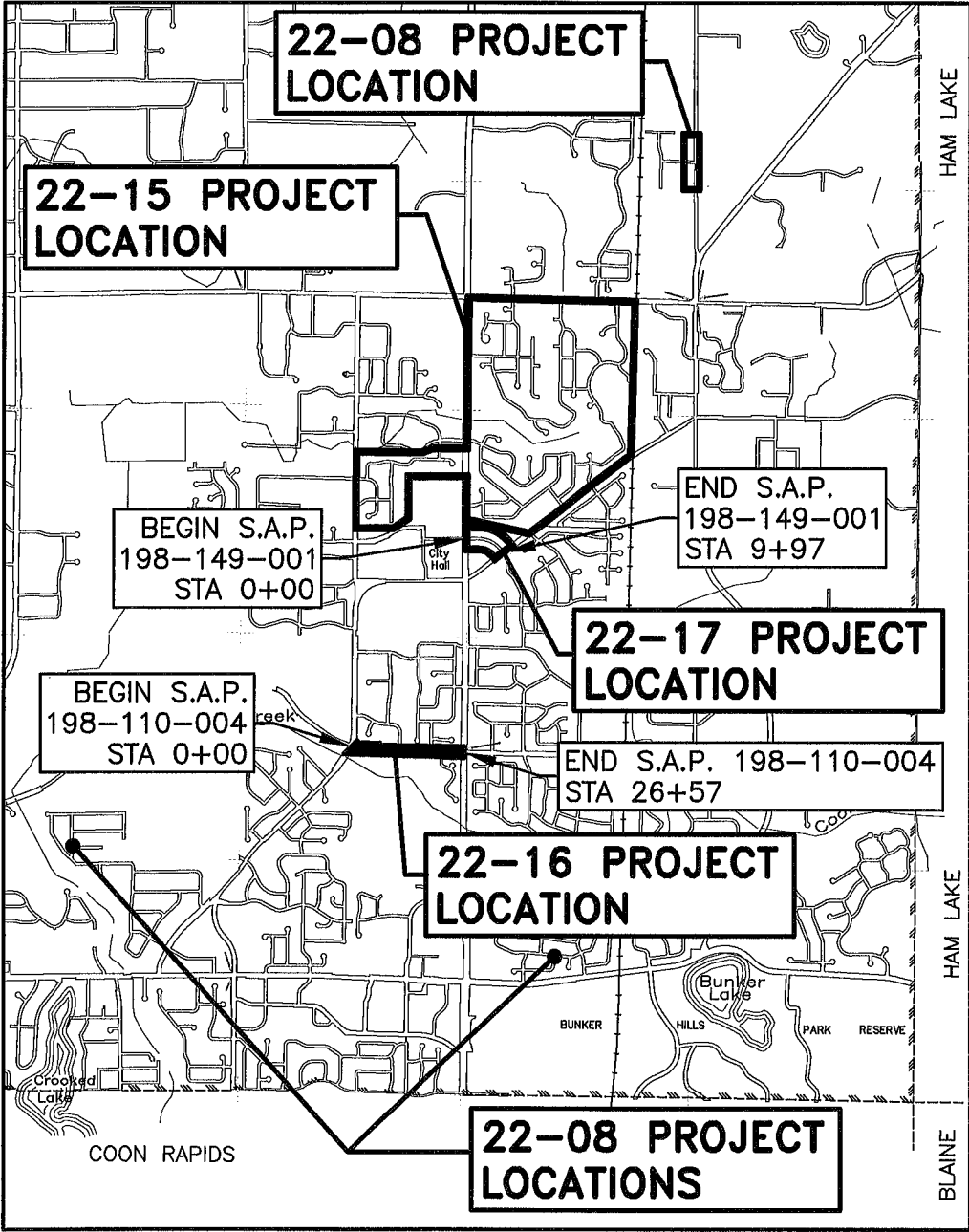


CITY OF
ANDOVER, MINNESOTA
CONSTRUCTION PLANS
FOR

2022 CURB, SIDEWALK
& PED RAMP REPAIRS
CITY PROJECT 22-08
AND
2022 MILL & OVERLAY –
CHESTERTON COMMONS AREA
AND FOX HOLLOW AREA
CITY PROJECT 22-15

AND
2022 MILL & OVERLAY –
ANDOVER BLVD NW
(CROSTOWN BLVD NW TO HANSON BLVD NW)
CITY PROJECT 22-16
SAP 198-110-004

AND
2022 MILL & OVERLAY –
BLUEBIRD ST NW
(HANSON BLVD NW TO
CROSTOWN BLVD NW)
CITY PROJECT 22-17
SAP 198-149-001



GOVERNING SPECIFICATIONS
THE 2020 EDITION OF THE MINNESOTA DEPARTMENT OF
TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION"
SHALL APPLY.
CITY OF ANDOVER UTILITY AND STREET CONSTRUCTION
SPECIFICATIONS SHALL APPLY.
ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST
MMUTCD, INCLUDING THE LATEST FIELD MANUAL FOR TEMPORARY
TRAFFIC CONTROL ZONE LAYOUTS.

**ANDOVER BLVD. NW (MSA 110)
DESIGN DESIGNATION**
STOPPING SIGHT DISTANCE BASED ON:
3.5' HEIGHT OF EYE 0.5' HEIGHT OF OBJECT
ANDOVER BLVD NW 2657 FEET
(S.A.P. 198-110-004) (0.50 MILES)
DESIGN 10 TON
DESIGN SPEED 35 MPH
R VALUE 50
ESALS 263,000
EXISTING A.D.T. (2022) 2,350
20 YR. PROJECTED A.D.T. (2042) 3,510
% H.C.A.D.T. 3.57%
FUNCTIONAL CLASSIFICATION COLLECTOR
NO. OF TRAFFIC LANES 2
NO. OF PARKING LANES 0

**BLUEBIRD ST. NW (MSA 149)
DESIGN DESIGNATION**
STOPPING SIGHT DISTANCE BASED ON:
3.5' HEIGHT OF EYE 0.5' HEIGHT OF OBJECT
BLUEBIRD ST NW 997 FEET
(S.A.P. 198-149-001) (0.19 MILES)
DESIGN 10 TON
DESIGN SPEED 30 MPH
R VALUE 40
ESALS 366,000
EXISTING A.D.T. (2022) 3,500
20 YR. PROJECTED A.D.T. (2042) 4,900
% H.C.A.D.T. 3.57%
FUNCTIONAL CLASSIFICATION COLLECTOR
NO. OF TRAFFIC LANES 2
NO. OF PARKING LANES 0

APPROVED: 2/24/2022
ANOKA COUNTY ENGINEER DATE
DISTRICT STATE AID ENGINEER: DATE
REVIEWED FOR COMPLIANCE WITH STATE AID RULES/POLICY
APPROVED FOR STATE AID FUNDING: STATE AID ENGINEER DATE
ANDOVER, MINNESOTA
I HEREBY CERTIFY THAT THIS PLAN 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
DAVID D. BERKOWITZ, PE
ANDOVER DIRECTOR OF PUBLIC WORKS/CITY ENGINEER
DATE 1/28/2022 LIC. NO. 26757
**S.A.P. 198-110-004 AND 198-149-001
CITY PROJ. NO. 22-16 AND 22-17**

SHEET	INDEX DESCRIPTION
1	TITLE SHEET
2	PROJECT LAYOUT
3-4	STATEMENT OF ESTIMATED QUANTITIES
5	STORM SEWER TABLES
6	CONSTRUCTION NOTES & LEGEND
7	DETAILS & TYPICAL SECTIONS
8	TYPICAL STREET SECTIONS
9-14	STANDARD PEDESTRIAN CURB RAMP DETAILS
15-20	REMOVALS, UTILITIES, STREET/PAVING STRIPING
21-22	2022 CURB, SIDEWALK, & PED. RAMP REPAIRS LOCATION MAP
23	
24-29	TRAFFIC SIGNAL PLANS

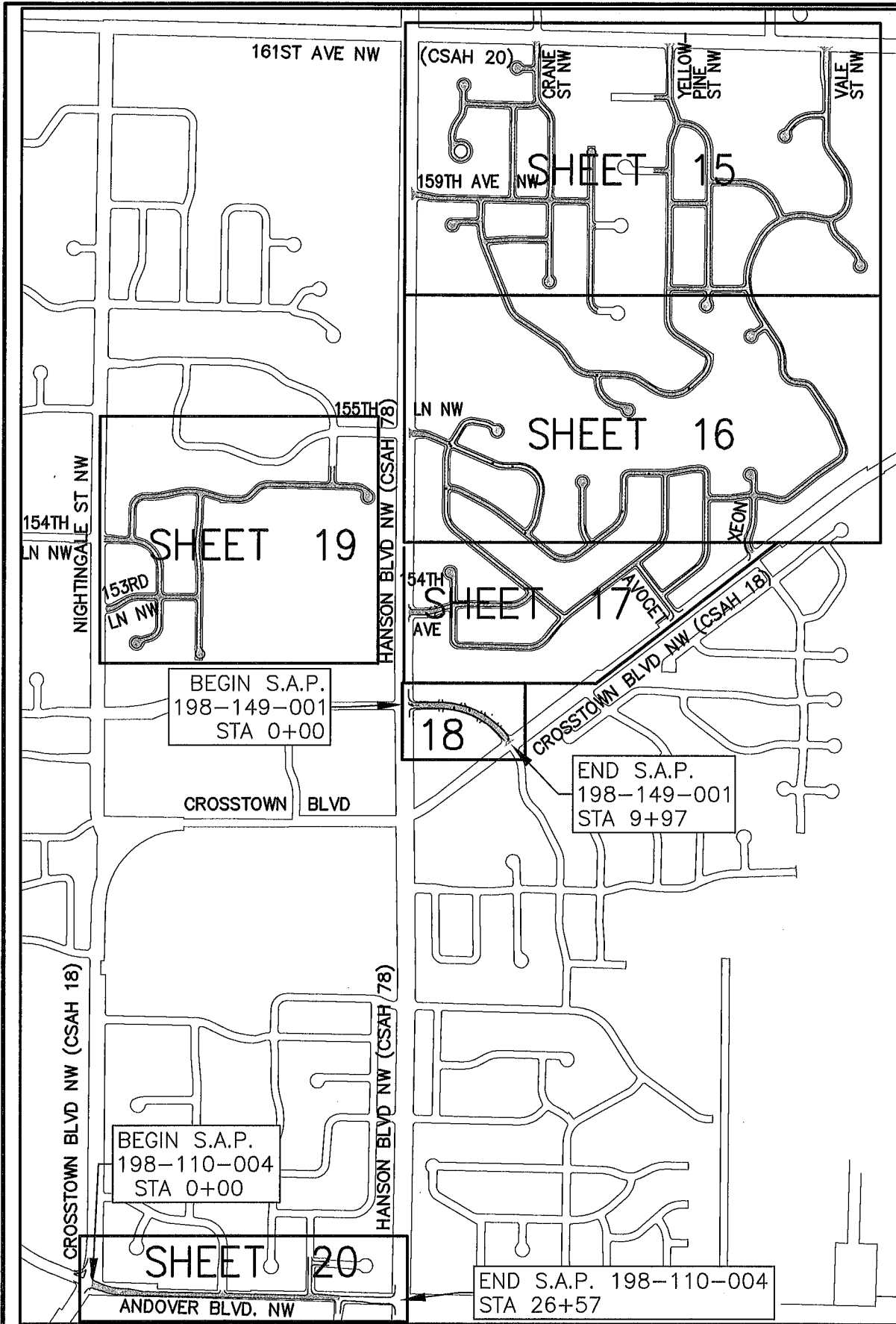
THIS PLAN CONTAINS 29 SHEETS

DESIGNED JUL	DRAWN JAK	I HEREBY CERTIFY THAT THIS PLAN 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 DATE <u>1/28/2022</u> LIC. NO. <u>26757</u>
CHECKED DDB		DAVID D. BERKOWITZ TYPED OR PRINTED NAME
NO.	DATE	BY
1	2/15/2022	JAK
		REVISOR
		DESCRIPTION OF REVISIONS



2022 CURB, SIDEWALK & PEDESTRIAN RAMP REPAIRS,
AND 2022 MILL & OVERLAY PROJECTS
CITY PROJECTS 22-08, 22-15, 22-16, 22-17
SAP 198-110-004 & 198-149-001

TITLE SHEET
SHEET NO. 1 OF 29 SHEETS



CITY PROJECTS 22-15, 22-16, 22-17

NO.	DATE	BY	DESCRIPTION OF REVISIONS
1	2/15/2022	JAK	REVISED PER STATE AID COMMENTS

DESIGNED JUL	DRAWN JAK
CHECKED DDB	

I HEREBY CERTIFY THAT THIS PLAN 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.

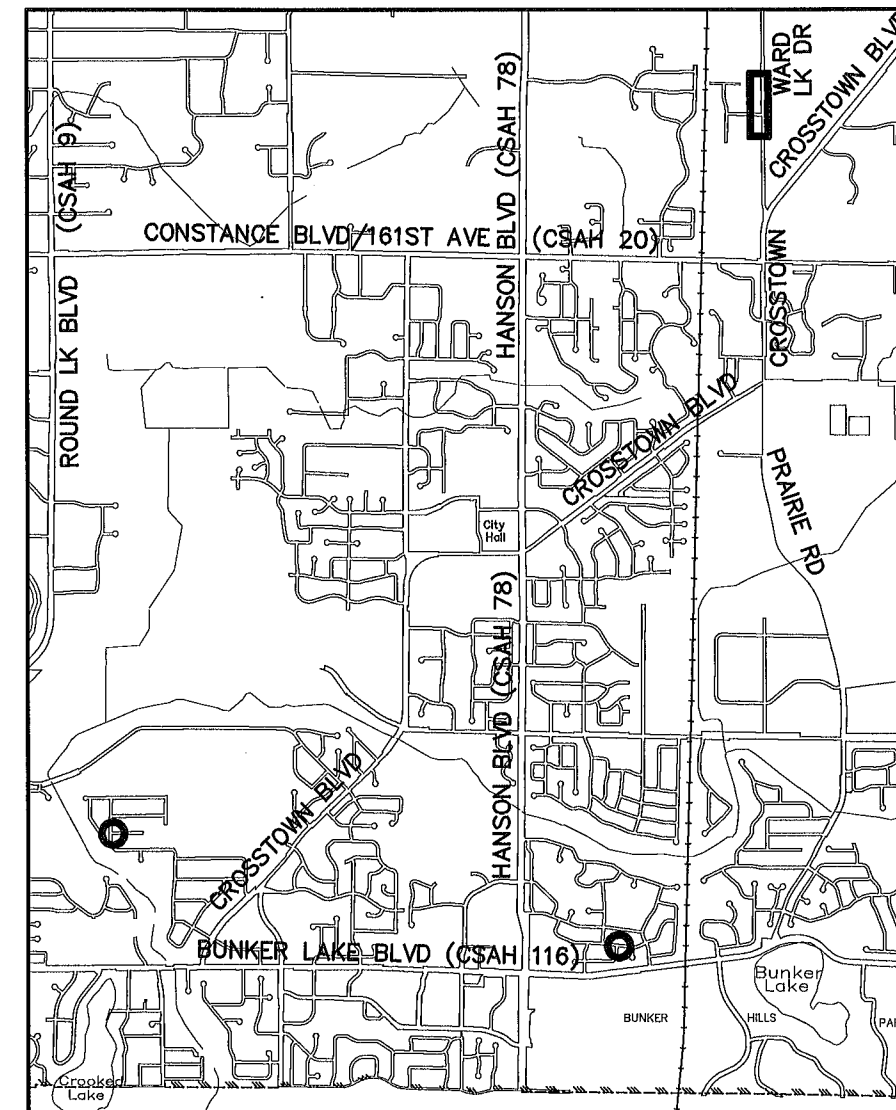
Signature: *David D. Berkowitz*
 DATE: 1/28/2022 LIC. NO.: 26757



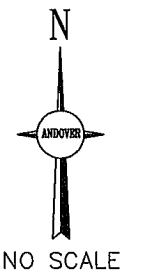
2022 CURB, SIDEWALK & PEDESTRIAN RAMP REPAIRS,
 AND 2022 MILL & OVERLAY PROJECTS
 CITY PROJECTS 22-08, 22-15, 22-16, 22-17
 SAP 198-110-004 & 198-149-001

PROJECT LAYOUT
 SHEET NO. 2 OF 29 SHEETS

CITY PROJECT 22-08



SHEET 23



					TOTAL ESTIMATED QUANTITIES		ESTIMATED STREET QUANTITIES	
NOTES	ITEM NO.		DESCRIPTION	UNIT	EST. QUAN.	ACT. QUAN.	EST. QUAN.	ACT. QUAN.
	1	2021.501	Mobilization	LS	1		1	
	2	2104.502	Salvage Casting (Storm)	EA	1		1	
1	3	2104.503	Remove Curb & Gutter	LF	850		850	
	4	2104.503	Sawing Bit Pavement (Full Depth)	LF	880		880	
2	5	2104.518	Remove Bituminous Pavement	SF	1800		1800	
	6	2211.509	Aggregate Base Class 5	TN	65		65	
	7	2360.509	Type SP 12.5 Bit Mixture for Patching (2,B) - Street	TN	40		40	
3	8	2506.502	Install Casting - Storm	EA	1		1	
	9	2531.503	Concrete Curb and Gutter B618	LF	850		850	
	10	2563.601	Traffic Control	LS	1		1	
	11	2573.502	Storm Drain Inlet Protection	EA	1		1	
	12	2574.507	Loam Topsoil Borrow (LV)	CY	35		35	
	13	2575.504	Rolled Erosion Prevention Category 20	SY	370		370	
	14	2575.505	Seeding	ACRE	0.1		0.1	
	15	2575.508	Seed Mixture 25-151	LB	20		20	

1. Regardless of curb type. Includes sawcut of curb. Excavation and off-site disposal of material behind curb necessary for removal and replacement incidental to this item.
2. Regardless of depth.
3. Item includes new concrete adjusting rings and Infi-Shield or Gator Wrap (sanitary sewer) or wrap rings with geotextile fabric and concrete collar (storm sewer).

<u>BASIS OF ESTIMATED QUANTITIES</u>	
Bituminous Wear Course	120 # / SY / inch
Bit. Non-Wear Course	120 # / SY / inch
Aggregate Base, Class 5	110 # / SY / inch
Tack Coat	0.07 Gal / SY
Seed Mixture 25-151	200 # / acre

					TOTAL ESTIMATED QUANTITIES		ESTIMATED STREET QUANTITIES		ESTIMATED WATER MAIN QUANTITIES - CITY COSTS	
NOTES	ITEM NO.		DESCRIPTION	UNIT	EST. QUAN.	ACT. QUAN.	EST. QUAN.	ACT. QUAN.	EST. QUAN.	ACT. QUAN.
	1	2021.501	Mobilization	LS	1		0.96		0.04	
	2	2104.502	Salvage Casting (Storm)	EA	13		13			
	3	2104.502	Salvage Trail Gate	EA	1		1			
1	4	2104.503	Remove Curb & Gutter	LF	3790		3750		40	
	5	2104.503	Sawing Concrete Pavement (Full Depth)	LF	60		60			
	6	2104.503	Sawing Bit Pavement (Full Depth)	LF	5135		4505		630	
2	7	2104.518	Remove Concrete Pavement	SF	310		310			
2	8	2104.518	Remove Bituminous Pavement	SF	12350		10150		2200	
3	9	2104.602	Salvage and Reinstall Mailbox	EA	32		32			
4	10	2105.607	Common Excavation (EV)	CY	40		40			
	11	2211.509	Aggregate Base Class 5	TN	390		320		70	
5	12	2232.504	Mill Bituminous Surface (1")	SY	157640		157640			
	13	2357.506	Bituminous Material For Tack Coat	Gal	11050		11050			
	14	2360.509	Type SP 9.5 Wearing Course Mix (2,B)	TN	13730		13730			
	15	2360.509	Type SP 9.5 Bit Mixture for Patching (2,B) - Driveways & Trails	TN	30		30			
	16	2360.509	Type SP 12.5 Bit Mixture for Patching (2,B)	TN	430		400		30	
	17	2504.602	Adjust Valve Box	EA	25		25			
6	18	2504.602	Expose Valve Box	EA	13				13	
7	19	2504.602	Replace Gate Valve Bonnet Bolts	EA	13				13	
8	20	2504.602	Gate Valve Box & Adaptor	EA	13				13	
9,10	21	2506.502	Casting Assembly - Storm	EA	7		7			
10	22	2506.502	Install Casting - Storm	EA	13		13			
11	23	2506.602	Mud Existing Casting Rings	EA	112		112			
12	24	2506.602	Mud Doghouse	EA	78		78			
13	25	2506.607	Fill Catch Basin Sump-Pour Invert	CY	40		40			
	26	2521.518	4" Concrete Walk	SF	520		520			
14	27	2521.618	6" Concrete Walk - Special	SF	1510		1510			
	28	2531.503	Concrete Curb and Gutter Surmountable	LF	3750		3750			
	29	2531.504	6" Concrete Driveway Pavement	SY	15		15			
15	30	2531.602	Clean and Patch Conc. Curb & Gutter Joint	EA	700		700			
	31	2531.618	Truncated Domes	SF	204		204			
	32	2563.601	Traffic Control	LS	1		0.96		0.04	
16	33	2565.602	Replace NMC Loop Detector 6' x 6'	EA	6		6			
	34	2573.502	Storm Drain Inlet Protection	EA	26		26			
	35	2574.507	Loam Topsoil Borrow (LV)	CY	305		300		5	
	36	2575.504	Sodding Type Lawn	SY	1300		1290		10	
	37	2575.504	Rolled Erosion Prevention Category 20	SY	75		75			
	38	2575.505	Seeding	ACRE	0.2		0.2			
	39	2575.508	Seed Mixture 25-151	LB	40		40			
	40	2582.503	4" Solid Line Paint	LF	820		820			
	41	2582.503	4" Double Solid Line Paint	LF	1525		1525			
	42	2582.503	18" Solid Line Paint	LF	105		105			

1. Regardless of curb type. Includes sawcut of curb. Excavation and off-site disposal of material behind curb necessary for removal and replacement incidental to this item.
2. Regardless of depth.
3. Includes salvage and reinstall of existing mailbox, and temporary placement of mailbox in barrel at each existing location during construction.
4. For excavation adjacent to ped ramp improvements if necessary. Includes off-site disposal of excess material if not suitable (no sod chunks) for backfill.
5. Removal of existing crack fill material from curb / pavement edge prior to paving is incidental to this item. Mill off entire wearing course. Dispose of millings off-site.
6. Includes excavate, salvage/replace/compact material (granular) to expose gate valve box.
7. Includes changing all existing bolts on the bonnet if not stainless steel with stainless steel bolts.
8. Use if existing valve box is broken or not salvageable (includes removal of existing valve box) or if there is no existing gate valve adaptor.
9. For use if salvaged structure breaks or is unusable.
10. Item includes new concrete adjusting rings and Infi-Shield or Gator Wrap (sanitary sewer) or wrap rings with geotextile fabric and concrete collar (storm sewer).
11. Protect casting, remove loose grout inside manhole and touch up mud on existing concrete adjustment rings inside structure.
12. Touch up mudwork on all doghouses within a structure. The "Each" item refers to each structure regardless of the number of doghouses in the structure.
13. Item shall include filling sump with redi-mix , pouring invert, and constructing benches up to 1/3 of pipe diameter. Item includes touching up doghouses as necessary.
14. For pedestrian curb ramps.
15. Clean joint, prep with Portland sand grout, and patch with 3U18 compound. Item for all joints, regardless of actual depth/width. Locations to be determined in the field by the engineer.
16. Contractor shall make effort to protect existing loop detectors. If one is damaged, item includes replacement in-kind including all items and appurtenances necessary to satisfaction of Anoka County Highway Department.

				DESIGNED	DRAWN	I HEREBY CERTIFY THAT THIS PLAN 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  DAVID D. BERKOWITZ SIGNATURE DATE 1/28/2022 LIC. NO. 26757 TYPED OR PRINTED NAME		2022 CURB, SIDEWALK & PEDESTRIAN RAMP REPAIRS, AND 2022 MILL & OVERLAY PROJECTS CITY PROJECTS 22-08, 22-15, 22-16, 22-17 SAP 198-110-004 & 198-149-001	STATEMENT OF ESTIMATED QUANTITIES
				JUL	JAK				C.P. 22-08 & 22-15
2	2/23/2022	JAK	ADDENDUM #1 - PER ACHD COMMENTS	CHECKED					
1	2/15/2022	JAK	REVISED PER STATE AID COMMENTS						
NO.	DATE	BY	DESCRIPTION OF REVISIONS	DDB					SHEET NO. 3 OF 29 SHEETS

City Project: 22-16 (SAP 198-110-004)
STATEMENT OF ESTIMATED QUANTITIES

					SAP 198-110-004			
					TOTAL ESTIMATED QUANTITIES		ESTIMATED STREET QUANTITIES	
NOTES	ITEM NO.		DESCRIPTION	UNIT	EST. QUAN.	ACT. QUAN.	EST. QUAN.	ACT. QUAN.
	1	2021.501	Mobilization	LS	1		1	
1	2	2104.503	Remove Curb & Gutter	LF	150		150	
	3	2104.503	Sawing Concrete Pavement (Full Depth)	LF	55		55	
	4	2104.503	Sawing Bit Pavement (Full Depth)	LF	180		180	
2	5	2104.518	Remove Concrete Pavement	SF	700		700	
2	6	2104.518	Remove Bituminous Pavement	SF	300		300	
3	7	2105.607	Common Excavation (EV)	CY	15		15	
	8	2211.509	Aggregate Base Class 5	TN	10		10	
4	9	2232.504	Mill Bituminous Surface (1.5")	SY	8070		8070	
	10	2357.506	Bituminous Material For Tack Coat	Gal	570		570	
	11	2360.509	Type SP 9.5 Wearing Course Mix (2,B)	TN	950		950	
	12	2360.509	Type SP 12.5 Bit Mixture for Patching (2,B)	TN	10		10	
	13	2504.602	Adjust Valve Box	EA	3		3	
5	14	2506.602	Mud Existing Casting Rings	EA	12		12	
6	15	2506.602	Mud Doghouse	EA	12		12	
7	16	2521.618	6" Concrete Walk - Special	SF	775		775	
	17	2531.503	Concrete Curb and Gutter Design B618	LF	150		150	
8	18	2531.602	Clean and Patch Conc. Curb and Gutter Joint	EA	75		75	
	19	2531.618	Truncated Domes	SF	60		60	
	20	2563.601	Traffic Control	LS	1		1	
9	21	2565.602	Replace NMC Loop Detector 6' x 6'	EA	4		4	
	22	2573.502	Storm Drain Inlet Protection	EA	22		22	
	23	2573.503	Sediment Control Log Type Wood Chip	LF	50		50	
	24	2574.507	Loam Topsoil Borrow (LV)	CY	20		20	
	25	2575.504	Sodding Type Lawn	SY	100		100	
10	26	2575.504	Rolled Erosion Prevention Category 20	SY	100		100	
	27	2575.505	Seeding	ACRE	0.1		0.1	
	28	2575.508	Seed Mixture 25-151	LB	20		20	
11	29	2581.601	Protect Poly Preform Pavement Markings	LS	1		1	
	30	2582.503	4" Solid Line Paint	LF	1690		1690	
	31	2582.503	4" Broken Line Paint	LF	400		400	
	32	2582.503	4" Double Solid Line Paint	LF	1530		1530	
	33	2582.503	18" Solid Line Paint	LF	35		35	
	34	2582.518	Pavement Message Paint	SF	380		380	

1. Regardless of curb type. Includes sawcut of curb. Excavation and off-site disposal of material behind curb necessary for removal and replacement incidental to this item.
2. Regardless of depth.
3. For excavation adjacent to ped ramp improvements if necessary. Includes off-site disposal of excess material if not suitable (no sod chunks) for backfill.
4. Removal of existing crack fill material from curb / pavement edge is incidental to this item prior to paving. Mill off entire wearing course. Dispose of millings off-site.
5. Protect casting, remove loose grout inside manhole and touch up mud on existing concrete adjustment rings inside structure.
6. Touch up mudwork on all doghouses within a structure. The "Each" item refers to each structure regardless of the number of doghouses in the structure.
7. For pedestrian curb ramps.
8. Clean joint and patch with 3U18 compound. Item for all joints, regardless of actual depth/width. Locations determined in field by engineer.
9. Contractor shall attempt to protect existing loop detectors. If one is damaged, item includes in-kind replacement including all items and appurtenances necessary to satisfaction of Anoka County Highway Department.
10. Straw or wood fiber blanket is an acceptable alternative. Netting material shall be jute netting.
11. Contractor shall install temporary protective covering for existing poly preform crosswalks, stop bars and turn arrows. Damage to existing markings shall be replaced in-kind with no additional compensation.

