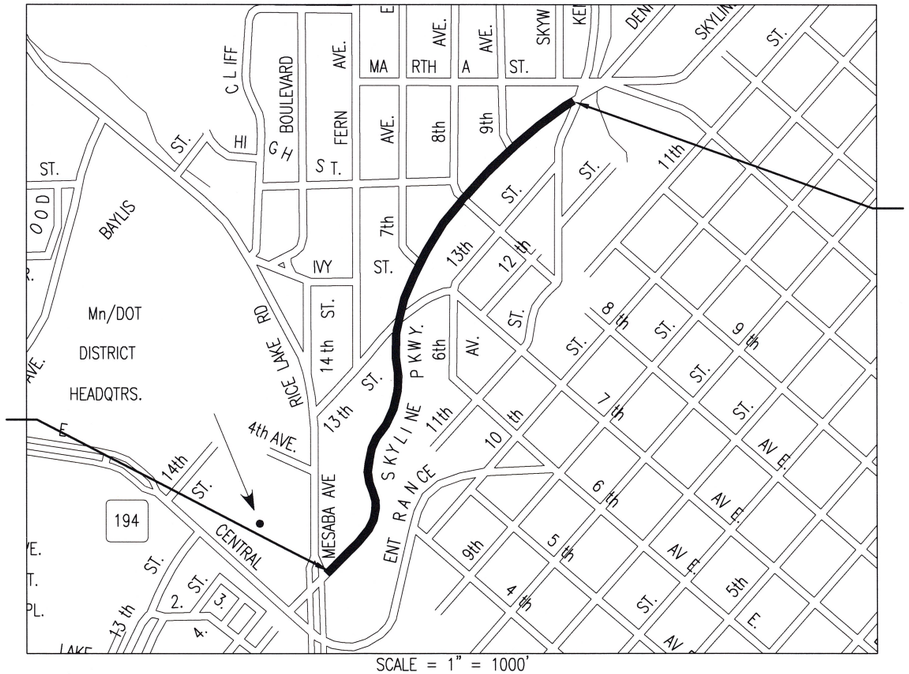
MINNESOTA DEPARTMENT OF TRANSPORTATION
CITY OF DULUTH
DEPARTMENT OF PUBLIC WORKS AND UTILITIES
ENGINEERING DIVISION

CONSTRUCTION PLANS FOR:
MILLING, RECLAMATION, BITUMINOUS SURFACING AND CURB RAMP INSTALLATION

SKYLINE PKWY
CITY PROJECT #1513
S.A.P. 118–114–004
LOCATED BETWEEN – MESABA AVENUE AND KENWOOD AVENUE

GROSS LENGTH 3,752.9 FEET 0.711 MILES
NET LENGTH 3,752.9 FEET 0.711 MILES
EXCEPTIONS 000 FEET 0.00 MILES

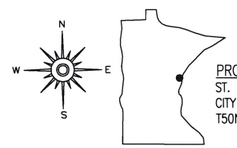


SCALE = 1" = 1000'

DESIGN DESIGNATION
STATE AID PROJECT NO. 118–114–004

R–VALUE	20	$\Sigma N18_{20}$	N/A
ADT (CURRENT YEAR)	2016	=	6995
ADT (FUTURE YEAR)	2036	=	10490
D (DIRECTIONAL DISTR.)		=	N/A
T (HEAVY COMMERCIAL)		=	N/A
PROJ. SOIL FACTOR		=	N/A
SHOULDER WIDTH		=	N/A
DESIGN LOADING		=	N/A

DESIGN SPEED 30 MPH
BASED ON STOPPING SIGHT DISTANCE
HEIGHT OF EYE 3.5' HEIGHT OF OBJECT 2.0'
DESIGN SPEED NOT ACHIEVED AT:
STA. N/A TO STA. N/A MPH N/A



PROJECT LOCATION
ST. LOUIS COUNTY
CITY OF DULUTH
T50N, R14W, SEC 22

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY 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 UTITLITY DATA".

WARNING:
LOCATION OF UNDERGROUND UTILITIES TO BE VERIFIED BY CONTRACTOR. CALL BEFORE DIGGING. GOPHER STATE ONE CALL 1–800–252–1166 REQUIRED BY LAW

MINN PROJECT NO.

GOVERNING SPECIFICATIONS

THE 2016 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.
AVAILABLE AT: HTTP://WWW.DOT.STATE.MN.US/PRE–LETTING/SPEC/

ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE MN MUTCD, INCLUDING THE FIELD MANUAL DATED JANUARY 2014.
AVAILABLE AT:
http://www.dot.state.mn.us/trafficeng/publ/fieldmanual/index.html

THE 2016 EDITION OF THE CITY OF DULUTH PUBLIC WORKS AND UTILITIES DEPARTMENT STANDARD CONSTRUCTION SPECIFICATIONS SHALL APPLY.
AVAILABLE AT:
http://www.duluthmn.gov/engineering/standard–construction–specifications/

INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	SEQ
3	TYPICAL SECTION
4,5	TABULATIONS
6–10	ADA DETAILS
11–14	PLAN
15–18	PAVEMENT MARKINGS
19	TRAFFIC CONTROL

THIS PLAN CONTAINS 19 SHEETS

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.

DUNCAN SCHWENSOHN
PROJECT ENGINEER (TYPED OR PRINTED NAME)

PROJECT ENGINEER — 3-18-2016 (DATE) — 45486 (LIC. NO.)

CITY APPROVAL

APPROVED CHIEF ENGINEER OF TRANSPORTATION — 3/18/16 DATE

APPROVED CHIEF ENGINEER OF UTILITIES — 3/18/16 DATE

APPROVED CITY ENGINEER — 3/18/16 DATE

STATE APPROVAL

DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE–AID RULES/POLICY — 3-28-16 DATE

APPROVED FOR STATE AID FUNDING: STATE AID ENGINEER — 3-28-16 DATE

STATE AID PROJECT NUMBER 118–114–004 | CITY PROJECT NUMBER 1513 | DRAWN BY: SCA | SHEET NO. 1 OF 19

PLAN LEGEND

RIGHT OF WAY LINE
DITCH CENTERLINE
FENCE LINE
RETAINING WALL
GRAVEL LINE
GUARD RAIL LINE
RAILROAD TRACK LINE
ROAD CENTERLINE
TREE LINE
STREAM LINE
WETLAND LINE
EX SANITARY LINE
PR SANITARY LINE
AB SANITARY LINE — AB–SAN
EX FORCEMAIN LINE — FM
PR FORCEMAIN LINE — FM
AB FORCEMAIN LINE — AB–FM
EX STORM LINE
PR STORM LINE
AB STORM LINE — AB–ST
EX WATER LINE — W
PR WATER LINE — W
AB WATER LINE — AB–W
EX GAS LINE — GAS
PR GAS LINE — PR–GAS
AB GAS LINE — AB–GAS
EX STEAM LINE — STEAM
EX STEAM LINE
UG CABLE TV LINE — UGTV
AB CABLE TV LINE — AB–CATV
UG ELECTRIC LINE — UGE
AB ELECTRIC LINE — AB–ELEC
UG FIBEROPTIC LINE — UGFO
AB FIBEROPTIC LINE — AB–FO
UG TELEPHONE LINE — UGT
AB TELEPHONE LINE — AB–TELE
OH ELECTRIC LINE — OHE
OH TELEPHONE LINE — OHT
OH CABLE TV LINE — OHTV

SYMBOLS

EX SANITARY MANHOLE (SAN)
EX SANITARY CLEANOUT
EX STORM MANHOLE (STRM)
EX STORM CATCHBASIN
EX. WATER MANHOLE (W)
EX. WATER VALVE (WV)
EX. WATER HYDRANT
EX. WATER SHUTOFF
EX. WATER & GAS MH (W&G)
EX. GAS MANHOLE (GAS)
EX. GAS VALVE (GV)
EX. GAS SHUTOFF
EX. STEAM MANHOLE (STEAM)
EX. TELEPHONE MANHOLE (T)
EX. ELECTRIC MANHOLE (E)
EX. POWERPOLE
EX. LIGHT POLE
EX. ELECTRIC VAULT
EX. ANCHOR
EX. ELECTRIC TRANSFORMER (ET)
EX. STREET LIGHT
EX. SIGNAL W/ STREET LIGHT
EX. HANDHOLE (H.H.)
EX. HANDHOLE (H.H.)
EX. TELEPHONE PEDESTAL
EX. WELL (W)
BENCHMARK
FOUND CI MONUMENT
EX. SIGN
CONTROL POINT
EX DECIDUOUS TREE
EX CONIFEROUS TREE
EX. PARKING METER
EX. SOIL BORING — SB#: ?? ELEV: ??

