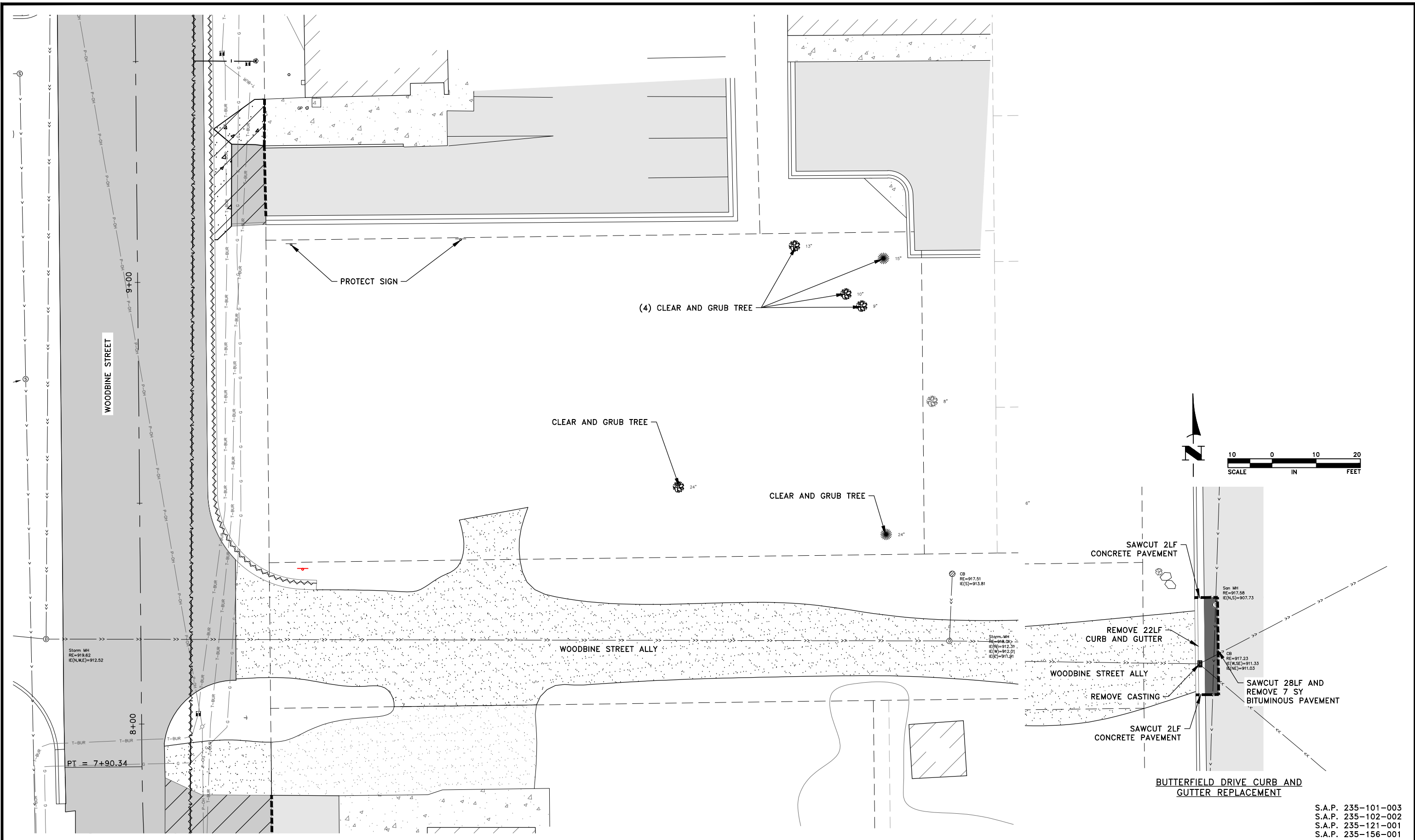
**2025 STREET RECONSTRUCTION PROJECT**

**EXISTING CONDITIONS AND REMOVALS PLAN**

229TH LANE  
 CITY OF ST. FRANCIS, MINNESOTA

SHEET 16 OF 32 SHEETS

Feb 12, 2025 - 2:33pm  
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S.A.P. 235-101-003  
 S.A.P. 235-102-002  
 S.A.P. 235-121-001  
 S.A.P. 235-156-001

DATE	REVISION

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*Craig J. Jochum*  
**CRAIG J. JOCHUM, P.E.**  
 Date 2/12/25 Lic. No. 23461

DESIGNED BY: CJJ  
 DRAWN BY: SGJ  
 CHECKED BY: TAE



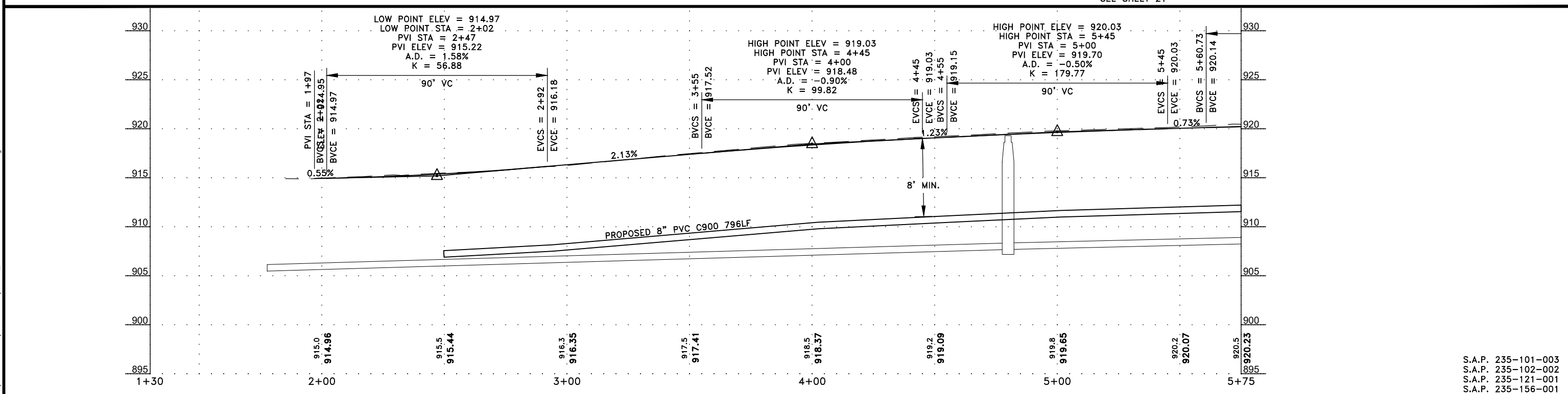
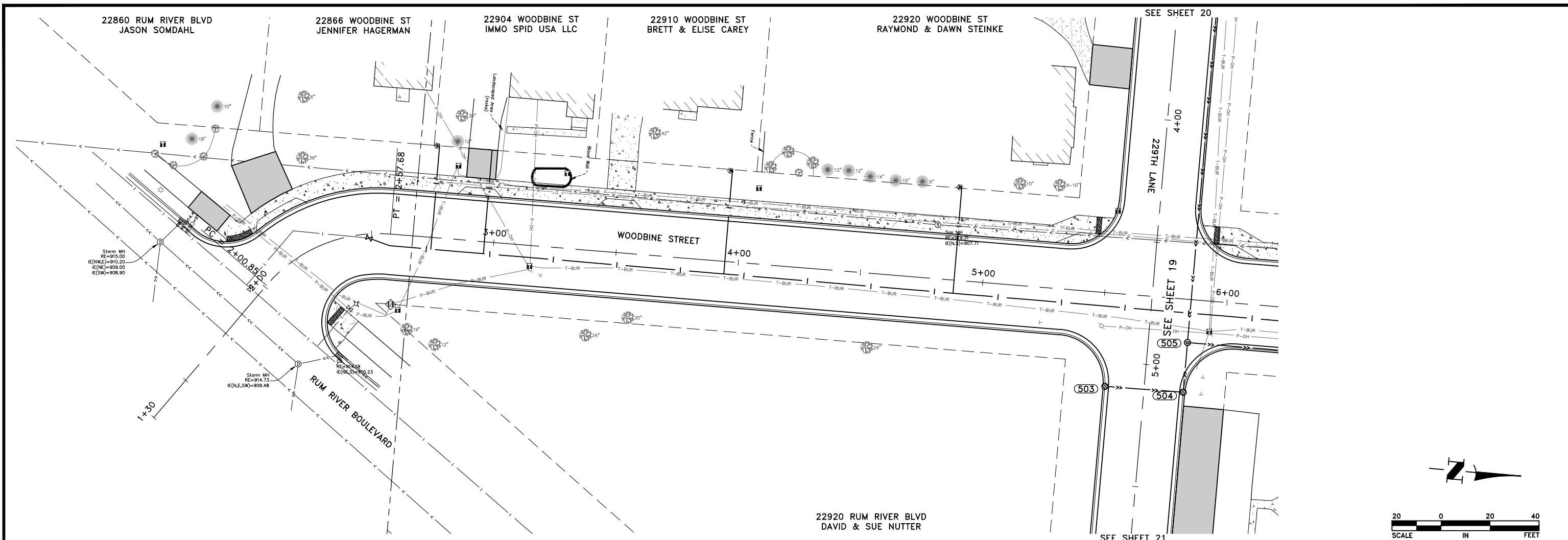
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 3601 Thurston Ave., Anoka, Minnesota 55303  
 763-427-5860 FAX 763-427-0520  
 www.hakanson-anderson.com

**2025 STREET RECONSTRUCTION PROJECT**

**EXISTING CONDITIONS AND REMOVALS PLAN**  
 WOODBINE STREET PARKING LOT  
 CITY OF ST. FRANCIS, MINNESOTA

SHEET 17 OF 32 SHEETS





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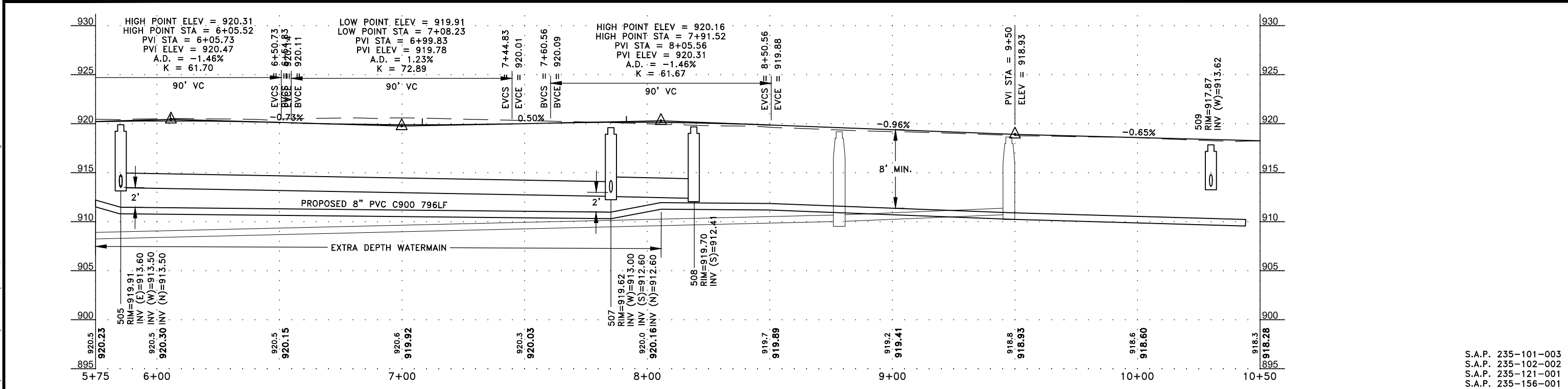
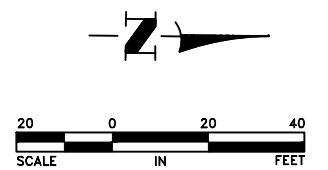
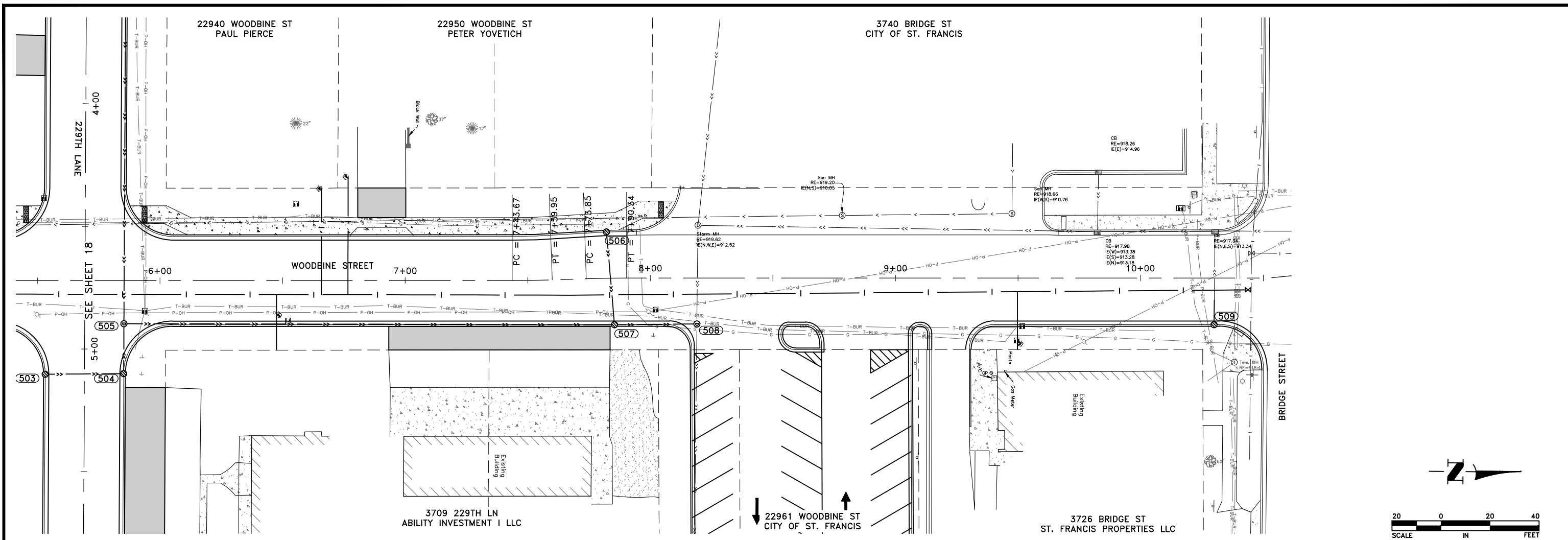
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**2025 STREET RECONSTRUCTION PROJECT**