City Project: 22-17 (SAP 198-149-001)
STATEMENT OF ESTIMATED QUANTITIES

						SAP 198-149-001		Non-Participating		
					TOTAL ESTIMATED QUANTITIES		ESTIMATED STREET QUANTITIES		EST. WATER MAIN QUANTITIES - CITY COSTS	
NOTES	ITEM NO.		DESCRIPTION	UNIT	EST. QUAN.	ACT. QUAN.	EST. QUAN.	ACT. QUAN.	EST. QUAN.	ACT. QUAN.
	1	2021.501	Mobilization	LS	1		0.82		0.18	
1	2	2104.503	Remove Curb & Gutter	LF	30		30			
	3	2104.503	Sawing Bit Pavement (Full Depth)	LF	230		50		180	
2	4	2104.518	Remove Bituminous Pavement	SF	1010		500		510	
3	5	2105.607	Common Excavation (EV)	CY	10		10			
	6	2211.509	Aggregate Base Class 5	TN	60		30		30	
4	7	2232.504	Mill Bituminous Surface (1.5")	SY	4530		4530			
	8	2357.506	Bituminous Material For Tack Coat	Gal	320		320			
	9	2360.509	Type SP 9.5 Wearing Course Mix (2,B)	TN	530		530			
	10	2360.509	Type SP 9.5 Bit Mixture for Patching (2,B) - Trails	TN	10		10			
	11	2360.509	Type SP 12.5 Bit Mixture for Patching (2,B)	TN	20		10		10	
	12	2504.602	Adjust Valve Box	EA	3		3			
5	13	2504.602	Expose Valve Box	EA	3				3	
6	14	2504.602	Replace Gate Valve Bonnet Bolts	EA	3				3	
7	15	2504.602	Gate Valve Box & Adaptor	EA	3				3	
8	16	2506.602	Mud Existing Casting Rings	EA	10		10			
9	17	2506.602	Mud Doghouse	EA	10		10			
10	18	2521.618	6" Concrete Walk - Special	SF	450		450			
	19	2531.503	Concrete Curb and Gutter Design B618	LF	30		30			
11	20	2531.602	Clean and Patch Conc. Curb and Gutter Joint	EA	25		25			
	21	2531.618	Truncated Domes	SF	64		64			
	22	2563.601	Traffic Control	LS	1		0.82		0.18	
	23	2573.502	Storm Drain Inlet Protection	EA	14		14			
	24	2574.507	Loam Topsoil Borrow (LV)	CY	5		5			
12	25	2575.504	Rolled Erosion Prevention Category 20	SY	100		100			
	26	2575.505	Seeding	ACRE	0.1		0.1			
	27	2575.508	Seed Mixture 25-151	LB	20		20			
	28	2582.503	4" Double Solid Line Paint	LF	900		900			
	29	2582.503	18" Solid Line Paint	LF	20		20			
	30	2582.518	Pavement Message Paint	SF	192		192			

1. Regardless of curb type. Includes sawcut of curb. Excavation and off-site disposal of material behind curb necessary for removal and replacement incidental to this item.
2. Regardless of depth.
3. For excavation adjacent to ped ramp improvements if necessary. Includes off-site disposal of excess material if not suitable (no sod chunks) for backfill.
4. Removal of existing crack fill material from curb / pavement edge is incidental to this item prior to paving. Mill off entire wearing course. Dispose of millings off-site.
5. Includes excavate, salvage/replace/compact material (granular) to expose gate valve box.
6. Includes changing all existing bolts on the bonnet if not stainless steel with stainless steel bolts.
7. Use if existing valve box is broken or not salvageable (includes removal of existing valve box) or if there is no existing gate valve adaptor.
8. Protect casting, remove loose grout inside manhole and touch up mud on existing concrete adjustment rings inside structure.
9. Touch up mudwork on all doghouses within a structure. The "Each" item refers to each structure regardless of the number of doghouses in the structure.
10. For pedestrian curb ramps.
11. Clean joint, prep with Portland sand grout, and patch with 3U18 compound. Item for all joints, regardless of actual depth/width. Locations to be determined in the field by the engineer.
12. Straw or wood fiber blanket is an acceptable alternative. Netting material shall be jute netting.

<u>BASIS OF ESTIMATED QUANTITIES</u>	
Bituminous Wear Course	120 # / SY / inch
Bit. Non-Wear Course	120 # / SY / inch
Aggregate Base, Class 5	110 # / SY / inch
Tack Coat	0.07 Gal / SY
Seed Mixture 25-151	200 # / acre

				DESIGNED	DRAWN	I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A FULLY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA  DAVID D. BERKOWITZ TYPED OR PRINTED NAME DATE 1/28/2022 LIC. NO. 26757		2022 CURB, SIDEWALK & PEDESTRIAN RAMP REPAIRS, AND 2022 MILL & OVERLAY PROJECTS CITY PROJECTS 22-08, 22-15, 22-16, 22-17 SAP 198-110-004 & 198-149-001	STATEMENT OF ESTIMATED QUANTITIES C.P. 22-16 & 22-17 SAP 198-110-004 & 198-149-001 SHEET NO. 4 OF 29 SHEETS
3	2/23/2022	JAK	ADDENDUM #1 - PER ACHD COMMENTS	JUL	JAK				
2	2/15/2022	JAK	REVISED PER STATE AID COMMENTS						
1	2/04/2022	JAK	REVISED 22-17 SEQ.	CHECKED					
				DDB					
NO.	DATE	BY	DESCRIPTION OF REVISIONS						

SHEET 14 STORM SEWER TABLE					
Catch Basin	Manhole	Structure Dia. (in)	Approx. Sump Depth (in)	Est. Conc. Volume (CY) (1)	Notes: (2)
DCB431		48	12		Touch up/finish rings and doghouses
DCB432		48	12		Replace curb, touch up/finish doghouses
DCB436		48	12	0.7	Pour invert, touch up/finish rings and doghouses
DCB437		48	12	0.7	Pour invert, touch up/finish rings and doghouses
DCB438		72	12		Touch up/finish rings and doghouses
DCB439		48	12		Touch up/finish rings and doghouses
DCB441		48	12		Touch up/finish rings and doghouses
DCB442		48	12		Touch up/finish rings and doghouses
DCB448		48	12		Touch up/finish rings and doghouses
DCB449		48	12		Touch up/finish rings and doghouses
DCB450		48	12		Touch up/finish rings and doghouses
DCB451		48	12		Touch up/finish rings and doghouses
DCB455		48	12		Touch up/finish rings and doghouses
DCB456		48	12		Touch up/finish rings and doghouses
DCB457		48	12		Touch up/finish rings and doghouses
DCB458		48	12		Touch up/finish rings and doghouses
DCB462		48	12		Touch up/finish rings and doghouses
DCB464		48	12		Touch up/finish rings and doghouses
DCB465		48	12	0.7	Pour invert, touch up/finish rings and doghouses
DCB466		54	12		Touch up/finish rings and doghouses
DCB467		48	12	0.7	Pour invert, touch up/finish rings and doghouses
DCB468		48	12	0.7	Pour invert, touch up/finish rings and doghouses
DCB469		48	12	0.7	Pour invert, touch up/finish rings and doghouses
DCB470		48	12	0.7	Pour invert, touch up/finish rings and doghouses
DCB471		48	12	0.7	Pour invert, touch up/finish rings and doghouses
DCB472		48	12		Touch up/finish rings and doghouses
DCB1569		48	12		Replace curb, touch up/finish doghouses
DCB1573		48	12		Replace curb, touch up/finish doghouses
DCB1577		48	12		Touch up/finish rings and doghouses
DCB1578		48	12		Touch up/finish rings and doghouses
DCB1579		48	12		Touch up/finish rings and doghouses
DCB1580		48	12		Touch up/finish rings and doghouses
DCB1973		60	12		Touch up/finish rings and doghouses
Sheet 14 Total				5.6	

SHEET 15 STORM SEWER TABLE					
Catch Basin	Manhole	Structure Dia. (in)	Approx. Sump Depth (in)	Est. Conc. Volume (CY) (1)	Notes: (2)
DCB452		48	12		Touch up/finish rings and doghouses
DCB1393		48	12		Touch up/finish rings and doghouses
DCB1394		60	12		Touch up/finish rings and doghouses
DCB1395		48	12		Touch up/finish rings and doghouses
DCB1396		48	12		Touch up/finish rings and doghouses
DCB1397		48	12		Touch up/finish rings and doghouses
DCB1525		48	12		Replace curb, touch up/finish doghouses
DCB1530		48	12		Touch up/finish rings and doghouses, mud structure wall
DCB1531		48	12		Touch up/finish rings and doghouses
DCB1541		48	12		Touch up/finish rings and doghouses
DCB1542		48	12		Touch up/finish rings and doghouses
DCB1543		48	12		Touch up/finish rings and doghouses
DCB1544		48	12		Touch up/finish rings and doghouses
DCB1545		48	12		Touch up/finish rings and doghouses, mud structure wall
DCB1546		48	12		Touch up/finish rings and doghouses
DCB1547		48	12		Touch up/finish rings and doghouses
DCB1548		48	12		Touch up/finish rings and doghouses
DCB1551		48	12		Touch up/finish rings and doghouses, mud structure wall
DCB1552		48	12		Touch up/finish rings and doghouses, mud structure wall
DCB1553		72	12		Touch up/finish rings and doghouses
DCB1554		48	12		Touch up/finish rings and doghouses
DCB1561		48	12		Touch up/finish rings and doghouses
DCB1562		48	12		Touch up/finish rings and doghouses
DCB1563		48	12		Touch up/finish rings and doghouses
DCB1564		48	12		Replace curb, touch up/finish doghouses
DCB1566		48	12		Touch up/finish rings and doghouses
DCB1567		48	12		Touch up/finish rings and doghouses
DCB1568		48	12		Touch up/finish rings and doghouses
DCB1929		54	12		Touch up/finish rings and doghouses
DCB1932		48	12		Touch up/finish rings and doghouses
DCB1937		66	12		Touch up/finish rings and doghouses
DCB1938		48	12		Touch up/finish rings and doghouses
DCB1942		54	12		Touch up/finish rings and doghouses
DCB1946		48	12		Touch up/finish rings and doghouses
Sheet 15 Total				0.0	

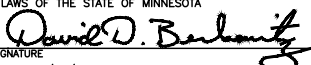
SHEET 16 STORM SEWER TABLE					
Catch Basin	Manhole	Structure Dia. (in)	Approx. Sump Depth (in)	Est. Conc. Volume (CY) (1)	Notes: (2)
DCB1382		48	12		Touch up/finish rings and doghouses
DCB1383		48	12		Touch up/finish rings and doghouses
DCB1384		48	12		Touch up/finish rings and doghouses
DCB1385		48	12		Touch up/finish rings and doghouses
DCB1387		48	12		Touch up/finish rings and doghouses
DCB1388		48	12		Touch up/finish rings and doghouses
DCB1389		48	12		Touch up/finish rings and doghouses
DCB1390		48	12		Touch up/finish rings and doghouses
DCB1391		48	12		Touch up/finish rings and doghouses
DCB1392		48	12		Touch up/finish rings and doghouses
DCB1533		72	12		Replace curb, touch up/finish doghouses
DCB1534		48	12		Touch up/finish rings and doghouses, mud structure wall
DCB1536		48	12		Touch up/finish rings and doghouses
DCB1537		60	12		Touch up/finish rings and doghouses
DCB1555		48	12		Touch up/finish rings and doghouses
DCB1556		48	12		Touch up/finish rings and doghouses, mud structure wall
DCB1557		48	12		Touch up/finish rings and doghouses
DCB1558		60	12		Touch up/finish rings and doghouses
DCB1559		48	12		Touch up/finish rings and doghouses
DCB1560		48	0		Touch up/finish rings and doghouses
Sheet 16 Total				0.0	

SHEET 17 STORM SEWER TABLE					
Catch Basin	Manhole	Structure Dia. (in)	Approx. Sump Depth (in)	Est. Conc. Volume (CY) (1)	Notes: (2)
DCB1399		48	12		Touch up/finish rings and doghouses
DCB1400		48	12		Touch up/finish rings and doghouses
DCB1401		72	12		Touch up/finish rings and doghouses
DCB1402		48	12		Touch up/finish rings and doghouses
DCB1403		84	12		Touch up/finish rings and doghouses
DCB1404		48	12		Touch up/finish rings and doghouses
DCB1405		84	12		Touch up/finish rings and doghouses
DCB1406		48	12		Touch up/finish rings and doghouses
DCB1407		72	12		Touch up/finish rings and doghouses
DCB1408		48	12		Touch up/finish rings and doghouses
Sheet 17 Total				0.0	

SHEET 18 STORM SEWER TABLE					
Catch Basin	Manhole	Structure Dia. (in)	Approx. Sump Depth (in)	Est. Conc. Volume (CY) (1)	Notes: (2)
DCB1482		48	12	0.7	Pour invert, touch up/finish rings and doghouses
DCB1483		48	12		Touch up/finish rings and doghouses
DCB1484		48	12	0.7	Pour invert, touch up/finish rings and doghouses
DCB1485		48	12	0.7	Pour invert, touch up/finish rings and doghouses
DCB1486		48	12	0.7	Pour invert, touch up/finish rings and doghouses
DCB1487		48	12	0.7	Pour invert, touch up/finish rings and doghouses
DCB1488		48	12	0.7	Pour invert, touch up/finish rings and doghouses
DCB1489		48	12	0.7	Pour invert, touch up/finish rings and doghouses
DCB1491		66	12	1.3	Pour invert, touch up/finish rings and doghouses
DCB1492		48	12	0.7	Pour invert, touch up/finish rings and doghouses
DCB1493		66	12	1.3	Pour invert, touch up/finish rings and doghouses
DCB1495		54	12	0.9	Pour invert, touch up/finish rings and doghouses
DCB1496		48	12		Touch up/finish rings and doghouses
DCB1497		48	12	0.7	Pour invert, touch up/finish rings and doghouses
DCB1498		48	12	0.7	Replace curb, pour invert, touch up/finish doghouses
DCB1499		60	12	1.1	Replace curb, pour invert, touch up/finish doghouses
DCB1500		48	12	0.7	Pour invert, touch up/finish rings and doghouses
DCB1501		48	12	0.7	Pour invert, touch up/finish rings and doghouses
DCB1502		60	12	1.1	Replace curb, pour invert, touch up/finish doghouses
DCB1503		48	12		Replace curb, touch up/finish doghouses
DCB1504		48	12	0.7	Pour invert, touch up/finish rings and doghouses
DCB1505		48	12	0.7	Pour invert, touch up/finish rings and doghouses
DCB1506		54	12		Touch up/finish rings and doghouses
DCB1507		60	12	1.1	Pour invert, touch up/finish rings and doghouses
DCB1508		48	12	0.7	Pour invert, touch up/finish rings and doghouses
DCB1509		54	12	0.9	Pour invert, touch up/finish rings and doghouses
DCB1510		60	12		Touch up/finish rings and doghouses
DCB1511		48	12	0.7	Pour invert, touch up/finish rings and doghouses
DCB1512		54	12	0.9	Pour invert, touch up/finish rings and doghouses
DCB1513		48	12	0.7	Pour invert, touch up/finish rings and doghouses
DCB1514		48	12	0.7	Pour invert, touch up/finish rings and doghouses
DCB1515		48	12	0.7	Pour invert, touch up/finish rings and doghouses
DCB1516		48	12	0.7	Pour invert, touch up/finish rings and doghouses
DCB1517		48	12	0.7	Pour invert, touch up/finish rings and doghouses
	DMH291	48	0		Touch up/finish rings and doghouses
	DMH290	48	0		Touch up/finish rings and doghouses
Sheet 18 Total				23.2	

SHEET 19 STORM SEWER TABLE					
Catch Basin	Manhole	Structure Dia. (in)	Approx. Sump Depth (in)	Est. Conc. Volume (CY) (1)	Notes: (2)
DCB20		48	12		Touch up/finish rings and doghouses
DCB21		48	12		Touch up/finish rings and doghouses
DCB22		66	12		Touch up/finish rings and doghouses
DCB23		48	12		Touch up/finish rings and doghouses
DCB24		48	12		Touch up/finish rings and doghouses
DCB27		48	12		Touch up/finish rings and doghouses
DCB28		48	12		Touch up/finish rings and doghouses
DCB29		48	12		Touch up/finish rings and doghouses
DCB30		48	12		Touch up/finish rings and doghouses
DCB31		48	12		Touch up/finish rings and doghouses
DMH377		48	12		Touch up/finish rings and doghouses
DCB1673		48	12		Touch up/finish rings and doghouses
Sheet 19 Total				0.0	
Project Total				28.8	

Notes: (1) Estimated concrete volume includes assumed extra 4" in sump depth for bench construction (up to 1/3 depth of outlet pipe diameter).
(2) Clean out all structures on this table.

				DESIGNED JUL	DRAWN JAK	I HEREBY CERTIFY THAT THIS PLAN 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  DAVID D. BERKOWITZ TYPED OR PRINTED NAME DATE 1/28/2022 LIC. NO. 26757		2022 CURB, SIDEWALK & PEDESTRIAN RAMP REPAIRS, AND 2022 MILL & OVERLAY PROJECTS CITY PROJECTS 22-08, 22-15, 22-16, 22-17 SAP 198-110-004 & 198-149-001	STORM SEWER TABLES SHEET NO. 5 OF 29 SHEETS
				CHECKED DDB					
NO.	DATE	BY	DESCRIPTION OF REVISIONS						

GENERAL NOTES:

THE 2020 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATION FOR CONSTRUCTION" AS AMENDED SHALL GOVERN.

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."

ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO AND BE INSTALLED IN ACCORDANCE WITH THE "MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MMUTCD)" AND THE "TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS FIELD MANUAL", NEWEST ADDITIONS.

CONSTRUCTION SHALL BE STAGED SUCH THAT TRAFFIC IS MAINTAINED AT ALL TIMES. CONTRACTOR SHALL USE FLAG PERSON, IF NEEDED (INCIDENTAL TO TRAFFIC CONTROL).

ROAD WORK AHEAD SIGNS SHALL BE MAINTAINED AT ALL INTERSECTING ROADS TO THE PROJECT. TYPE B CHANNELIZERS SHALL BE USED IN ALL NECESSARY LOCATIONS. TRAIL CLOSED SIGNS ON TYPE III BARRICADES SHALL BE PLACED AT ALL LOCATIONS IMPACTED BY PEDESTRIAN RAMP/SIDEWALK/TRAIL IMPROVEMENTS.

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE EXCAVATING CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. HE AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. THE CONTRACTOR IS REQUIRED TO CALL GOPHER ONE CALL AT LEAST 48 HOURS IN ADVANCE OF CONSTRUCTION. (651--454--2000)

CONSTRUCTION NOTES:

THE CONTRACTOR SHALL INSTALL INLET PROTECTION DEVICES ON ALL STORM SEWER STRUCTURES WHERE CASTING IS BEING REMOVED. THE CONTRACTOR SHALL INSTALL INLET PROTECTION DEVICES IN ALL STRUCTURES SUCH THAT SEDIMENT IS CAPTURED WITH A HIGH FLOW BYPASS.

COMPACTION OF ALL BITUMINOUS MIXTURE SHALL BE BY THE "SPECIFIED DENSITY METHOD" EXCEPT FOR PATCHES AND TRAILS, WHICH SHALL BE BY THE "ORDINARY COMPACTION METHOD".

ALL DISTURBED AREAS SHALL BE BACKFILLED WITH SALVAGED TOPSOIL, IF ANY. DISTURBED AREAS SHALL BE RESTORED WITH 4" TOPSOIL AND SOD. ALL RESTORATION SHALL OCCUR WITHIN 7 DAYS OF GRADING COMPLETION. RESTORATION WORK SHALL BE COMPLETED BEFORE PAVING OF THE WEARING COURSE.

EXISTING SIGNS SHALL BE REMOVED AND REPLACED BY THE ANDOVER SIGN DEPARTMENT, IF NECESSARY. COORDINATE WITH MINIMUM 48 HOUR NOTICE WITH ENGINEER IN FIELD.

FOR GATE VALVE BOLT REPAIRS: EXPOSE BONNET OF VALVE, REPLACE ALL BOLTS ON GATE VALVE BONNET WITH STAINLESS STEEL BOLTS. IF VALVE IS FOUND TO ALREADY HAVE STAINLESS STEEL BOLTS, DO NOT REPLACE BOLTS.

BOULEVARD IRRIGATION SYSTEMS SHALL BE PROTECTED. SALVAGE AND/OR REPLACEMENT OF ANY EXISTING HEADS SHALL BE CONSIDERED INCIDENTAL. ANY REPAIR WORK SHALL BE COMPLETED BY AN IRRIGATION CONTRACTOR LICENSED WITH THE CITY. COORDINATE NOTIFICATION OF SYSTEM OWNERS WITH CITY INSPECTOR PRIOR TO IMPACTING SYSTEMS.

CONCRETE WASHOUT SHALL BE CONTAINED WITHIN CONCRETE TRUCKS, NOT ON--SITE.

CONTRACTOR SHALL SWEEP ALL MATERIAL OFF STREET DUE TO CONSTRUCTION ACTIVITY, DAILY AS NECESSARY (INCIDENTAL).

SOIL STOCKPILES SHALL BE STABILIZED WITHIN 7 DAYS OF ROUGH GRADING OR INACTIVITY (INCIDENTAL).

CONTRACTOR IS REQUIRED TO REPAIR AND MAINTAIN ALL TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL PRACTICES (INCIDENTAL).

CONTRACTOR SHALL REMOVE ALL TEMPORARY SEDIMENT CONTROL PRACTICES ONCE VEGETATION IS RE--ESTABLISHED (INCIDENTAL).

REFER TO SWPPP IN PROJECT SPECIFICATION FOR ADDITIONAL CONSTRUCTION/EROSION CONTROL REQUIREMENTS.

PRIOR TO BEGINNING MILLING OPERATIONS, THE CONTRACTOR SHALL CONTACT MARK LEKSON (763--324--3139) AT ANOKA COUNTY HIGHWAY DEPARTMENT TO COORDINATE MILLING AT SIGNAL INTERSECTIONS.

EARTHWORK NOTES:

WHEN CONNECTING NEW PAVED SURFACING TO ANY IN--PLACE PAVEMENTS, CUT VERTICALLY TO THE BOTTOM OF THE IN--PLACE PAVEMENTS OR TO THE BOTTOM OF THE NEW SURFACING, WHICHEVER IS DEEPER, THAN AT 2(V):1(H) SLOPE TO THE TOP OF THE SUBGRADE.

EXCAVATION AND DISPOSAL OF SOIL/TURF MATERIAL SHALL BE INCIDENTAL TO REMOVAL PAY ITEMS. CONTRACTOR SHALL MINIMIZE EXCAVATION AND DISTURBANCE ALONG THE PROJECT CORRIDOR. EXCAVATED MATERIAL CAN BE USED FOR BACKFILLING PROVIDED IT IS FREE OF SOD CHUNKS AND/OR DEBRIS. EXCESS MATERIAL SHALL BE DISPOSED OF OFF--SITE.

LEGEND

= CORPORATE LIMITS

= CENTERLINE

EXISTING

= UNDERGROUND TELEPHONE LINE

= UNDERGROUND ELECTRIC LINE

= OVERHEAD ELECTRIC LINE

= GAS MAIN

= UNDERGROUND CABLE TV

= CONTROL CABINET/TRANSFORMER

= WATER MAIN

= HYDRANT

= GATE VALVE

= R.O.W.

= PROPERTY LINE

= CATCH BASIN

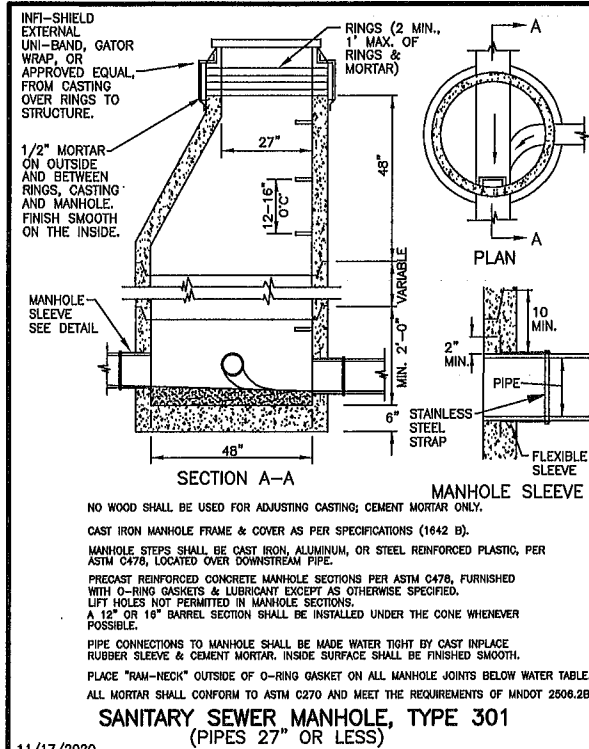
= STORM SEWER MANHOLE

= STORM SEWER LINE

= SANITARY SEWER MANHOLE

= SANITARY SEWER LINE

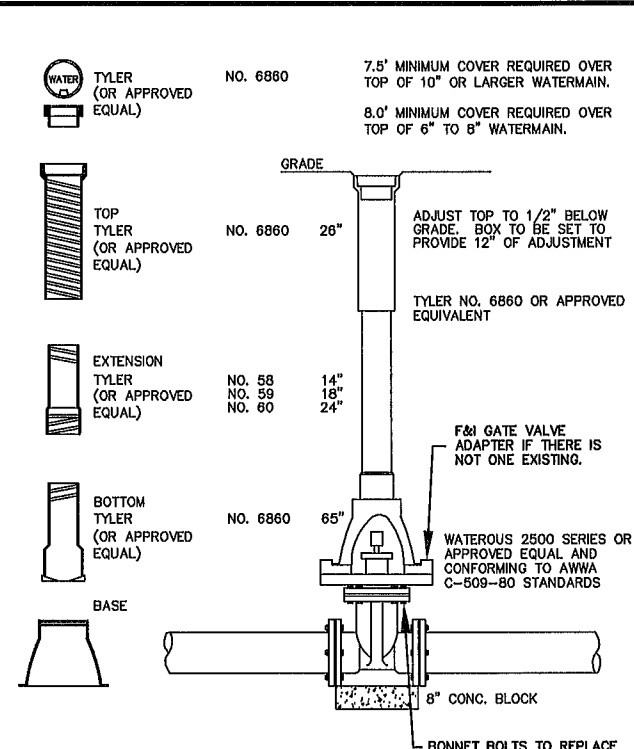
					DESIGNED JUL	DRAWN JAK	I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA	CITY OF ANDOVER	2022 CURB, SIDEWALK & PEDESTRIAN RAMP REPAIRS, AND 2022 MILL & OVERLAY PROJECTS CITY PROJECTS 22-08, 22-15, 22-16, 22-17 SAP 198-110-004 & 198-149-001	CONSTRUCTION NOTES & LEGEND	
					CHECKED DDB	Signature	DAVID D. BERKOWITZ TYPED OR PRINTED NAME				
1	2/17/2022	JAK	REVISED PER ACHD COMMENTS			SIGNATURE	DATE 1/28/2022				LIC. NO. 26757
NO.	DATE	BY	DESCRIPTION OF REVISIONS								