I:\PWU\ENGINEER\PROJECTS\2015\1513_Skyline_PKWY_Mesaba_Ave_to_Kenwood\20–MAPS–GIS–DRAWINGS\Drawings\1382–TITLE SHEET SKYLINE E_BA.dwg

E SKYLINE PKWY QUANTITIES

PAGE	CHART	NOTE	SPEC. NO.	DESCRIPTION	UNIT	QUANTITY	
						ESTIMATED	FINAL
			2021.501	MOBILIZATION	LUMP SUM	1	
4	B	1	2104.501	REMOVE CURB & GUTTER	LIN FT	645	
4	B	1	2104.503	REMOVE CONCRETE WALK	SQ FT	1,445	
4	B		2104.511	SAWING CONCRETE PAVEMENT (FULL DEPTH)	LIN FT	108	
		3	2123.503	MOTOR GRADER	HOUR	20	
		2	2130.501	WATER	MGAL	25	
4	A	2	2131.502	CALCIUM CHLORIDE SOLUTION	GALLON	1,668	
4	A	4	2215.501	FULL DEPTH RECLAMATION	SQ YD	14,442	
4	A	5,7	2232.501	MILL BITUMINOUS SURFACE (2")	SQ YD	14,442	
4	A	6,7,12	2360.501	TYPE SP 9.5 WEARING COURSE MIX (3,C)	TON	1,733	
4	A	6,7,12	2360.502	TYPE SP 12.5 WEARING COURSE MIX (3,C)	TON	1,733	
5	C	8	2504.602	CONCRETE ENCASED VALVE BOX COLLAR	EACH	7	
5	C	8	2506.602	CONCRETE ENCASED CASTING COLLAR	EACH	16	
5	C		2506.602	MANHOLE FRAME SEAL	EACH	6	
4	B	9	2521.501	4" CONCRETE WALK	SQ FT	830	
	B	9	2521.501	6" CONCRETE WALK	SQ FT	615	
4	B	9	2531.501	CONCRETE CURB & GUTTER DESIGN B624	LIN FT	645	
4	B	9	2531.507	7" CONCRETE DRIVEWAY PAVEMENT	SQ YD	3.75	
4	B		2531.618	TRUNCATED DOMES	SQ FT	109	
			2563.601	TRAFFIC CONTROL	LUMP SUM	1	
			2573.531	STORM DRAIN INLET PROTECTION	LUMP SUM	1	
5	D	10	2580.603	INTERIM PAVEMENT MARKING	LIN FT	6880	
5	D	11	2582.501	PAVEMENT MESSAGE EPOXY	SQ FT	98.04	
5	D	11	2582.502	12" SOLID LINE EPOXY	LIN FT	212	
5	D	11	2582.502	24" STOP LINE EPOXY	LIN FT	116	
5	D	11	2582.502	4" SOLID LINE EPOXY	LIN FT	3390	
5	D	11	2582.502	4" DOUBLE SOLID LINE EPOXY	LIN FT	3440	

1. DISPOSAL OF EXISTING MATERIAL IS INCIDENTAL TO THIS ITEM.
2. TO BE USED FOR DUST CONTROL. AS DIRECTED BY THE ENGINEER.
3. SHAPING OF RECLAIMED GRADE BEFORE PAVING SHALL BE AT THE DIRECTION OF THE ENGINEER. PAID FOR UNDER ITEM 2123.503 MOTOR GRADER.
4. GRADING OF RECLAIMED MATERIAL WITH MOTOR GRADER DURING THE RECLAMATION OPERATION SHALL BE INCIDENTAL TO THIS ITEM.
5. ALL MILLINGS SHALL BE PROPERTY OF THE CITY OF DULUTH AND TRUCKED TO THE KENWOOD PIT LOCATED NEAR THE INTERSECTION OF HOVLAND LN. AND KENWOOD AVE (SEC.15 T50N R.14W, SE 1/4). PICKUP BROOM WITH VACUUM IS REQUIRED DURING THIS OPERATION. THIS WORK SHALL BE CONSIDERED INCIDENTAL TO THIS ITEM.
6. BITUMINOUS MATERIAL FOR TACK COAT (SPEC.2357) SHALL BE PLACED BETWEEN ALL LIFTS AND ON MILLED OR CONCRETE SURFACES AND SHALL BE CONSIDERED INCIDENTAL TO THIS ITEM.
7. PAVING OF FIRST LIFT OF BITUMINOUS SHALL BE COMPLETED WITHIN 4 DAYS OF RECLAMATION.
8. SALVAGE ALL CASTINGS AND REINSTALL. ALL CASTINGS THAT ARE NOT REINSTALLED SHALL BE DELIVERED TO 40th AVE WEST MAINTENANCE GARAGE AND CONSIDERED INCIDENTAL TO THE ITEM. (SEE SPECIAL PROVISIONS)(CITY OF DULUTH CONSTRUCTION STANDARDS)
9. CLASS 5 AND BACKFILL ADJACENT TO ANY CONCRETE WORK SHALL BE CONSIDERED INCIDENTAL TO THIS ITEM. DISPOSAL CONTRACTOR SHALL PROTECT AND RESTRICT USE OF CONC WALKS AND DRIVES UNTIL THEY CAN BE USED SAFELY AND SUPPLY A SAFE ROUTE FOR PEDESTRIANS DURING CONSTRUCTION AND COMPLY WITH THE LATEST TEMPORARY TRAFFIC CONTROL FIELD MANUAL.
10. SHALL BE 4" DOUBLE SOLID LINE–YELLOW – PLACED ON CENTERLINE AT THE END OF EACH PAVING DAY. SEE TYPICAL SECTION PLAN SHEET FOR LANE WIDTHS.
11. EPOXY PAINT SHALL BE PLACED BETWEEN 10 – 17 DAYS AFTER PLACEMENT OF FINAL WEAR COURSE. SEE TYPICAL SECTION PLAN SHEET FOR LANE WIDTHS.

MNDOT STANDARD PLATES

PLATE NO.	DESCRIPTION
4108 F	ADJUSTINGS RINGS FOR MH'S & CB'S
7035 N	CONCRETE WALK & CURB RETURNS AS ENTERANCES
7100 H	CONCRETE CURB & GUTTER (DESIGN B & V)
7111 J	INSTALLATION OF C.B. CASTINGS (CONC C&G)
7112C	INSTALLATION & REINFORCEMENT OF CB & MH CASTINGS
8000J	CHANNELIZERS

CITY OF DULUTH STANDARD DETAILS

STD. DETAIL NO.	DESCRIPTION
SAN-1	SANITARY CASTING DETAIL
SAN-3A	CONCRETE ENCASED CASTING COLLAR
SAN-9	POLYETHYLENE MH ADJUSTING RING -FLAT
SAN-10	POLYETHYLENE MH ADJUSTING RING -WEDGE
STRM -1	STORM MANHOLE CASTING
STRM-3	CATCH BASIN/ CURB BOX CASTINGS
STRM-4	FABRIC WRAPPED CATCH BASIN CASTING
STRM-5A	CONCRETE ENCASED CASTING COLLAR
STRM-6	GUTTER SWALE
STRM-7	GUTTER STAMP
STR-5	DRIVEWAY & ALLEY ENTRANCES
W-17	WATER VALVE BOX - DUCTILE IRON MAIN
W-17A	WATER VALVE BOX - HDPE MAIN
W-19	CONCRETE ENCASED VALVE BOX COLLAR IN ROADWAY

I:\PWU\ENGINEER\PROJECTS\2015\1513_Skyline_PKWY_Mesaba_Ave_to_Kenwood\20-MAPS-GIS-DRAWINGS\Drawings\1382_SEQ.dwg

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SIGNATURE: Duncan C. Schwensohn