**CONSTRUCTION PLANS**  
**WOODBINE STREET**  
**CITY OF ST. FRANCIS, MINNESOTA**

S.A.P. 235-101-003  
 S.A.P. 235-102-002  
 S.A.P. 235-121-001  
 S.A.P. 235-156-001

SHEET 18 OF 32 SHEETS



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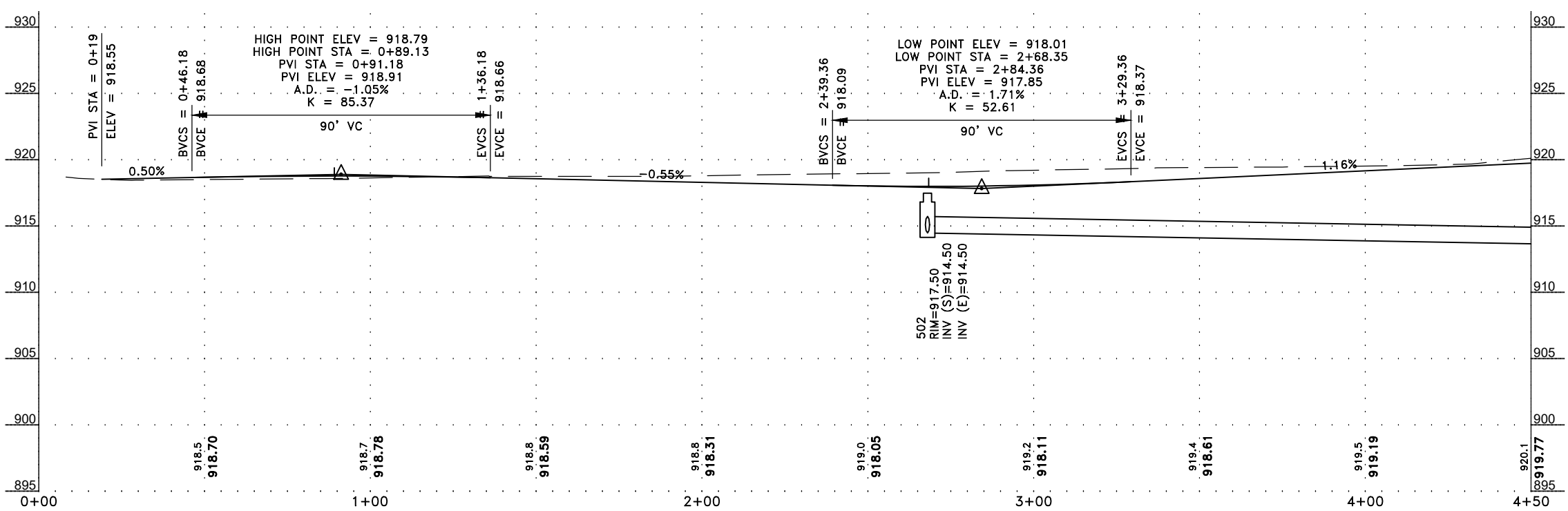
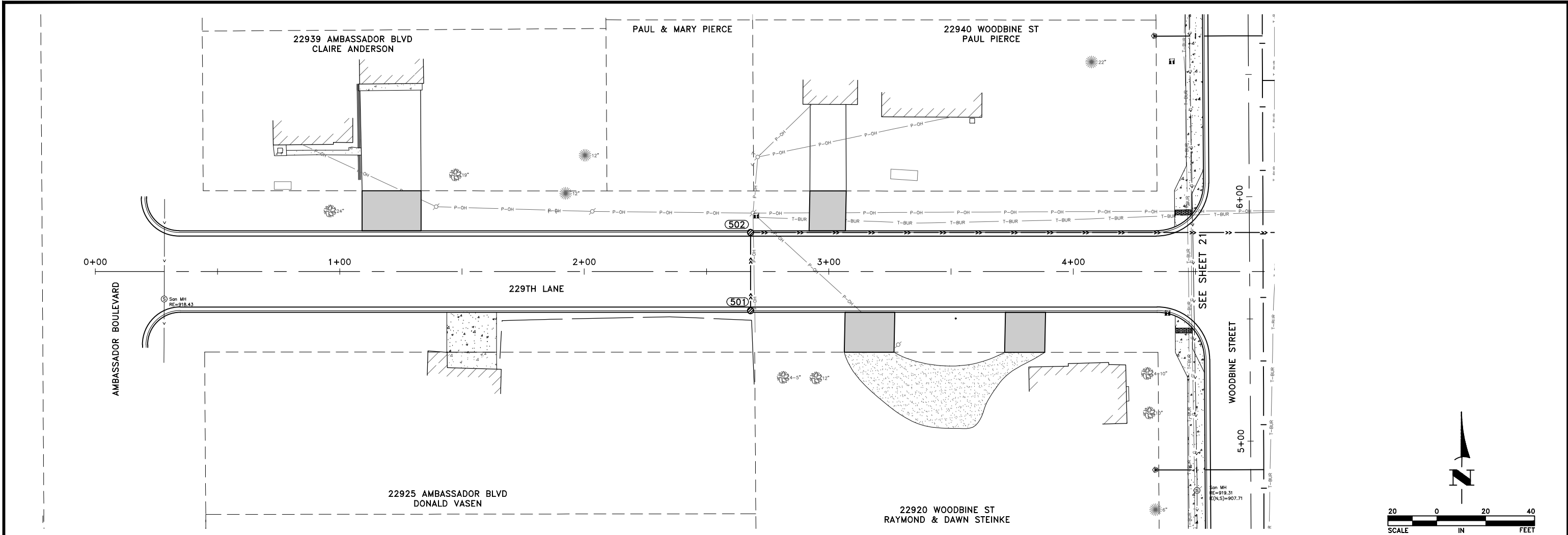
**2025 STREET RECONSTRUCTION PROJECT**

**CONSTRUCTION PLANS**  
**WOODBINE STREET**  
**CITY OF ST. FRANCIS, MINNESOTA**

SHEET 19 OF 32 SHEETS

- S.A.P. 235-101-003
- S.A.P. 235-102-002
- S.A.P. 235-121-001
- S.A.P. 235-156-001

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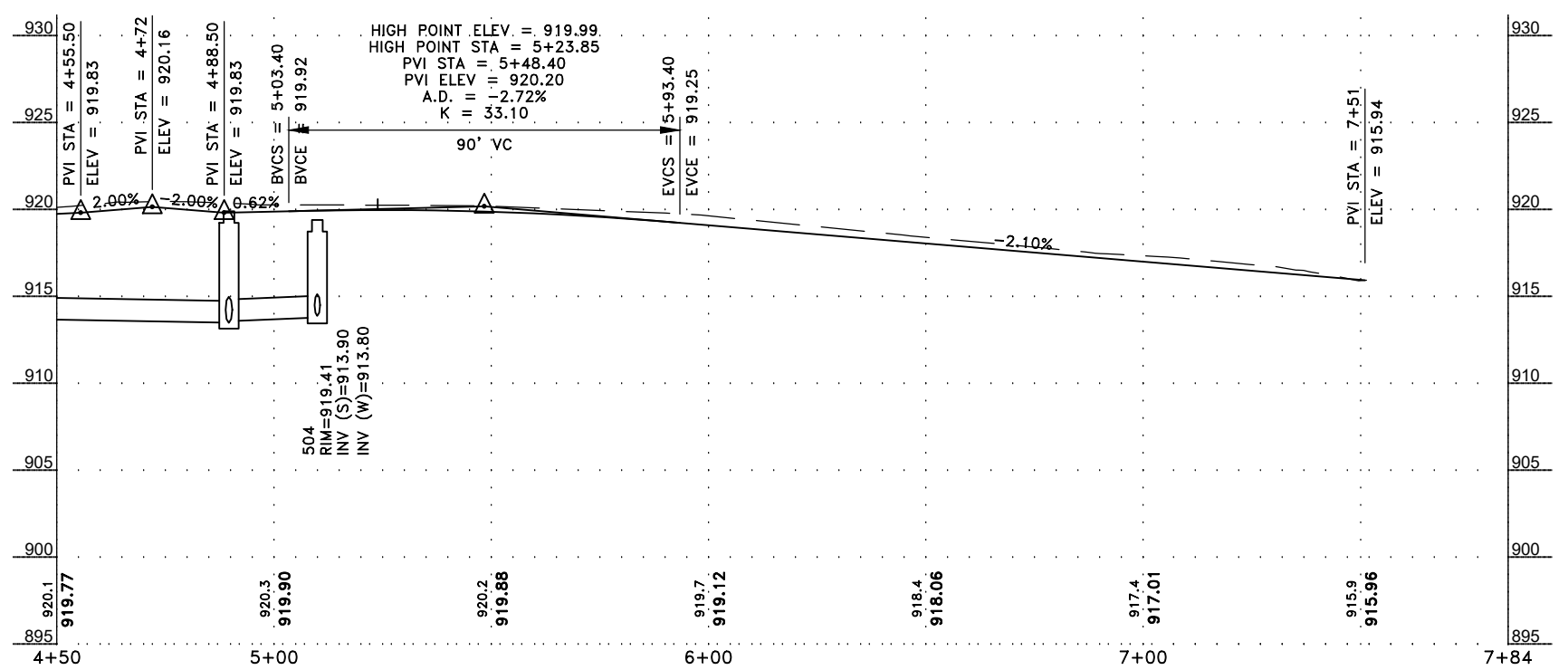
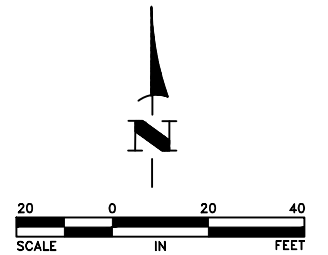
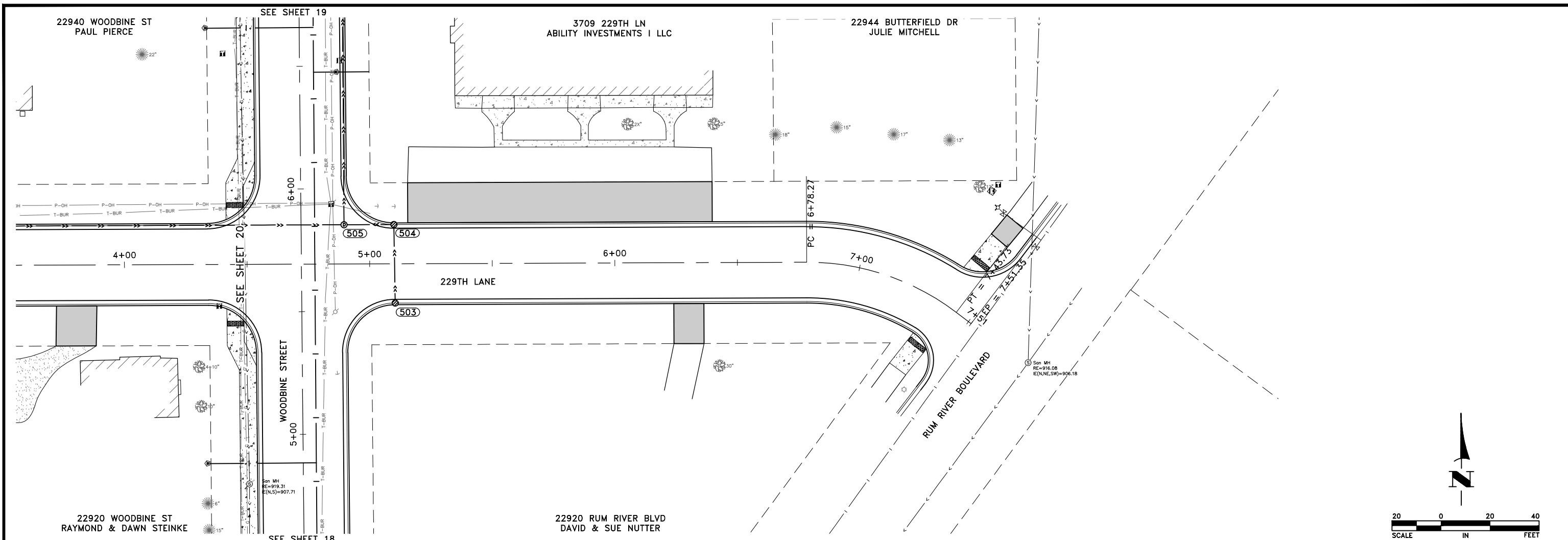


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2025 STREET RECONSTRUCTION PROJECT

CONSTRUCTION PLANS  
229TH LANE  
CITY OF ST. FRANCIS, MINNESOTA

SHEET 20 OF 32 SHEETS



S.A.P. 235-101-003  
 S.A.P. 235-102-002  
 S.A.P. 235-121-001  
 S.A.P. 235-156-001

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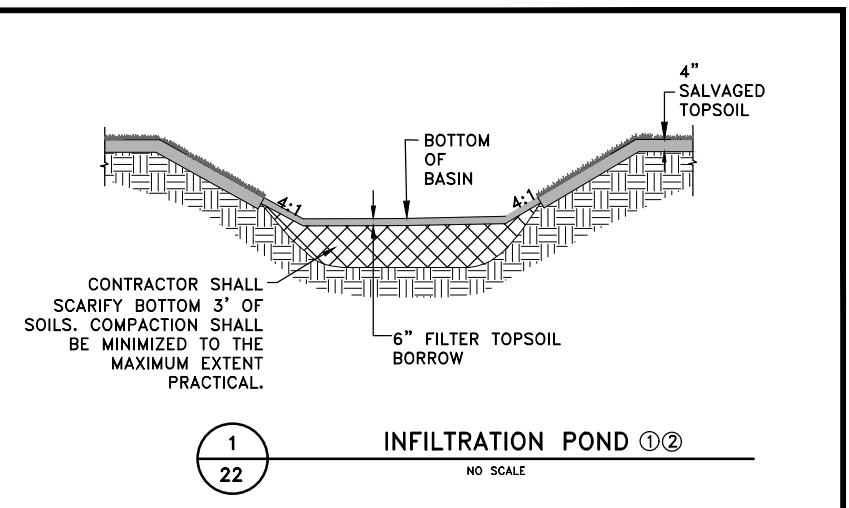
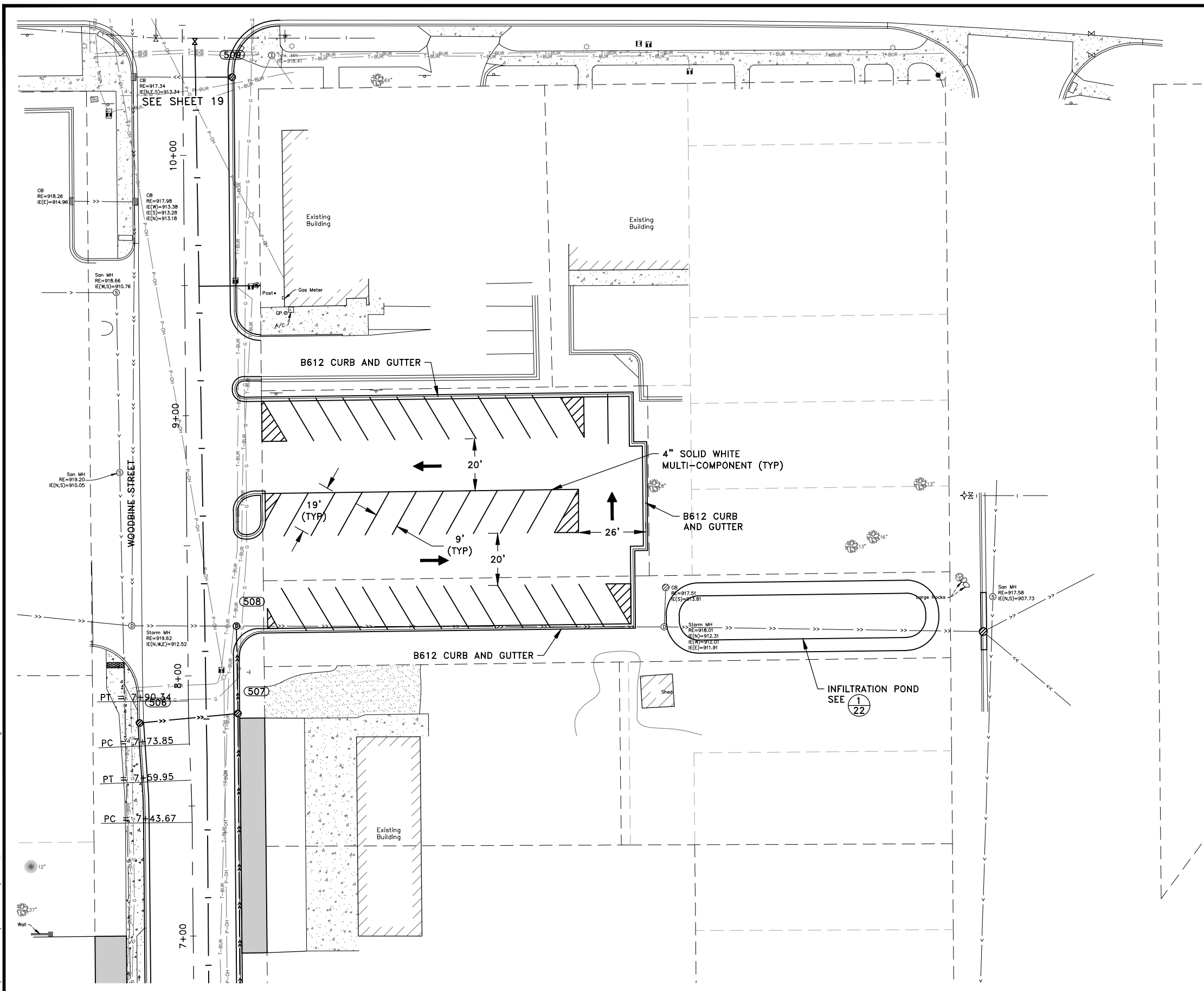
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2025 STREET RECONSTRUCTION PROJECT

CONSTRUCTION PLANS  
 229TH LANE  
 CITY OF ST. FRANCIS, MINNESOTA

SHEET 21 OF 32 SHEETS

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1  
22  
**INFILTRATION POND ①②**  
NO SCALE

- REFERENCE NOTES:
- ① CONSTRUCTION EQUIPMENT SHALL BE MINIMIZED OVER THE FOOTPRINT OF THE BASIN. ONLY LOW PRESSURE, WIDE TRACKED EQUIPMENT SHALL BE USED FOR CONSTRUCTION.
  - ② INFILTRATION BASINS SHALL NOT BE GRADED TO WITHIN THREE FEET OF THE FINAL GRADES UNTIL THE CONTRIBUTING DRAINAGE AREA HAS BEEN CONSTRUCTED AND FULLY STABILIZED OR RIGOROUS EROSION PREVENTION AND SEDIMENT CONTROLS, SUCH AS DIVERSION BERMS, TO KEEP SEDIMENT AND RUNOFF COMPLETELY AWAY FROM THE INFILTRATION AREAS HAVE BEEN PROVIDED.