11/17/2020

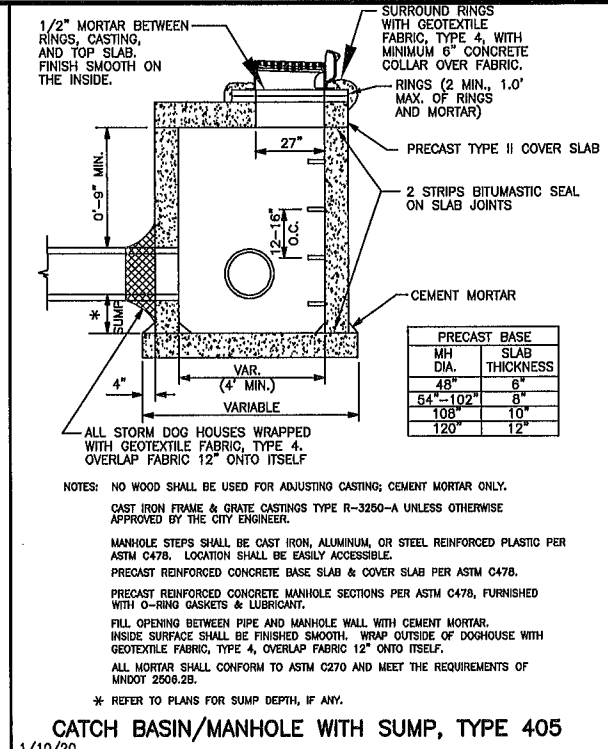
CITY OF ANDOVER

STANDARD DRAWING NO. **301D**



CITY OF ANDOVER

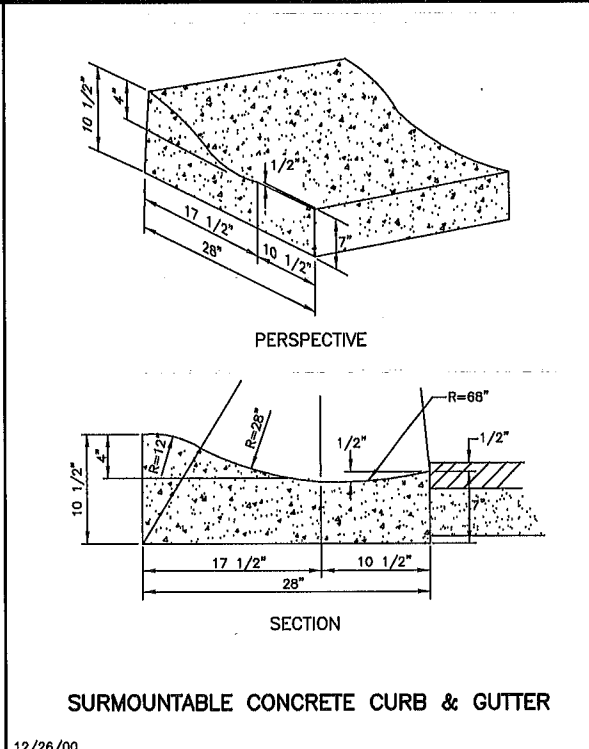
STANDARD DRAWING NO. **405K**



1/10/20

CITY OF ANDOVER

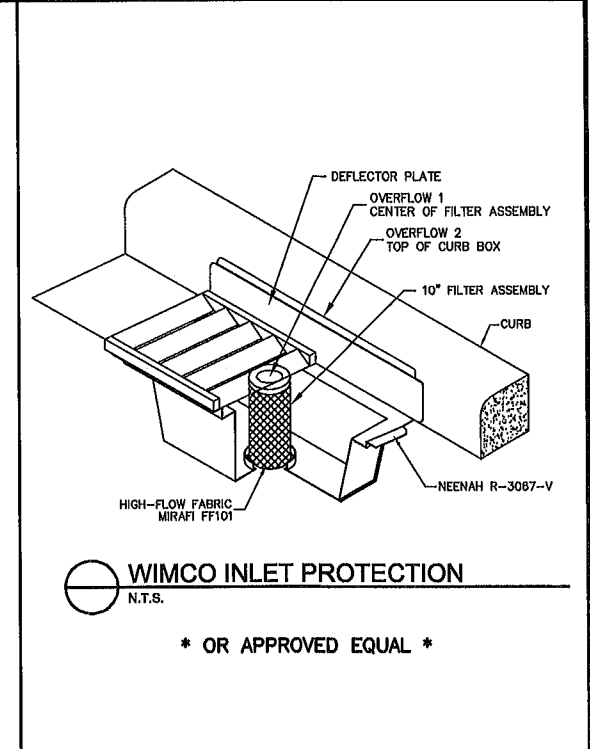
STANDARD DRAWING NO. **405K**



12/26/00

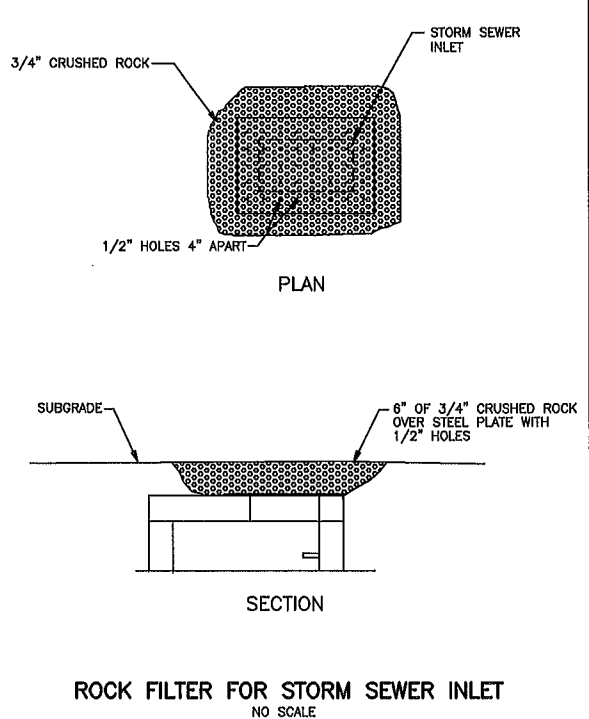
CITY OF ANDOVER

STANDARD DRAWING NO. **501**



These Standard Plates as approved by the FHWA shall apply.

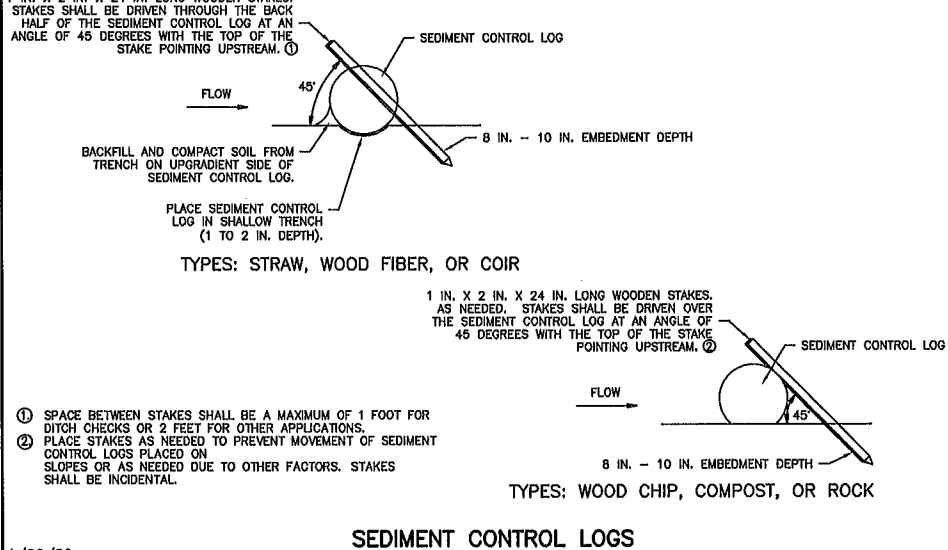
Plate No.	Description
7038	Detectable Warning Surface Truncated Domes
7100 H	Concrete Curb and Gutter
8000 I	Standard Barricades



2/19/09

CITY OF ANDOVER

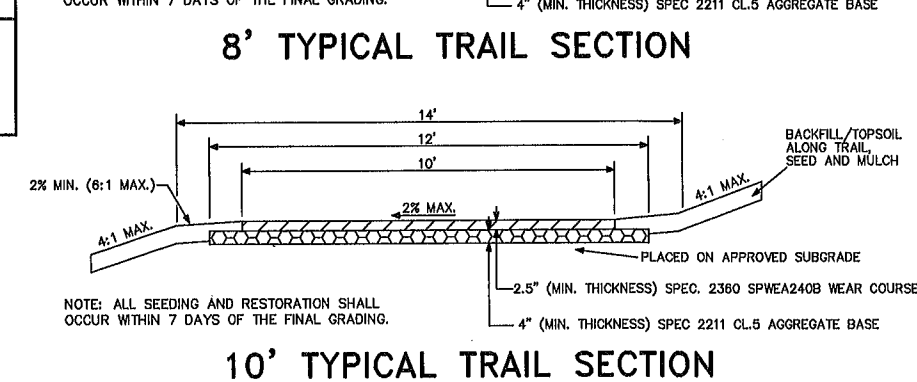
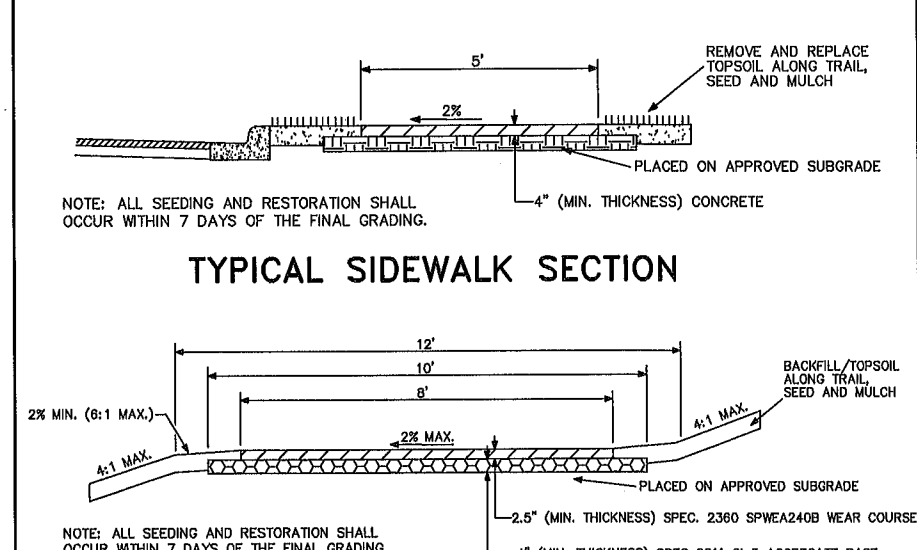
STANDARD DRAWING NO. **619**



1/29/20

CITY OF ANDOVER

STANDARD DRAWING NO. **602**



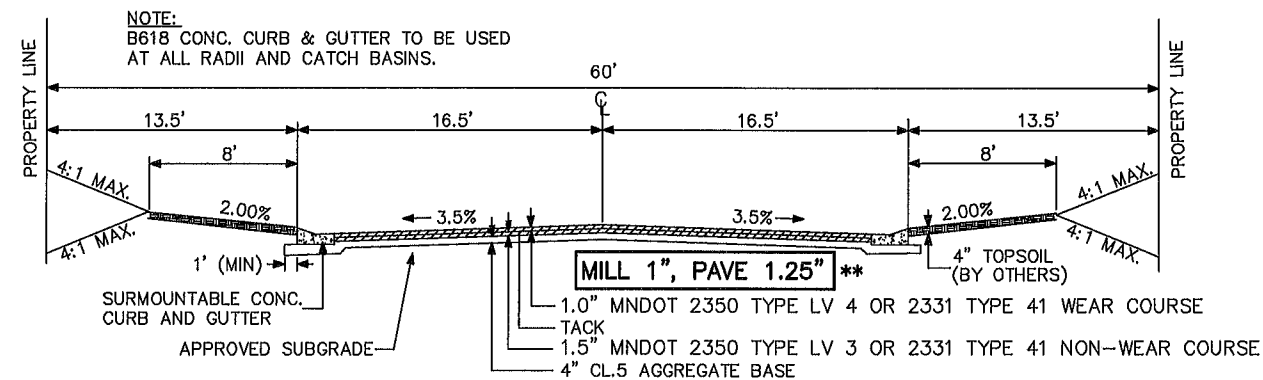
NO.	DATE	BY	DESCRIPTION OF REVISIONS
1	2/15/2022	JAK	REVISED PER STATE AID COMMENTS

DESIGNED JUL
DRAWN JAK

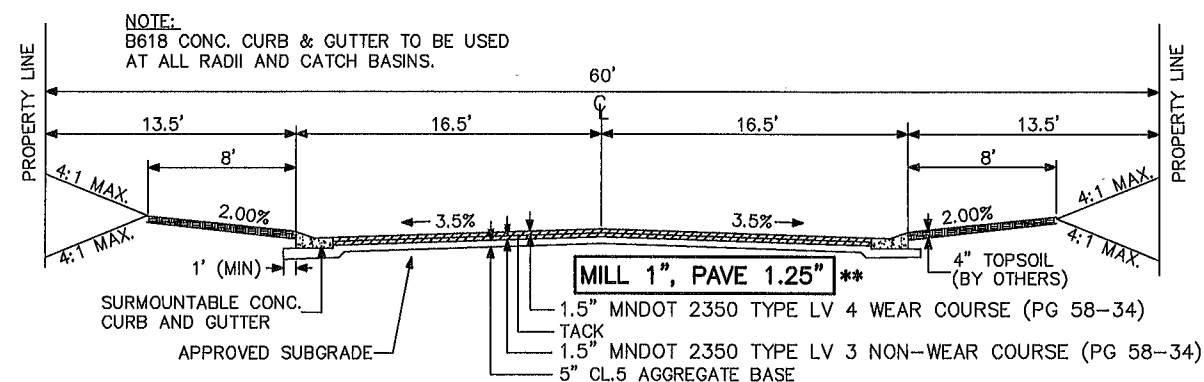
CHECKED DDB

I HEREBY CERTIFY THAT THIS PLAN 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

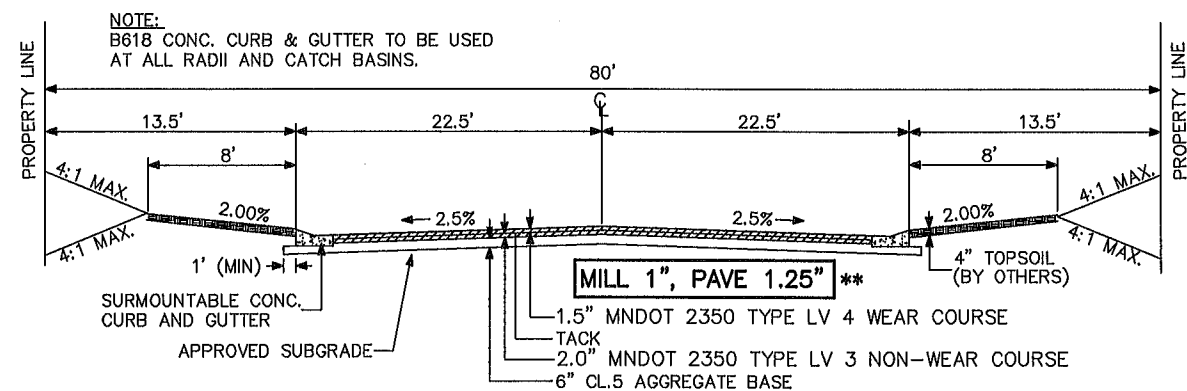
David D. Berkowitz
DAVID D. BERKOWITZ
DATE: 1/28/2022 LIC. NO.: 26757



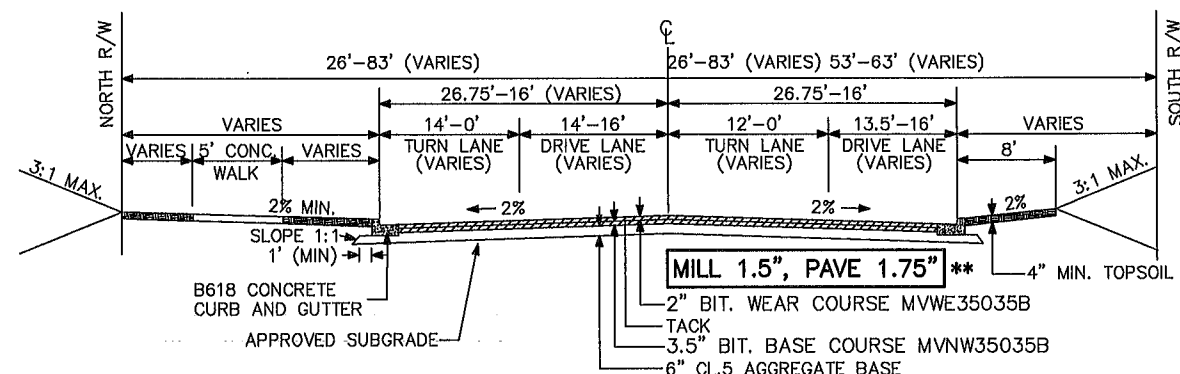
22-15 EXISTING STREET SECTION 1



22-15 EXISTING STREET SECTION 2
(SOPHIE'S MANOR, PRAIRIE COVE, AND OAKVIEW PARK)

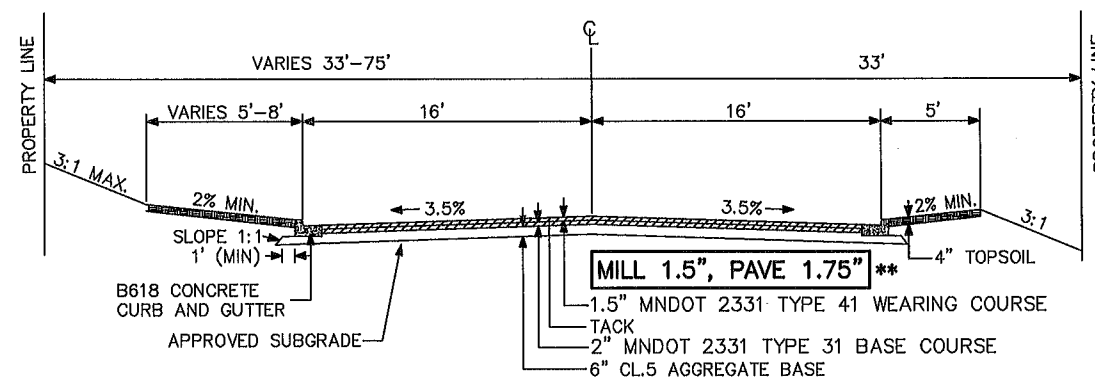


22-15 154TH AVE NW EXISTING STREET SECTION 3
(HANSON BLVD TO EAGLE ST NW)



22-16 ANDOVER BLVD NW EXISTING STREET SECTION

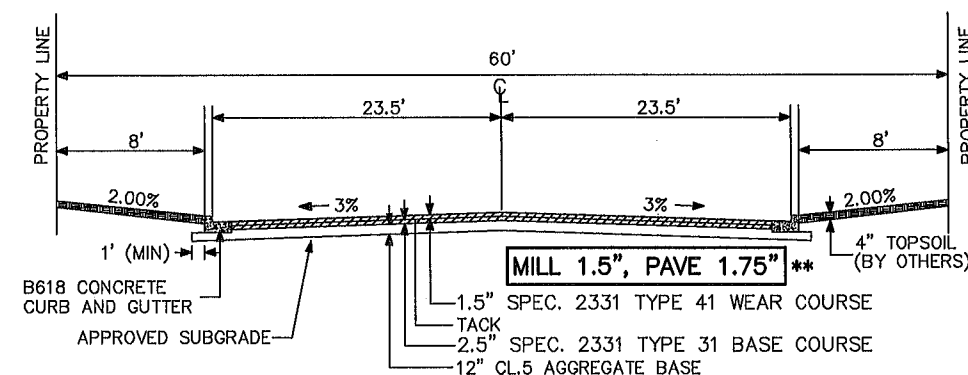
SAP 198-110-004
STA 0+00 TO 5+00



22-16 ANDOVER BLVD NW EXISTING STREET SECTION

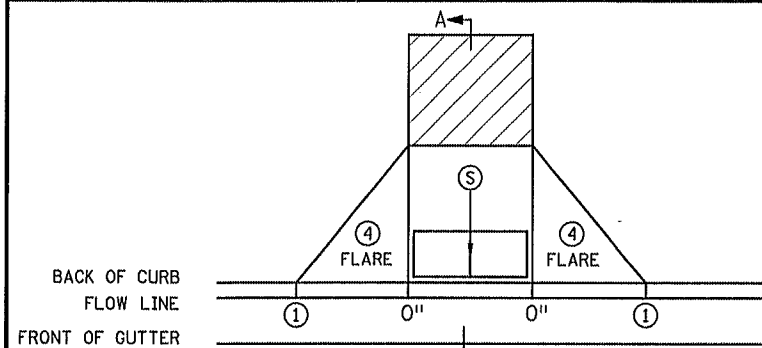
SAP 198-110-004
STA 5+00 TO 21+40

** PROPOSED BITUMINOUS
MIXTURE FOR ALL OVERLAYS:
TYPE SP 9.5 WEAR COURSE (2,B)
SPWEA240B

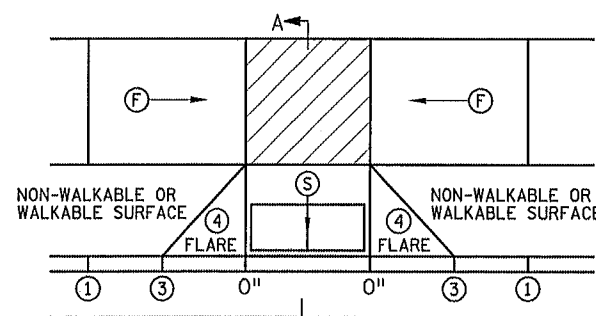


22-17 BLUEBIRD ST EXISTING STREET SECTION

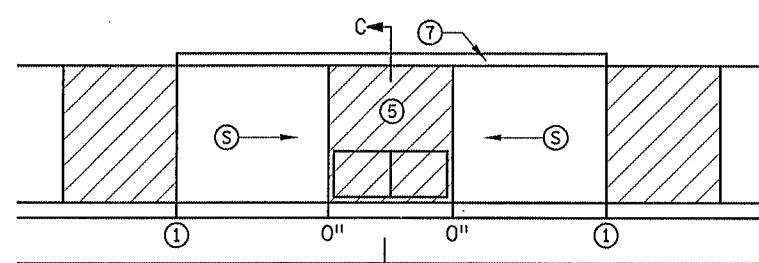
SAP 198-149-001



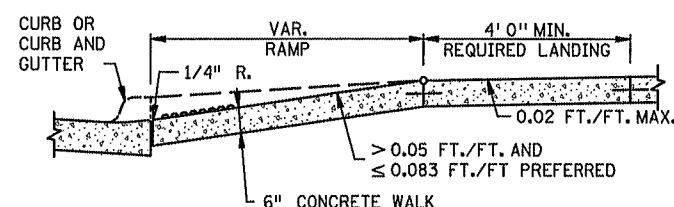
PERPENDICULAR



TIERED PERPENDICULAR

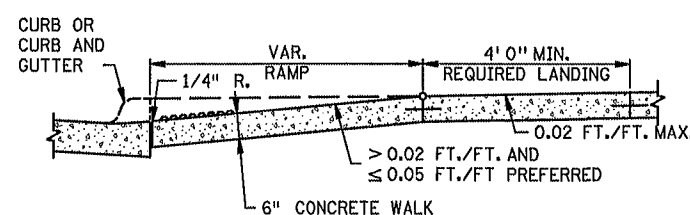


PARALLEL



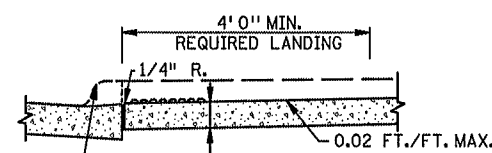
SECTION A-A

PERPENDICULAR/TIERED/DIAGONAL



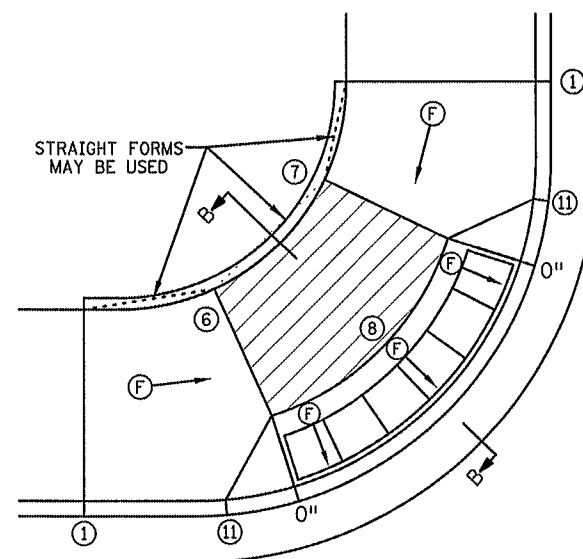
SECTION B-B

FAN

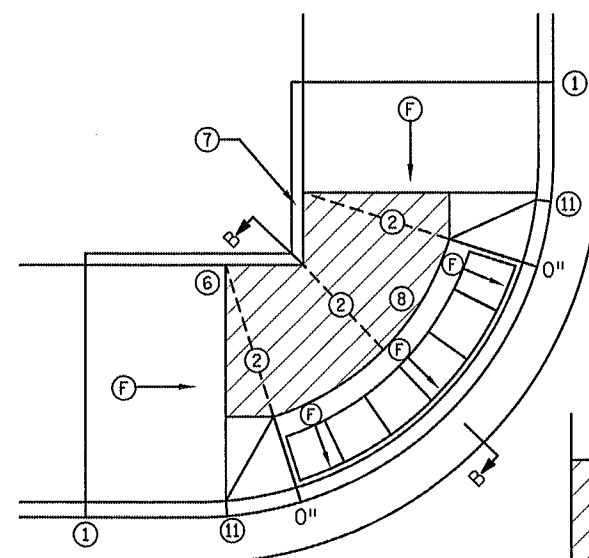


SECTION C-C

PARALLEL/DEPRESSED CORNER

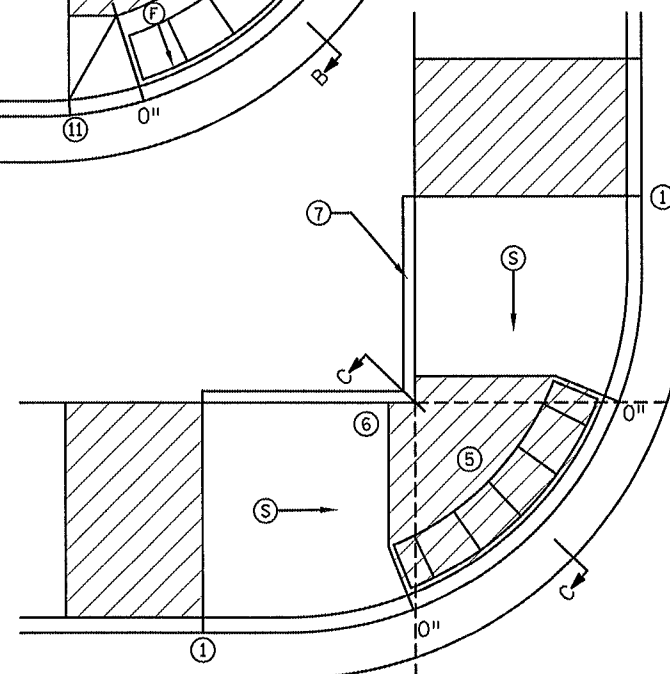


FAN 10

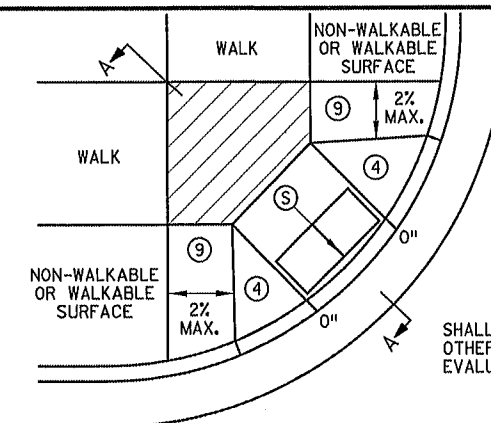


MODIFIED FAN 10

USED WHEN RIGHT-OF-WAY IS CONSTRAINED



DEPRESSED CORNER



DIAGONAL

SHALL ONLY BE USED AFTER ALL OTHER CURB RAMP TYPES HAVE BEEN EVALUATED AND DEEMED IMPRACTICAL

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

- THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.
- (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%.
 - [Hatched Box] 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

m
MINNESOTA
DEPARTMENT
OF
TRANSPORTATION

STANDARD PLAN 5-297.250

1 OF 6

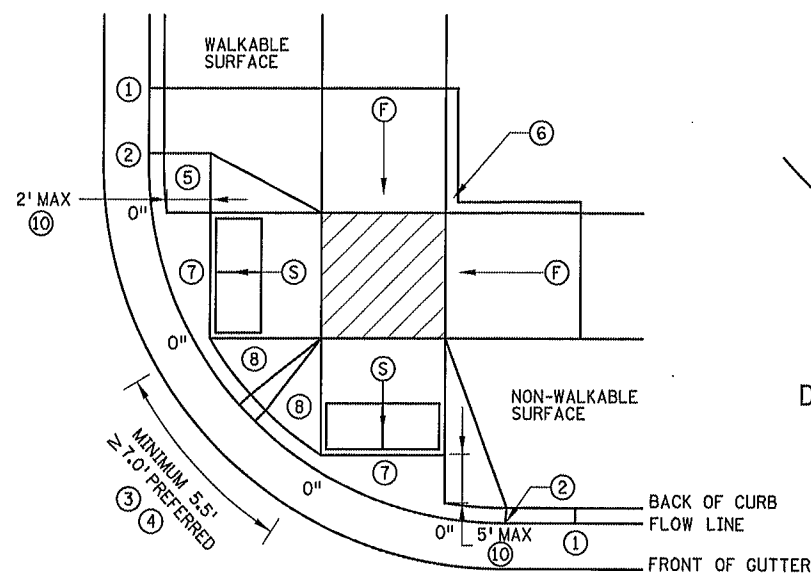
Tom Stah
THOMAS STAH
STATE DESIGN ENGINEER

APPROVED: 11-04-2021
REVISED:

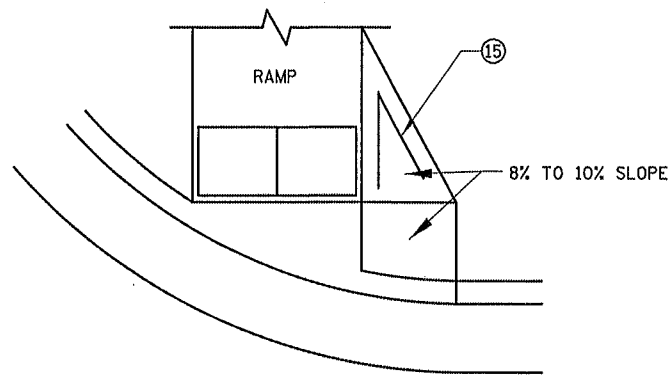
STATE PROJ. NO.