DUNCAN SCHWENSOHN
TYPE NAME

DATE: 3-18-2016

LIC. NO: 45486

CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

E. SKYLINE, MESABA AVE TO KENWOOD AVE

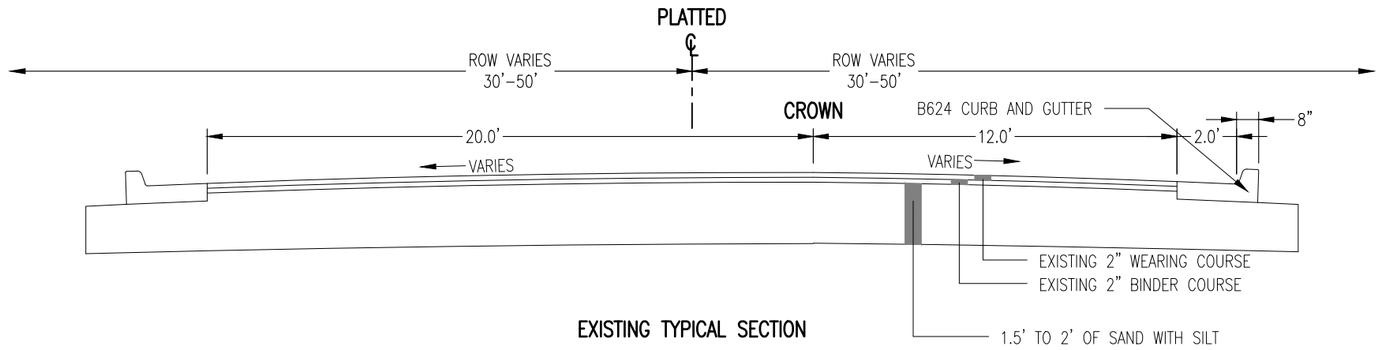
CITY PROJECT NO.: 1513

STATE AID PROJECT NO.: 118-114-004

DRAWN BY: SCA

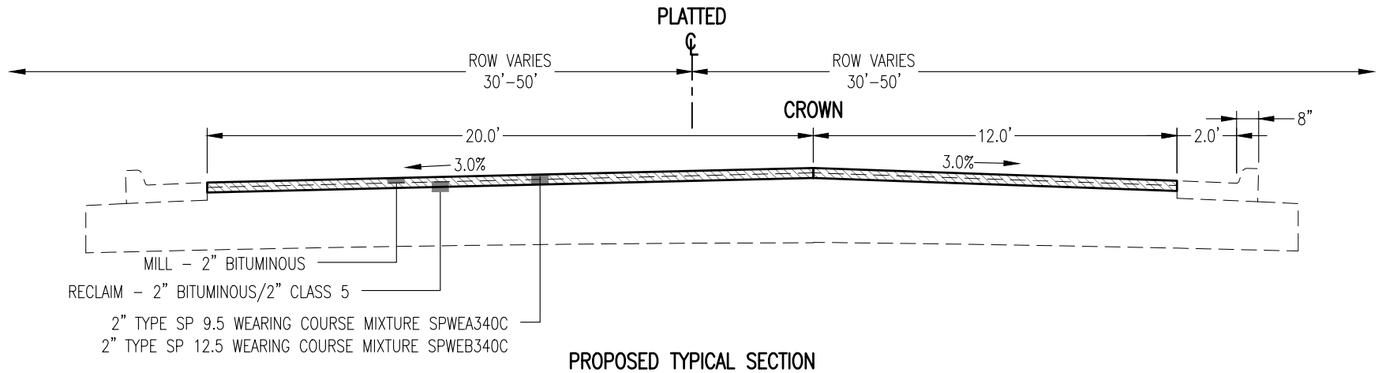
SEQ

SHEET NO. 2 OF 19



EXISTING TYPICAL SECTION

EAST SKYLINE PARKWAY
FROM MESABA AVENUE TO KENWOOD AVENUE
STA 11+18.4(BOP) TO STA 48+71.3(EOP)



PROPOSED TYPICAL SECTION

EAST SKYLINE PARKWAY
FROM MESABA AVENUE TO KENWOOD AVENUE
STA 11+18.4(BOP) TO STA 48+71.3(EOP)

FOR STRIPPING
EAST SKYLINE PARKWAY
FROM MESABA AVENUE TO KENWOOD AVENUE
STA 11+18.4(BOP) TO STA 48+71.3(EOP)

SEE PAVEMENT MARKINGS SHEETS 15-18 FOR LOCATIONS

I:\PWU\ENGINEER\PROJECTS\2015\1513_Skyline_PKWY_Mesaba_Ave_to_Kenwood\20-MAPS-GIS-DRAWINGS\Drawings\1382_TYPICAL SECTION EAST.dwg

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CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

E. SKYLINE, MESABA AVE TO KENWOOD AVE

CITY PROJECT NO.: 1513

STATE AID PROJECT NO.: 118-114-004

DRAWN BY: SCA

TYPICAL SECTION

SHEET NO. 3 OF 19

A	BITUMINOUS, MILLING & RECLAMATION					
STATION	AREA	FULL DEPTH RECLAMATION (2"BIT / 2"CL5)	MILL BIT. SURFACE (2")	CALCIUM CHLORIDE SOLUTION	TYPE SP 9.5 WEARING COURSE MIXTURE (3,C) (2")	TYPE SP 12.5 WEARING COURSE MIXTURE (3,C) (2")
E. Skyline PKWY		2215.501	2232.501	2131.502	2360.501	2360.501
	SQ. FT.	SQ. YD.	SQ. YD.	GAL.	TON	TON
MESABA AVE ~ KENWOOD AVE						
MESABA AVE INT (BOP) TO E 13TH ST						
11+18.4 ~ 29+50	62,995	6999	6999	814	840	840
E 13TH ST TO N 8TH AVE E						
29+50 ~ 38+50	32,325	3592	3592	400	431	431
N 8TH AVE E TO KENWOOD AVE (EOP)						
38+50 ~ 48+71.3	34,656	3851	3851	454	462	462
PROJECT TOTALS	**129,976**	**14,442**	**14,442**	**1,668**	**1,733**	**1,733**

NOTE: CALCIUM CHLORIDE SOLUTION QUANTITY BASED ON 0.20
GAL PER SQ. YD. AT 20' WIDE PER SECTION LENGTH.
QUANTITY OF TYPE SP COURSE MIXTURE 2360 WAS ESTIMATED ASSUMING A UNIT WEIGHT OF 120# /SY. /IN.

B	PAVEMENT SAWING AND CONCRETE WORK											
LOCATION	STATION	OFFSET IN FEET	LT / RT	REMOVE CONCRETE CURB & GUTTER	REMOVE CONCRETE WALK	SAW CONC. PVMT. (FULL DEPTH)	4" CONCRETE WALK	6" CONCRETE WALK	CONCRETE CURB & GUTTER DES. B624	7" CONCRETE DRIVEWAY PAVEMENT	TRUNCATED DOMES	REMARKS
E Skyline PKWY				2104.501	2104.503	2104.51	2521.501	2521.501	2531.501	2531.507	2531.618	
				LIN. FT.	SQ. FT.	LIN. FT.	SQ. FT.	SQ. YD.	LIN. FT.	SQ. YD.	SQ. FT.	
MESABA AVE ~ KENWOOD AVE												
E. 13TH ST												
	15+30	18	LT	15		5			15			
	17+10	20	LT	40		5			40			
	20+50	15	RT	125		5			125			
	29+87	24	RT	22	85	5		115	22		8	
	30+75	20	RT	58	120	8	20	115	58		8	
	32+69	20	LT	30		5			30			
N 8TH AVE E												
	38+30	20	RT	23	95	5	25	95	23		24	RADIAL DOME
	38+30	25	LT	19	230	10	185	65	19		15	RADIAL DOME
	38+71	19	RT	55	80	10	0	65	55		15	RADIAL DOME
	38+71	24	LT	87	205	10	160	80	87		23	RADIAL DOME
	40+00	15	RT	30		5			30			
N 9TH AVE E									0			
	43+12	30	LT	21	190	10	125	45	21		8	
	43+49	28	LT	35	160	10	115	35	35		8	
	43+50	15	RT	65	280	10	200		65	3.75		
	47+95	15	RT	20		5			20			
TOTAL				**645**	**1445**	**108**	**830**	**615**	**645**	**3.75**	**109**	

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DATE: 3-18-2016

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CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

E. SKYLINE, MESABA AVE TO KENWOOD AVE

CITY PROJECT NO.: 1513

STATE AID PROJECT NO.: 118-114-004

DRAWN BY: SCA

TABS

SHEET NO. 4 OF 19

C	ADJUST STRUCTURES					
STATION **E. Skyline PKWY**	OFFSET IN FEET	LT / RT	CONCRETE ENCASED VALVE BOX COLLAR 2504.602 EACH	CONCRETE ENCASED CASTING COLLAR 2506.602 EACH	MANHOLE FRAME SEAL 2506.602 EACH	REMARKS
MESABA AVE ~ KENWOOD AVE						
11+84.6	2.9	LT	1			VALVE
12+39.1	14.4	RT	1			VALVE
12+41.3	6.0	LT	1			VALVE
15+35.5	7.1	RT		1		STORM
22+79.0	11.3	LT		1		STORM
23+78.1	16.2	LT		1	1	SANITARY
24+99.5	12.1	RT		1		STORM
25+51.5	6.1	LT		1	1	SANITARY
27+34.1	11.7	LT		1		STORM
28+19.5	1.6	RT	1			VALVE
28+30.7	9.7	RT	1			VALVE
28+81.1	53.7	LT		1		STORM
29+02.2	9.6	LT		1		STORM
38+45.1	34.8	LT		1		STORM
38+46.6	23.6	LT		1	1	SANITARY
38+58.2	34.1	LT	1			VALVE
38+69.9	8.9	RT		1		STORM
38+80.2	28.8	LT	1			VALVE
42+84.9	5.8	RT		1		STORM
43+29.6	32.8	LT		1	1	SANITARY
46+51.4	5.1	LT		1	1	SANITARY
48+02.7	10.4	LT		1		STORM
48+08.0	6.9	RT		1	1	SANITARY
TOTAL			**7**	**16**	**6**	