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*Craig J. Joqhum*  
**CRAIG J. JOQHUM, P.E.**  
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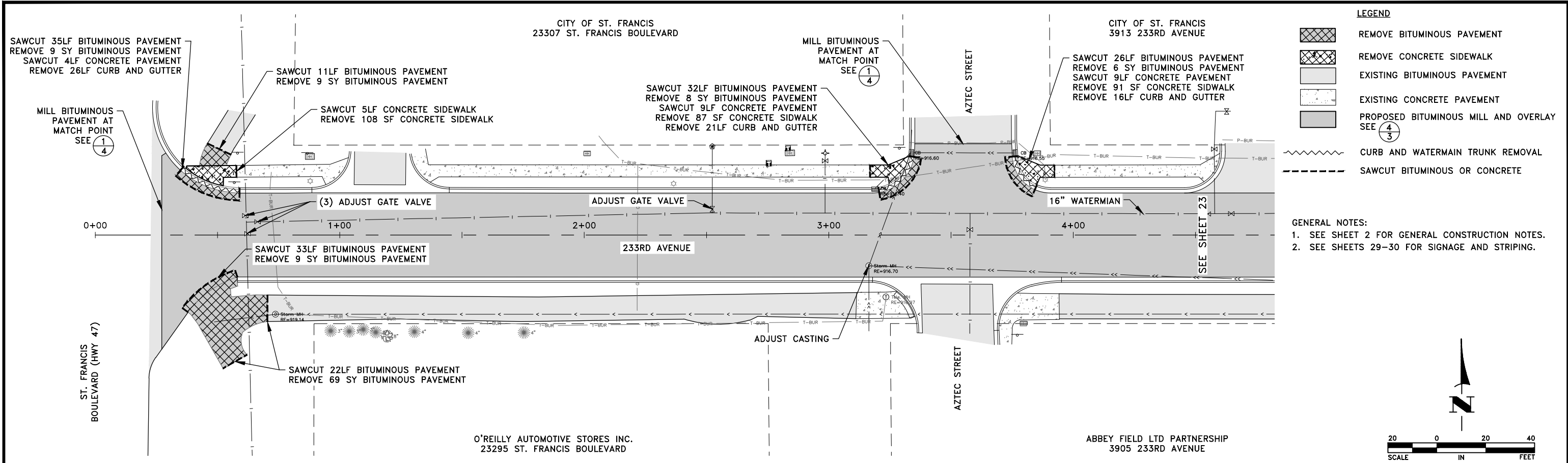


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**2025 STREET RECONSTRUCTION PROJECT**

**CONSTRUCTION PLANS**  
**WOODBINE STREET PARKING LOT**  
**CITY OF ST. FRANCIS, MINNESOTA**

SHEET 22 OF 32 SHEETS

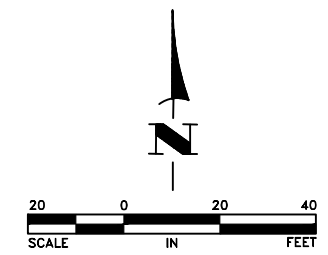
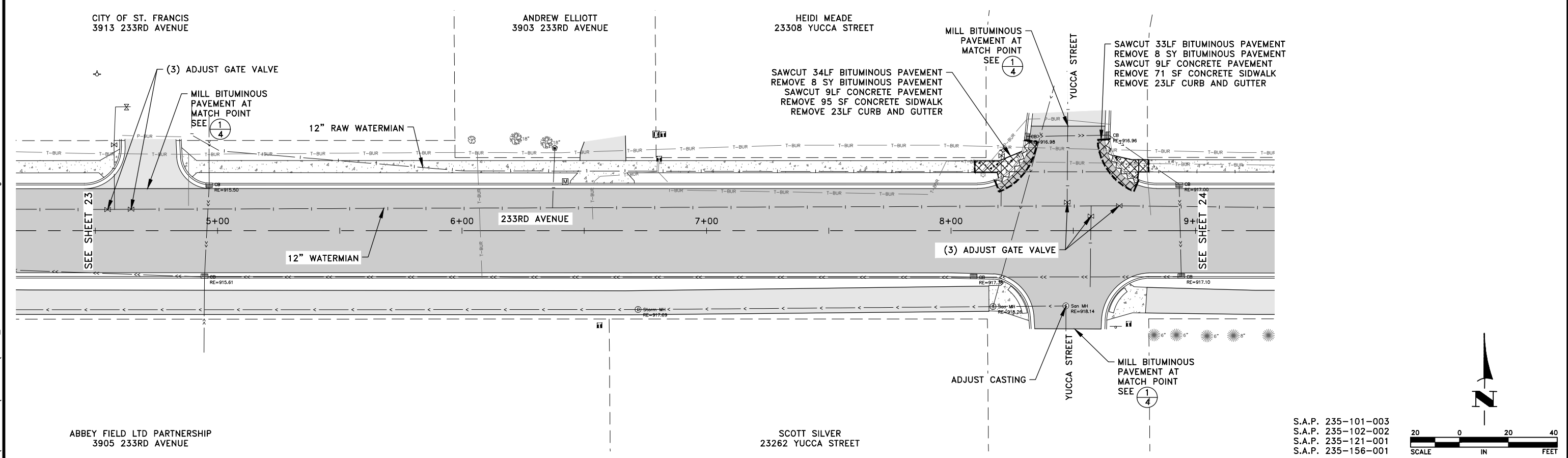
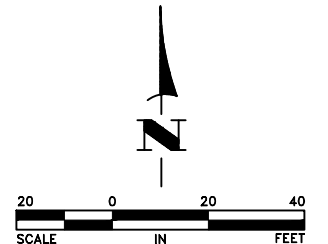


**LEGEND**

- REMOVE BITUMINOUS PAVEMENT
- REMOVE CONCRETE SIDEWALK
- EXISTING BITUMINOUS PAVEMENT
- EXISTING CONCRETE PAVEMENT
- PROPOSED BITUMINOUS MILL AND OVERLAY SEE (1/3)
- CURB AND WATERMAIN TRUNK REMOVAL
- SAWCUT BITUMINOUS OR CONCRETE

**GENERAL NOTES:**

1. SEE SHEET 2 FOR GENERAL CONSTRUCTION NOTES.
2. SEE SHEETS 29-30 FOR SIGNAGE AND STRIPING.



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 Lic. No. 23461  
 Date 2/12/25

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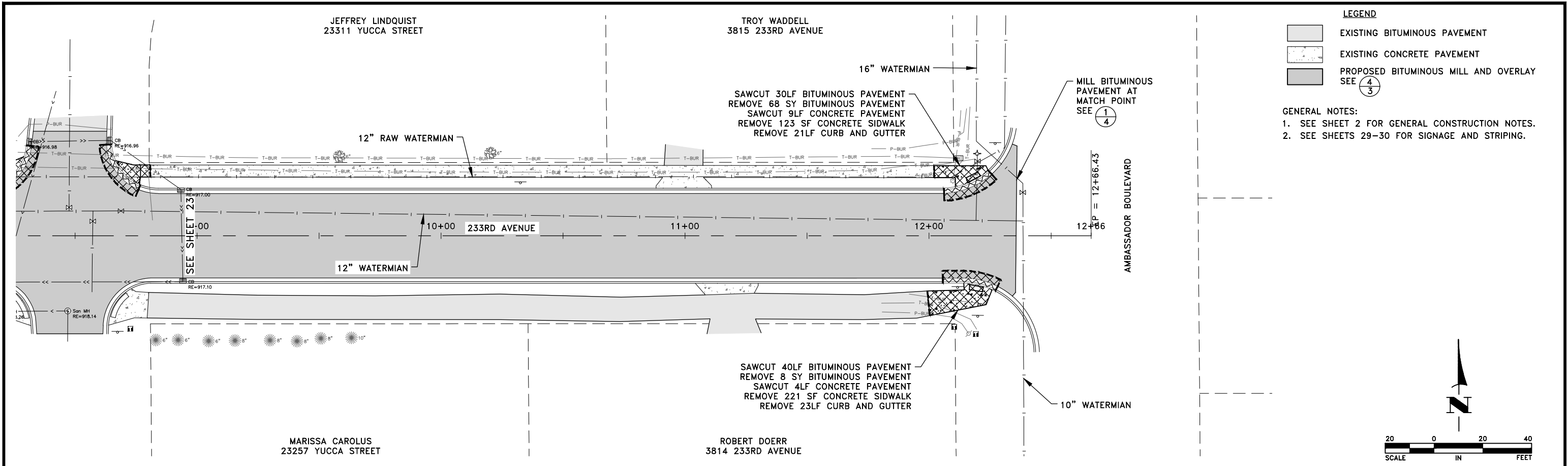
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**2025 STREET RECONSTRUCTION PROJECT**

**CONSTRUCTION PLANS**  
 233RD AVENUE  
 CITY OF ST. FRANCIS, MINNESOTA

SHEET 23 OF 32 SHEETS

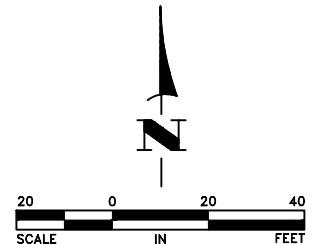
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**LEGEND**

	EXISTING BITUMINOUS PAVEMENT
	EXISTING CONCRETE PAVEMENT
	PROPOSED BITUMINOUS MILL AND OVERLAY

- GENERAL NOTES:**
- SEE SHEET 2 FOR GENERAL CONSTRUCTION NOTES.
  - SEE SHEETS 29-30 FOR SIGNAGE AND STRIPING.



S.A.P. 235-101-003  
 S.A.P. 235-102-002  
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CJJ

DRAWN BY:  
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CHECKED BY:  
TAE






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2025 STREET RECONSTRUCTION PROJECT

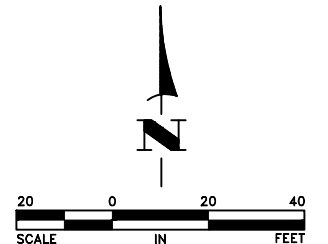
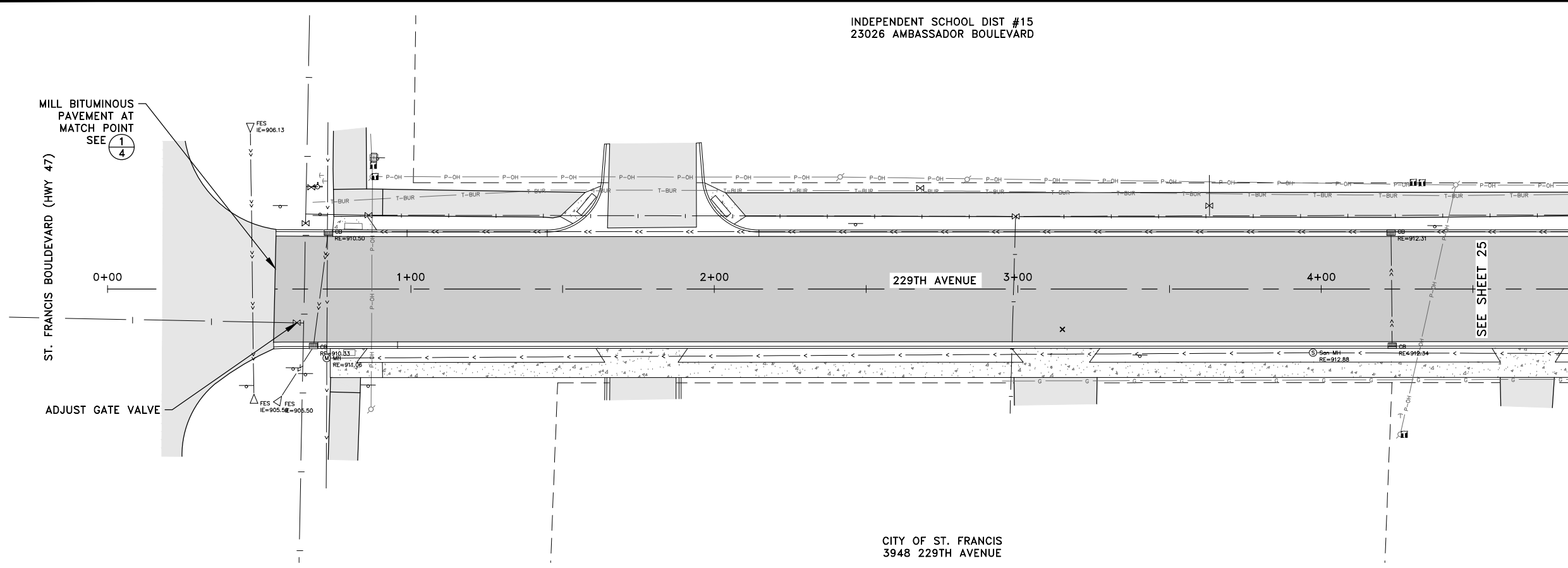
CONSTRUCTION PLANS  
 233RD AVENUE  
 CITY OF ST. FRANCIS, MINNESOTA

SHEET 24 OF 32 SHEETS

INDEPENDENT SCHOOL DIST #15  
23026 AMBASSADOR BOULEVARD

- LEGEND**
-  EXISTING BITUMINOUS PAVEMENT
  -  EXISTING CONCRETE PAVEMENT
  -  PROPOSED BITUMINOUS MILL AND OVERLAY SEE  $\frac{4}{3}$

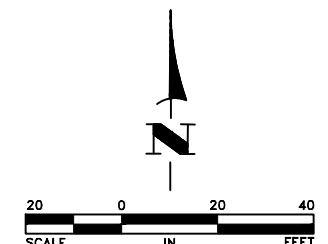
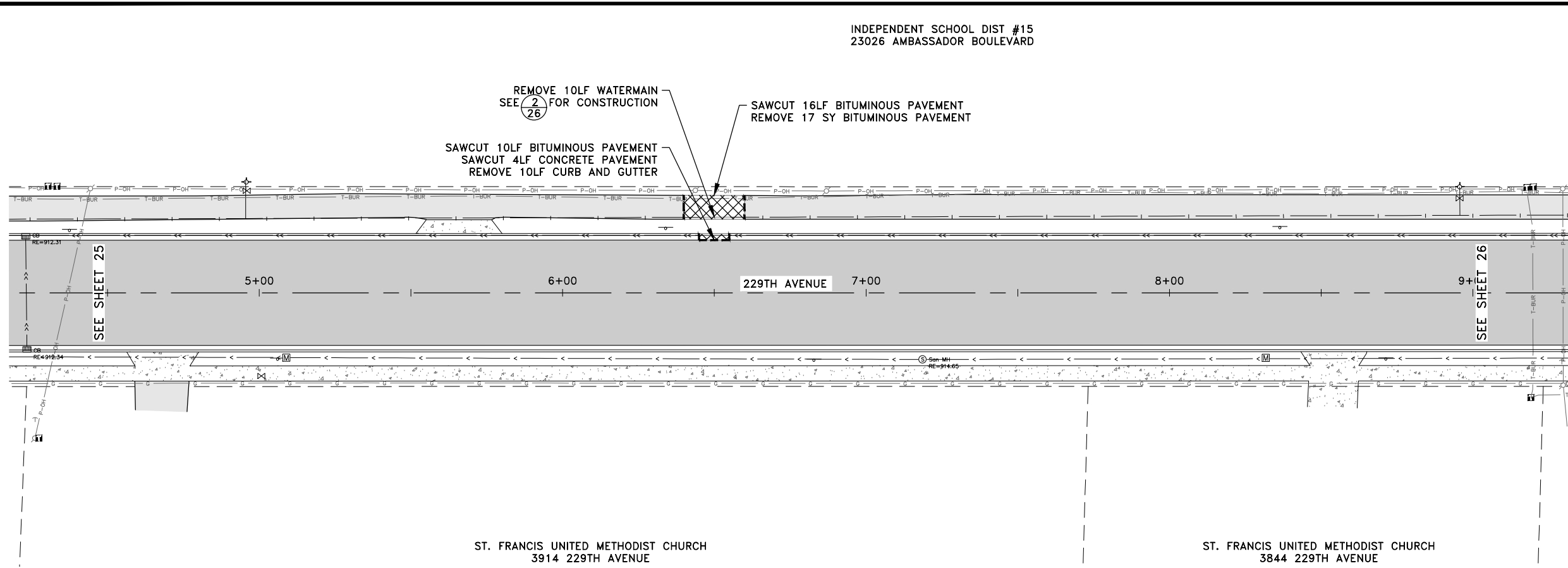
- GENERAL NOTES:**
1. SEE SHEET 2 FOR GENERAL CONSTRUCTION NOTES.
  2. SEE SHEETS 31-32 FOR SIGNAGE AND STRIPING.