PEDESTRIAN CURB RAMP DETAILS

(TH) SHEET NO. 9 OF 29 SHEETS

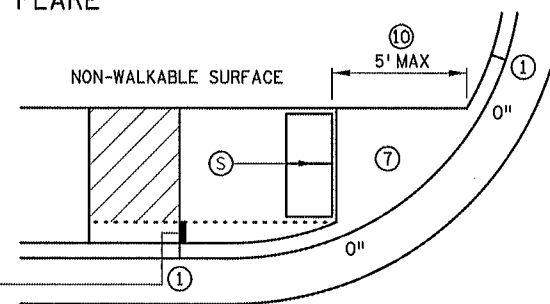


COMBINED DIRECTIONAL

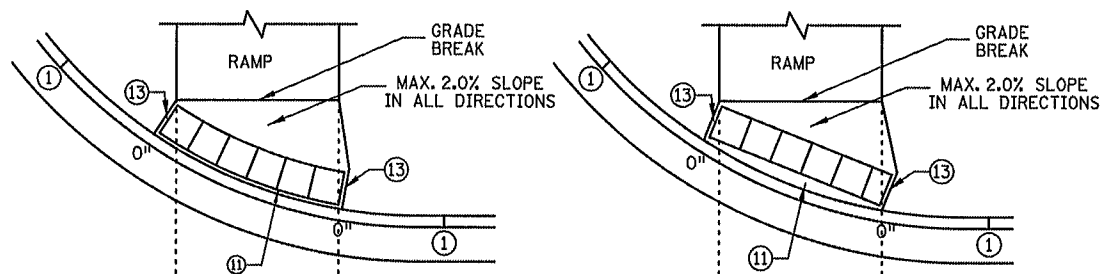


DIRECTIONAL RAMP WALKABLE FLARE

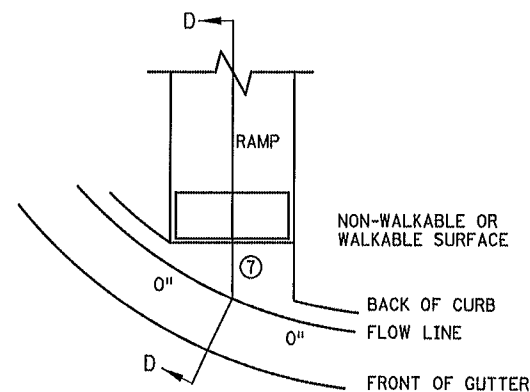
IF NON-CONCRETE BLVD. IS CONSTRUCTED AND IS LESS THAN 2' IN WIDTH AT TOP OF CURB TRANSITION, PAVE CONCRETE RAMP WIDTH TO ADJACENT BACK OF CURB.



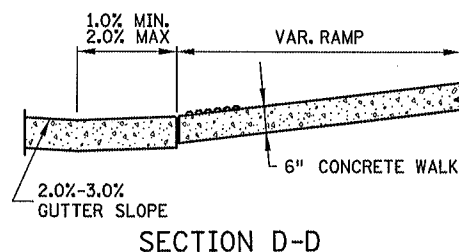
STANDARD ONE-WAY DIRECTIONAL ⑨



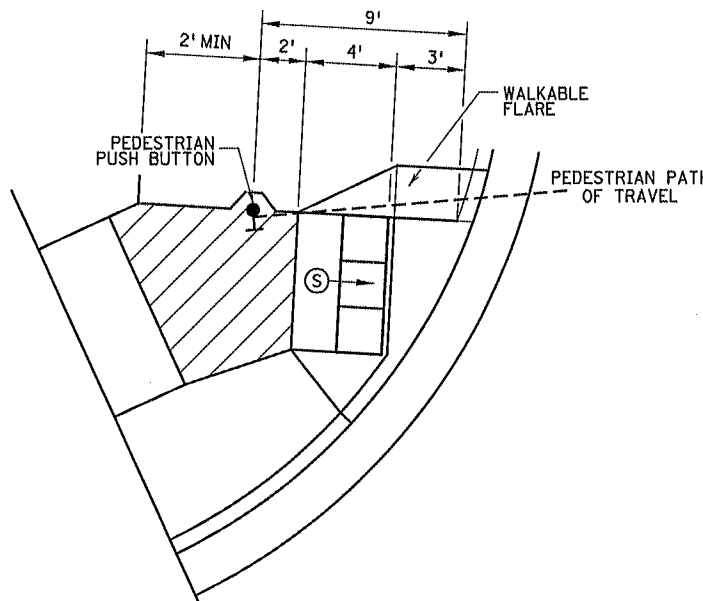
ONE-WAY DIRECTIONAL WITH DETECTABLE WARNING AT BACK OF CURB



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
PRIMARYLY 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.

⑤ 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%.

⑥ 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%.

⑦ 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

MINNESOTA
DEPARTMENT
OF
TRANSPORTATION

STANDARD PLAN 5-297.250

2 OF 6

Tom S. J. Perkins
THOMAS J. PERKINS
STATE DESIGN ENGINEER

APPROVED: 11-04-2021

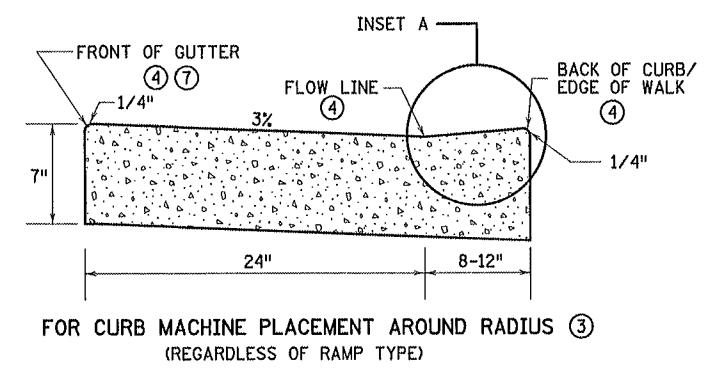
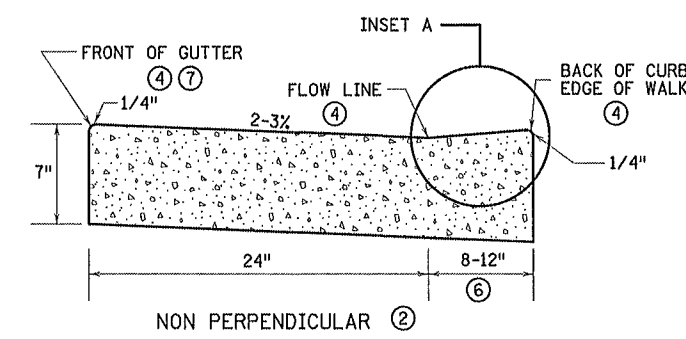
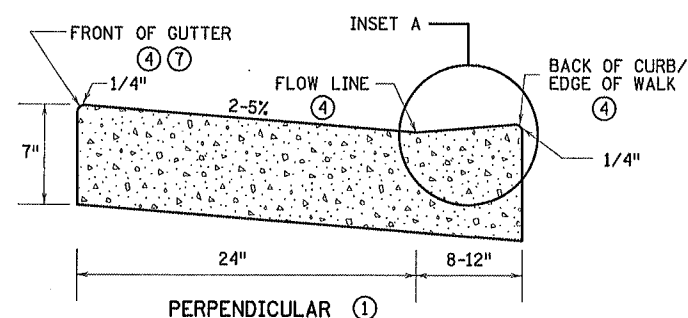
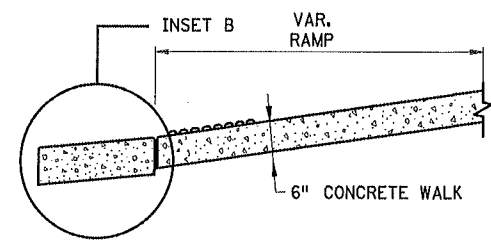
REVISED:

STATE PROJ. NO.

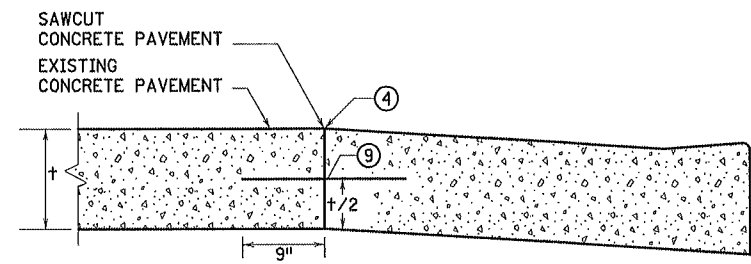
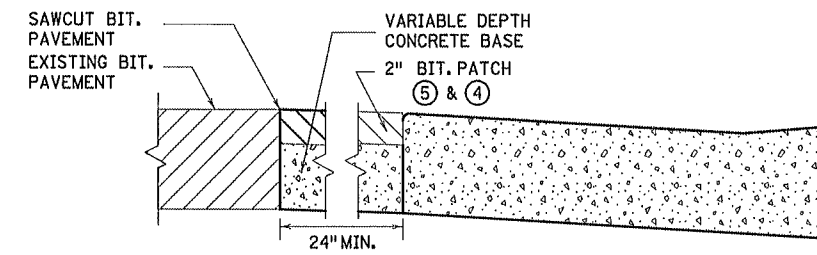
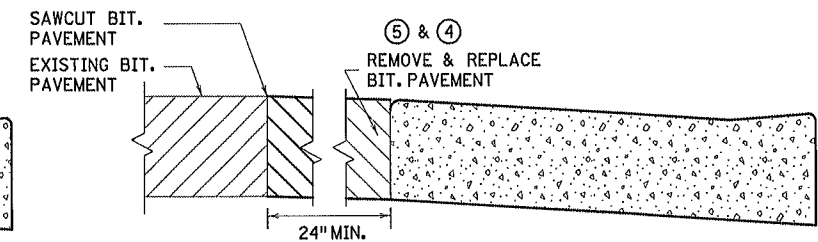
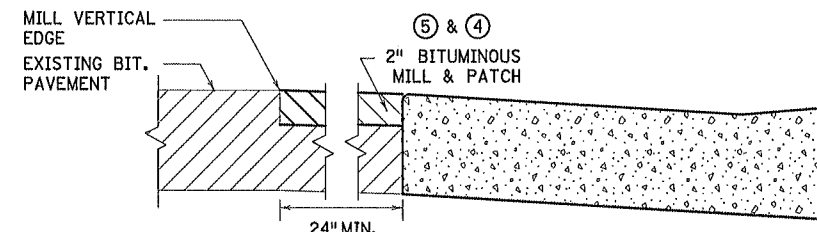
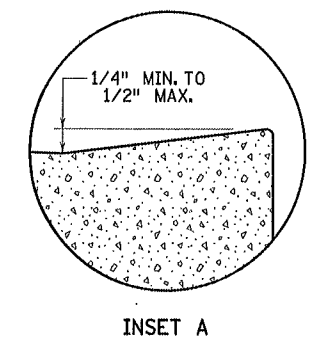
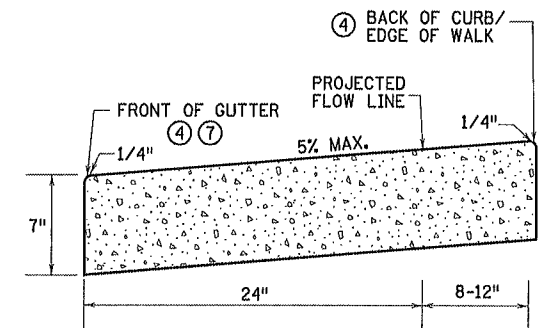
PEDESTRIAN CURB RAMP DETAILS

(T.H.)

SHEET NO. 10 OF 29 SHEETS

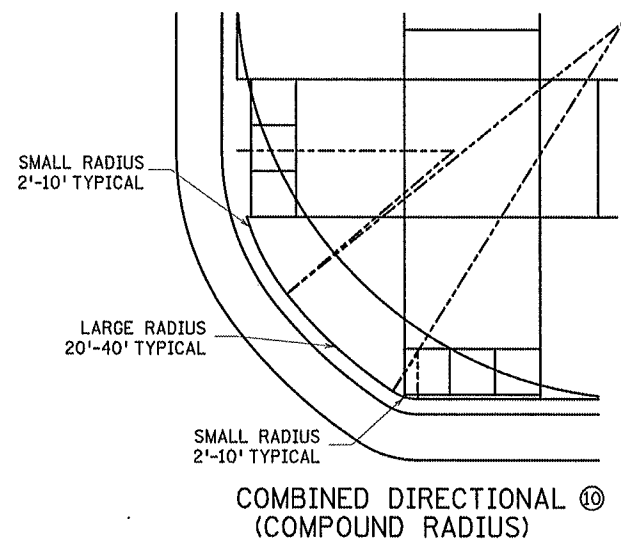
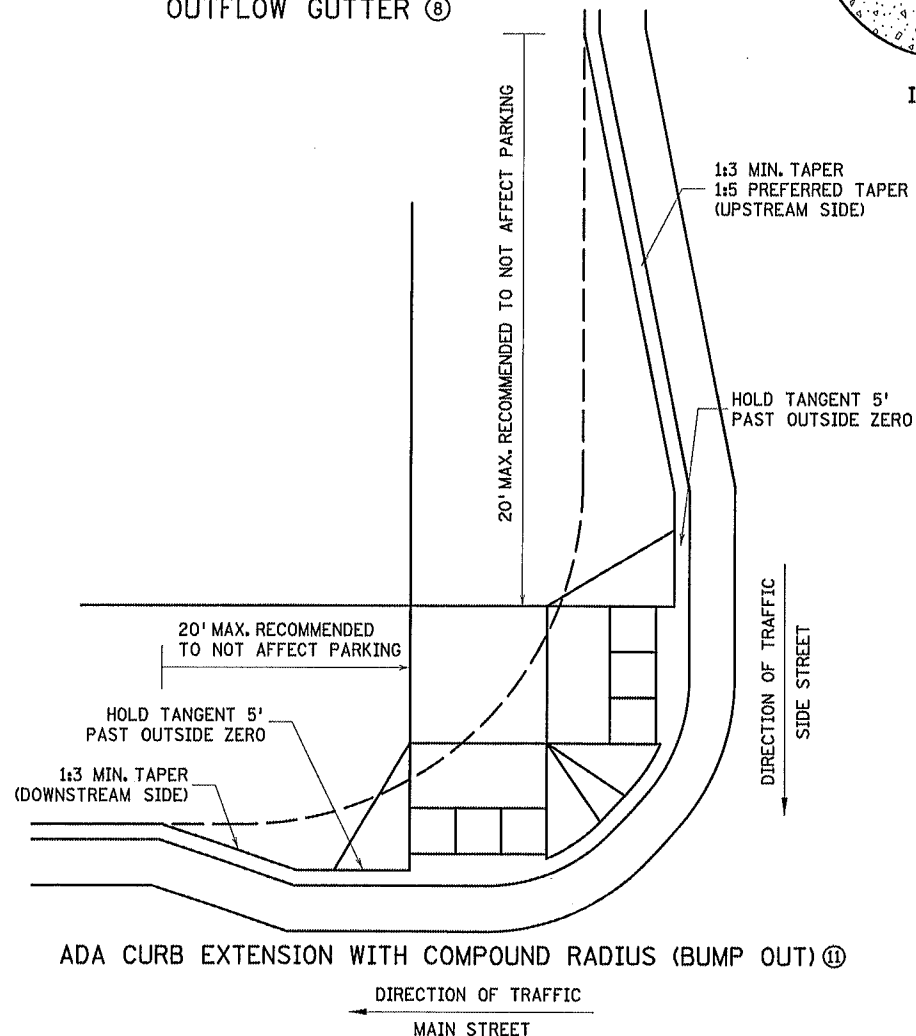


PEDESTRIAN ACCESS ROUTE CURB & GUTTER DETAIL



ONLY ALLOWED PER ENGINEER'S APPROVAL

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

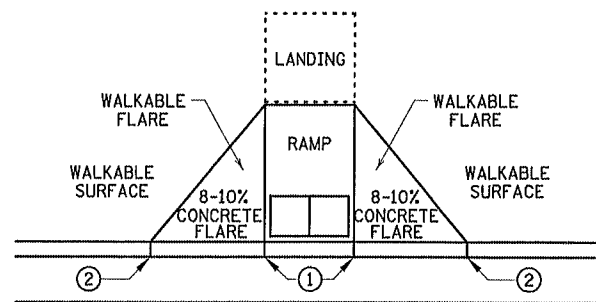


- NOTES:**
- POSITIVE FLOW LINE DRAINAGE SHALL BE MAINTAINED THROUGH THE PEDESTRIAN ACCESS ROUTE (PAR) AT A 2% MAXIMUM. NO PONDING SHALL BE PRESENT IN THE PAR.
 - ANY VERTICAL LIP THAT OCCURS AT THE FLOW LINE SHALL NOT BE GREATER THAN 1/4 INCH.
 - 1 FOR USE AT CURB CUTS WHERE THE PEDESTRIAN'S PATH OF 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 CURB EXTENSIONS SHOULD BE USED IN 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.

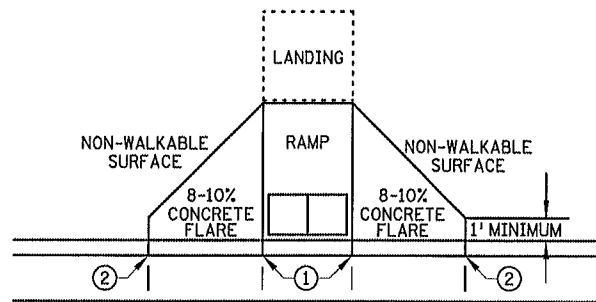
REVISION:
APPROVED: 11-04-2021
Jeffrey Perkins
JEFFREY PERKINS
OPERATIONS DIVISION

m MINNESOTA
DEPARTMENT OF TRANSPORTATION
STANDARD PLAN 5-297.250
3 OF 6
APPROVED: 11-04-2021
REVISED:
Tom Styrbacki
THOMAS STYRBICKI
STATE DESIGN ENGINEER
STATE PROJ. NO.

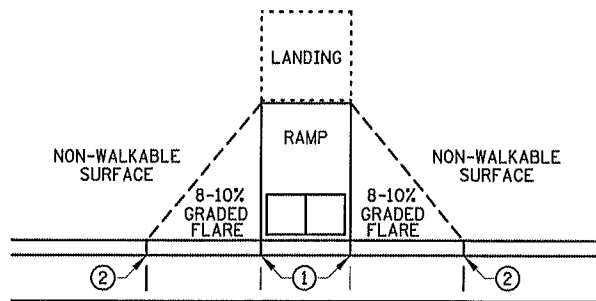
PEDESTRIAN CURB RAMP DETAILS
(TH) SHEET NO. 11 OF 29 SHEETS



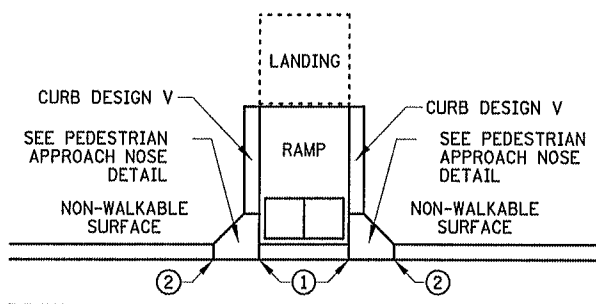
PAVED FLARES
ADJACENT TO WALKABLE SURFACE



PAVED FLARES
ADJACENT TO NON-WALKABLE SURFACE

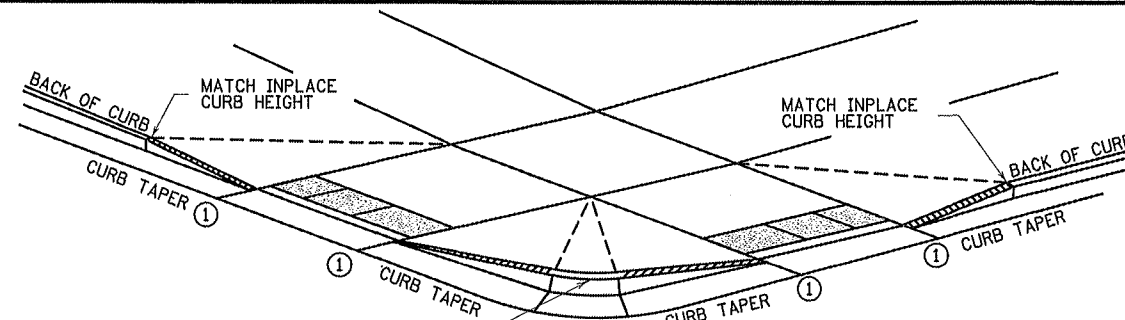


GRADED FLARES



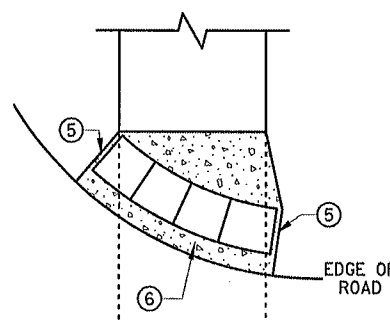
RETURNED CURB ④

TYPICAL SIDE TREATMENT OPTIONS ③ ⑩

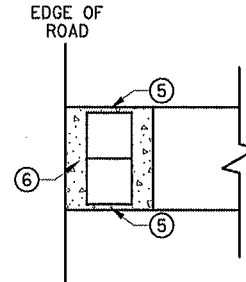


3" MINIMUM CURB HEIGHT, 4" PREFERRED
(MEASURED AT FRONT FACE OF CURB)
FOR A MIN. 6" LENGTH (MEASURED ALONG FLOW LINE)

DETECTABLE EDGE WITH
CURB AND GUTTER

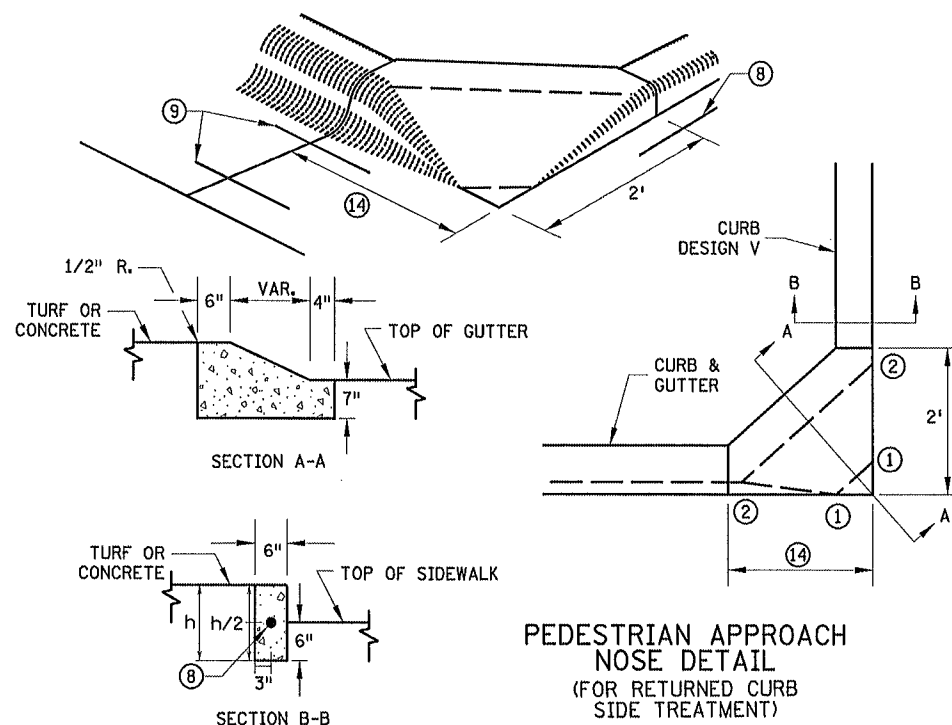


RADIAL DETECTABLE WARNING

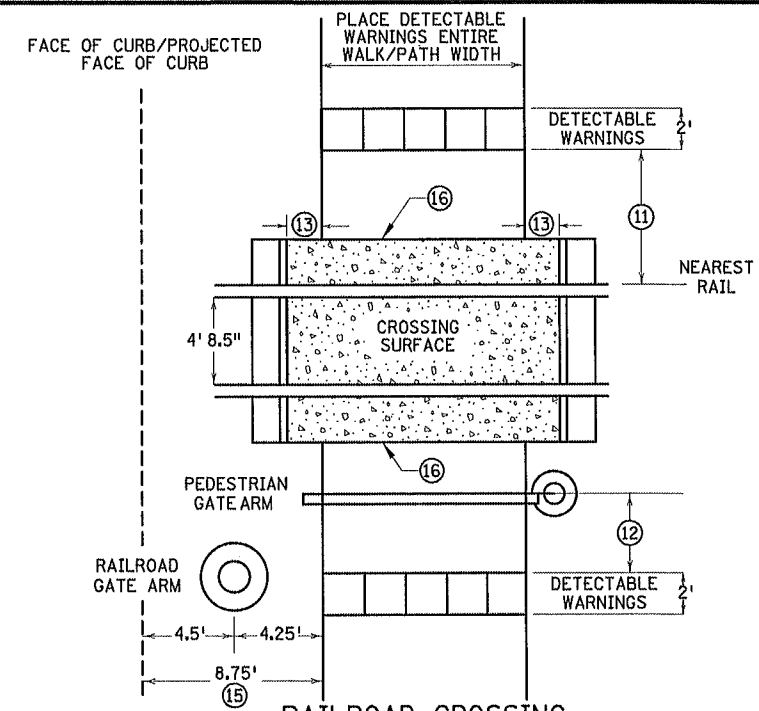


RECTANGULAR DETECTABLE WARNING

DETECTABLE EDGE WITHOUT CURB AND GUTTER



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 RAMP 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 TAPERS 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.

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

m
MINNESOTA
DEPARTMENT
OF
TRANSPORTATION

STANDARD PLAN 5-297.250

4 OF 6

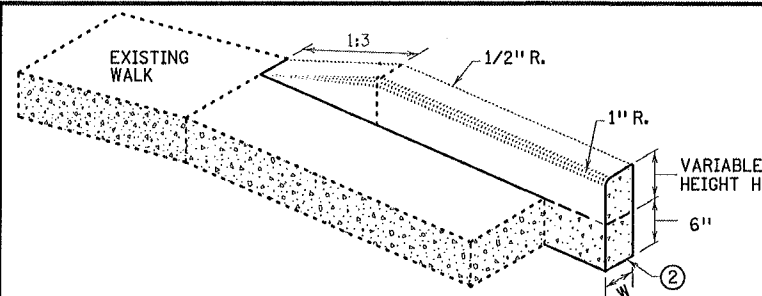
Tom Styrbicki
THOMAS STYRBICKI
STATE DESIGN ENGINEER

APPROVED: 11-04-2021
REVISED:

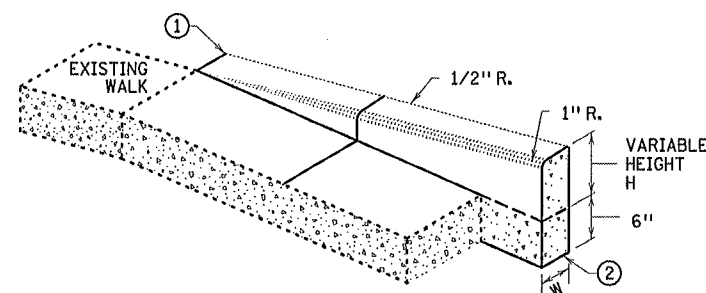
STATE PROJ. NO.