D	PERMANENT STRIPING					
STREET NAME **E. Skyline PKWY**	INTERIM PAVEMENT MARKING 2580.603 LIN. FT.	PVMT MSG EPOXY 2582.501 SQ FT	12" SOLID LINE EPOXY* & *** 2582.502 LIN. FT.	24" STOP LINE EPOXY** & *** 2582.5 LIN. FT.	4" SOLID LINE EPOXY*** 2582.502 LIN. FT.	4" DOUBLE SOLID LINE EPOXY*** 2582.502 LIN. FT.
MESABA AVE TO KENWOOD AVE						
MESABA AVE ~ E 13TH ST						
11+18.4 ~ 29+00	3510				1580	1755
E 13TH ST ~ N 8TH AVE E						
29+01 ~ 38+50	1500				825	750
36+50		49.02				
38+22				16		
38+30			70			
38+41				15		
38+57				15		
38+76			70	20		
41+50		49.02				
N 8TH AVE E ~ KENWOOD AVE						
38+50 ~ 48+71.3	1870				985	935
48+30			72	50		
TOTAL	**6880**	**98.04**	**212**	**116**	**3390**	**3440**

* KEY NOTES
*USED FOR CROSSWALK
**STOP LINE SHALL BE PLACED NOT MORE THAN 30 FEET NOR LESS THAN 4 FEET FROM THE NEAREST EDGE OF THE INTERSECTING CURB LINE.
***SEE PAVEMENT MAKINGS AND TYPICAL SECTION PLAN SHEETS FOR COLOR/LOCATION - SHEETS 15-17

I:\PWU\ENGINEER\PROJECTS\2015\1513_Skyline_PKWY_Mesaba_Ave_to_Kenwood\20-MAPS-GIS-DRAWINGS\Drawings\1382_TABULATIONS.dwg

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CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

E. SKYLINE, MESABA AVE TO KENWOOD AVE

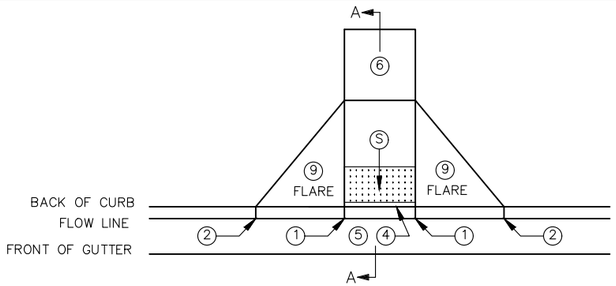
CITY PROJECT NO.: **1513**

STATE AID PROJECT NO.: **118-114-004**

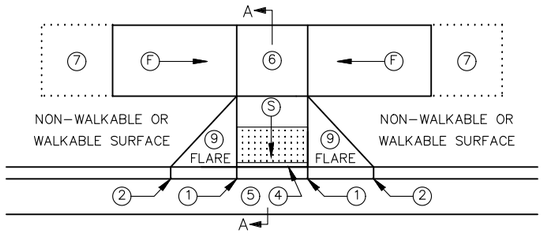
DRAWN BY: **SCA**

TABS

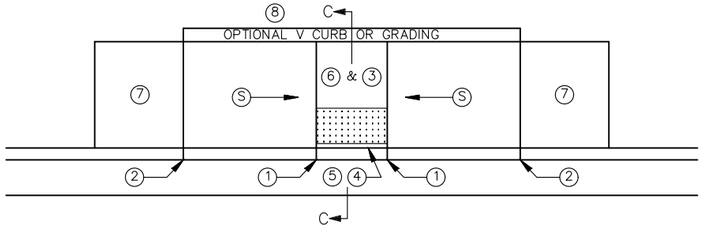
SHEET NO. **5** OF **19**



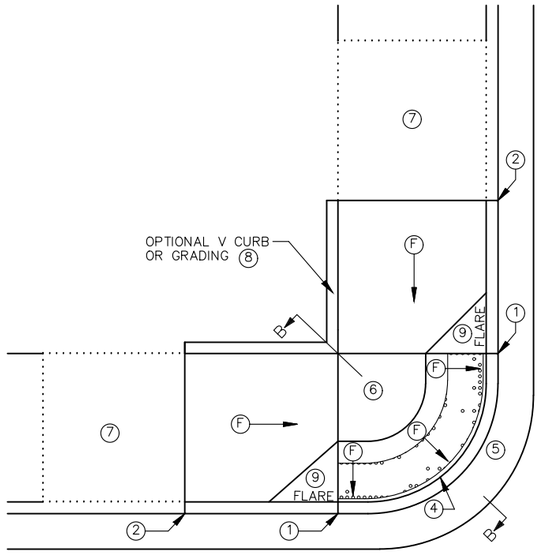
PERPENDICULAR



TIERED PERPENDICULAR



PARALLEL



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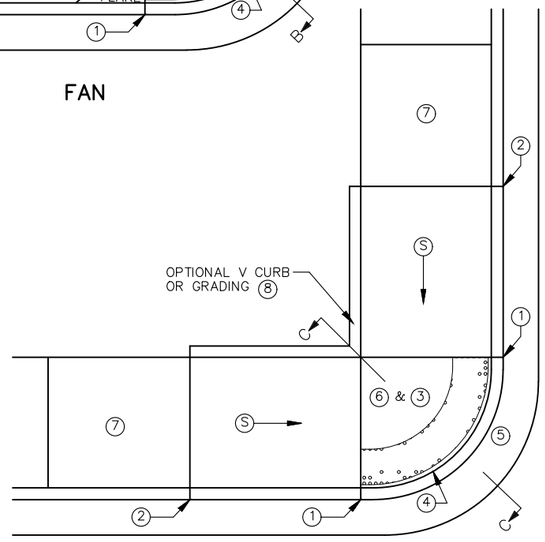
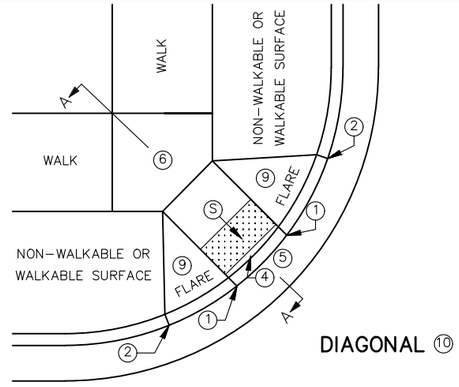
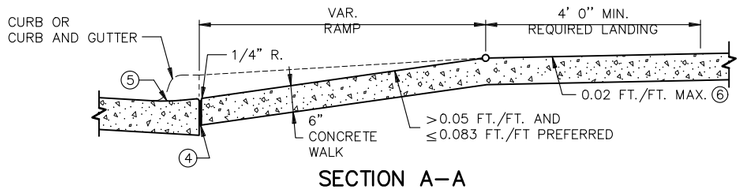


DEPRESSED CORNER

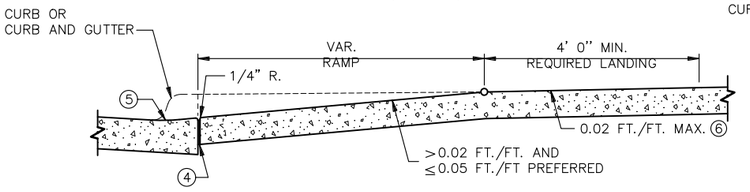


DIAGONAL (10)



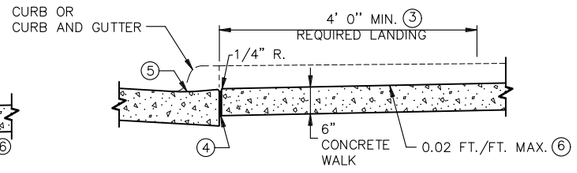
SECTION A–A

PERPENDICULAR/TIERED/DIAGONAL



SECTION B–B

FAN



SECTION C–C

PARALLEL/DEPRESSED CORNER

NOTES:

LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE 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.

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.

ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL.

TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONCTRUCTED, LANDINGS MAY BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 5 WHEN LANDINGS ARE CAST SEPARATELY.

ALL SLOPES ARE ABSOLUTE, RATHER THAN RELATIVE TO SIDEWALK/ROADWAY GRADES.

TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MINIMUM OF 24" IN THE PATH OF TRAVEL. SHARED USE PATHS SHALL HAVE DETECTABLE WARNING ACROSS THE ENTIRE WIDTH OF PATH WHEN THE PATH CROSSES A ROAD.