CITY OF ST. FRANCIS  
3948 229TH AVENUE

INDEPENDENT SCHOOL DIST #15  
23026 AMBASSADOR BOULEVARD

- REMOVE 10LF WATERMAIN SEE  $\frac{2}{26}$  FOR CONSTRUCTION
- SAWCUT 16LF BITUMINOUS PAVEMENT REMOVE 17 SY BITUMINOUS PAVEMENT
- SAWCUT 10LF BITUMINOUS PAVEMENT SAWCUT 4LF CONCRETE PAVEMENT REMOVE 10LF CURB AND GUTTER



S.A.P. 235-101-003  
S.A.P. 235-102-002  
S.A.P. 235-121-001  
S.A.P. 235-156-001

ST. FRANCIS UNITED METHODIST CHURCH  
3914 229TH AVENUE

ST. FRANCIS UNITED METHODIST CHURCH  
3844 229TH AVENUE

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Date 2/12/25 Lic. No. 23461

DESIGNED BY: CJJ  
DRAWN BY: SGJ  
CHECKED BY: TAE



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2025 STREET RECONSTRUCTION PROJECT

CONSTRUCTION PLANS  
229TH AVENUE  
CITY OF ST. FRANCIS, MINNESOTA

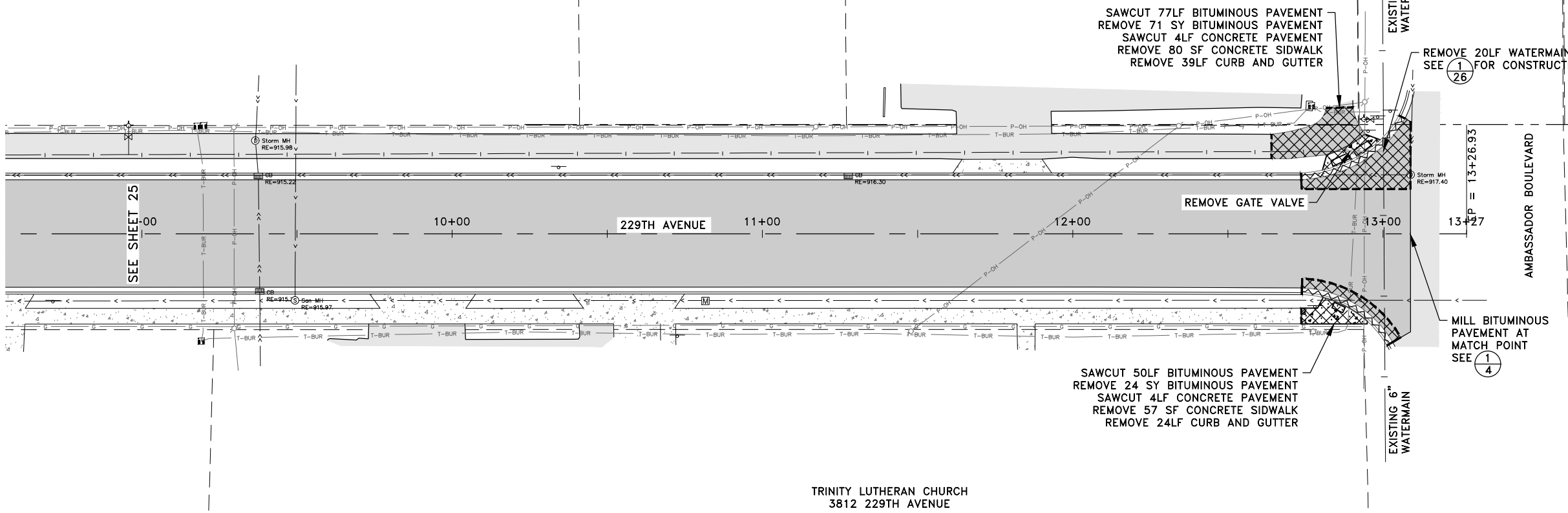
SHEET 25 OF 32 SHEETS



INDEPENDENT SCHOOL DIST #15  
23026 AMBASSADOR BOULEVARD

ANOKA ISANTI S.D. NO 15

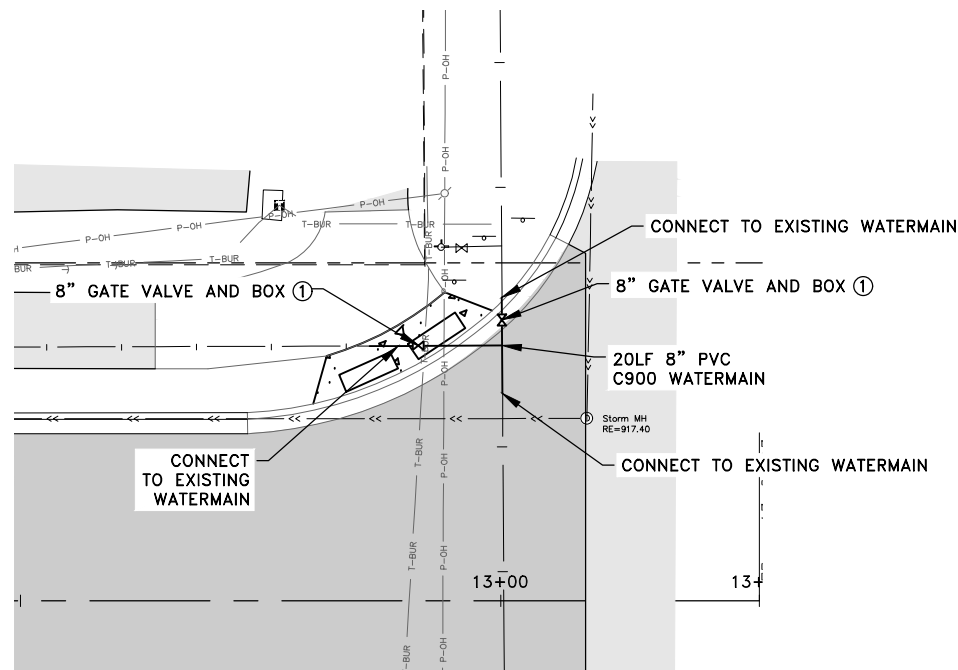
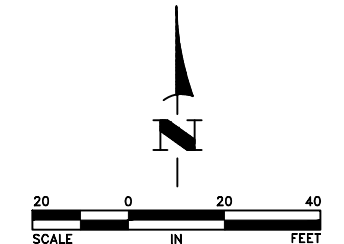
TRINITY LUTHERAN CHURCH  
22918 AMBASSADOR BOULEVARD



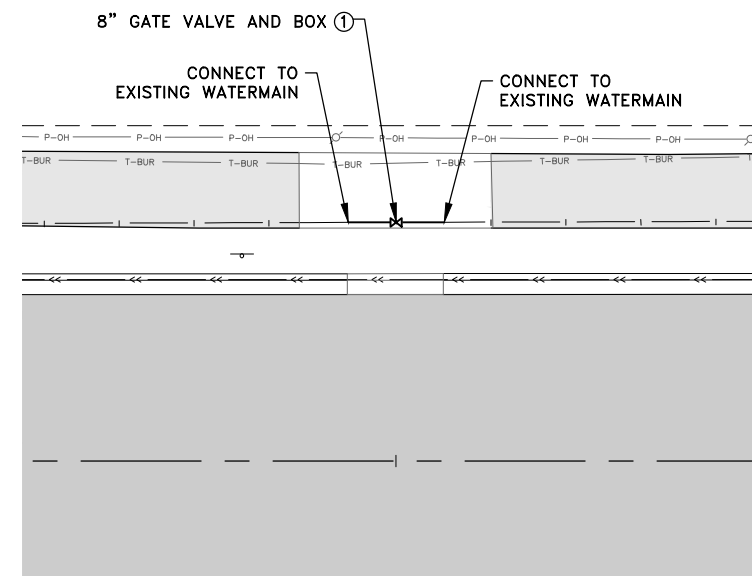
**LEGEND**

	EXISTING BITUMINOUS PAVEMENT
	EXISTING CONCRETE PAVEMENT
	PROPOSED BITUMINOUS MILL AND OVERLAY SEE ④

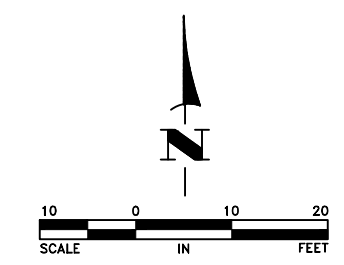
**GENERAL NOTES:**  
1. SEE SHEET 2 FOR GENERAL CONSTRUCTION NOTES.  
2. SEE SHEETS 31-32 FOR SIGNAGE AND STRIPING.  
**REFERENCE NOTES:**  
① SEE CITY STANDARD PLATE 207.



①  
26  
229TH LANE AND AMBASSADOR BOULEVARD  
GATE VALVE REPLACEMENT



②  
26  
229TH LANE MID-GATE VALVE CONSTRUCTION



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S.A.P. 235-102-002  
S.A.P. 235-121-001  
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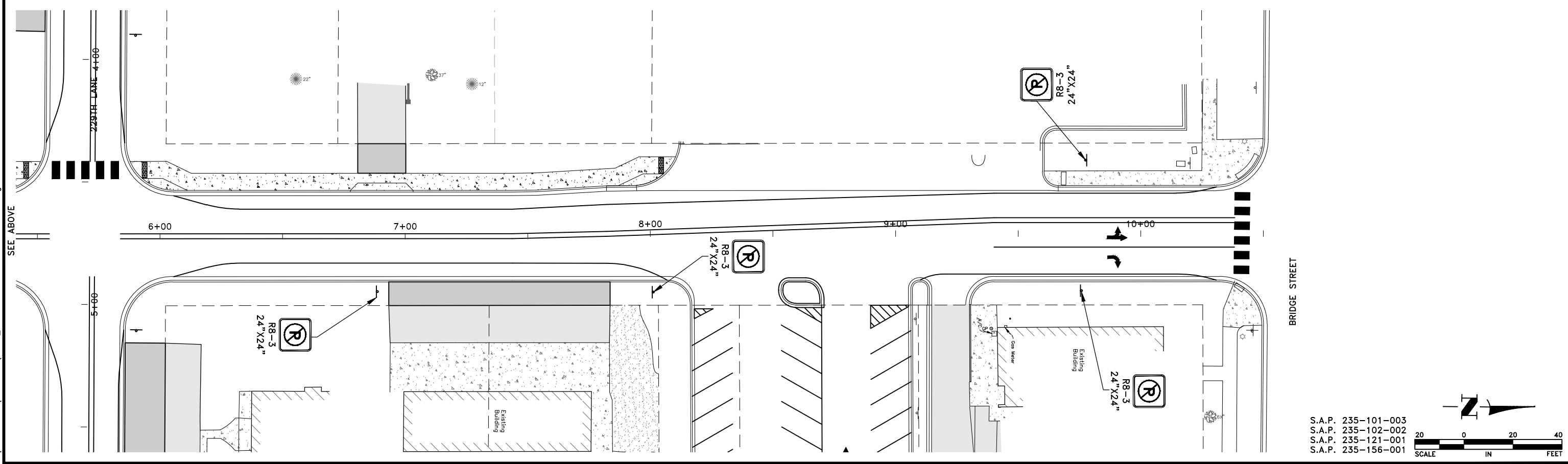
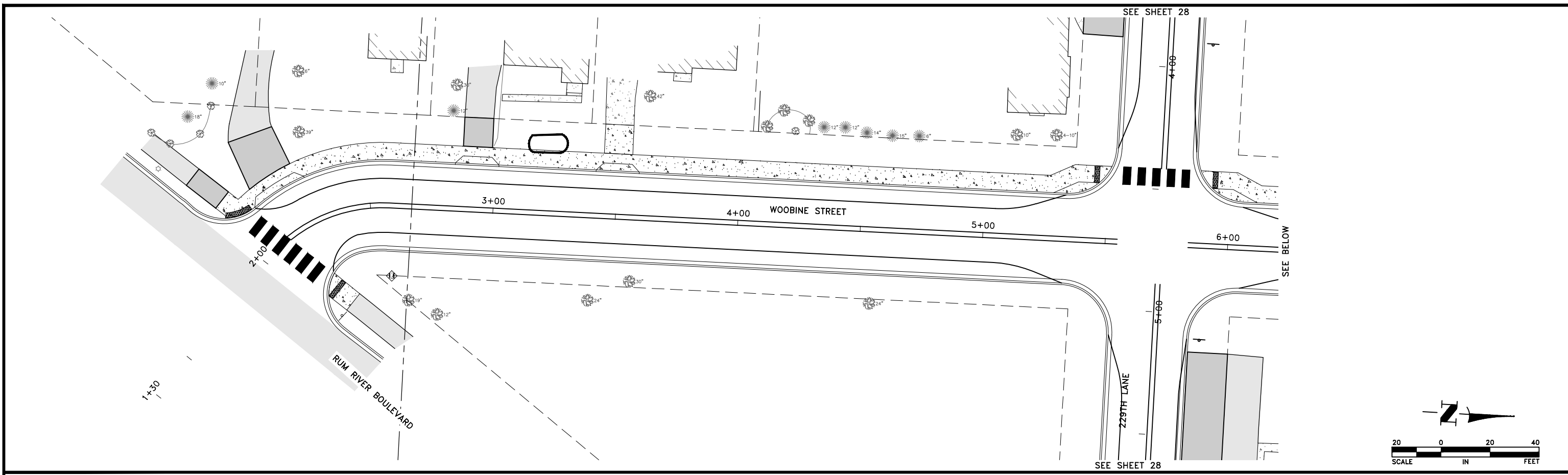


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2025 STREET RECONSTRUCTION PROJECT