PEDESTRIAN CURB RAMP DETAILS

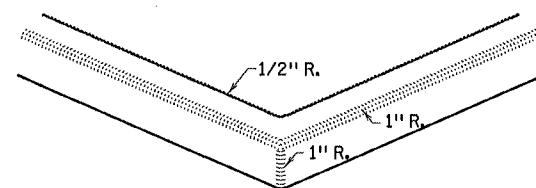
(TH) SHEET NO. 12 OF 29 SHEETS



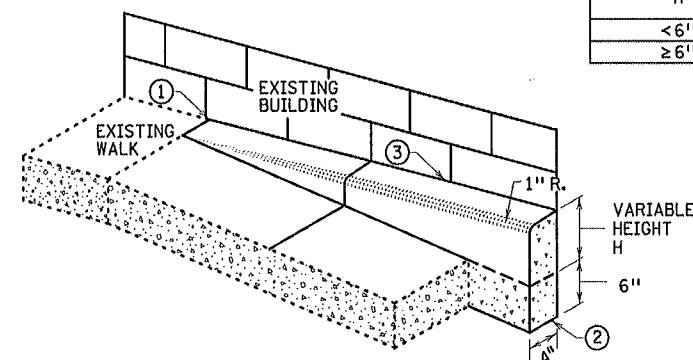
V CURB ADJACENT TO LANDSCAPE
CURB WITHIN SIDEWALK LIMITS



V CURB ADJACENT TO LANDSCAPE
CURB OUTSIDE SIDEWALK LIMITS

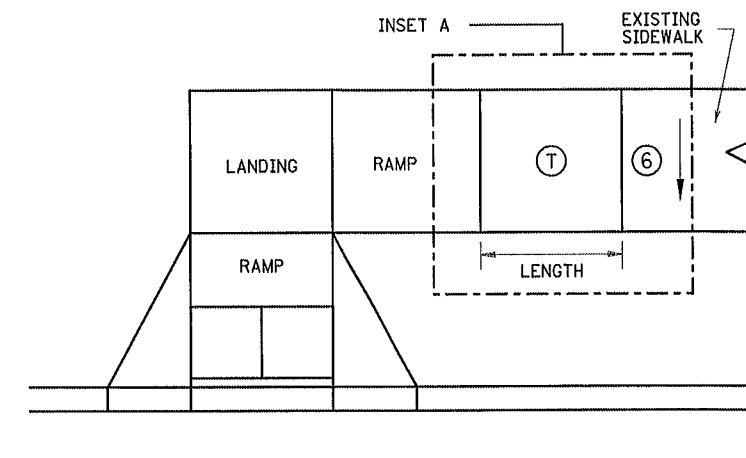


V CURB INTERSECTION

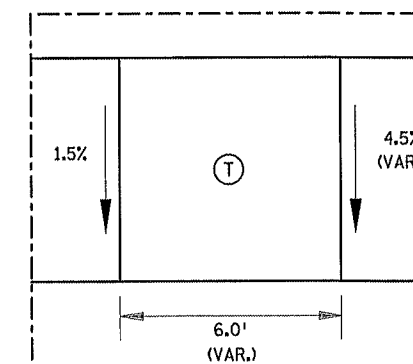


V CURB ADJACENT TO BUILDING
OR BARRIER

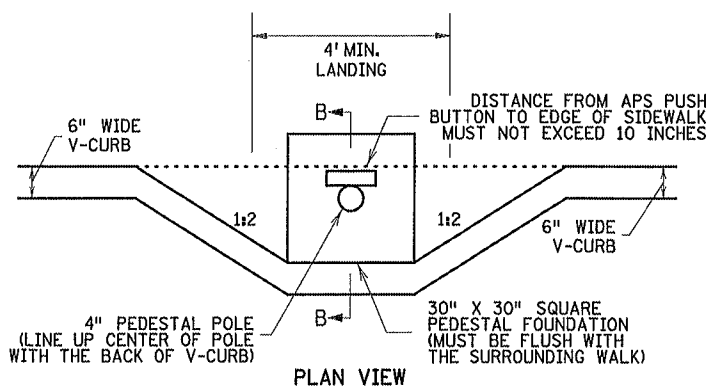
CONCRETE CURB DESIGN V	
CURB HEIGHT H	CURB WIDTH W
< 6"	4"
≥ 6"	6"



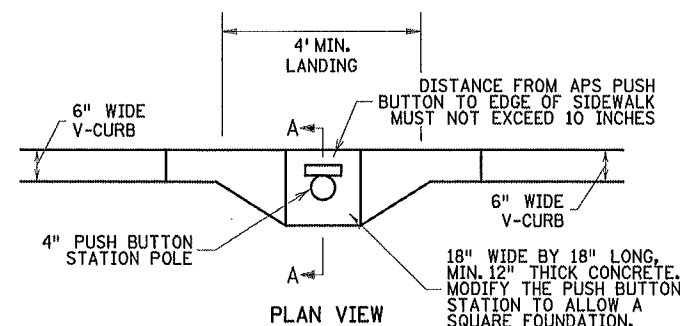
TRANSITION PANEL ④⑤



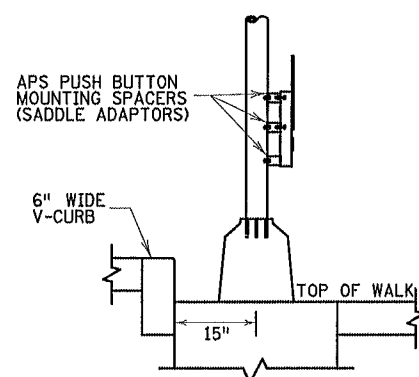
INSET A



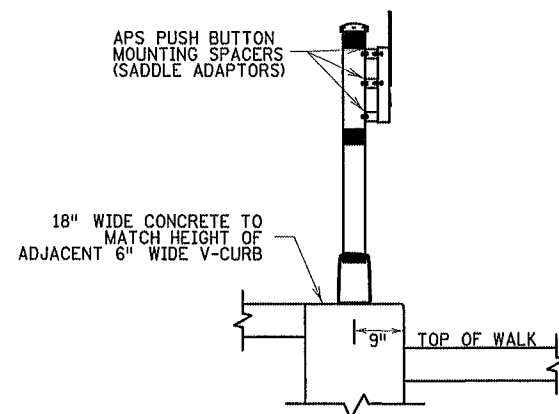
PLAN VIEW



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.

⑤ 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%.

① 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.

① 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.

REVISION:
APPROVED: 11-04-2021
Jeffrey Perkins
OPERATIONS DIVISION

MINNESOTA
DEPARTMENT
OF
TRANSPORTATION

STANDARD PLAN 5-297.250

5 OF 6

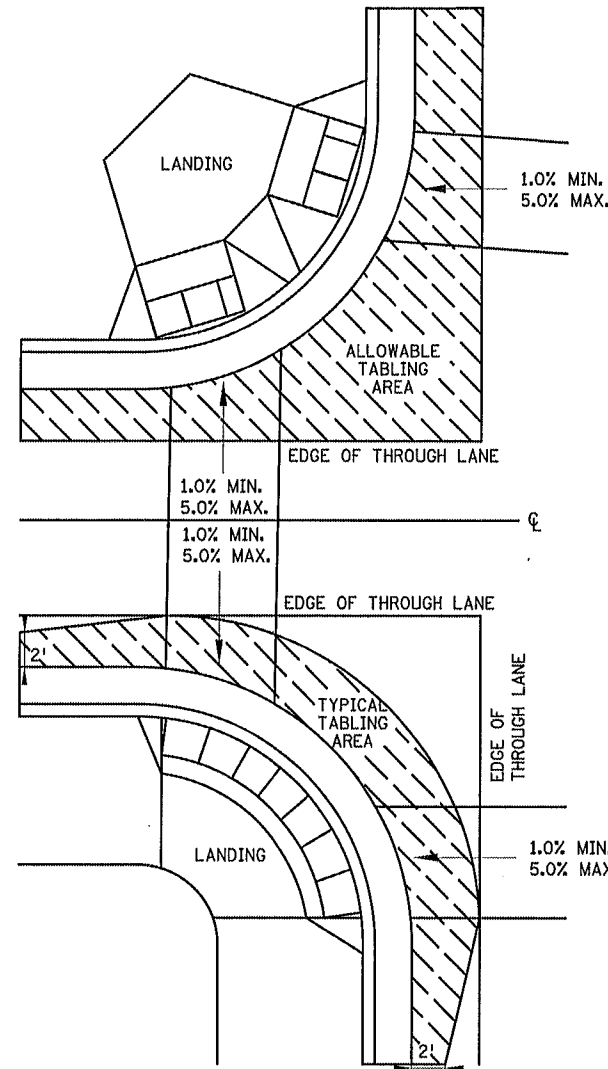
THOMAS STYBICKI
STATE DESIGN ENGINEER

APPROVED: 11-04-2021
REVISED:

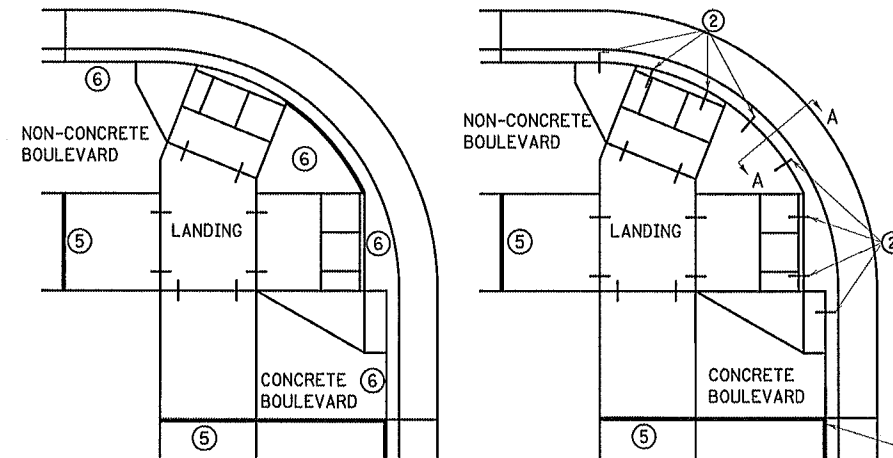
STATE PROJ. NO.

PEDESTRIAN CURB RAMP DETAILS

(TH) SHEET NO. 13 OF 29 SHEETS

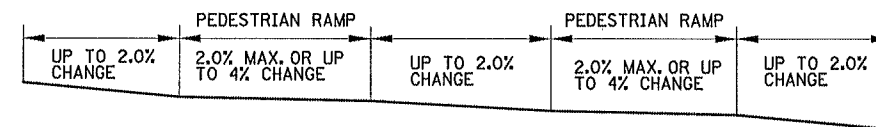


CURB LINE AND ROAD CROSSING ADJUSTMENTS

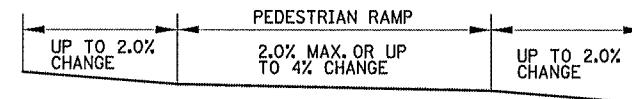


EXPANSION MATERIAL PLACEMENT
FOR CONCRETE ROADWAYS

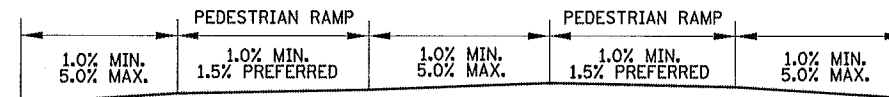
CURB LINE REINFORCEMENT ④
PLACEMENT ON BITUMINOUS ROADWAYS



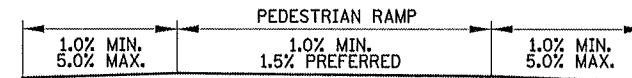
FLOW LINE PROFILE "TABLE" - TWIN PERPENDICULARS



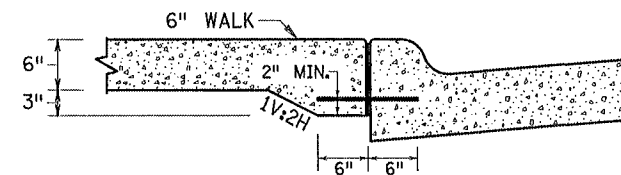
FLOW LINE PROFILE "TABLE" - FAN



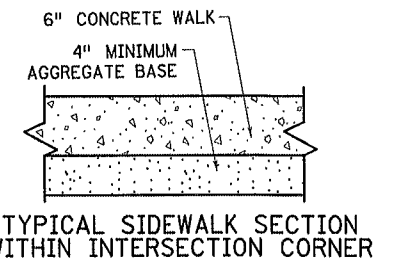
FLOW LINE PROFILE RAISE - TWIN PERPENDICULARS



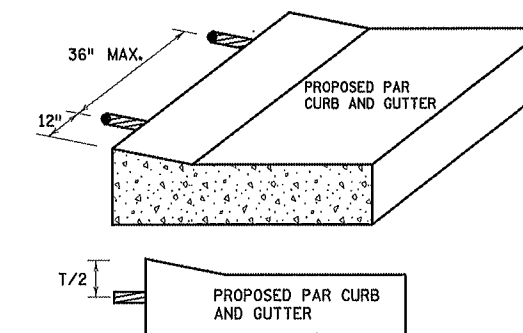
FLOW LINE PROFILE RAISE - FAN



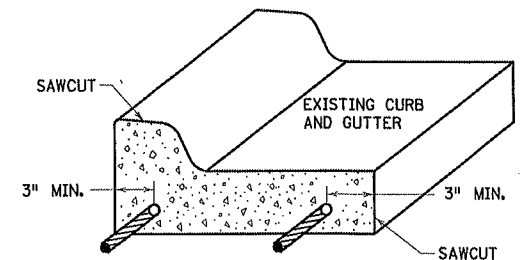
SECTION VIEW A-A
THICKENED SECTION
THROUGH CURB RAMP FLARES



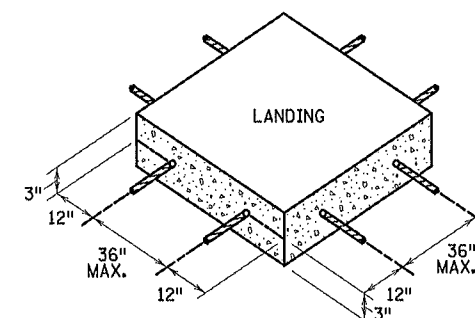
TYPICAL SIDEWALK SECTION
WITHIN INTERSECTION CORNER



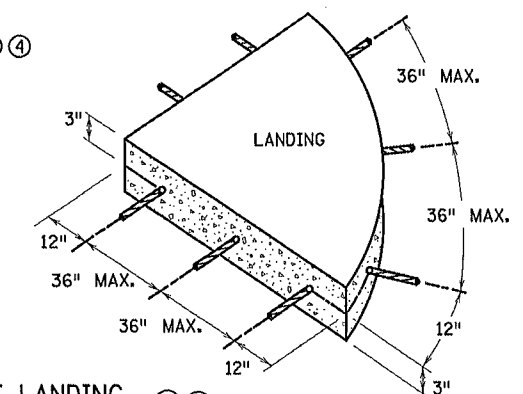
CURB RAMP REINFORCEMENT DETAILS ② ④



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) 1.0% MIN. CROSS-SLOPE OF THE ROAD
- 2) 5.0% MAX. CROSS-SLOPE OF THE ROAD
- 3) "TABLE" FLOW LINE UP TO 4% CHANGE FROM EXISTING SLOPE IN FRONT OF PEDESTRIAN RAMP
- 4) 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) 1.0% MIN. AND 5.0% MAXIMUM CROSS-SLOPE OF THE ROAD
- 2) 1.0% MIN. FLOW LINE (ON EITHER SIDE OF PEDESTRIAN RAMP) TO MAINTAIN POSITIVE DRAINAGE
- 3) 5.0% RECOMMENDED MAX. FLOW LINE
- 4) 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.

REVISION:
APPROVED: 11-04-2021
Jeffrey Perkins
OPERATIONS DIVISION

MINNESOTA
DEPARTMENT
OF
TRANSPORTATION

STANDARD PLAN 5-297.250

6 OF 6

THOMAS STYRICKI
STATE DESIGN ENGINEER

APPROVED: 11-04-2021

REVISED:

STATE PROJ. NO.

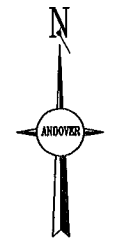
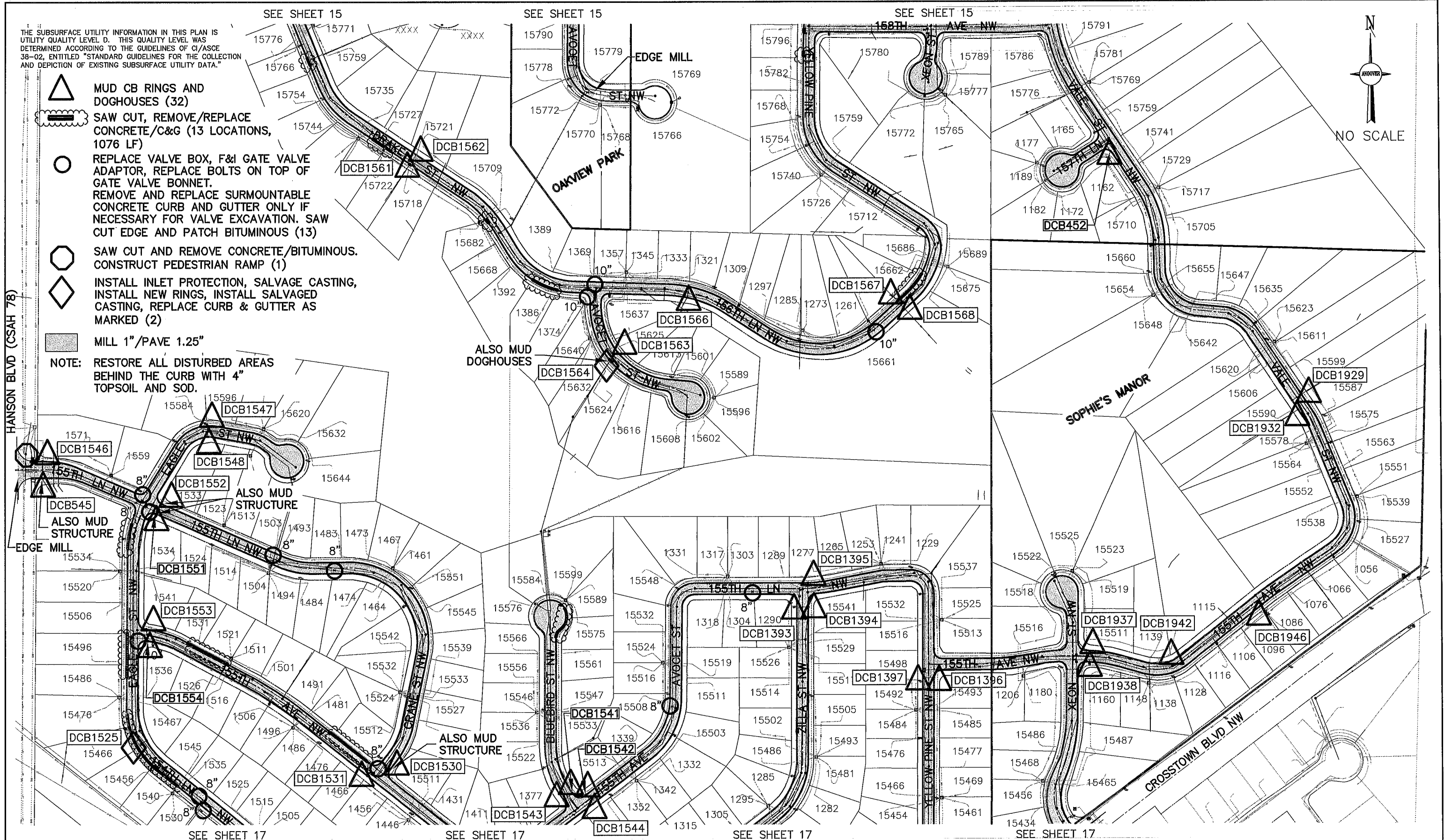
PEDESTRIAN CURB RAMP DETAILS

(TH) SHEET NO. 14 OF 29 SHEETS

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF C/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."

- MUD CB RINGS AND DOGHOUSES (32)
- SAW CUT, REMOVE/REPLACE CONCRETE/C&G (13 LOCATIONS, 1076 LF)
- REPLACE VALVE BOX, F&I GATE VALVE ADAPTOR, REPLACE BOLTS ON TOP OF GATE VALVE BONNET. REMOVE AND REPLACE SURMOUNTABLE CONCRETE CURB AND GUTTER ONLY IF NECESSARY FOR VALVE EXCAVATION. SAW CUT EDGE AND PATCH BITUMINOUS (13)
- SAW CUT AND REMOVE CONCRETE/BITUMINOUS. CONSTRUCT PEDESTRIAN RAMP (1)
- INSTALL INLET PROTECTION, SALVAGE CASTING, INSTALL NEW RINGS, INSTALL SALVAGED CASTING, REPLACE CURB & GUTTER AS MARKED (2)
- MILL 1"/PAVE 1.25"

NOTE: RESTORE ALL DISTURBED AREAS BEHIND THE CURB WITH 4" TOPSOIL AND SOD.



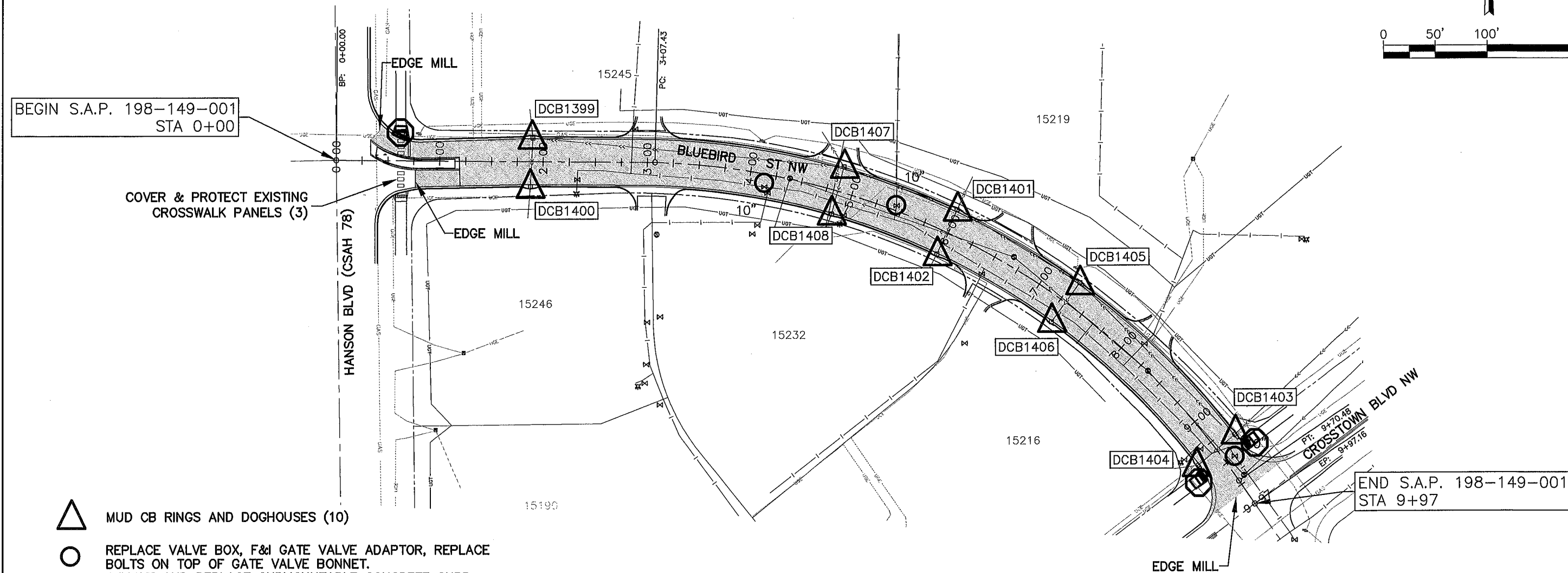
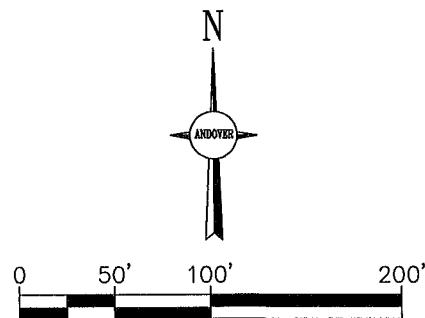
NO.	DATE	BY	DESCRIPTION OF REVISIONS

DESIGNED JUL	DRAWN JAK
CHECKED DDB	
I HEREBY CERTIFY THAT THIS PLAN 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.	
SIGNATURE: <i>David D. Berkowitz</i>	
DATE: 1/28/2022	
LIC. NO.: 28757	



2022 CURB, SIDEWALK & PEDESTRIAN RAMP REPAIRS,
AND 2022 MILL & OVERLAY PROJECTS
CITY PROJECTS 22-08, 22-15, 22-16, 22-17
SAP 198-110-004 & 198-149-001

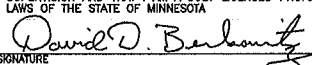
REMOVALS, UTILITIES,
STREET/PAVING
SHEET NO. 16 OF 29 SHEETS