SEE STANDARD PLATE 7038 AND SHEET 4 OF 5 FOR ADDITIONAL DETAILS ON DETECTABLE WARNING.

(1) 0" CURB HEIGHT.

(2) FULL CURB HEIGHT.

(3) DETECTABLE WARNINGS MAY BE PART OF 4' X 4' LANDING AREA IF IT IS NOT FEASIBLE TO CONSTRUCT THE LANDING OUTSIDE OF THE DETECTABLE WARNING AREA.

(4) 1/2" PREFORMED JOINT FILLER MATERIAL AASHTO M 213. JOINT FILLER SHALL BE PLACED FLUSH WITH THE BACK OF CURB AND ADJACENT SIDEWALK. JOINT SHALL BE FREE OF DEBRIS. 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.

(5) SEE PEDESTRIAN ACCESS ROUTE CURB AND GUTTER DETAIL FOR INFORMATION ON CONSTRUCTING CURB AND GUTTER AT CURB OPENINGS. SEE SHEET NO. 3 OF 5.

(6) 4' BY 4' MIN. LANDING WITH MAX. 2.0% SLOPE IN ALL DIRECTIONS.

(7) IF LONGITUDINAL SLOPE IS GREATER THAN 5.0%, 4' X 4' MIN. LANDING WITH MAX 2.0% SLOPE IN ALL DIRECTIONS REQUIRED.

(8) V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. SEE SHEET 5 OF 5.

(9) SEE SHEET 4 OF 5, TYPICAL SIDE TREATMENT OPTIONS, FOR DETAILS ON FLARES AND RETURNED CURBS.

(10) DIAGONAL RAMPS SHOULD ONLY BE USED AFTER ALL OTHER CURB RAMP TYPES HAVE BEEN EVALUATED AND DEEMED IMPRACTICAL.

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%

REVISION:

APPROVED: 8-6-2014

OPERATIONS ENGINEER

REVISED:

MINNESOTA DEPARTMENT OF TRANSPORTATION

APPROVED: 8-6-2014

STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5-297.250 | 1 OF 5

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: Duncan C. Schwensohn

DUNCAN SCHWENSOHN
TYPE NAME

DATE: 3-18-2016

LIC. NO: 45486

CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

E. SKYLINE, MESABA AVE TO KENWOOD AVE

CITY PROJECT NO.: 1513

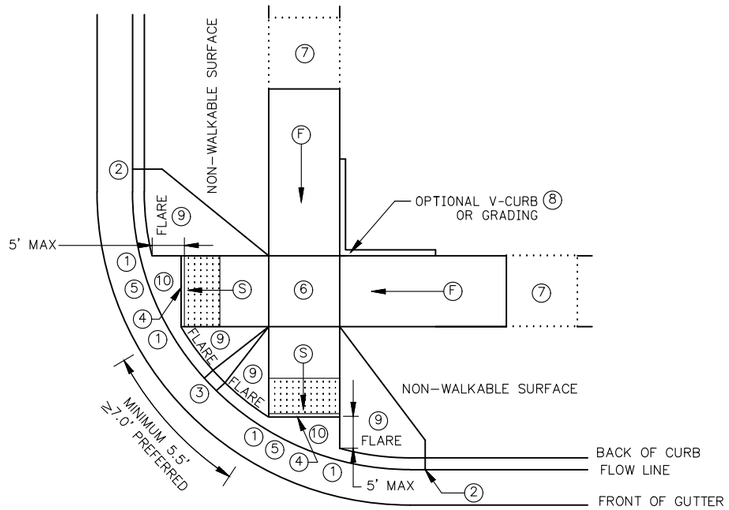
STATE AID PROJECT NO.: 118-114-004

DRAWN BY: SCA

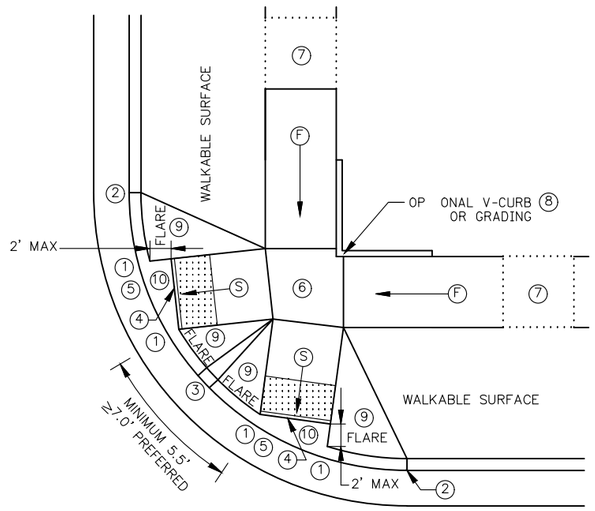
ADA DETAILS 1 OF 5

SHEET NO. 6 OF 19

I:\PW\ENGINEER\PROJECTS\2015\1513_Skyline_PKWY_Mesaba_Ave_to_Kenwood\20-MAPS-GIS-DRAWINGS\Drawings\1382_ADA DETAIL.dwg

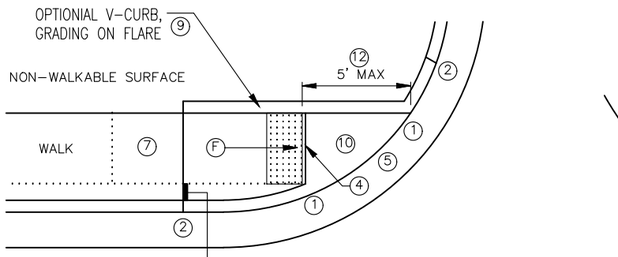


ADJACENT TO NON-WALKABLE SURFACE

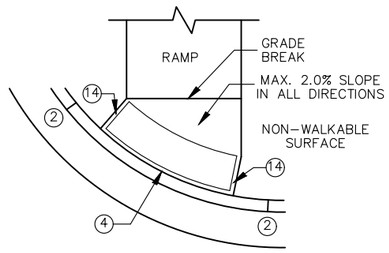


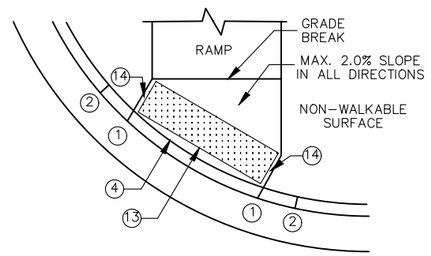
ADJACENT TO WALKABLE SURFACE

COMBINED DIRECTIONAL (15)

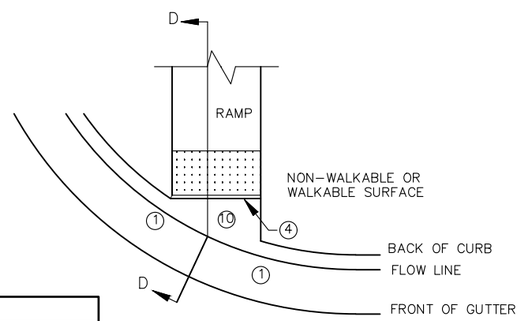


ONE-WAY DIRECTIONAL

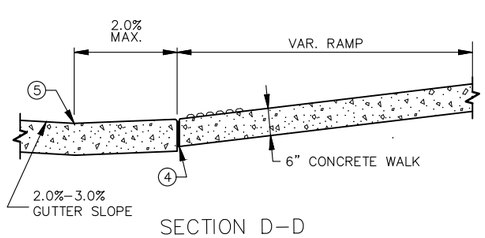




DETECTABLE WARNING PLACEMENT WHEN SETBACK CRITERIA IS EXCEEDED



CURB FOR DIRECTIONAL RAMPS (11)



SECTION D-D

NOTES:

LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE 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.

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.

ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL.

TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONCTRUCTED, LANDINGS MAY BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 5 WHEN LANDINGS ARE CAST SEPARATELY.

ALL SLOPES ARE ABSOLUTE, RATHER THAN RELATIVE TO SIDEWALK/ROADWAY GRADES.

TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MINIMUM OF 24" IN THE PATH OF TRAVEL. SHARED USE PATHS SHALL HAVE DETECTABLE WARNING ACROSS THE ENTIRE WIDTH OF PATH WHEN THE PATH CROSSES A ROAD.

SEE STANDARD PLATE 7038 AND SHEET 4 OF 5 FOR ADDITIONAL DETAILS ON DETECTABLE WARNING.