CONSTRUCTION PLANS  
229TH AVENUE  
CITY OF ST. FRANCIS, MINNESOTA

SHEET 26 OF 32 SHEETS



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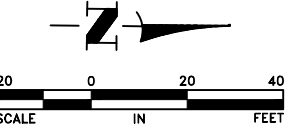
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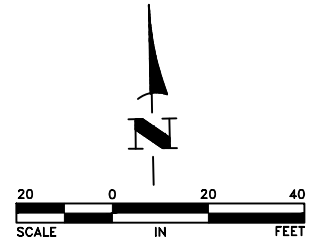
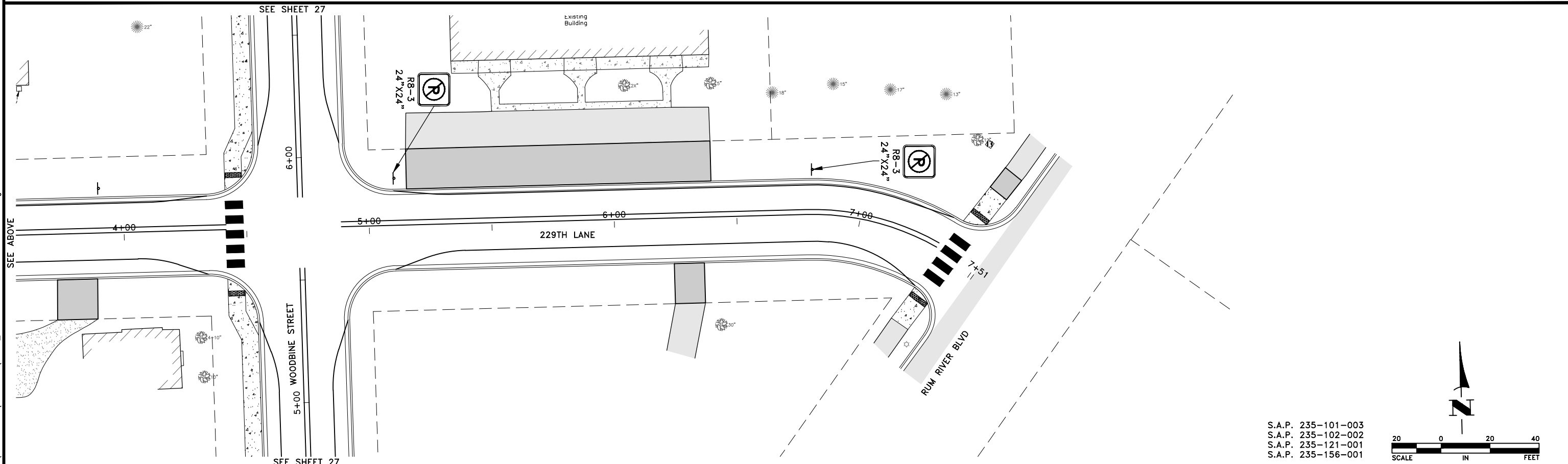
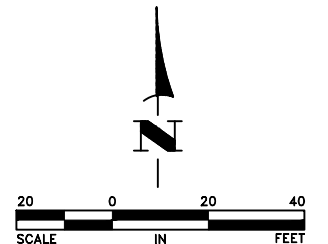
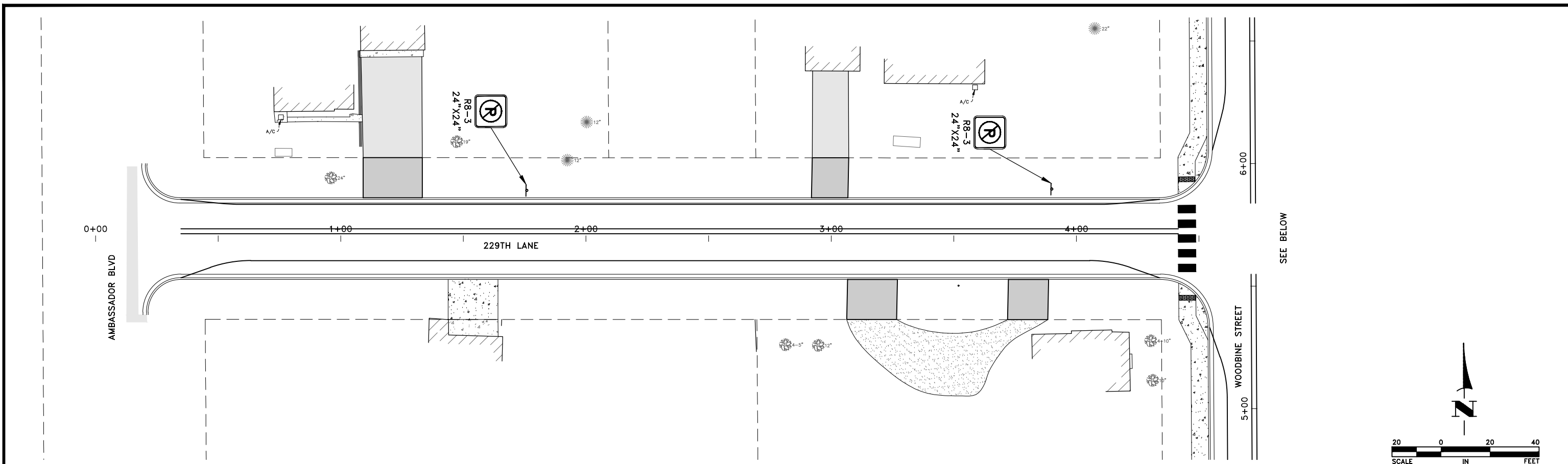
**2025 STREET RECONSTRUCTION PROJECT**

**SIGNAGE AND STRIPING PLANS**  
**WOODBINE STREET**  
**CITY OF ST. FRANCIS, MINNESOTA**

SHEET 27 OF 32 SHEETS

S.A.P. 235-101-003  
 S.A.P. 235-102-002  
 S.A.P. 235-121-001  
 S.A.P. 235-156-001





S.A.P. 235-101-003  
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 DRAWN BY: SGJ  
 CHECKED BY: TAE



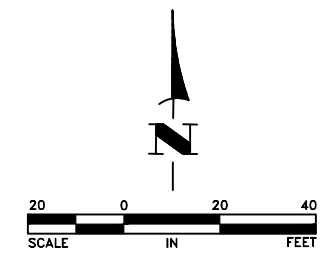
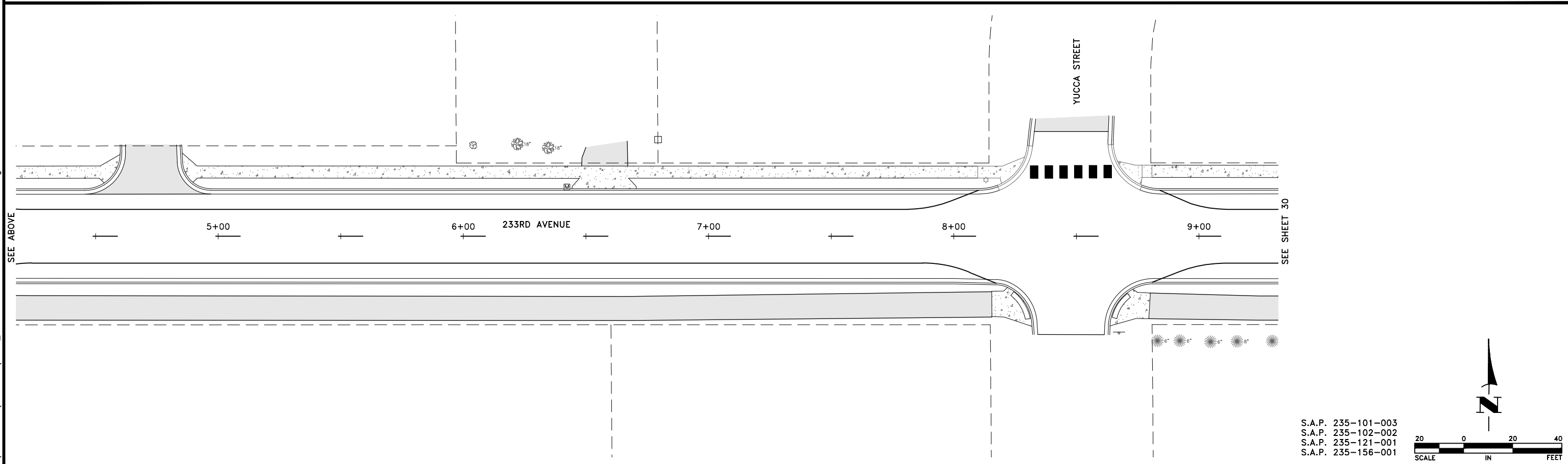
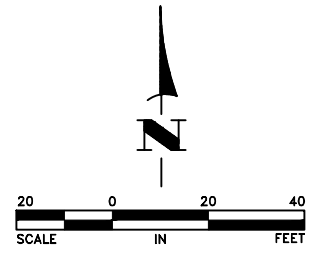
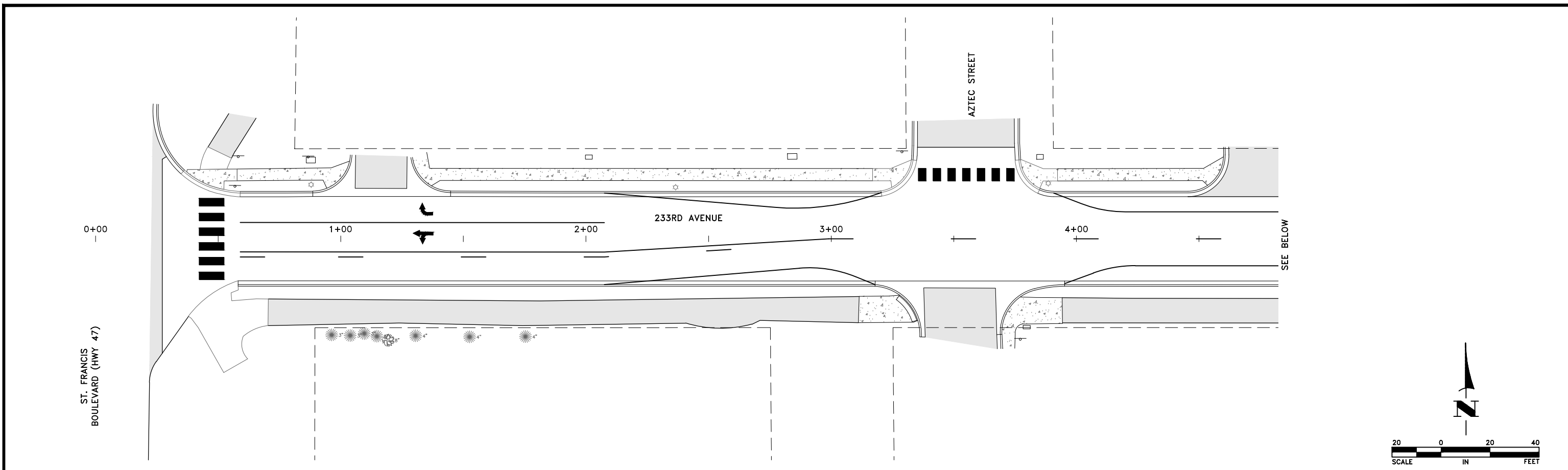
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2025 STREET RECONSTRUCTION PROJECT

SIGNAGE AND STRIPING PLANS  
 229TH LANE  
 CITY OF ST. FRANCIS, MINNESOTA

SHEET 28 OF 32 SHEETS

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S.A.P. 235-101-003  
 S.A.P. 235-102-002  
 S.A.P. 235-121-001  
 S.A.P. 235-156-001

DATE	REVISION

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

*Craig J. Johum*  
 CRAIG J. JOHUM, P.E.  
 Date 2/12/25 Lic. No. 23461

DESIGNED BY:  
CJJ

DRAWN BY:  
SGJ

CHECKED BY:  
TAE



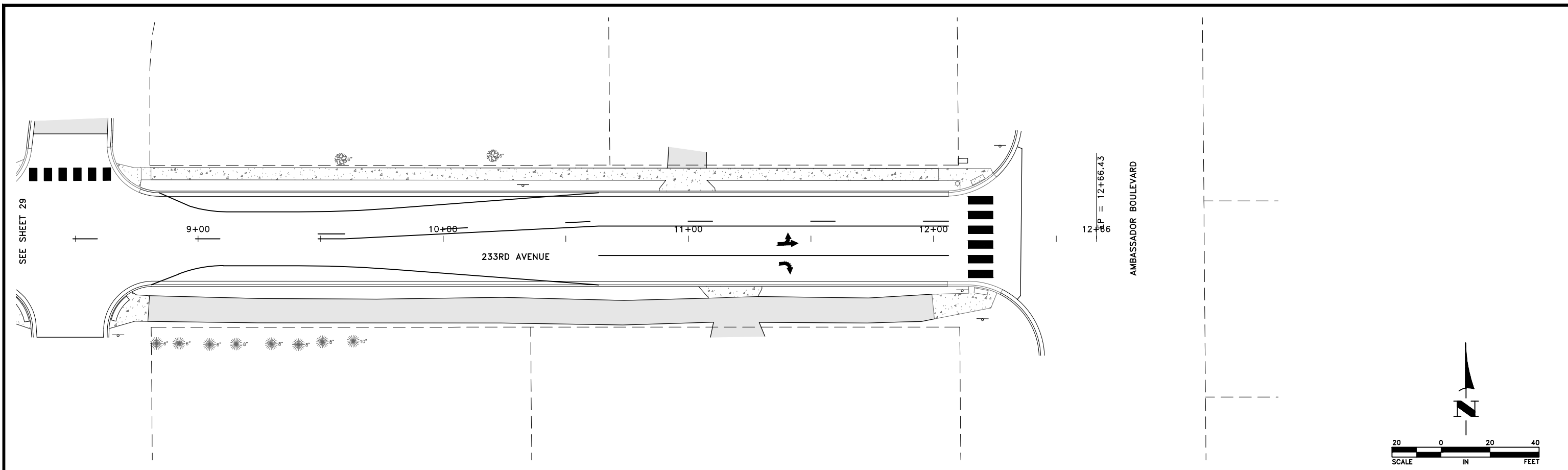
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2025 STREET RECONSTRUCTION PROJECT

SIGNAGE AND STRIPING PLANS  
 233RD AVENUE  
 CITY OF ST. FRANCIS, MINNESOTA

SHEET 29 OF 32 SHEETS

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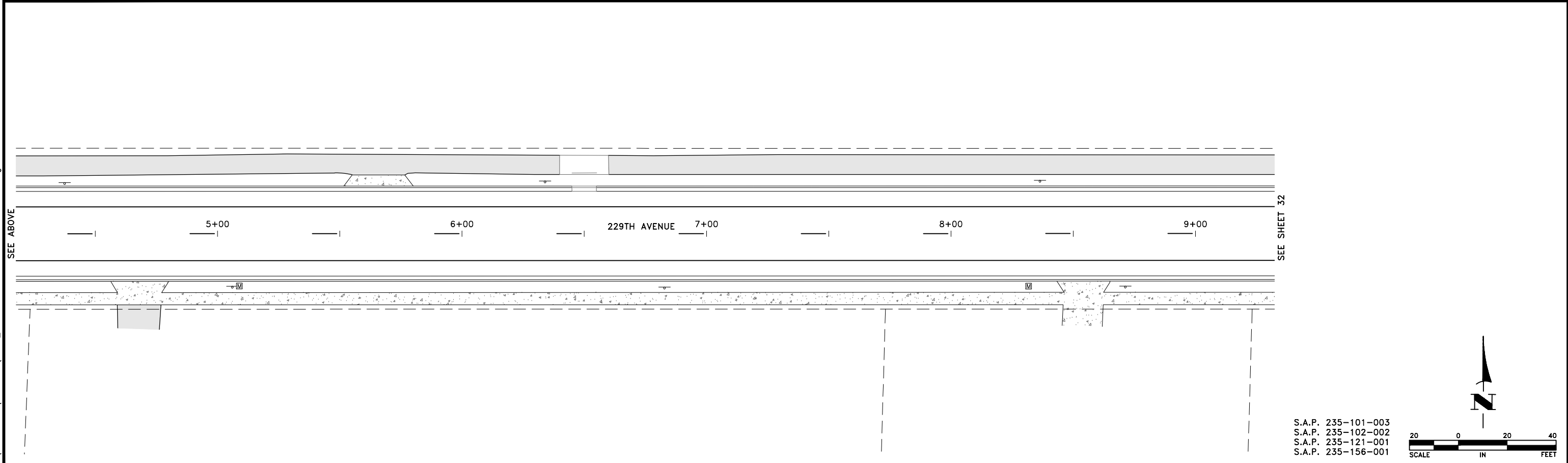
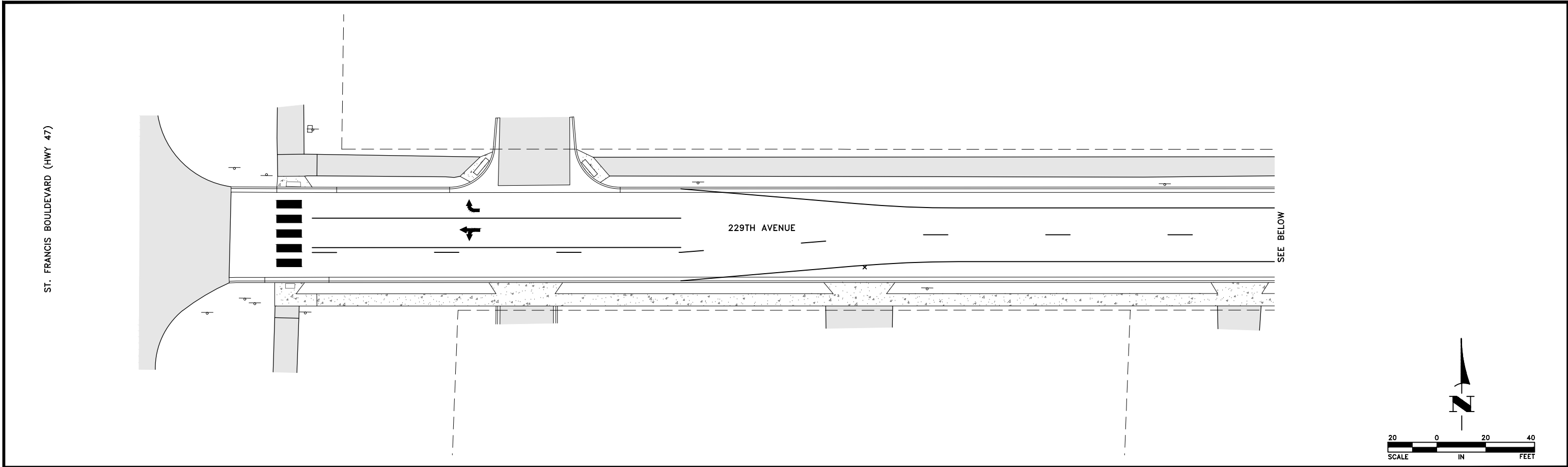
SIGNAGE AND STRIPING PLANS