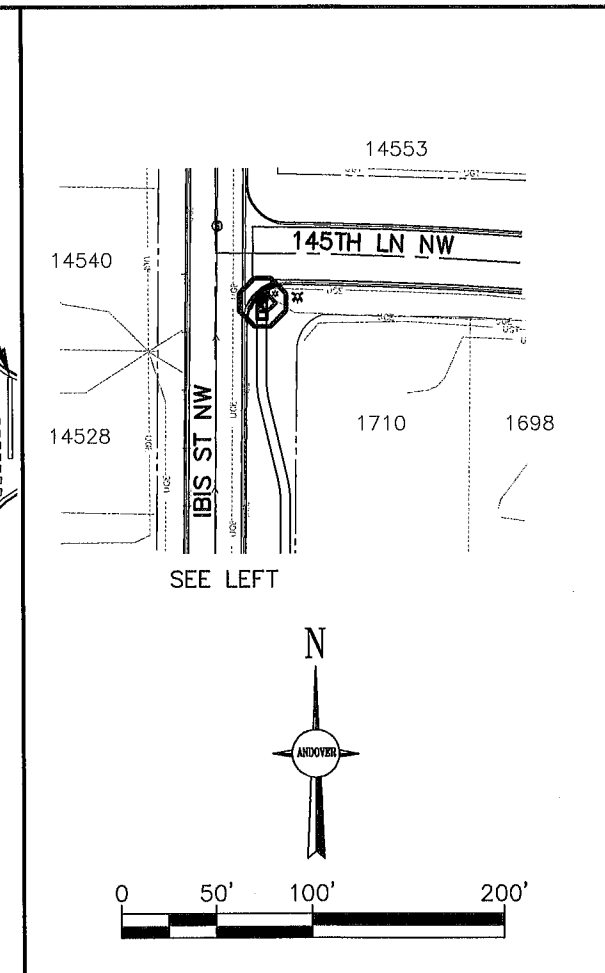
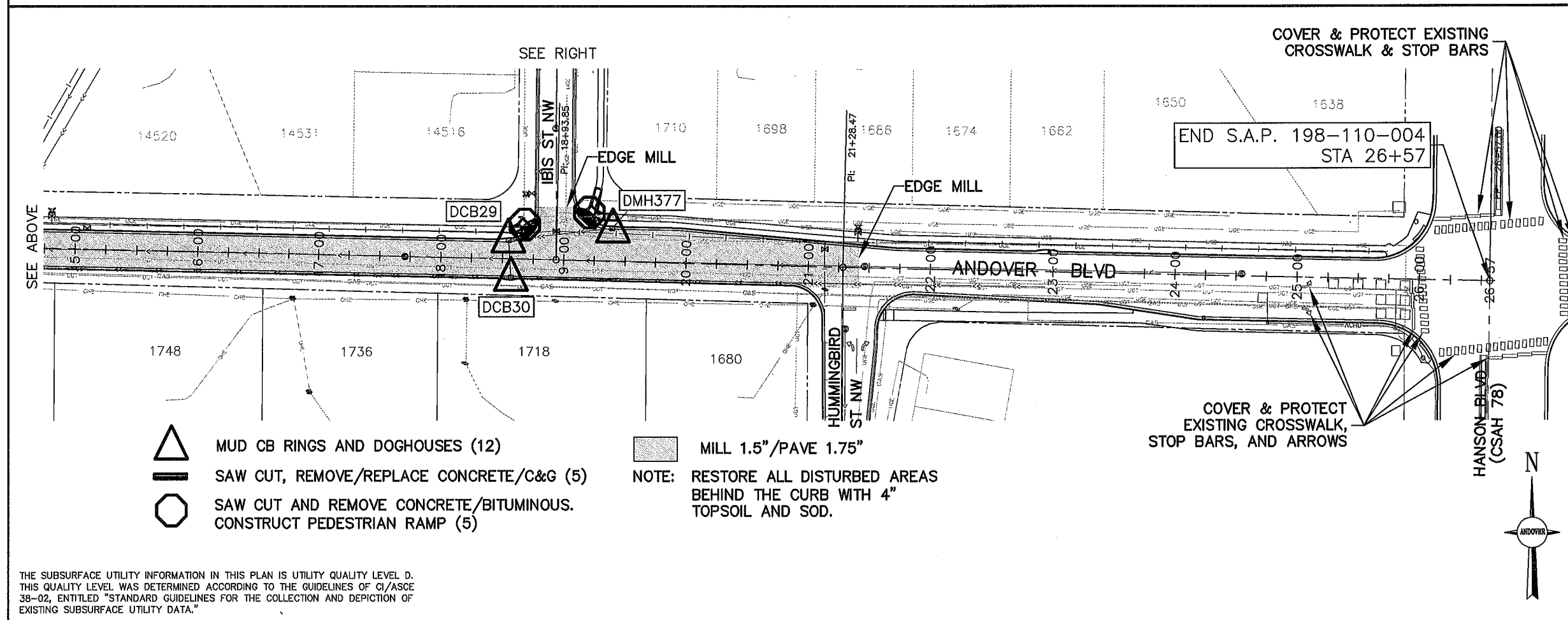
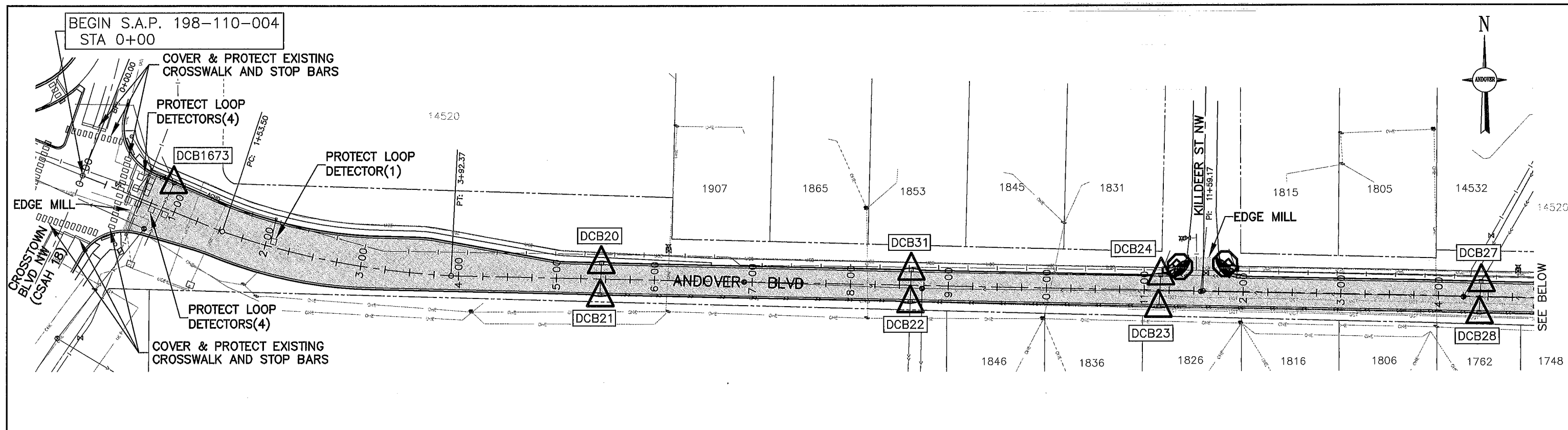


-  MUD CB RINGS AND DOGHOUSES (10)
-  REPLACE VALVE BOX, F&I GATE VALVE ADAPTOR, REPLACE BOLTS ON TOP OF GATE VALVE BONNET. REMOVE AND REPLACE SURMOUNTABLE CONCRETE CURB AND GUTTER ONLY IF NECESSARY FOR VALVE EXCAVATION. SAW CUT EDGE AND PATCH BITUMINOUS (3)
-  SAW CUT AND REMOVE CONCRETE/BITUMINOUS. CONSTRUCT PEDESTRIAN RAMP (3)
-  MILL 1.5"/PAVE 1.75"

NOTE: RESTORE ALL DISTURBED AREAS BEHIND THE CURB WITH 4" TOPSOIL AND SOD.

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."

				DESIGNED	DRAWN	I HEREBY CERTIFY THAT THIS PLAN 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  SIGNATURE DATE: 1/28/2022 LIC. NO.: 28757		2022 CURB, SIDEWALK & PEDESTRIAN RAMP REPAIRS, AND 2022 MILL & OVERLAY PROJECTS CITY PROJECTS 22-08, 22-15, 22-16, 22-17 SAP 198-110-004 & 198-149-001	REMOVALS, UTILITIES, STREET/PAVING SHEET NO. 18 OF 29 SHEETS
				JUL	JAK				
1	2/01/2022	JAK	ADJUSTED EAST END OF MILLING AREA.	CHECKED					
NO.	DATE	BY	DESCRIPTION OF REVISIONS	DDB					



- MUD CB RINGS AND DOGHOUSES (12)
- SAW CUT, REMOVE/REPLACE CONCRETE/C&G (5)
- SAW CUT AND REMOVE CONCRETE/BITUMINOUS. CONSTRUCT PEDESTRIAN RAMP (5)

MILL 1.5"/PAVE 1.75"

NOTE: RESTORE ALL DISTURBED AREAS BEHIND THE CURB WITH 4" TOPSOIL AND SOD.

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF C/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."

NO.	DATE	BY	DESCRIPTION OF REVISIONS

DESIGNED
JUL

DRAWN
JAK

CHECKED
DDB

I HEREBY CERTIFY THAT THIS PLAN 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.

David D. Berkowitz
SIGNATURE

DAVID D. BERKOWITZ
TYPED OR PRINTED NAME

DATE 1/28/2022

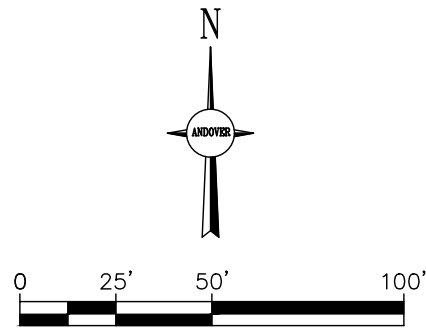
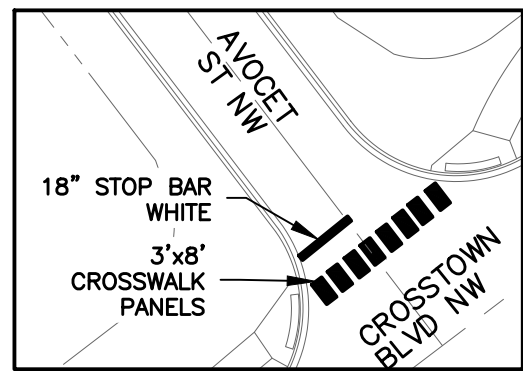
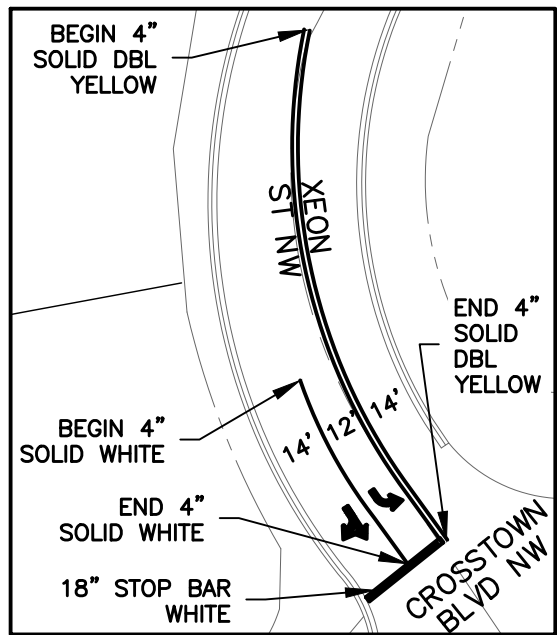
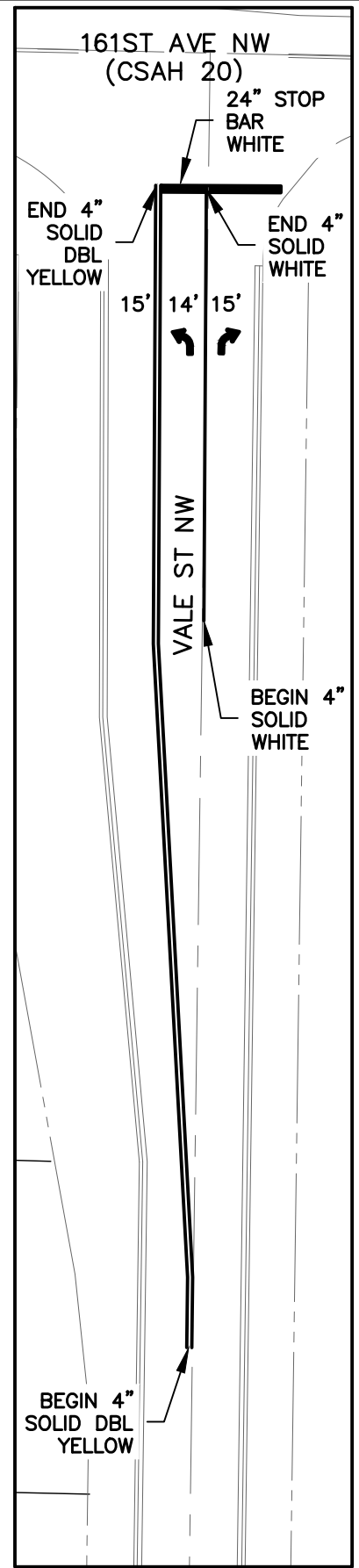
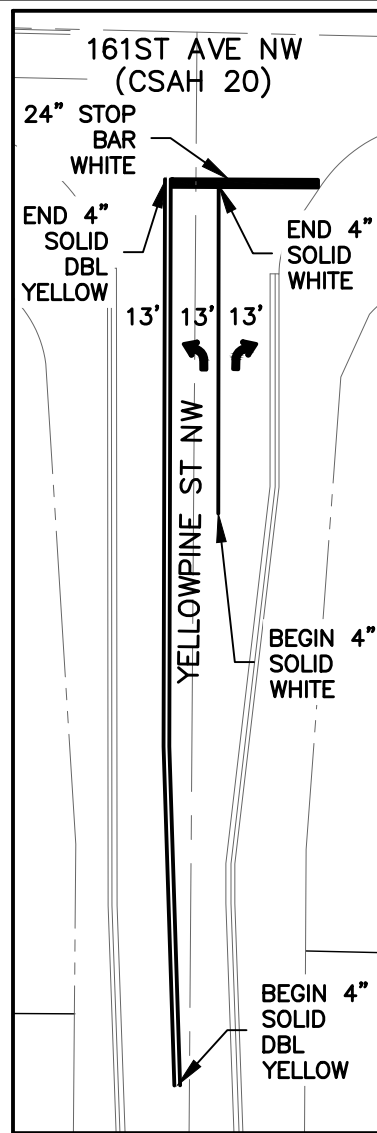
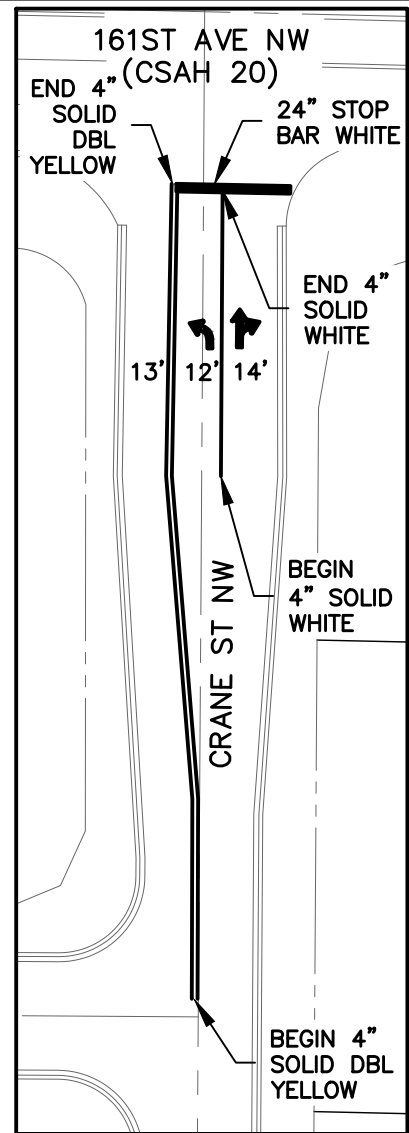
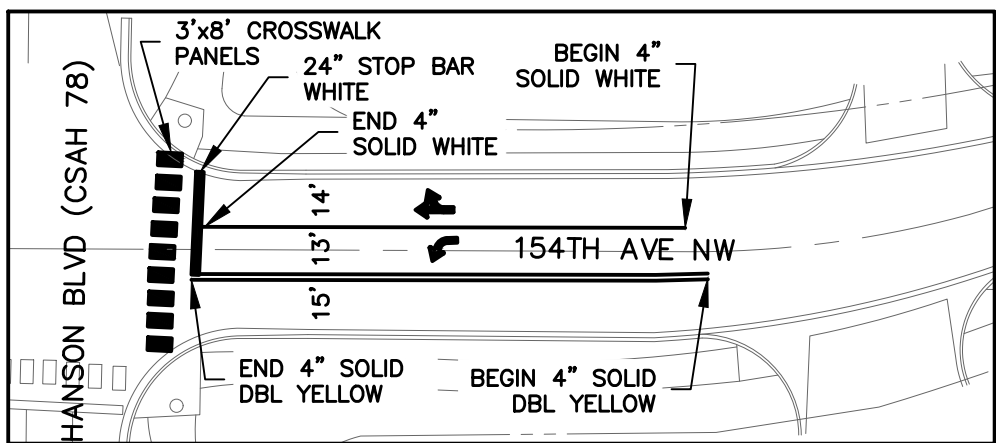
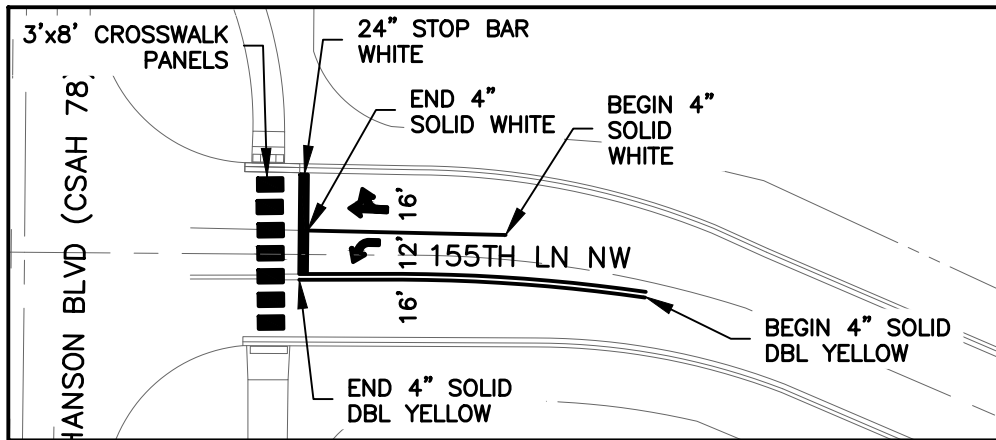
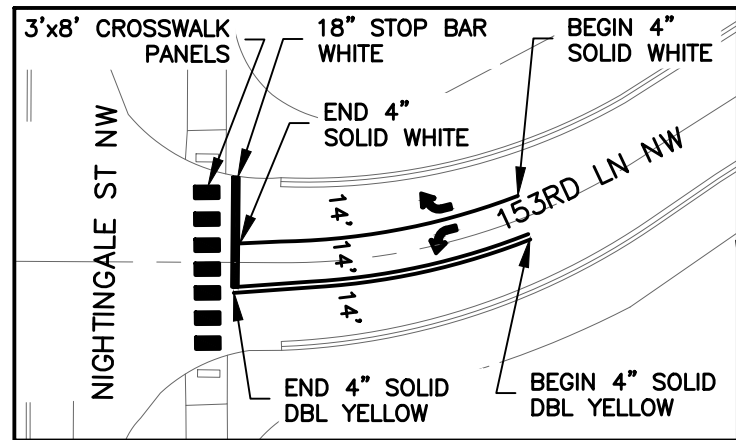
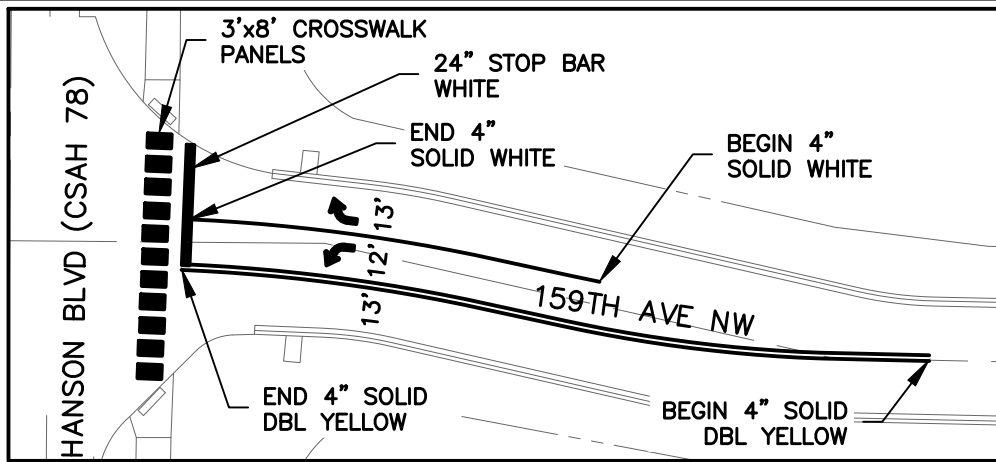
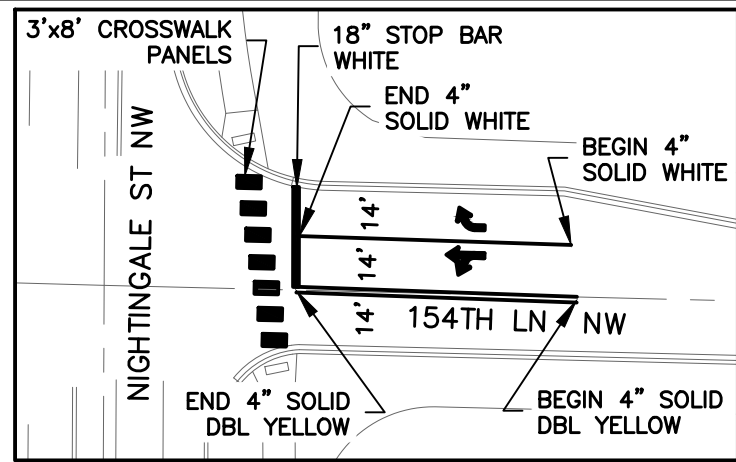
LIC. NO. 26757



2022 CURB, SIDEWALK & PEDESTRIAN RAMP REPAIRS,
AND 2022 MILL & OVERLAY PROJECTS
CITY PROJECTS 22-08, 22-15, 22-16, 22-17
SAP 198-110-004 & 198-149-001

REMOVALS, UTILITIES,
STREET/PAVING

SHEET NO. 20 OF 29 SHEETS



NO.	DATE	BY	DESCRIPTION OF REVISIONS
1	2/23/2022	JAK	ADDENDUM #1 - PER ACHD COMMENTS

DESIGNED: JJJ, DRAWN: JAK, CHECKED: DDB

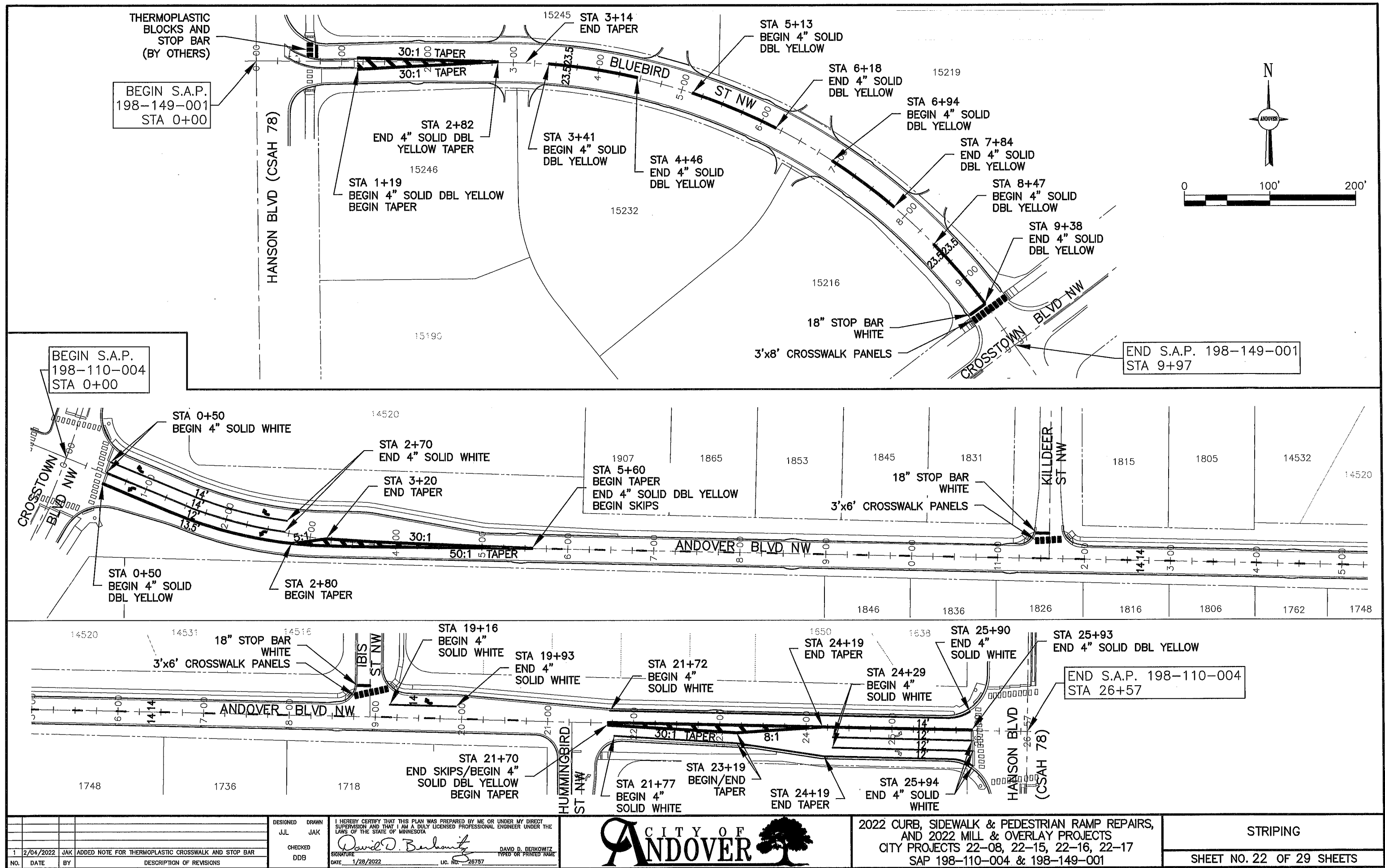
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

David D. Berkowitz
 DAVID D. BERKOWITZ
 DATE: 1/28/2022 LIC. NO.: 26757



2022 CURB, SIDEWALK & PEDESTRIAN RAMP REPAIRS, AND 2022 MILL & OVERLAY PROJECTS
 CITY PROJECTS 22-08, 22-15, 22-16, 22-17
 SAP 198-110-004 & 198-149-001

STRIPING
 SHEET NO. 21 OF 29 SHEETS



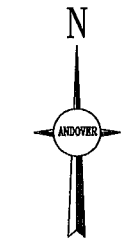
NO.	DATE	BY	DESCRIPTION OF REVISIONS
1	2/04/2022	JAK	ADDED NOTE FOR THERMOPLASTIC CROSSWALK AND STOP BAR

DESIGNED JUL	DRAWN JAK
CHECKED DDB	
I HEREBY CERTIFY THAT THIS PLAN 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.	
SIGNATURE: <i>David D. Berkowitz</i> DATE: 1/28/2022 LIC. NO.: 26757	
TYPED OR PRINTED NAME: DAVID D. BERKOWITZ	

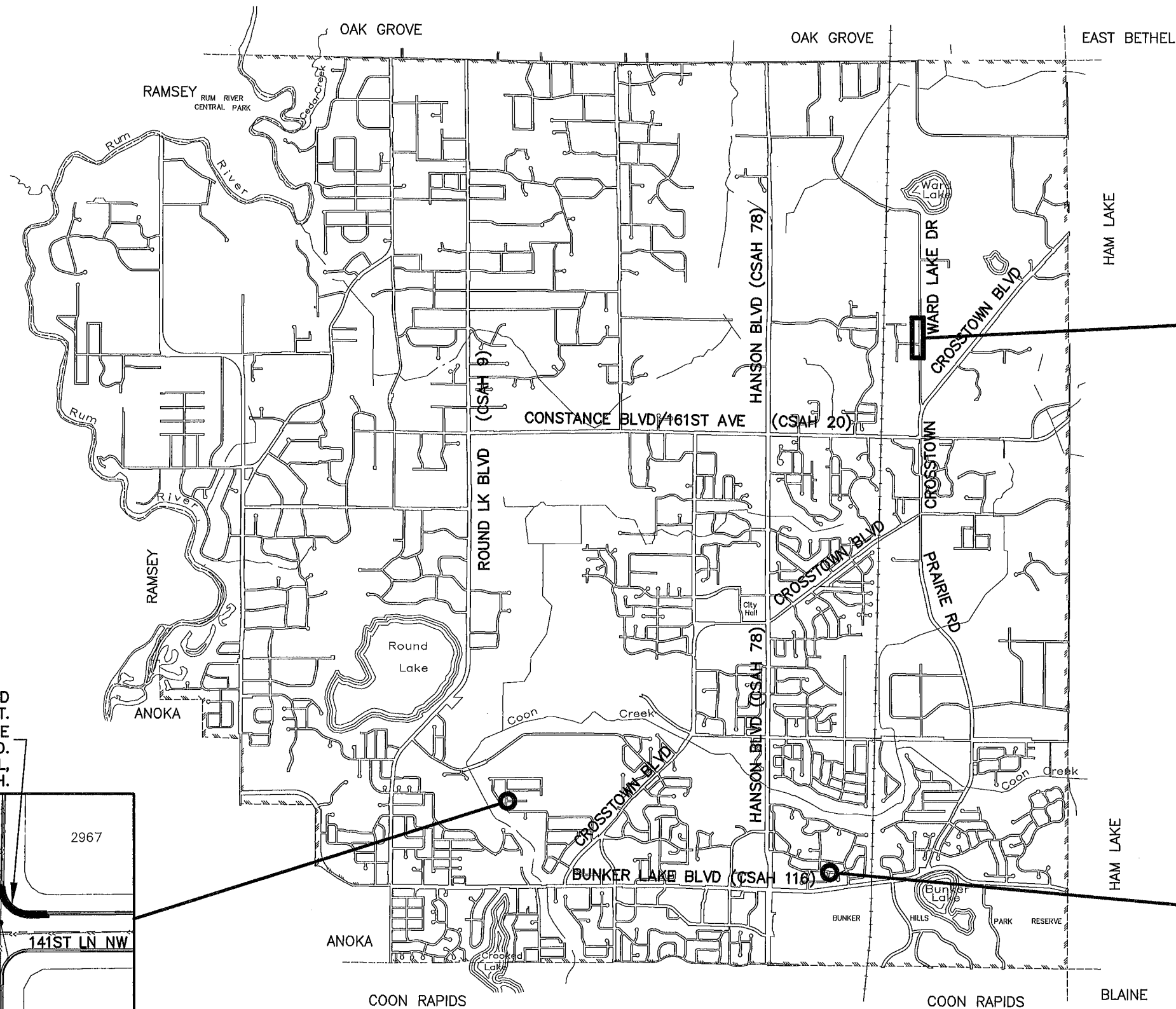


2022 CURB, SIDEWALK & PEDESTRIAN RAMP REPAIRS,
AND 2022 MILL & OVERLAY PROJECTS
CITY PROJECTS 22-08, 22-15, 22-16, 22-17
SAP 198-110-004 & 198-149-001

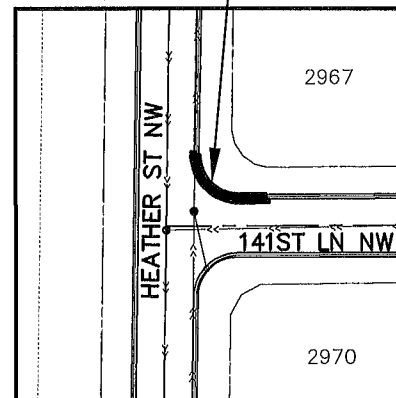
STRIPING
SHEET NO. 22 OF 29 SHEETS



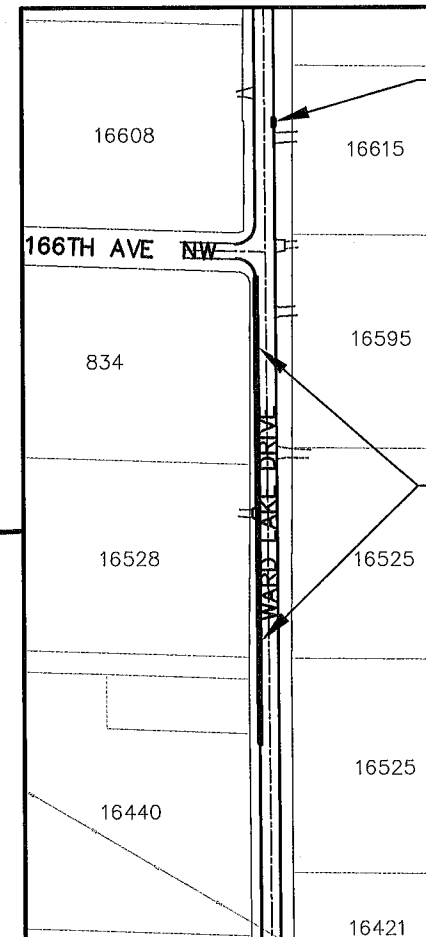
NO SCALE



SAW CUT, REMOVE, AND PATCH BIT.
SAW CUT, REMOVE/REPLACE CONCRETE C&G AS MARKED. RESTORE WITH TOPSOIL, SEED, MULCH.