(1) 0" CURB HEIGHT.
(2) FULL CURB HEIGHT.
(3) 3" MINIMUM CURB HEIGHT, 4" PREFERRED.
(4) 1/2" PREFORMED JOINT FILLER MATERIAL AASHTO M 213. JOINT FILLER SHALL BE PLACED FLUSH WITH THE BACK OF CURB AND ADJACENT SIDEWALK. JOINT SHALL BE FREE OF DEBRIS. RECTANGULAR DETECTABLE WARNINGS SHALL BE SETBACK 3" FROM THE BACK OF CURB. RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MIN. TO 6"MAX. FROM THE BACK OF CURB.
(5) SEE PEDESTRIAN ACCESS ROUTE CURB AND GUTTER DETAIL FOR INFORMATION ON CONSTRUCTING CURB AND GUTTER AT CURB OPENINGS. SEE SHEET NO. 3 OF 5.
(6) 4' BY 4' MIN. LANDING WITH MAX. 2.0% SLOPE IN ALL DIRECTIONS.
(7) IF LONGITUDINAL SLOPE IS GREATER THAN 5.0%, 4' X 4' MIN. LANDING WITH MAX 2.0% SLOPE IN ALL DIRECTIONS REQUIRED.
(8) V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS.
(9) SEE SHEET 4 OF 5, TYPICAL SIDE TREATMENT OPTIONS, FOR DETAILS ON FLARES AND RETURNED CURBS.
(10) 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.
(11) TO BE USED FOR ALL DIRECTIONAL RAMPS.
(12) PLACE DOMES AT THE BACK OF CURB WHEN ALLOWABLE SETBACK CRITERIA IS EXCEEDED.
(13) RECTANGULAR DETECTABLE WARNINGS MAY BE SETBACK 9" FROM THE BACK OF CURB WITH CORNERS SET 3" FROM BACK OF CURB. IF 9" SETBACK IS EXCEEDED USE RADIAL DETECTABLE WARNINGS.
(14) WHEN NO CONCRETE FLARES ARE PROPOSED, THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE BACK OF CURB. MAINTAIN 3" BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.
(15) 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. WHETHER A SURFACE IS WALKABLE OR NOT SHALL BE DETERMINED BY THE ENGINEER

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%

REVISION:
APPROVED: 8-6-2014
OPERATIONS ENGINEER

REVISED:
APPROVED: 8-6-2014
STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5-297.250 | 2 OF 5

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: 3-18-2016

DUNCAN SCHWENSOHN (TYPE NAME) LIC. NO: 45486

CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

E. SKYLINE, MESABA AVE TO KENWOOD AVE

CITY PROJECT NO.: 1513 | STATE AID PROJECT NO.: 118-114-004

DRAWN BY: SCA
ADA DETAILS 2 OF 5
SHEET NO. 7 OF 19

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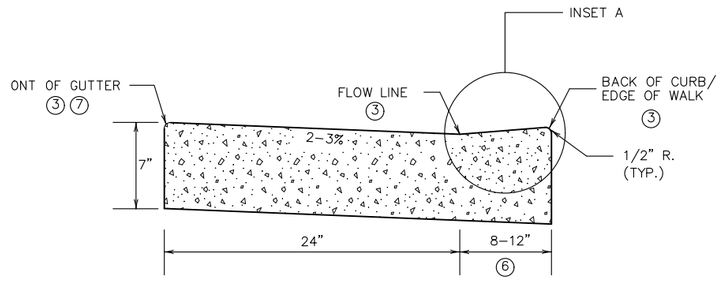
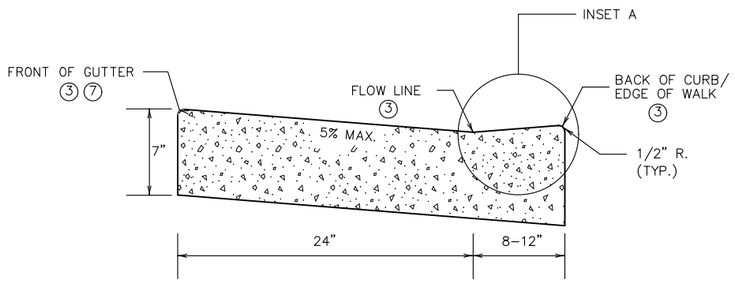
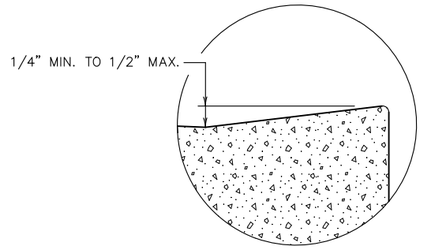


NON PERPENDICULAR ①

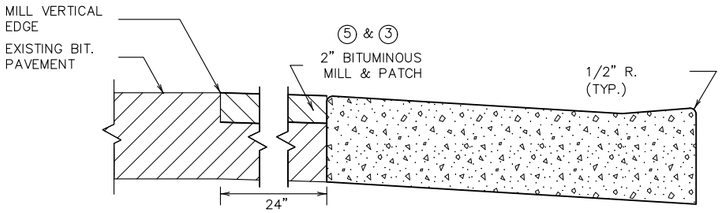


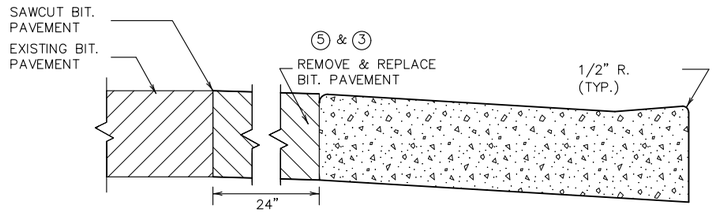
PERPENDICULAR ②

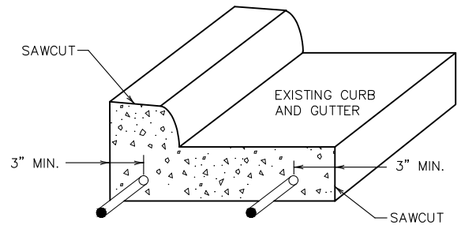


INSET A

PEDESTRIAN ACCESS ROUTE CURB & GUTTER DETAIL

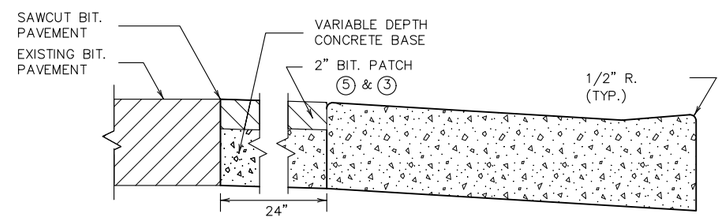


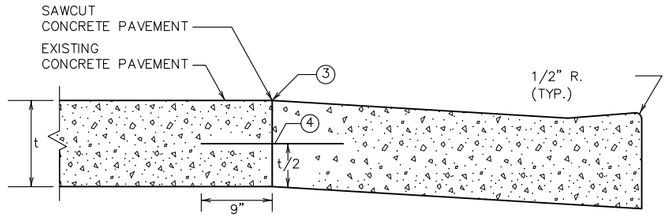




CURB AND GUTTER REINFORCEMENT ⑧

FOR USE ON CURB RAMP RETROFITS





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 NON PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: FANS, DEPRESSED CORNERS, & ONE WAY AND COMBINED DIRECTIONALS.

② 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.

③ THERE SHALL BE NO VERTICAL DISCONTINUITIES GREATER THAN 1/4".

④ DRILL AND GROUT NO. 4 EPOXY–COATED 18" LONG TIE BARS AT 30" CENTER TO CENTER INTO EXISTING CONCRETE PAVEMENT.

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.

⑦ TOP FRONT OF GUTTER SHALL BE CONSTRUCTED FLUSH WITH PROPOSED ADJACENT PAVEMENT ELEVATION. PAR GUTTER SHALL NOT BE OVERLAID.

⑧ WHERE PLAN SPECIFIES, DRILL AND GROUT 2 – NO. 4 X 12" LONG REINFORCEMENT BARS (EPOXY COATED).