233RD AVENUE  
 CITY OF ST. FRANCIS, MINNESOTA

SHEET  
**30**  
 OF  
**32**  
 SHEETS

S.A.P. 235-101-003  
 S.A.P. 235-102-002  
 S.A.P. 235-121-001  
 S.A.P. 235-156-001

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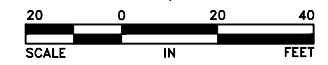
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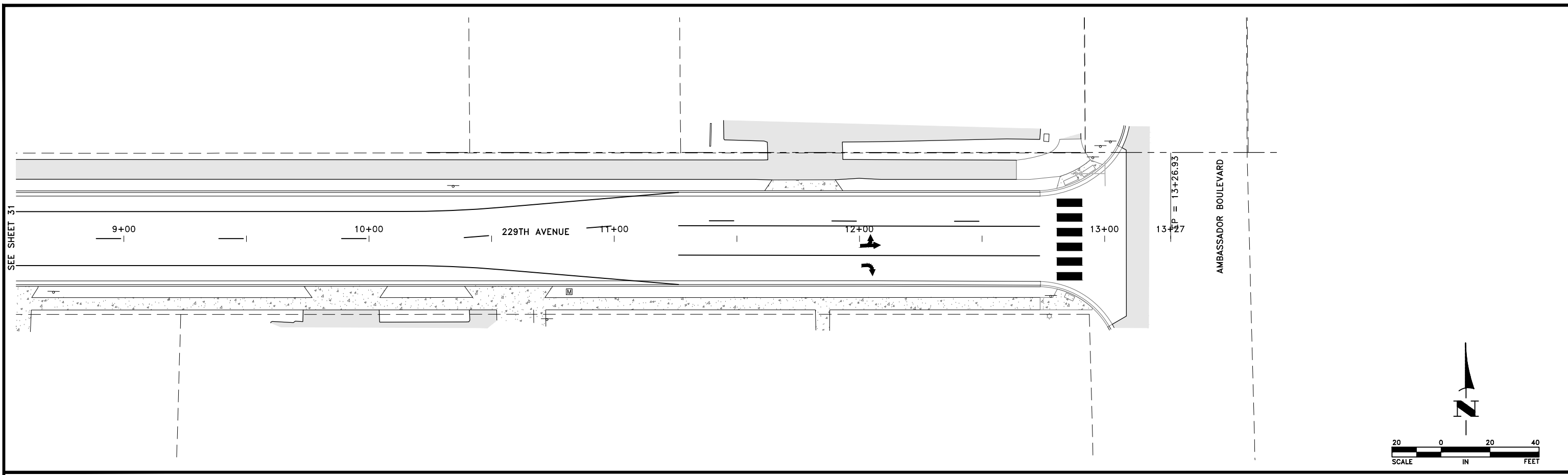
**SIGNAGE AND STRIPING PLANS**

**229TH AVENUE**  
**CITY OF ST. FRANCIS, MINNESOTA**

SHEET  
**31**  
 OF  
**32**  
 SHEETS

S.A.P. 235-101-003  
 S.A.P. 235-102-002  
 S.A.P. 235-121-001  
 S.A.P. 235-156-001





SEE SHEET 31

S.A.P. 235-101-003  
 S.A.P. 235-102-002  
 S.A.P. 235-121-001  
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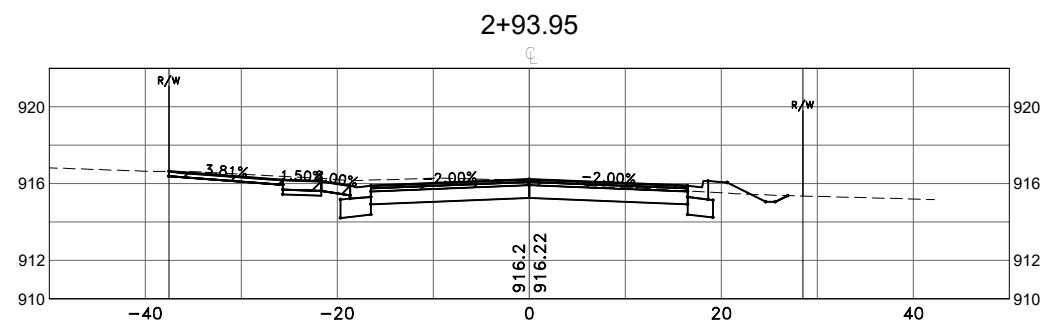
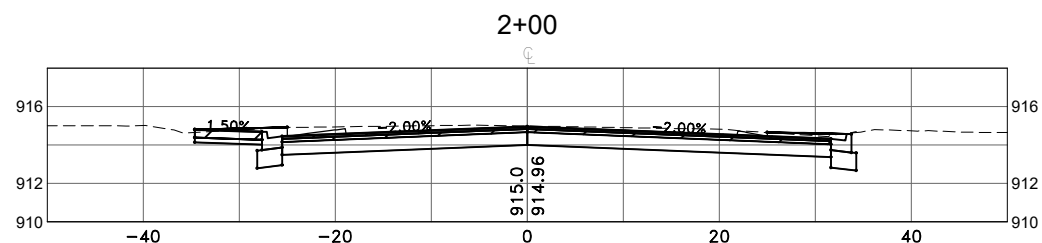
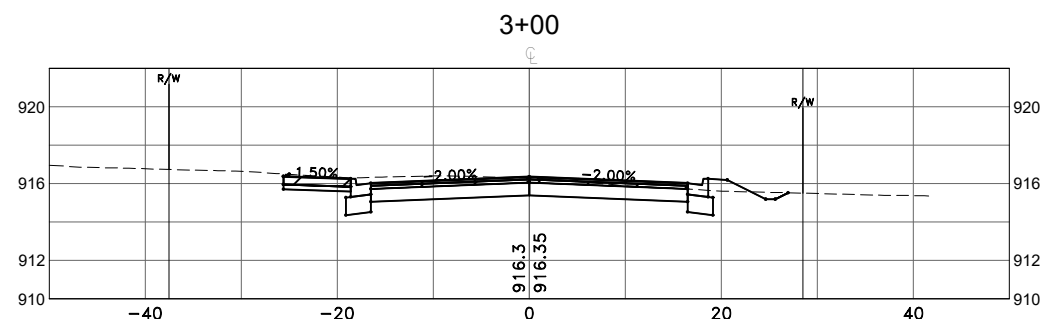
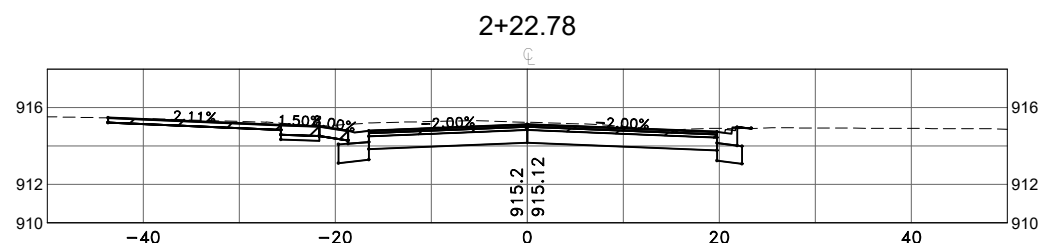
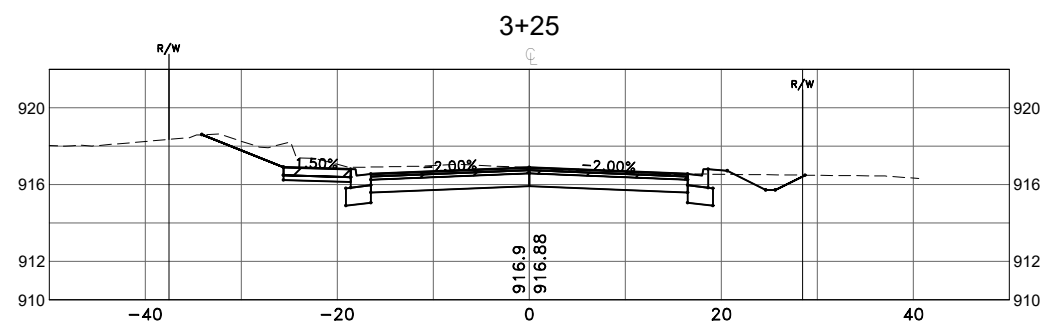
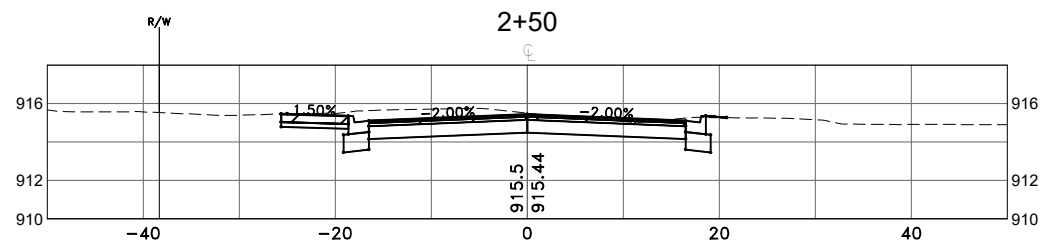
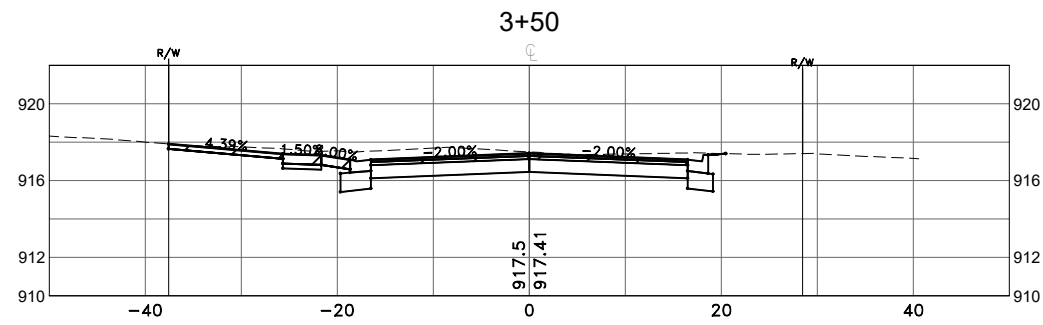
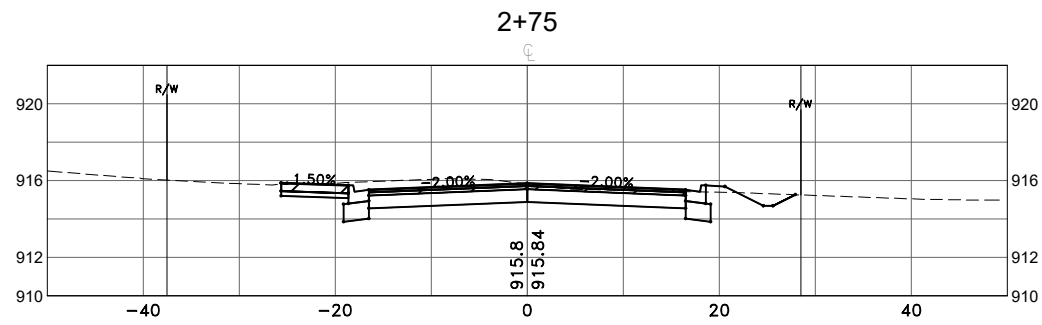
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2025 STREET RECONSTRUCTION PROJECT