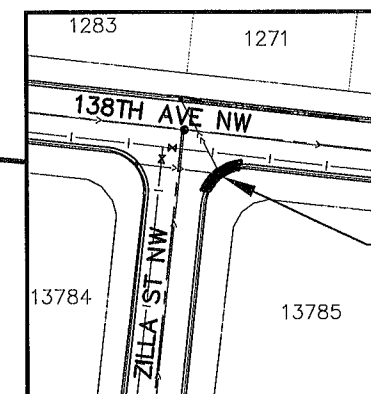


SAW CUT, REMOVE, AND PATCH BIT.
SAW CUT, REMOVE/REPLACE CONCRETE C&G AS MARKED. RESTORE WITH TOPSOIL, SEED, MULCH.



SAW CUT, REMOVE, AND PATCH BIT.
SAW CUT, REMOVE/REPLACE CONCRETE C&G AS MARKED. RESTORE WITH TOPSOIL, SEED, MULCH.

INSTALL INLET PROTECTION, SALVAGE CASTING, INSTALL NEW RINGS, INSTALL SALVAGED CASTING, REPLACE CURB & GUTTER AS MARKED. RESTORE WITH TOPSOIL AND SOD.



NO.	DATE	BY	DESCRIPTION OF REVISIONS

DESIGNED
JUL
DRAWN
JAK
CHECKED
DOB

I HEREBY CERTIFY THAT THIS PLAN 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.
David D. Berkowitz
SIGNATURE
DATE 1/28/2022
LIC. NO. 28757
DAVID D. BERKOWITZ
TYPED OR PRINTED NAME



2022 CURB, SIDEWALK & PEDESTRIAN RAMP REPAIRS
CITY PROJECT 22-08

LOCATION MAP

SHEET NO. 23 OF 29 SHEETS

A INSTALL CONTROLLER AND CABINET (FURNISHED BY COUNTY) CABINET FOUNDATION EXTENDING INTO H.H. 16: METERED SIGNAL SERVICE 2" RSC 3-1/2" C*12 4" RSC 3-12" C*12 7-3" C*12 7-2" C*14 2-3" C*20 EXTEND INTO H.H. 15: 4" RSC 3-12" C*12 7-3" C*12 7-2" C*14 2-3" C*20 1-FIBER OPTIC STUB OUT 2-3" RSC FROM CABINET TO NORTH (THREAD AND CAP FOR FUTURE USE) STUB OUT 1" RSC FROM CABINET TO NORTH (THREAD AND CAP FOR FUTURE PHONE LINE)

B SIGNAL SERVICE CABINET (FURNISHED BY COUNTY) CABINET FOUNDATION EXTENDING INTO H.H. 16: METERED SIGNAL SERVICE 2" RSC 3-1/2" C*12 4" RSC 3-12" C*12 7-3" C*12 7-2" C*14 2-3" C*20 UNMETERED STREET LIGHT SERVICE 2-3" C*12 (LUM) STUB OUT 2" RSC FROM SERVICE CABINET TO NORTH (FOR SERVICE BY CONNEXUS)

1 PA100 POLE FOUNDATION TYPE PA100-B-45-D40-9 (DAVIT AT 350') 2-ONE WAY SIGNALS OVERHEAD (0' & 11' FROM END OF MAST ARM) ONE WAY SIGNAL-POLE MOUNTED AT 45' PEDESTRIAN INDICATION-POLE MOUNTED AT 225' PEDESTRIAN INDICATION-POLE MOUNTED AT 225' LUMINAIRE-250W HP5 2-PEDESTRIAN PUSH BUTTONS TYPE D SIGN PANEL-OVERHEAD (D-1) ONE WAY EVP DETECTOR & LIGHT (01 & 06) R6-1L SIGN PANEL-POLE MOUNTED AT 0' R6-1R SIGN PANEL-POLE MOUNTED AT 180' EXTEND INTO H.H. 1: 3" RSC 2-12" C*12 3-3" C*12 1-3" C*12 (LUM) 1-3" C*20

2 PA90 POLE FOUNDATION TYPE PA90-B-25 2-ONE WAY SIGNAL OVERHEAD ONE WAY SIGNAL-POLE MOUNTED AT 45' ONE WAY SIGNAL-POLE MOUNTED AT 225' PEDESTRIAN INDICATION-POLE MOUNTED AT 45' 1-PEDESTRIAN PUSH BUTTON TYPE D SIGN PANEL-OVERHEAD (D-2) ONE WAY EVP DETECTOR & LIGHT (08) EXTEND INTO H.H. 3: 3" RSC 1-12" C*12 4-3" C*12 3-2" C*14 1-3" C*20

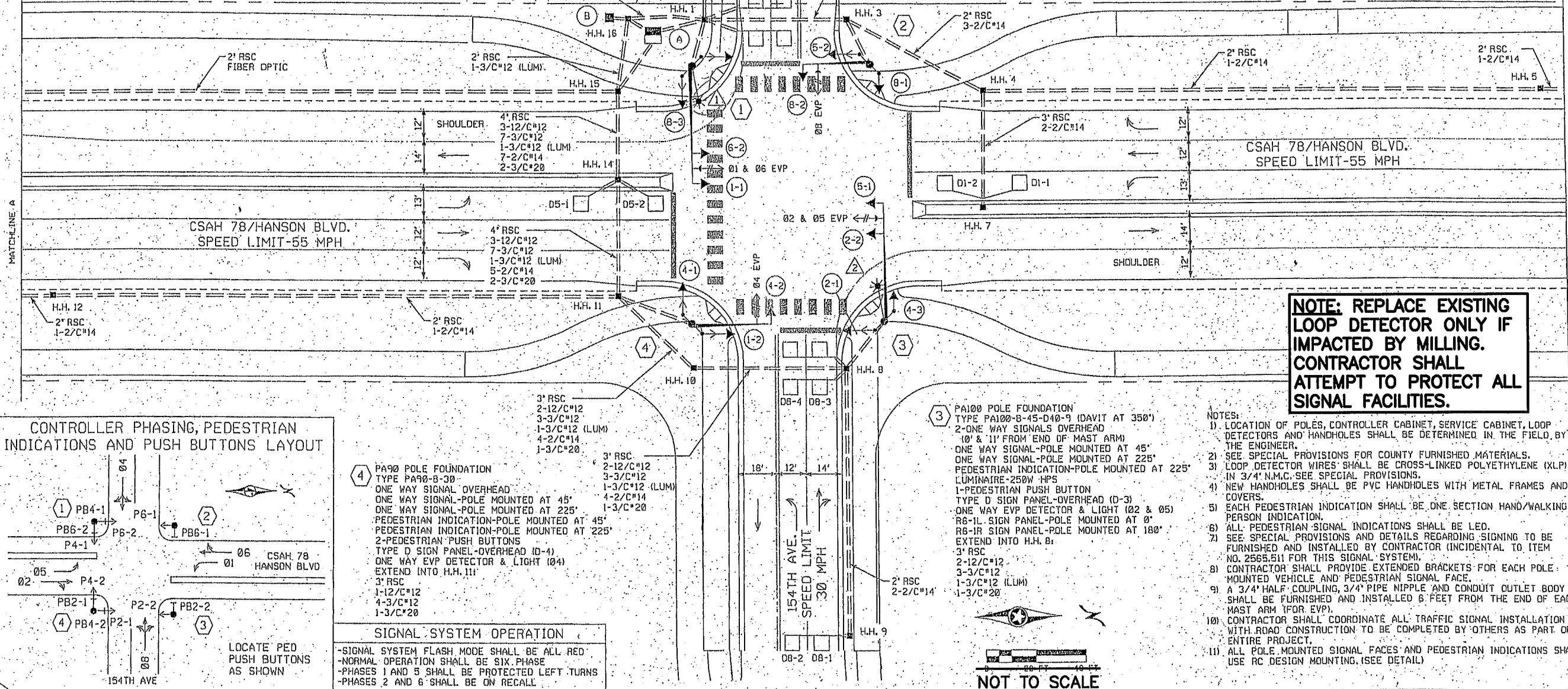
LOOP DETECTOR FUNCTIONS:
1) CALL AND EXTEND
2) CALL ONLY
3) EXTEND ONLY
4) CALL ONLY DENSITY
5) DELAYED CALL ONLY
6) DELAYED CALL ONLY DENSITY
7) DELAYED CALL-IMMEDIATE EXTEND
8) CARRY-OVER (STRETCH)
9) ADVISORY DETECTOR
10) SAMPLING DETECTOR
11) COUNTING DETECTOR

NMC LOOP DETECTORS			
NUMBER	SIZE	LOCATION	FUNCTION
D1-1	6"X6"	40'	
D1-2	6"X6"	10'	
D2-1	6"X6"	475'	
D4-1	6"X6"	120'	
D4-2, D4-3	2-6"X6"	5' & 20'	
D5-1	6"X6"	40'	
D5-2	6"X6"	10'	
D6-1	6"X6"	475'	
D8-1, D8-2	6"X6"	120'	
D8-3, D8-4	2-6"X6"	5' & 20'	

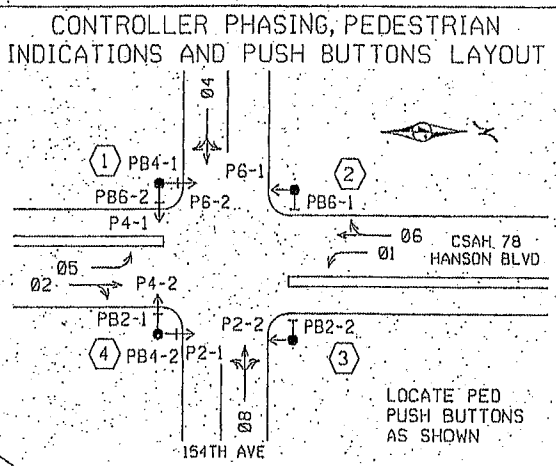
SIGNAL FACES			
FACE	R	Y	G
1-1, 1-2	←	←	←
2-1, 2-2	←	←	←
4-1, 4-2, 4-3	←	←	←
5-1, 5-2	←	←	←
6-1, 6-2	←	←	←
8-1, 8-2, 8-3	←	←	←

-ALL SIGNAL INDICATIONS SHALL BE 12"
-ALL SIGNAL INDICATIONS SHALL BE LED
-ALL SIGNAL FACES SHALL HAVE A BACKGROUND SHIELD

LOCATION: DISTANCE FROM STOP BAR TO FRONT OF LOOP DETECTOR



NOTE: REPLACE EXISTING LOOP DETECTOR ONLY IF IMPACTED BY MILLING. CONTRACTOR SHALL ATTEMPT TO PROTECT ALL SIGNAL FACILITIES.



4 PA90 POLE FOUNDATION TYPE PA90-B-30 2-ONE WAY SIGNAL OVERHEAD ONE WAY SIGNAL-POLE MOUNTED AT 45' ONE WAY SIGNAL-POLE MOUNTED AT 225' PEDESTRIAN INDICATION-POLE MOUNTED AT 45' PEDESTRIAN INDICATION-POLE MOUNTED AT 225' 2-PEDESTRIAN PUSH BUTTONS TYPE D SIGN PANEL-OVERHEAD (D-4) ONE WAY EVP DETECTOR & LIGHT (04) EXTEND INTO H.H. 11: 3" RSC 2-12" C*12 3-3" C*12 1-3" C*12 (LUM) 4-2" C*14 1-3" C*20

SIGNAL SYSTEM OPERATION
-SIGNAL SYSTEM FLASH MODE SHALL BE ALL RED
-NORMAL OPERATION SHALL BE SIX PHASE
-PHASES 1 AND 5 SHALL BE PROTECTED LEFT TURNS
-PHASES 2 AND 6 SHALL BE ON RECALL

3 PA100 POLE FOUNDATION TYPE PA100-B-45-D40-9 (DAVIT AT 350') 2-ONE WAY SIGNALS OVERHEAD (0' & 11' FROM END OF MAST ARM) ONE WAY SIGNAL-POLE MOUNTED AT 45' ONE WAY SIGNAL-POLE MOUNTED AT 225' PEDESTRIAN INDICATION-POLE MOUNTED AT 225' LUMINAIRE-250W HP5 1-PEDESTRIAN PUSH BUTTON TYPE D SIGN PANEL-OVERHEAD (D-3) ONE WAY EVP DETECTOR & LIGHT (02 & 05) R6-1L SIGN PANEL-POLE MOUNTED AT 0' R6-1R SIGN PANEL-POLE MOUNTED AT 180' EXTEND INTO H.H. 8: 3" RSC 2-12" C*12 3-3" C*12 1-3" C*12 (LUM) 1-3" C*20

- NOTES:
- 1) LOCATION OF POLES, CONTROLLER CABINET, SERVICE CABINET, LOOP DETECTORS AND HANDHOLES SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
 - 2) SEE SPECIAL PROVISIONS FOR COUNTY FURNISHED MATERIALS.
 - 3) LOOP DETECTOR WIRES SHALL BE CROSS-LINKED POLYETHYLENE (XLPE) IN 3/4" N.M.C. SEE SPECIAL PROVISIONS.
 - 4) NEW HANDHOLES SHALL BE PVC HANDHOLES WITH METAL FRAMES AND COVERS.
 - 5) EACH PEDESTRIAN INDICATION SHALL BE ONE SECTION HAND/WALKING PERSON INDICATION.
 - 6) ALL PEDESTRIAN SIGNAL INDICATIONS SHALL BE LED.
 - 7) SEE SPECIAL PROVISIONS AND DETAILS REGARDING SIGNING TO BE FURNISHED AND INSTALLED BY CONTRACTOR (INCIDENTAL TO ITEM NO. 2565.511 FOR THIS SIGNAL SYSTEM).
 - 8) CONTRACTOR SHALL PROVIDE EXTENDED BRACKETS FOR EACH POLE MOUNTED VEHICLE AND PEDESTRIAN SIGNAL FACE.
 - 9) A 3/4" HALF COUPLING, 3/4" PIPE NIPPLE AND CONDUIT OUTLET BODY SHALL BE FURNISHED AND INSTALLED 6 FEET FROM THE END OF EACH MAST ARM (FOR EVP).
 - 10) CONTRACTOR SHALL COORDINATE ALL TRAFFIC SIGNAL INSTALLATION WITH ROAD CONSTRUCTION TO BE COMPLETED BY OTHERS AS PART OF ENTIRE PROJECT.
 - 11) ALL POLE MOUNTED SIGNAL FACES AND PEDESTRIAN INDICATIONS SHALL USE RC DESIGN MOUNTING (SEE DETAIL)

NO.	DATE	BY	CHK	REVISIONS

DESIGN BY: NEH/THG
PLAN BY: CWK
CHECKED BY: AJW
APPROVED BY: AJW

701 Xenia Avenue South, Suite 300
Minneapolis, MN 55416
www.wsbeng.com
WSB
INFRASTRUCTURE ENGINEERING & PLANNING

CSAH 78 (Hanson Blvd)
City of Andover
Anoka County, Minnesota

ANOKA COUNTY HIGHWAY DEPARTMENT
INTERSECTION LAYOUT
TRAFFIC SIGNAL PLAN
S.A.P 02-678-18, ETC.

SHEET
68
OF
90
SHEETS

NO.	DATE	BY	DESCRIPTION OF REVISIONS
1	2/15/2022	JAK	REVISED PER STATE AID COMMENTS

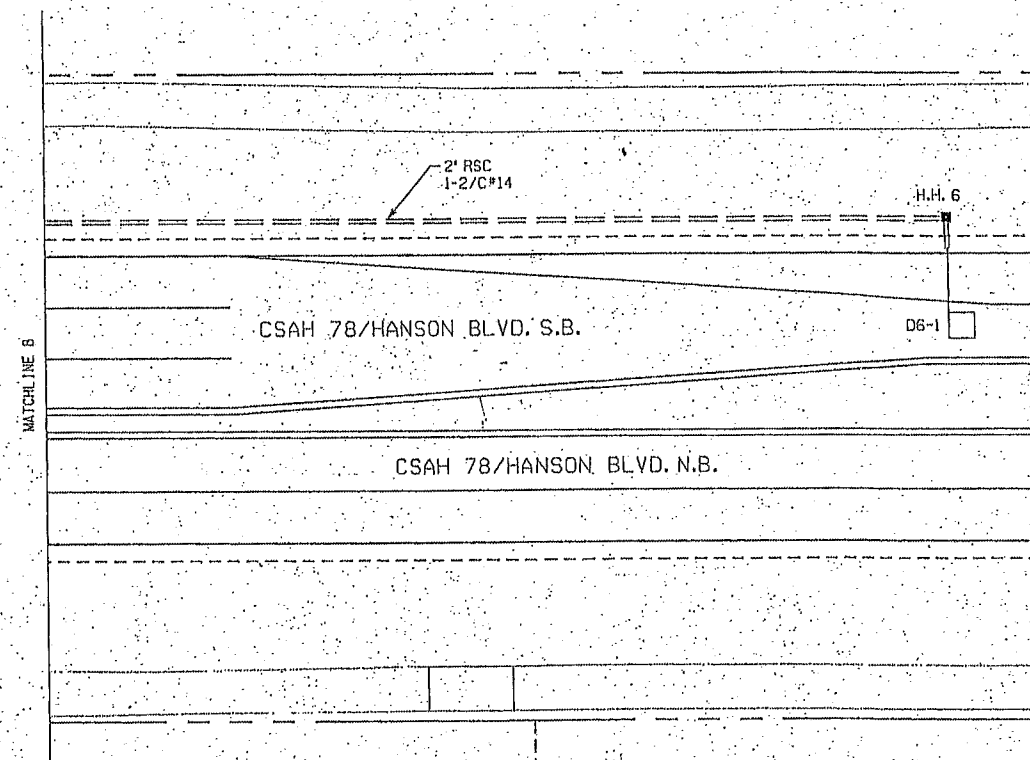
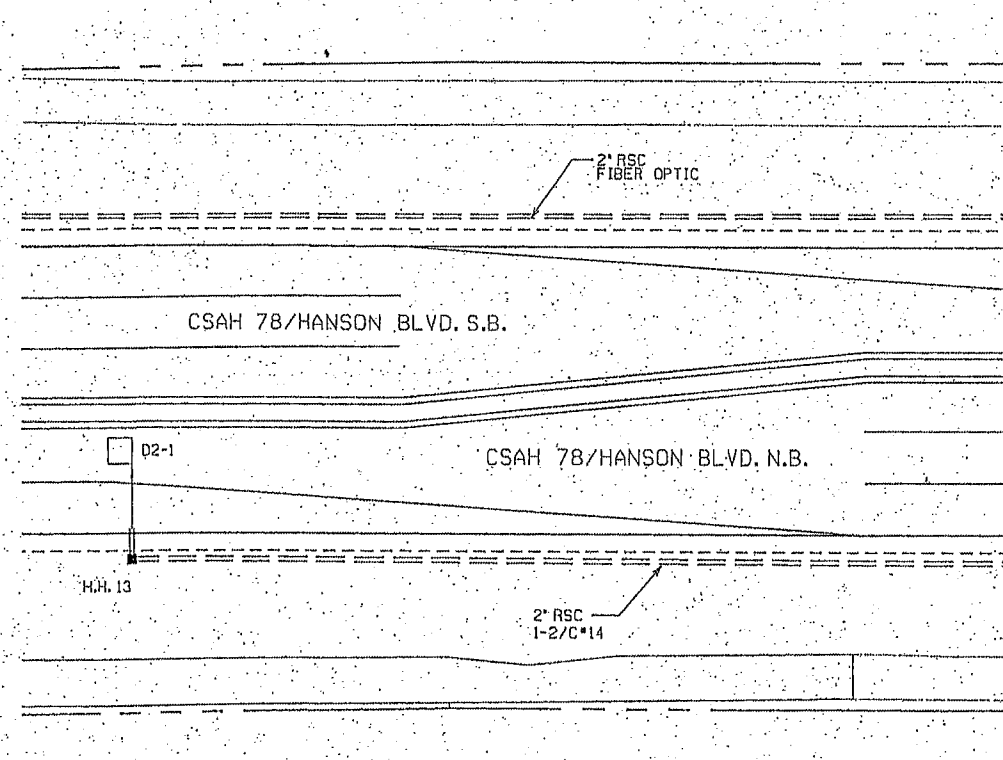
DESIGNED: JUL
DRAWN: JAK
CHECKED: DDB
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA
DAVID D. BERKOWITZ
DATE: 1/28/2022
LIC. NO.: 26757



2022 CURB, SIDEWALK & PEDESTRIAN RAMP REPAIRS,
AND 2022 MILL & OVERLAY PROJECTS
CITY PROJECTS 22-08, 22-15, 22-16, 22-17
SAP 198-110-004 & 198-149-001

HANSON BLVD (CSAH 78)/
154TH AVE NW SIGNAL PLAN
SHEET NO. 24 OF 29 SHEETS

NOTE: REPLACE EXISTING
LOOP DETECTOR ONLY IF
IMPACTED BY MILLING.
CONTRACTOR SHALL
ATTEMPT TO PROTECT ALL
SIGNAL FACILITIES.



NO.	DATE	BY	CHK	REVISIONS

Design By:	NEH/THG
Plan By:	CWK
Checked By:	AJW
Approved By:	AJW
CERTIFIED BY:	<i>[Signature]</i>
LIC. NO.:	23126

WSB
701 Xenia Avenue South, Suite 300
Minneapolis, MN 55410
www.wsbeng.com
763-611-4200 • Fax 763-511-1100
INFRASTRUCTURE • ENGINEERING • PLANNING • CONSTRUCTION



CSAH 78 (Hanson Blvd)
City of Andover
Anoka County, Minnesota

ANOKA COUNTY HIGHWAY DEPARTMENT
MATCHLINE LAYOUT
TRAFFIC SIGNAL PLAN
S.A.P 02-678-18, ETC.

SHEET
69
OF
90
SHEETS

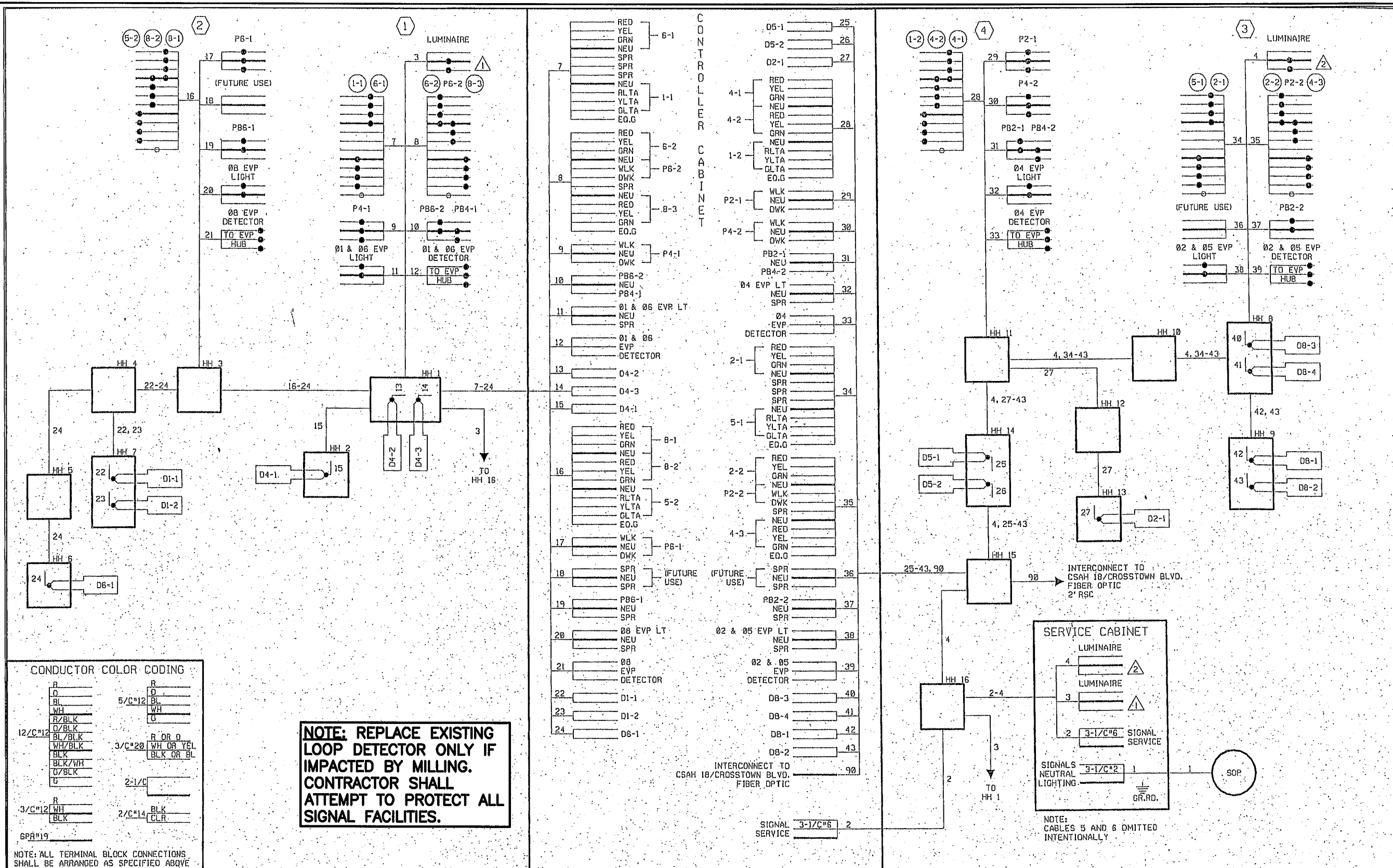
NO.	DATE	BY	DESCRIPTION OF REVISIONS
1	2/15/2022	JAK	REVISED PER STATE AID COMMENTS

DESIGNED	JJL	DRAWN	JAK
CHECKED	DDB		
I HEREBY CERTIFY THAT THIS PLAN 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.			
SIGNATURE	<i>[Signature]</i>	DATE	1/28/2022
LIC. NO.	28757	TYPED OR PRINTED NAME	



**2022 CURB, SIDEWALK & PEDESTRIAN RAMP REPAIRS,
AND 2022 MILL & OVERLAY PROJECTS**
CITY PROJECTS 22-08, 22-15, 22-16, 22-17
SAP 198-110-004 & 198-149-001

**HANSON BLVD (CSAH 78)/
154TH AVE NW SIGNAL PLAN**
SHEET NO. 25 OF 29 SHEETS



CONDUCTOR COLOR CODING

R	R
O	O
BL	5/C*12 BL
WH	WH
R/BLK	U
O/BLK	R OR O
BL/BLK	3/C*20 WH OR YEL
WH/BLK	BLK OR BL
BLK	
BLK/WH	2-1/C
O/BLK	
U	
3/C*12 WH	2/C*14 BLK CLR
BLK	
6PR*19	

NOTE: ALL TERMINAL BLOCK CONNECTIONS SHALL BE ARRANGED AS SPECIFIED ABOVE

NOTE: REPLACE EXISTING LOOP DETECTOR ONLY IF IMPACTED BY MILLING. CONTRACTOR SHALL ATTEMPT TO PROTECT ALL SIGNAL FACILITIES.