REVISION:

APPROVED: 8–6–2014

OPERATIONS ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION

REVISED:

APPROVED: 8–6–2014

STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5–297.250 | 3 OF 5

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: 3–18–2016

DUNCAN SCHWENSOHN
TYPE NAME

LIC. NO: 45486

CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

E. SKYLINE, MESABA AVE TO KENWOOD AVE

CITY PROJECT NO.: 1513

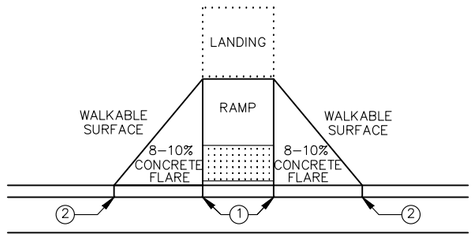
STATE AID PROJECT NO.: 118–114–004

DRAWN BY: SCA

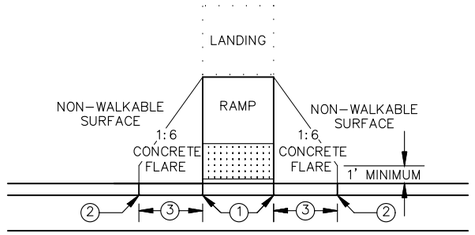
ADA DETAILS 3 OF 5

SHEET NO. 8 OF 19

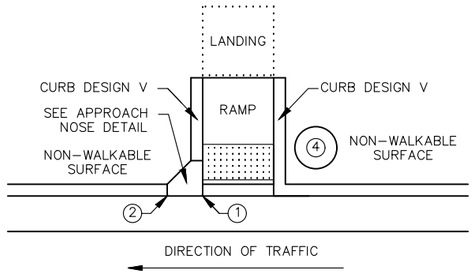
I:\PW\ENGINEER\PROJECTS\2015\1513_Skyline_PKWY_Mesaba_Ave_to_Kenwood\20-MAPS-GIS-DRAWINGS\Drawings\1382_ADA DETAIL.dwg



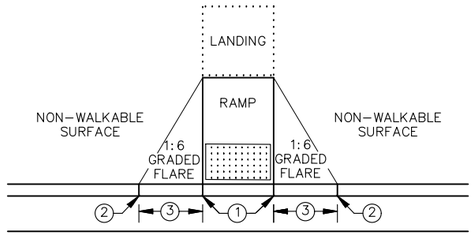
PAVED FLARES
ADJACENT TO WALKABLE SURFACE



PAVED FLARES
ADJACENT TO NON–WALKABLE SURFACE

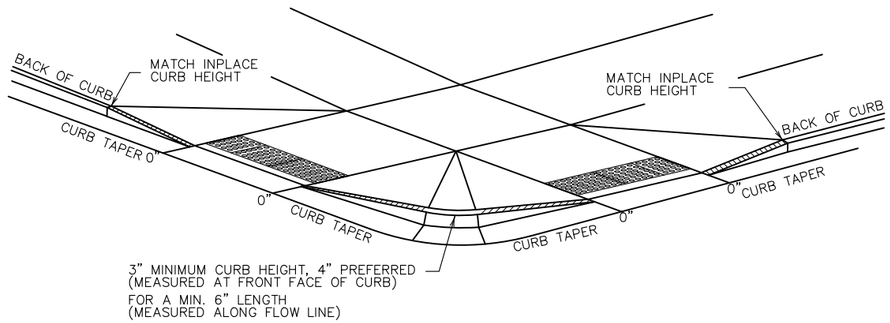


RETURNED CURB

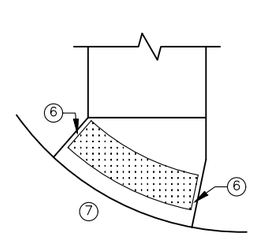


GRADED FLARES

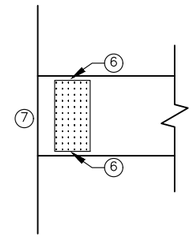
TYPICAL SIDE TREATMENT OPTIONS ⑤



DETECTABLE EDGE WITH CURB AND GUTTER ⑧

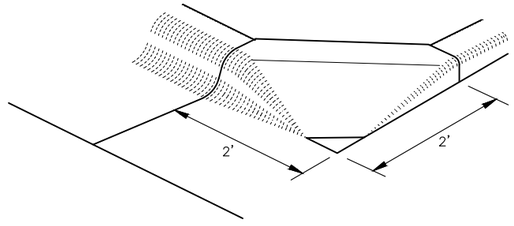


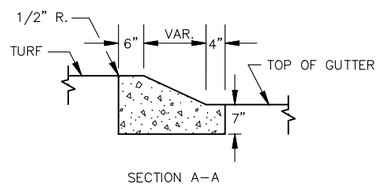
RADIAL DETECTABLE WARNING

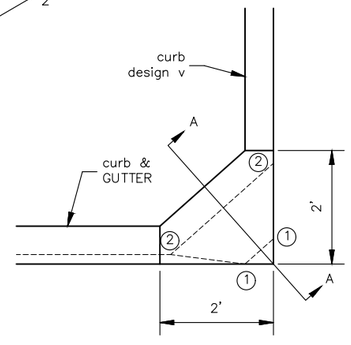


RECTANGULAR DETECTABLE WARNING

DETECTABLE EDGE WITHOUT CURB AND GUTTER







APPROACH NOSE DETAIL
FOR DOWNSTREAM SIDE OF TRAFFIC

NOTES:

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

WHETHER A SURFACE IS WALKABLE OR NOT SHALL BE DETERMINED BY THE ENGINEER.

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

① 0" CURB HEIGHT.
② FULL CURB HEIGHT.
③ 2' – 3' FLARE.
④ IMMOVABLE OBJECT OR OBSTRUCTION.
⑤ SIDE TREATMENTS ARE APPLICABLE TO ALL RAMP TYPES AND SHOULD BE IMPLEMENTED AS NEEDED ON ALL RAMPS 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.
⑥ WHEN NO CONCRETE FLARES ARE PROPOSED, THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE EDGE OF ROADWAY. MAINTAIN 3" BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.
⑦ IF NO CURB AND GUTTER IS PLACED IN RURAL SECTIONS, DETECTABLE WARNINGS SHALL BE PLACED 1' FROM THE EDGE OF ROADWAY TO PROVIDE VISUAL CONTRAST.
⑧ 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.

REVISION:
APPROVED: 8–6–2014
OPERATIONS ENGINEER

REVISED:
APPROVED: 8–6–2014
STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5–297.250 | 4 OF 5

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: _____ DUNCAN SCHWENSOHN (TYPE NAME) DATE: 3–18–2016 LIC. NO: 45486

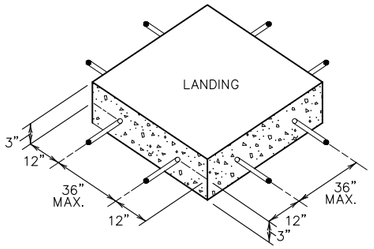
CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

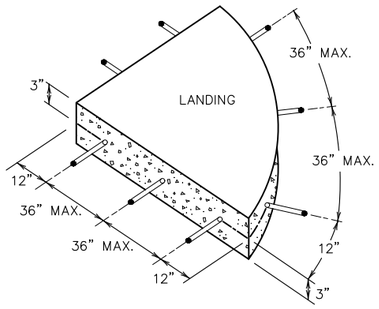
E. SKYLINE, MESABA AVE TO KENWOOD AVE

CITY PROJECT NO.: 1513 | STATE AID PROJECT NO.: 118–114–004

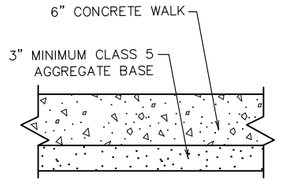
DRAWN BY: SCA
ADA DETAILS 4 OF 5
SHEET NO. 9 OF 19

I:\PWU\ENGINEER\PROJECTS\2015\1513_Skyline_PKWY_Mesaba_Ave_to_Kenwood\20–MAPS–GIS–DRAWINGS\Drawings\1382_ADA DETAIL.dwg