SIGNAGE AND STRIPING PLANS  
 229TH AVENUE  
 CITY OF ST. FRANCIS, MINNESOTA

SHEET 32 OF 32 SHEETS

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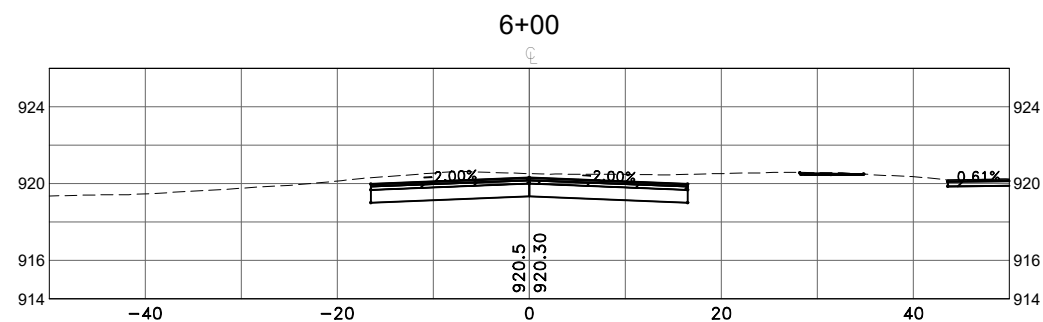
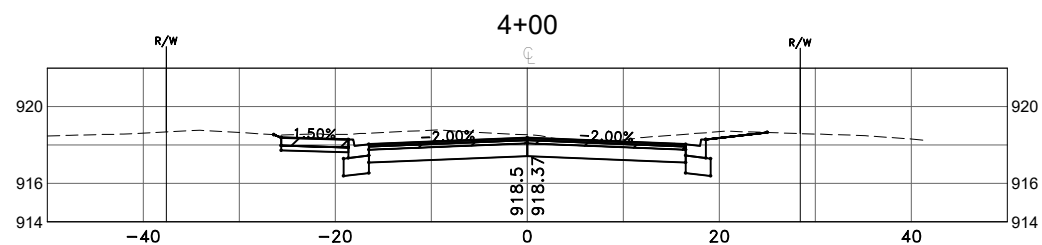
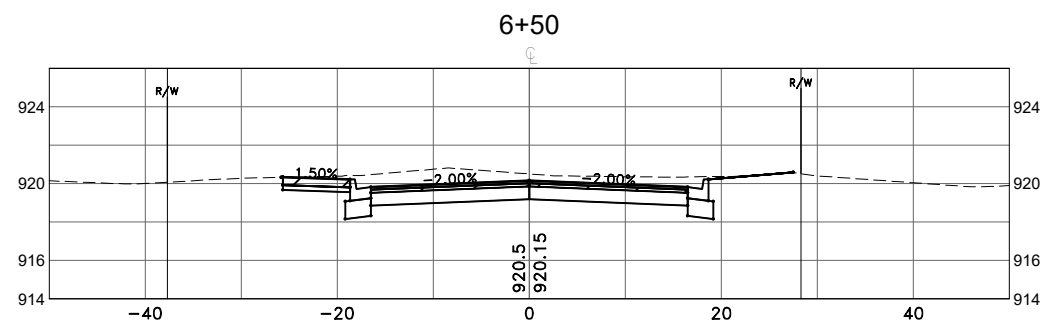
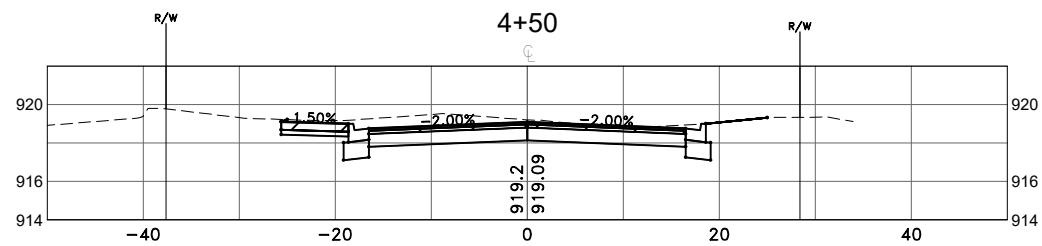
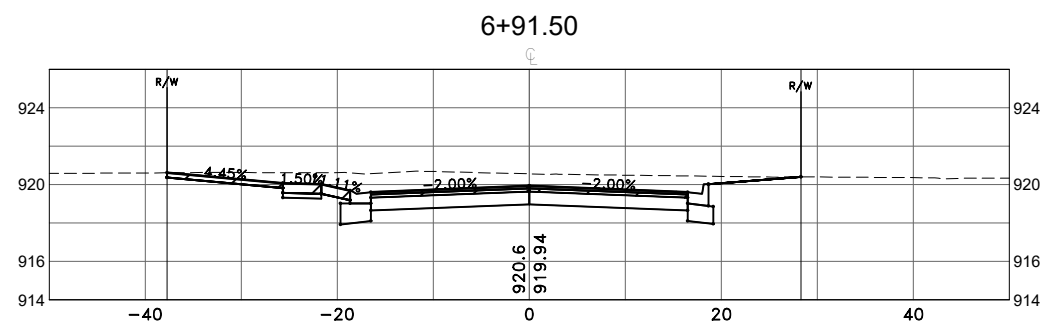
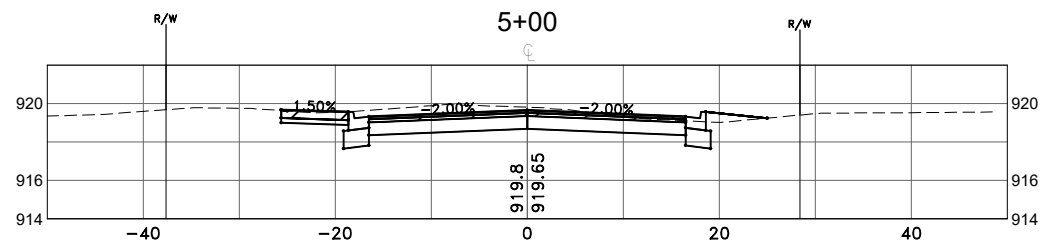
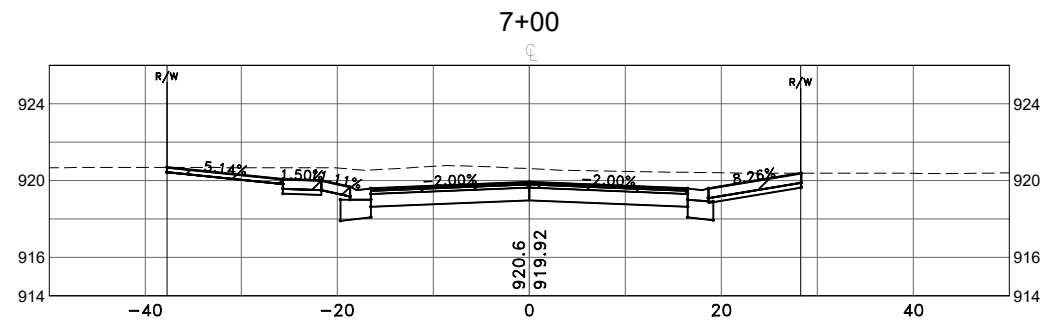
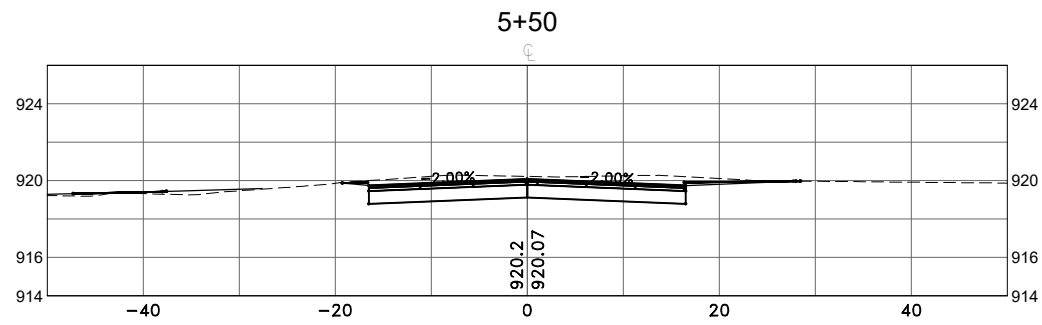
2025 STREET RECONSTRUCTION PROJECT

CROSS SECTIONS  
WOODBINE STREET  
CITY OF ST. FRANCIS, MINNESOTA

SHEET X1  
OF X5  
SHEETS



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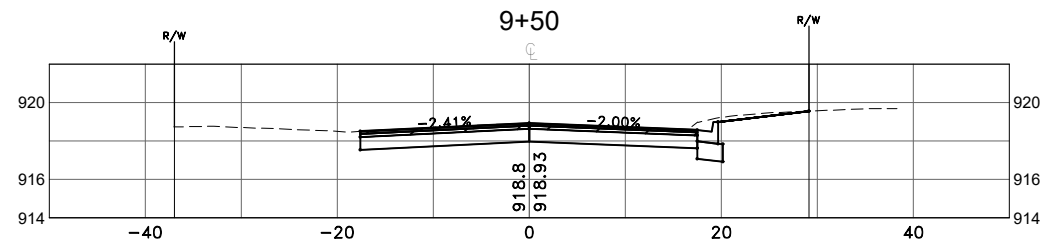
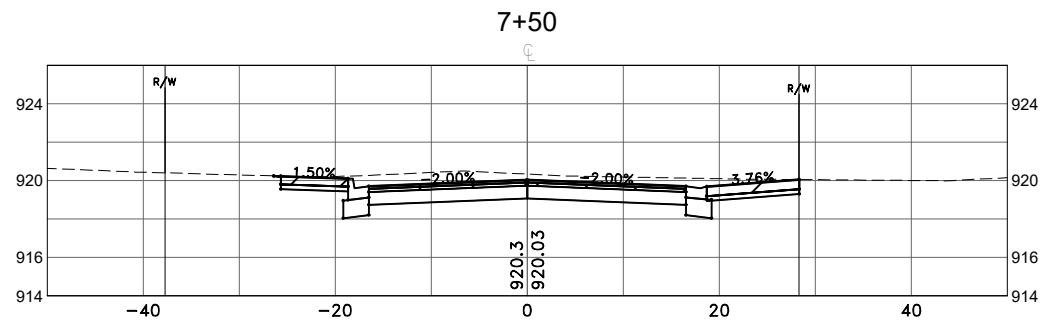
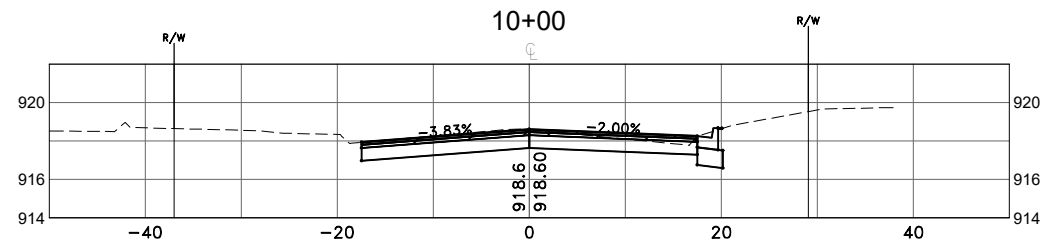
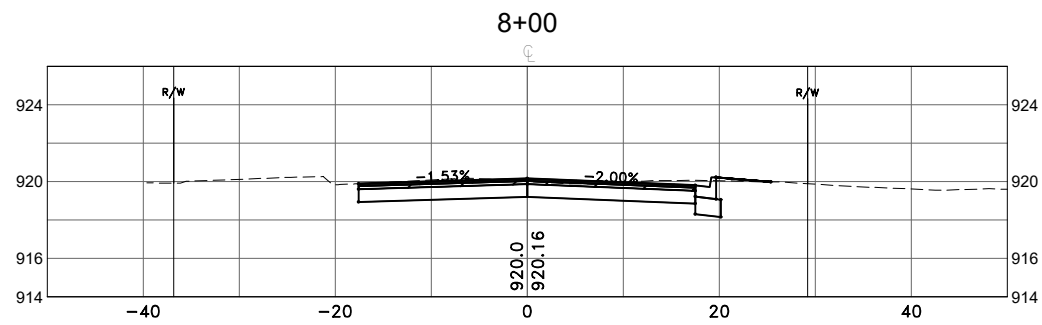
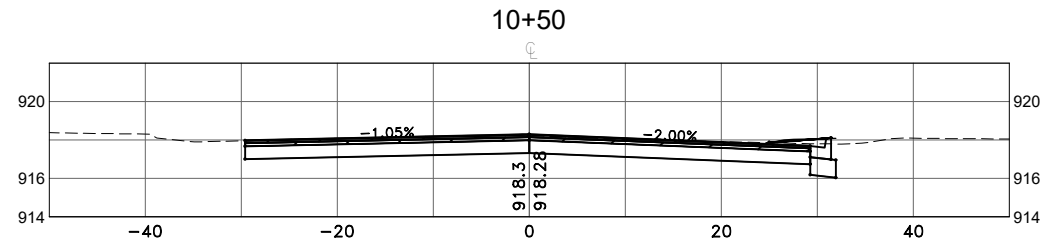
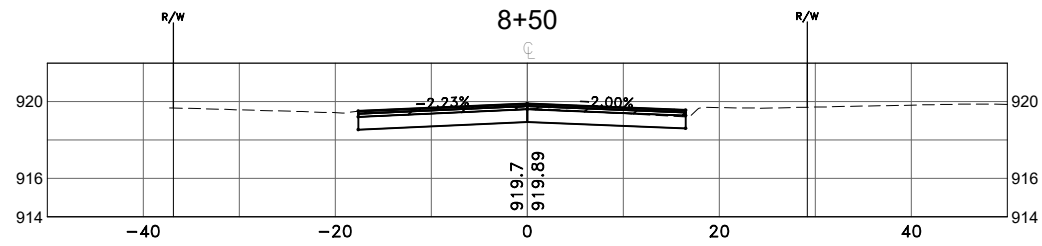
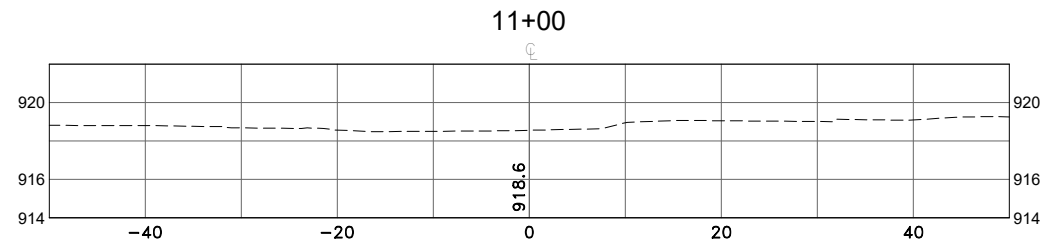
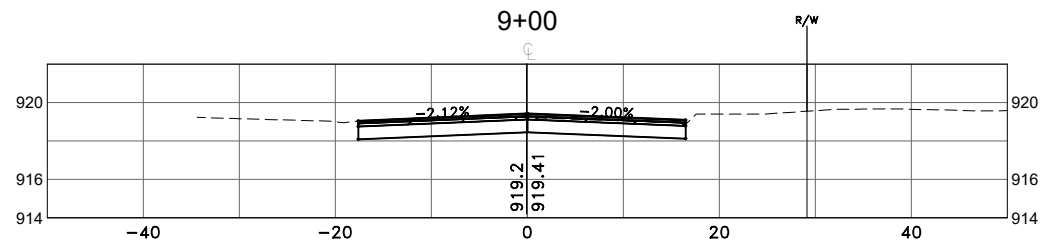
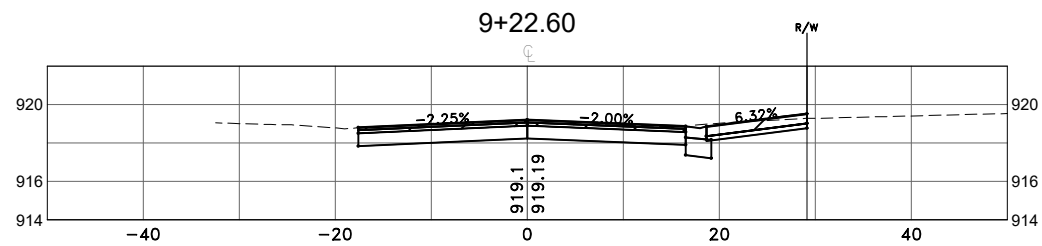
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CROSS SECTIONS  
WOODBINE STREET  
CITY OF ST. FRANCIS, MINNESOTA