NO.	DATE	BY	CHK	REVISIONS

Design By: NEH/THG
Plan By: CWK
Checked By: AJW
Approved By: AJW

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.

CERTIFIED BY: *Anthony J. Winicki*
LICENSED PROFESSIONAL ENGINEER - ANTHONY J. WINICKI, P.E.
DATE: 8/30/05 LIC. NO. 23120

WSB
701 Santa Avenue South, Suite 300
Minneapolis, MN 55416
www.wsbeng.com
763-541-4000 Fax 763-541-1703
INFRASTRUCTURE • ENGINEERING • PLANNING • CONSTRUCTION

CSAH 78 (Hanson Blvd)
City of Andover
Anoka County, Minnesota

ANOKA COUNTY HIGHWAY DEPARTMENT
FIELD WIRING DIAGRAM
TRAFFIC SIGNAL PLAN
S.A.P 02-678-18, ETC.

SHEET
70
OF
90
SHEETS

NO.	DATE	BY	DESCRIPTION OF REVISIONS

DESIGNED: JUL
DRAWN: JAK
CHECKED: DDB
DATE: 1/28/2022
LIC. NO.: 28757

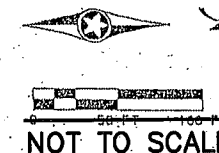
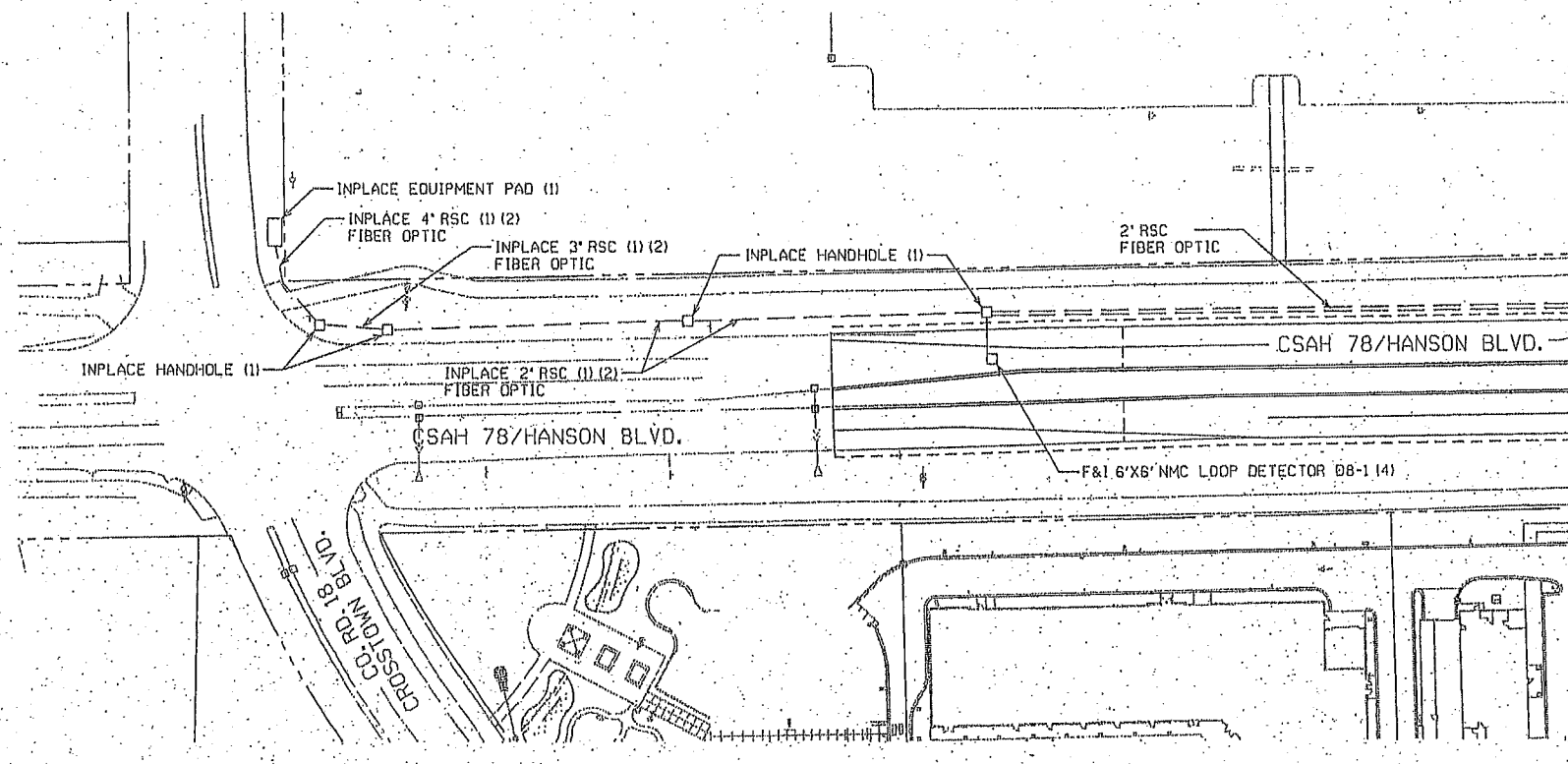
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNATURE: *David D. Berkowitz*
DAVID D. BERKOWITZ
DATE: 1/28/2022 LIC. NO. 28757

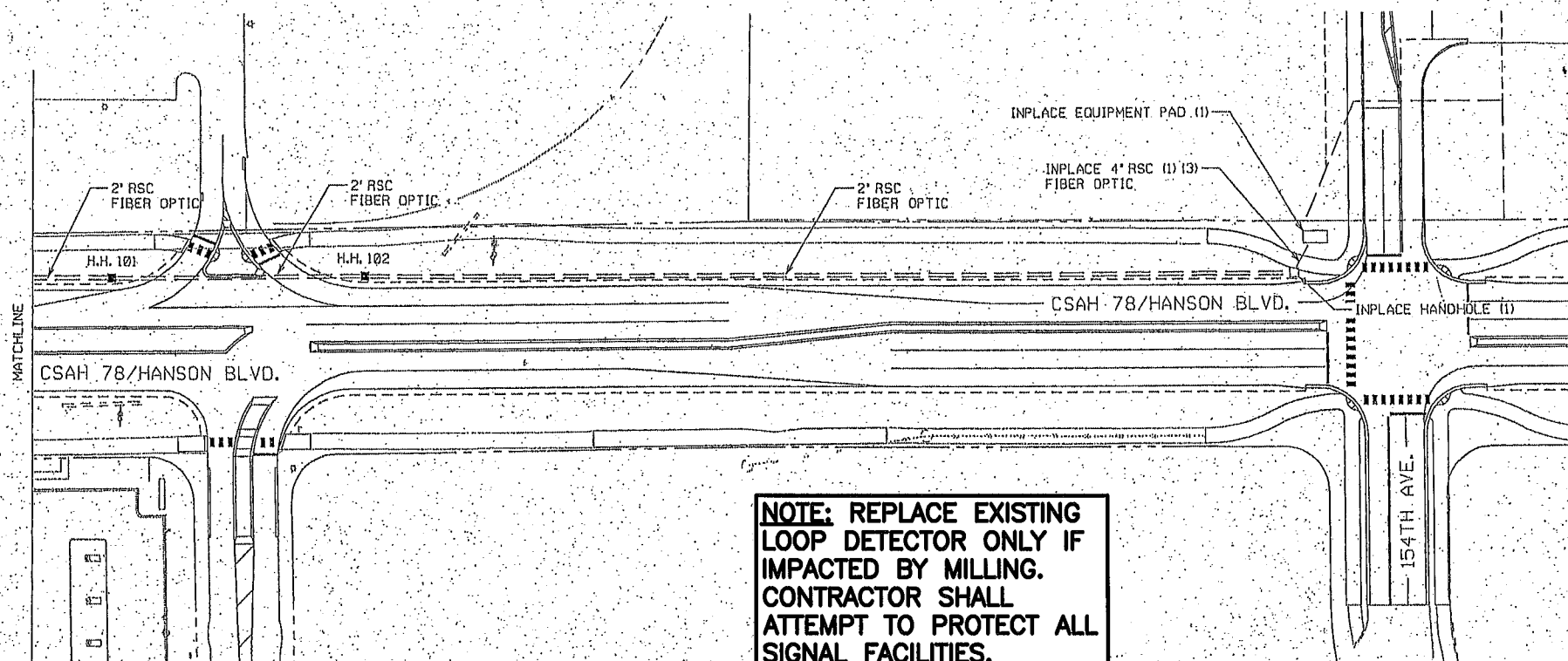


2022 CURB, SIDEWALK & PEDESTRIAN RAMP REPAIRS, AND 2022 MILL & OVERLAY PROJECTS
CITY PROJECTS 22-08, 22-15, 22-16, 22-17
SAP 198-110-004 & 198-149-001

**HANSON BLVD (CSAH 78)/
154TH AVE NW SIGNAL PLAN**
SHEET NO. 26 OF 29 SHEETS



- NOTES:
- 1) INPLACE SIGNAL ITEM LOCATIONS ARE APPROXIMATE.
 - 2) SEE CSAH 18 INTERSECTION LAYOUT FOR INPLACE CABLES IN CONDUIT.
 - 3) SEE 154TH AVENUE INTERSECTION LAYOUT FOR INPLACE CABLES IN CONDUIT.
 - 4) F&I 6'X8' NMC LOOP DETECTOR (DB-1) AT LOCATION SHOWN IN THE 'FOR INFORMATION' TRAFFIC SIGNAL PLAN. ITEM TO BE INCIDENTAL TO SIGNAL SYSTEM PAY ITEM 2565.511.



NOTE: REPLACE EXISTING LOOP DETECTOR ONLY IF IMPACTED BY MILLING. CONTRACTOR SHALL ATTEMPT TO PROTECT ALL SIGNAL FACILITIES.

NO.	DATE	BY	CHK	REVISIONS

Design By: NEH/THG
 Plan By: CWK
 Checked By: AJW
 Approved By: AJW

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.

CERTIFIED BY: *[Signature]*
 LICENSED PROFESSIONAL ENGINEER - ANTHONY J. KINICKI, P.E.
 DATE: 8/30/05 LIC. NO. 23120

WSB
 701 Xania Avenue South, Suite 300
 Minneapolis, MN 55416
 www.wsbeng.com

763-541-4000 • Fax 763-541-1700
 INFRASTRUCTURE • ENGINEERING • PLANNING • CONSTRUCTION

CSAH 78 (Hanson Blvd)
 City of Andover
 Anoka County, Minnesota

ANOKA COUNTY HIGHWAY DEPARTMENT
 INTERCONNECT LAYOUT
 TRAFFIC SIGNAL PLAN
 S.A.P 02-678-18, ETC.

SHEET
 71
 OF
 90
 SHEETS

NO.	DATE	BY	DESCRIPTION OF REVISIONS
1	2/15/2022	JAK	REVISED PER STATE AID COMMENTS

DESIGNED: JUL
 DRAWN: JAK
 CHECKED: DDB

I HEREBY CERTIFY THAT THIS PLAN 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.

[Signature]
 DAVID D. BERKOWITZ
 DATE: 1/28/2022 LIC. NO. 28787



2022 CURB, SIDEWALK & PEDESTRIAN RAMP REPAIRS, AND 2022 MILL & OVERLAY PROJECTS
 CITY PROJECTS 22-08, 22-15, 22-16, 22-17
 SAP 198-110-004 & 198-149-001

**HANSON BLVD (CSAH 78)/
 154TH AVE NW SIGNAL PLAN**
 SHEET NO. 27 OF 29 SHEETS

NOTE: REPLACE EXISTING LOOP DETECTOR ONLY IF IMPACTED BY MILLING. CONTRACTOR SHALL ATTEMPT TO PROTECT ALL SIGNAL FACILITIES.

N.M.C. LOOP DETECTORS			
NUMBER	SIZE (FT.)	LOCATION	FUNCTION
D1-1	2-8x8	15' & 45'	1
D1-2	2-8x8	0' & 30'	1
D2-1	6x8	270'	1
D3-1	2-8x8	15' & 45'	1
D3-2	2-8x8	0' & 30'	1
D4-1	6x8	250'	3,8
D4-2	2-8x8	5' & 20'	7
D4-3	2-8x8	5' & 20'	7
D5-1	2-8x8	15' & 45'	1
D5-2	2-8x8	0' & 30'	1
D6-1	6x8	250'	1
D7-1	2-8x8	15' & 45'	1
D7-2	2-8x8	0' & 30'	1
D8-1	6x8	250'	3,8
D8-2	2-8x8	5' & 20'	7
D8-3	2-8x8	5' & 20'	7

NOTE: LOCATION=DISTANCE FROM STOP BAR TO FRONT OF LOOP DETECTOR.

- LOOP DETECTORS FUNCTIONS:
- 1) CALL AND EXTEND
 - 2) CALL ONLY
 - 3) EXTEND ONLY
 - 4) CALL ONLY DENSITY
 - 5) DELAYED CALL ONLY
 - 6) DELAYED CALL ONLY DENSITY
 - 7) DELAYED CALL - M/MENATE EXTEND
 - 8) GARRY OVER (STRETCH)
 - 9) ADVISORY DETECTOR
 - 10) SAMPLING DETECTOR
 - 11) SPECIAL DETECTOR

2" R.S.C.
1-2/c#14

- PA90 POLE FOUNDATION
TYPE PA90-A-38-D40-9 (DAVIT AT 380°)
LUMINAIRE-200 WATT H.P.S. WITH PEC AND CHECK SWITCH
2-ONE WAY SIGNALS-OVERHEAD (0° AND 11° FROM END OF MAST ARM)
2-TYPE 10B-POLE MOUNTED 90° AND 180°
2-PEDESTRIAN PUSH BUTTONS AND SIGNS (R10-4b)
TYPE "D" SIGN PANEL-OVERHEAD (D-2)
ONE WAY EYP DETECTOR AND LIGHT-OVERHEAD (#6,1)
EXTEND INTO H.H.B:
3" R.S.C.
2-12/c#12
3-3/c#12
1-3/c#20
1-3/c#12 (LUM)

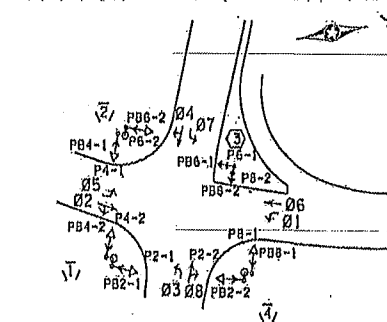
- PA100 POLE FOUNDATION
SALVAGE PA100-A-45-D40-9 FROM OLD POLE 3
INSTALL PA100-D40-9 FROM OLD POLE 3 (DAVIT AT 350°)
TYPE A-100 MOUNT ANOKA COUNTY
SALVAGE 2-5' TALL MOUNT SIGNALS OVERHEAD FROM OLD POLE 3
F&I: 1-ANGLE MOUNT WITH SALVAGED SIGNAL OVERHEAD AT 0°
INSTALL STRAIGHT MOUNT SIGNAL OVERHEAD AT 11°
SALVAGE 2 SIGNALS AND 2 PED. IND. FROM TYPE 10B-POLE MOUNTED FROM OLD POLE 3
INSTALL SALVAGED SIGNALS AND PED. IND. ON 2 NEW TYPE 10B-POLE MOUNTED BRACKETS AT 90° AND 180°
F&I: 2-5' TALL STATE PEDESTRIAN PUSH BUTTONS AND SIGNS (R10-3B)
SALVAGE ONE WAY EYP DETECTOR AND CONFIRMATORY LIGHT FROM OLD POLE 3
INSTALL ONE WAY EYP DETECTOR AND CONFIRMATORY LIGHT (PHASES 3+8) OVERHEAD AT 6°
SALVAGE LUMINAIRE-200W HPS FROM OLD POLE 3
INSTALL LUMINAIRE-200W HPS FROM OLD POLE 3
SALVAGE TYPE "D" SIGN (D-1) FROM OLD POLE 3
INSTALL TYPE "D" SIGN (D-1) FROM OLD POLE 3
F&I: 1-3" RSC INTO HH15:
2-12/c#14
2-4/c#14
1-3/c#14
1-3/c#20
1-1/c#6 INS. GR.

- (A) INSTALL CONTROLLER AND CABINET
CABINET FOUNDATION
EXTEND INTO HH14:
METERED SIGNAL SERVICE
2" RSC
3-1/c#6
EXTEND INTO HH1:
4" RSC
4-12/c#12
3-3/c#12
3-3/c#20
8-2/c#14
EXTEND INTO HH 13:
4" RSC
4-12/c#12
6-3/c#12
8-2/c#14
REMOVE: 2-12/c#12
3-3/c#12
1-2/c#14
1-3/c#20
F&I: 2-12/c#14
2-4/c#14
3-3/c#14
1-3/c#20
1-1/c#6 INS. GR.

- STUB OUT 2-3" RSC FROM CABINET TO NORTH (THREAD AND CAP BOTH ENDS FOR FUTURE USE BETWEEN HH1 AND HH13:
2-3/c#12 (LUM)
REMOVE: 1-3/c#12 (LUM) *
F&I: 1-3/c#14 (LUM) *

- NOTES:
1. ITEMS DENOTED WITH AN * ARE INCLUDED IN PAYMENT FOR THE REVERSE SIGNAL SYSTEM PAY ITEM.
 2. REFER TO THE "FOR INFORMATION ONLY" SHEETS FOR INPLACE SIGNAL COMPONENTS.
 3. THE EXACT LOCATION OF HANDHOLES, POLES, PEDESTRIAN CURB RAMP AND PUSH BUTTON STATIONS SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
 4. SEE THE DETAIL SHEET FOR THE TYPE D SIGN. THE REQUIRED TYPE D SIGN IS INCIDENTAL.
 5. NEW HANDHOLES SHALL BE PVC WITH METAL FRAMES AND COVERS.
 6. THIS PLAN SPECIFIES CONDUIT SIZES, TYPES, AND GENERAL LOCATIONS. THE EXACT LOCATIONS WILL BE DETERMINED IN THE FIELD. CONDUIT UNDER A RAILROAD OR EXISTING ROADWAYS REQUIRES BORING.
 7. ALL NEW CONDUIT SHALL BE RSC OR NON-METALLIC CONDUIT AS SHOWN IN THE PLAN.
 8. ALL NON-METALLIC CONDUIT SHALL CARRY 1/C#6 GREEN INSULATED GROUNDING CONDUCTOR.
 9. RETURN SALVAGED A-45 TO ANOKA COUNTY AT THE LOCATION AS INDICATED IN THE SPECIAL PROVISIONS.

CONTROLLER PHASING, PEDESTRIAN INDICATIONS AND PUSH BUTTONS



PEDESTRIAN PUSH BUTTONS SHALL BE LOCATED AS SHOWN ABOVE

SIGNAL SYSTEM OPERATION

- THE SIGNAL SYSTEM FLASH MODE IS ALL RED.
- NORMAL OPERATION IS 6 PHASE, WITH PHASE(S) 1, 3, 6, 7 BEING PROTECTED LEFT TURN PHASES.
- PHASES 2 AND 6 SHALL BE ON VEHICLE RECALL.

NOT TO SCALE

SCALE
FEET

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.

BRYAN J. HENNEITH
LIC. NO. 43354
DATE 03-10-2014

BOLTON & MENK, INC.
CONSULTING ENGINEERS & SURVEYORS
MANKATO, MN FAIRMONT, MN SLEEPY EYE, MN BURNSVILLE, MN
WILLMAR, MN CHASKA, MN RAMSEY, MN MAPLEWOOD, MN
BAXTER, MN ROCHESTER, MN AMES, IA SPENCER, IA

LED SIGNAL FACES						
SIGNAL FACE	ALL SIGNAL INDICATIONS SHALL BE 12"					
	B	Y	G	R	Y	G
1-1, 1-2				←	←	←
2-1, 2-2	*	*	*	←	←	←
3-1, 3-2				←	←	←
4-1, 4-2	*	*	*	←	←	←
5-1, 5-2				←	←	←
6-1, 6-2	*	*	*	←	←	←
7-1, 7-2				←	←	←
8-1, 8-2	*	*	*	←	←	←

NO.	DATE	BY	DESCRIPTION OF REVISIONS
1	2/15/2022	JAK	REVISED PER STATE AID COMMENTS

DESIGNED
JUL
DRAWN
JAK
CHECKED
DDB
I HEREBY CERTIFY THAT THIS PLAN 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.

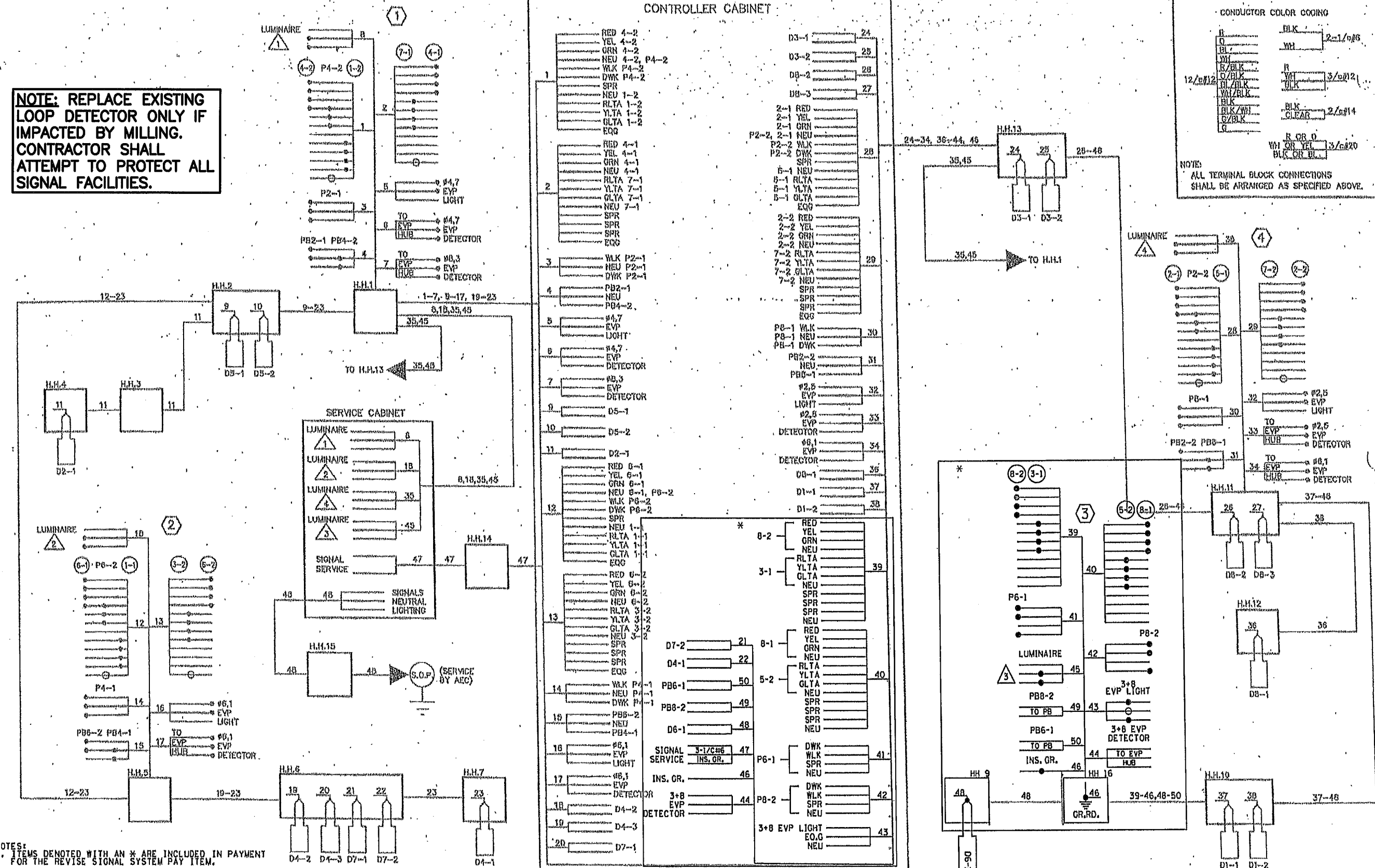
David D. Berkowitz
DATE 1/28/2022 LIC. NO. 28757



2022 CURB, SIDEWALK & PEDESTRIAN RAMP REPAIRS, AND 2022 MILL & OVERLAY PROJECTS
CITY PROJECTS 22-08, 22-15, 22-16, 22-17
SAP 198-110-004 & 198-149-001

CROSSTOWN BLVD (CSAH 18)/ANDOVER BLVD NW SIGNAL PLAN
SHEET NO. 28 OF 29 SHEETS

NOTE: REPLACE EXISTING LOOP DETECTOR ONLY IF IMPACTED BY MILLING. CONTRACTOR SHALL ATTEMPT TO PROTECT ALL SIGNAL FACILITIES.



NOTES:
1. ITEMS DENOTED WITH AN * ARE INCLUDED IN PAYMENT FOR THE REVISE SIGNAL SYSTEM PAY ITEM.

H:\ANDV\N15107904\MS\plans\SIGNAL\107904_wd001.dgn

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.

BRYAN J. NEMETH
LIC. NO. 43354
DATE 03-10-2014

DESIGNED
RBT
DRAWN
RBT
CHECKED
BTN

BOLTON & MENK, INC.
CONSULTING ENGINEERS & SURVEYORS
MANKATO, MN FAIRMONT, MN SLEEPY EYE, MN BURNSVILLE, MN
WILLMAR, MN CHASKA, MN RAMSEY, MN MAPLEWOOD, MN
BAKTER, MN ROCHESTER, MN AMES, IA SPENCER, IA

REV. BY DATE
SAP 198-110-003, CITY OF ANDOVER, MN (CITY NO. 12-37A)
CROSSTOWN BOULEVARD RIGHT TURN LANE
SIGNAL PLAN

SHEET
27
OF
34

NO.	DATE	BY	DESCRIPTION OF REVISIONS
1	2/15/2022	JAK	REVISED PER STATE AID COMMENTS

DESIGNED
JUL
DRAWN
JAK
CHECKED
DDB

I HEREBY CERTIFY THAT THIS PLAN 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.

DAVID D. BERKOWITZ
SIGNATURE
DATE 1/28/2022
LIC. NO. 28757



2022 CURB, SIDEWALK & PEDESTRIAN RAMP REPAIRS, AND 2022 MILL & OVERLAY PROJECTS
CITY PROJECTS 22-08, 22-15, 22-16, 22-17
SAP 198-110-004 & 198-149-001

CROSSTOWN BLVD (CSAH 18)/ANDOVER BLVD NW SIGNAL PLAN
SHEET NO. 29 OF 29 SHEETS