SHEET X2  
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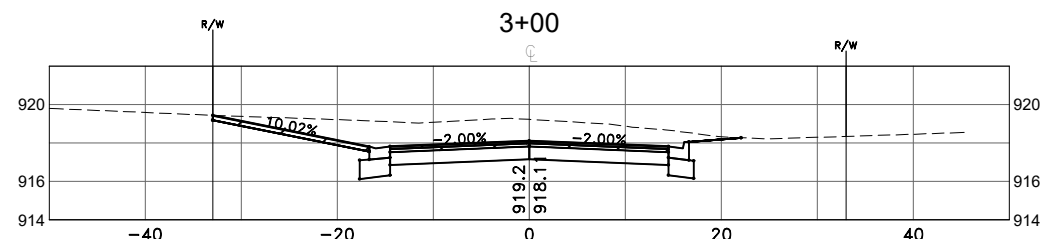
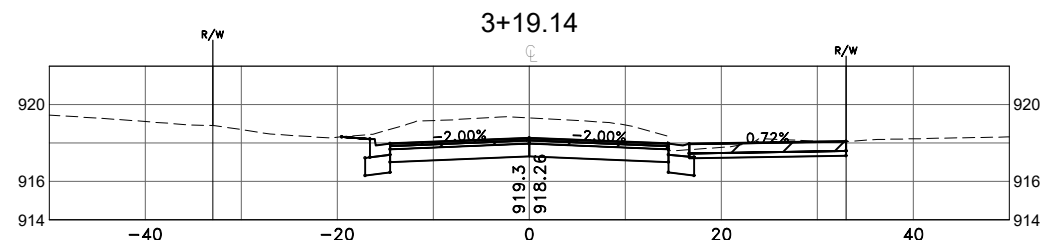
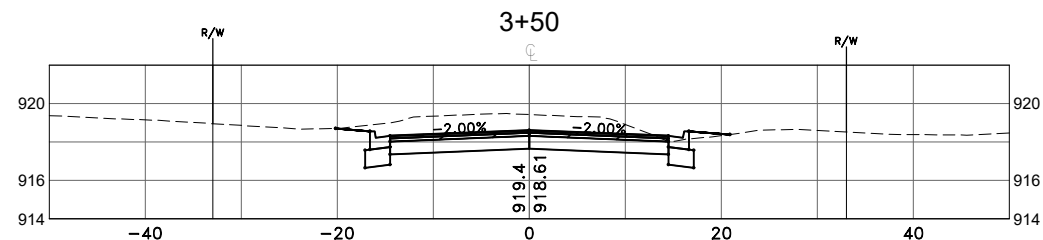
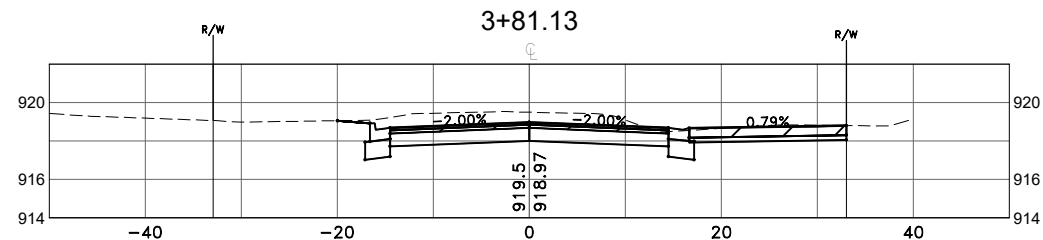
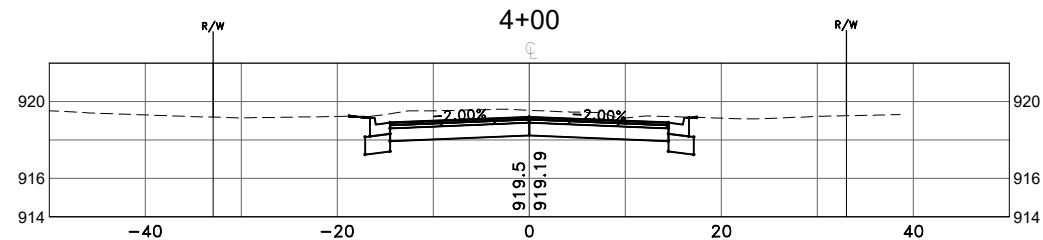
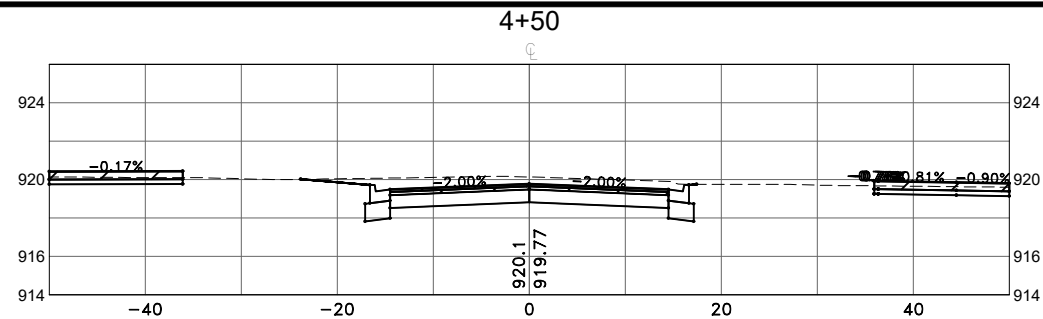
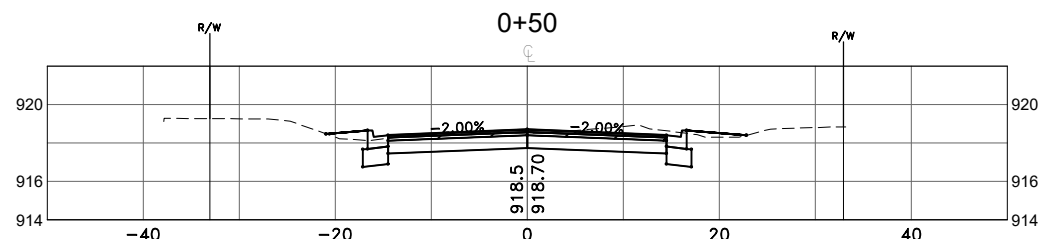
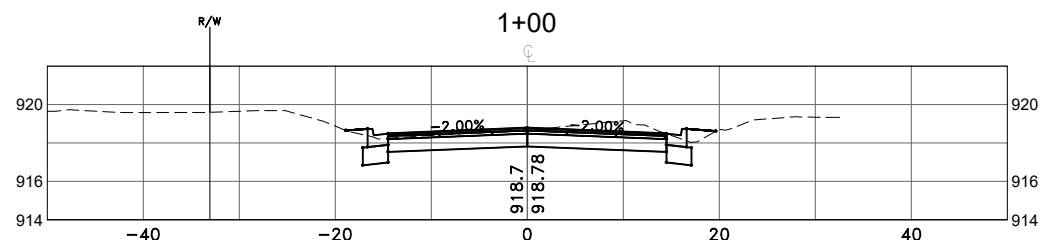
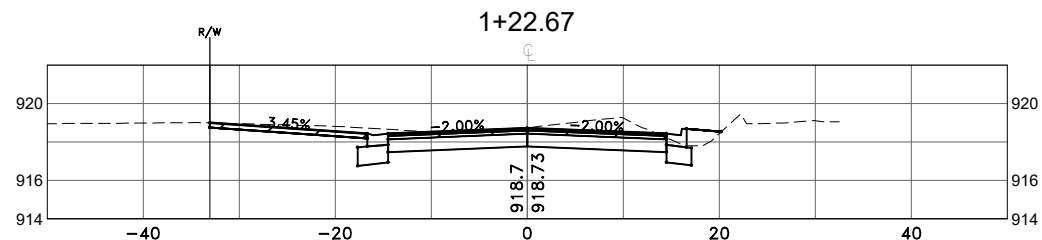
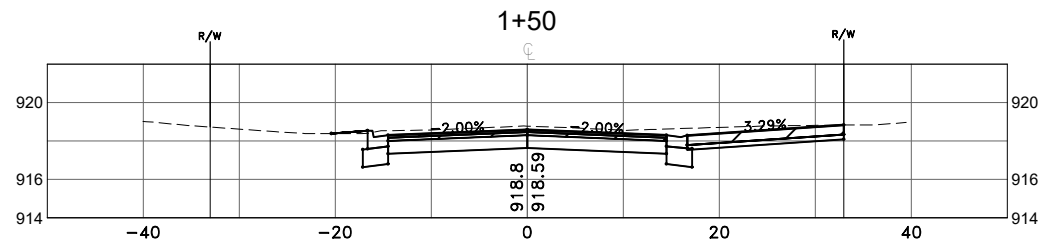
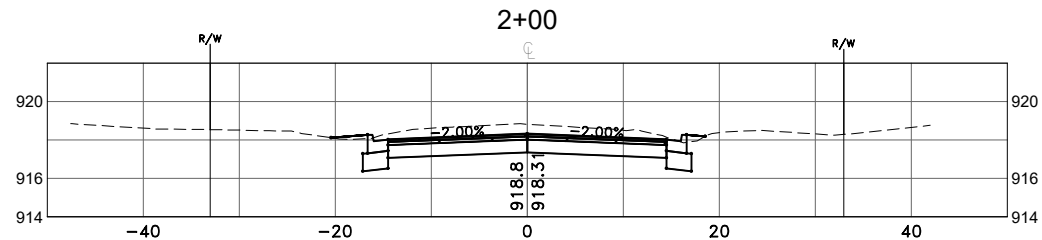
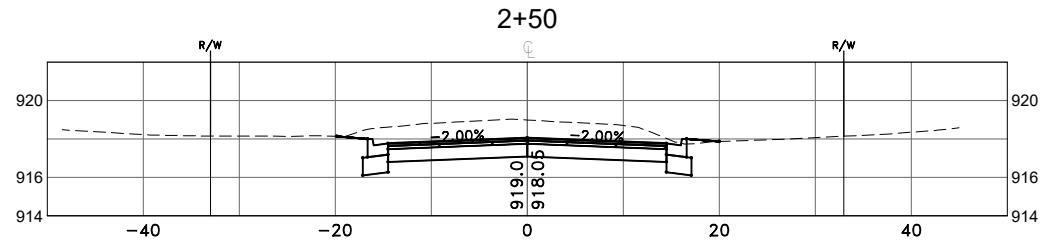
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CROSS SECTIONS  
WOODBINE STREET  
CITY OF ST. FRANCIS, MINNESOTA

SHEET X3  
OF X5 SHEETS

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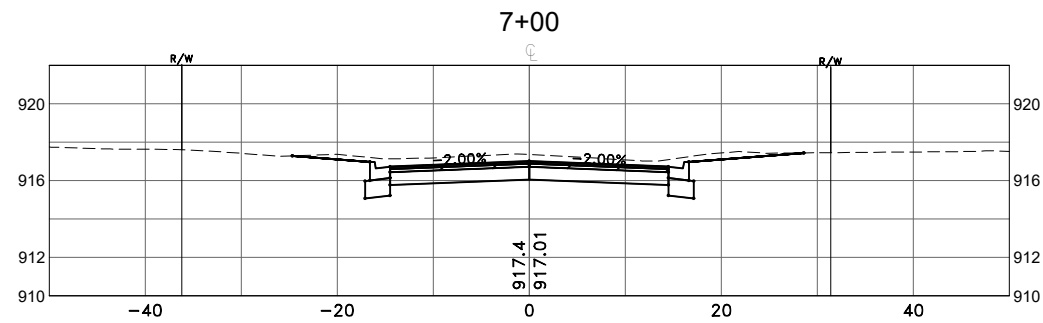
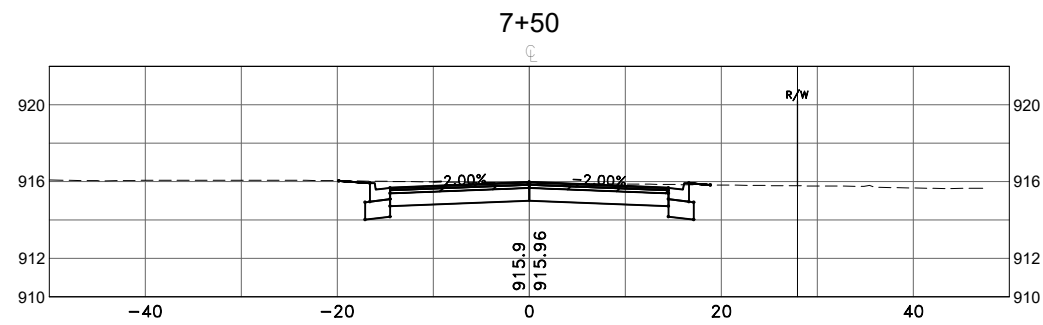
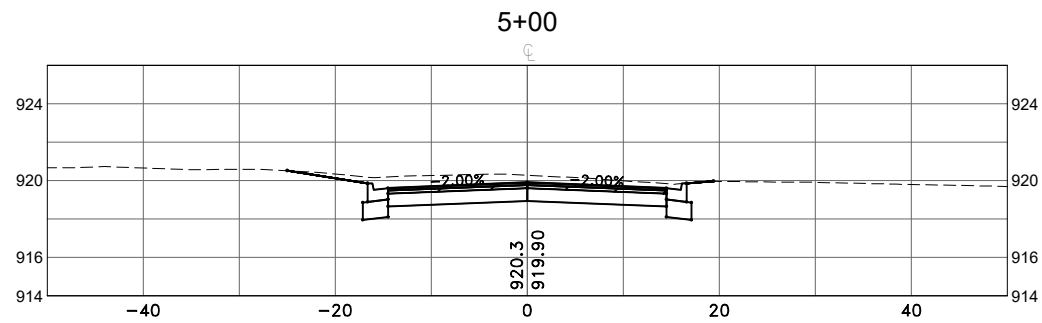
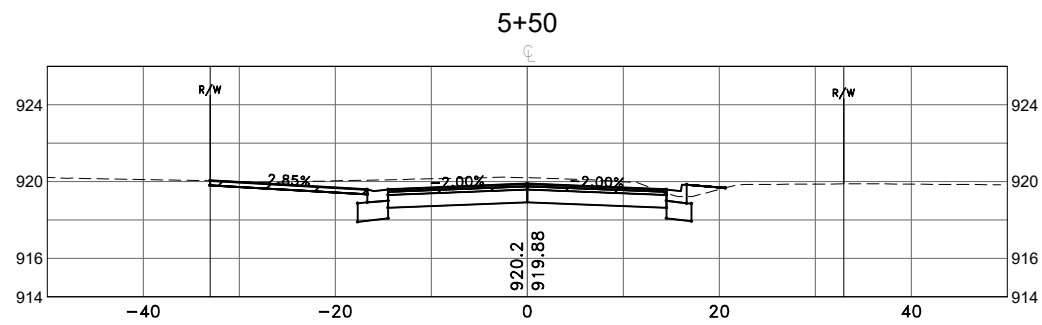
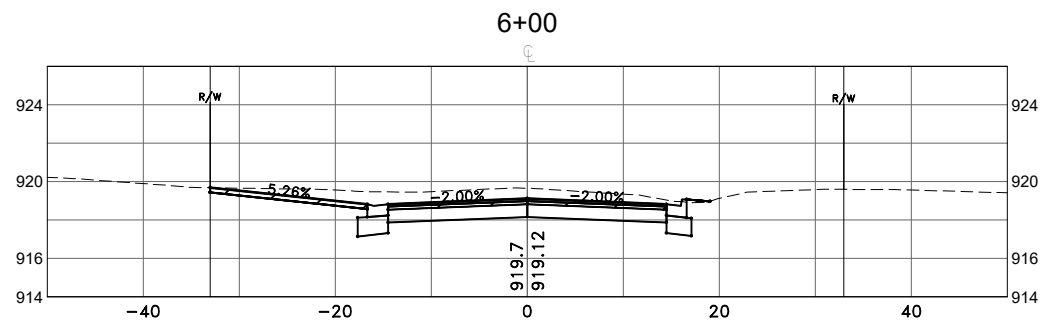
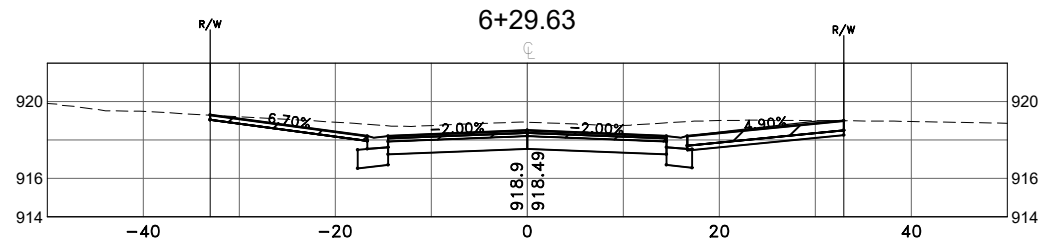
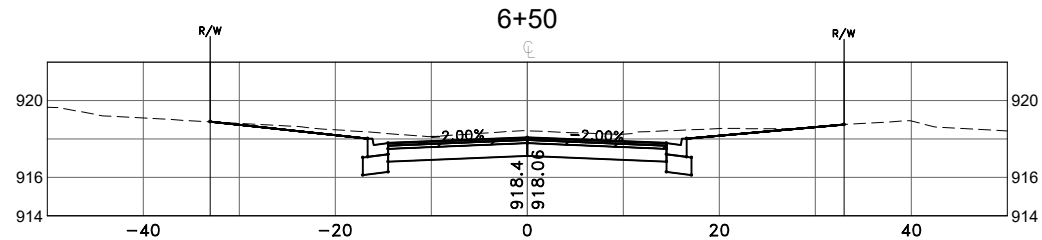
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2025 STREET RECONSTRUCTION PROJECT

CROSS SECTIONS  
229TH LANE  
CITY OF ST. FRANCIS, MINNESOTA

SHEET X4  
OF X5  
SHEETS

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SHEET X5  
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