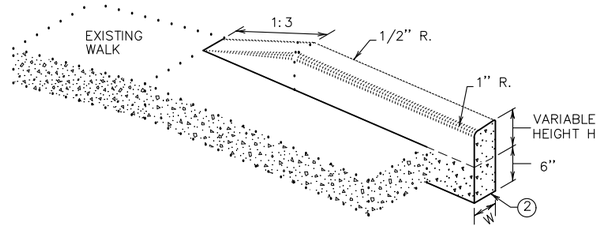




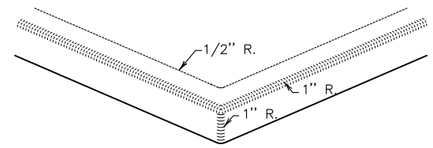
SIDEWALK REINFORCEMENT ⑥ ⑦



TYPICAL SIDEWALK SECTION
WITHIN INTERSECTION CORNER

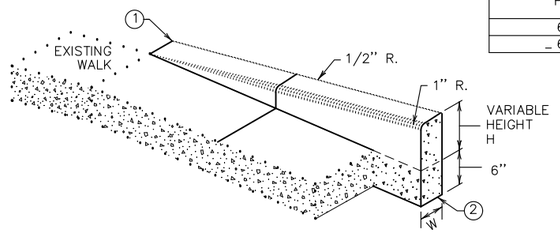


V CURB ADJACENT TO LANDSCAPE
CURB WITHIN SIDEWALK LIMITS

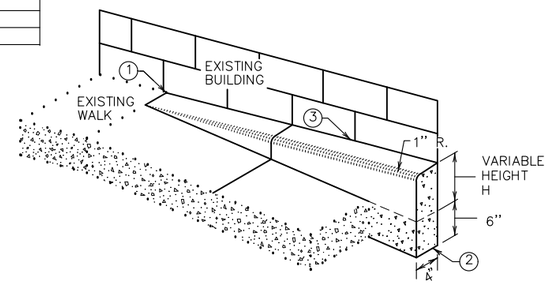


V CURB INTERSECTION

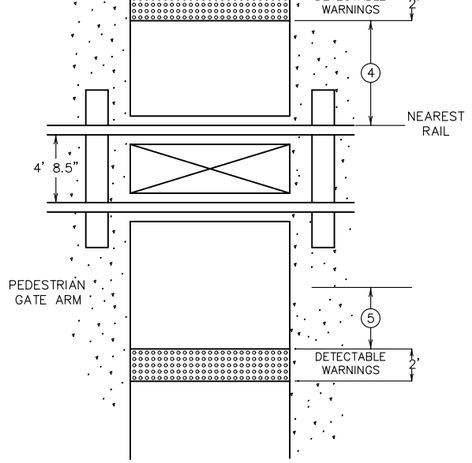
CONCRETE CURB DESIGN V	
CURB HEIGHT H	CURB WIDTH W
6"	4"
6"	6"



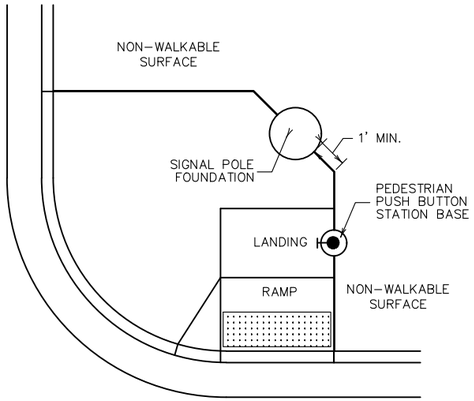
V CURB ADJACENT TO LANDSCAPE
CURB OUTSIDE SIDEWALK LIMITS



V CURB ADJACENT TO BUILDING
OR BARRIER



RAILROAD CROSSING
PLAN VIEW



CONCRETE WALK EDGES ADJACENT
TO CONCRETE STRUCTURES

NOTES:

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 EDGE BETWEEN NEW V CURB AND INPLACE STRUCTURE SHALL BE SEALED AND BOND BREAKER SHALL BE USED BETWEEN EXISTING STRUCTURE AND PLACED V–CURB.

④ 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.

⑤ 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.

⑥ WHEN PLAN SPECIFIES, DRILL AND GROUT NO. 4 12" LONG REINFORCEMENT BARS AT 36" MAX. CENTER TO CENTER (EPOXY COATED).

⑦ TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONSTRUCTED, LANDINGS MAY BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON THIS SHEET WHEN LANDINGS ARE CAST SEPARATELY.

REVISION:
APPROVED: 8–6–2014
OPERATIONS ENGINEER

REVISED:
APPROVED: 2–9–2015
STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5–297.250 | 5 OF 5

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: 3–18–2016

DUNCAN SCHWENSOHN
TYPE NAME

LIC. NO: 45486

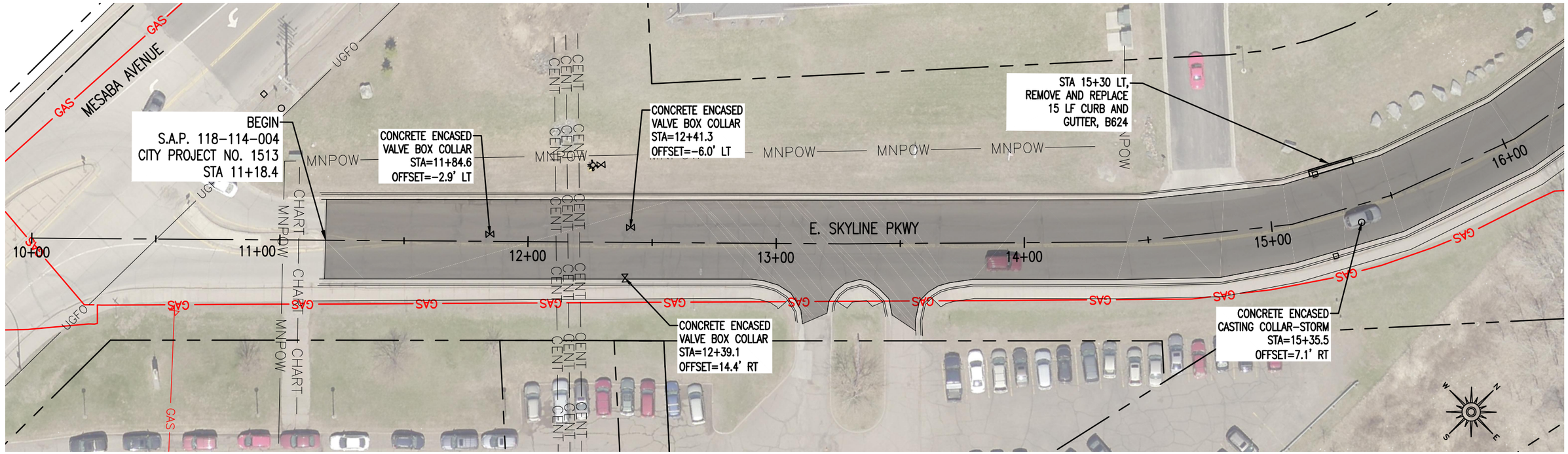
CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

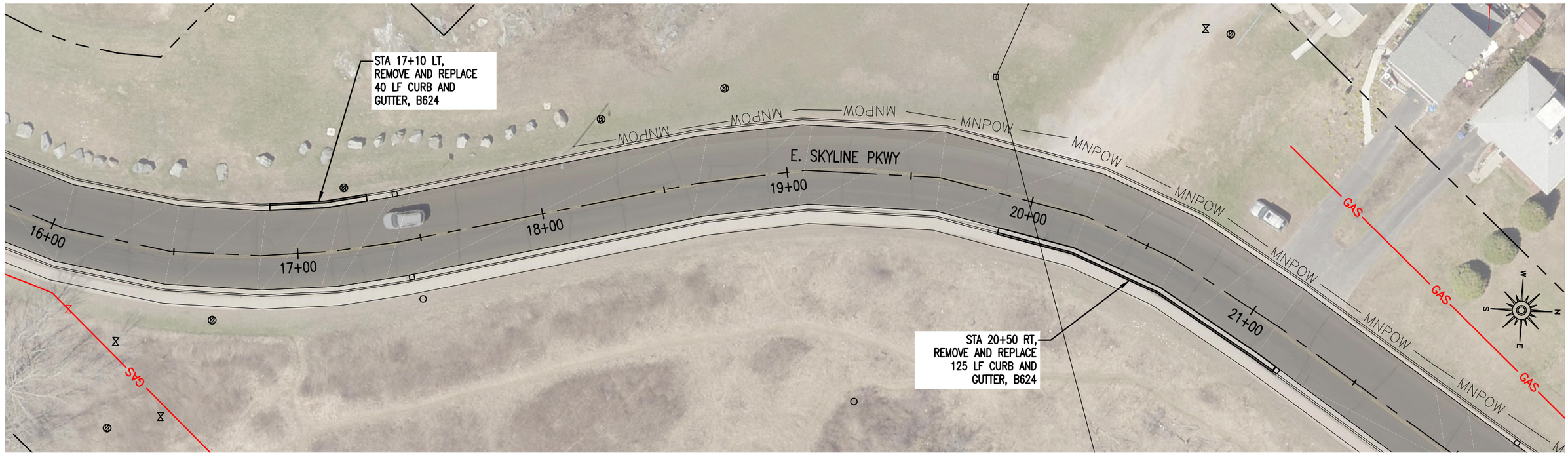
E. SKYLINE, MESABA AVE TO KENWOOD AVE

CITY PROJECT NO.: 1513 | STATE AID PROJECT NO.: 118–114–004

DRAWN BY: SCA
ADA DETAILS 5 OF 5
SHEET NO. 10 OF 19

I:\PWU\ENGINEER\PROJECTS\2015\1513_Skyline_PKWY_Mesaba_Ave_to_Kenwood\20–MAPS–GIS–DRAWINGS\Drawings\1382_ADA DETAIL.dwg





0 20 40
SCALE IN FEET

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SIGNATURE: Duncan C. Schwensohn

DUNCAN SCHWENSOHN
TYPE NAME

DATE: 3-18-2016

LIC. NO: 45486

CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

E. SKYLINE, MESABA AVE TO KENWOOD AVE

CITY PROJECT NO.: 1513

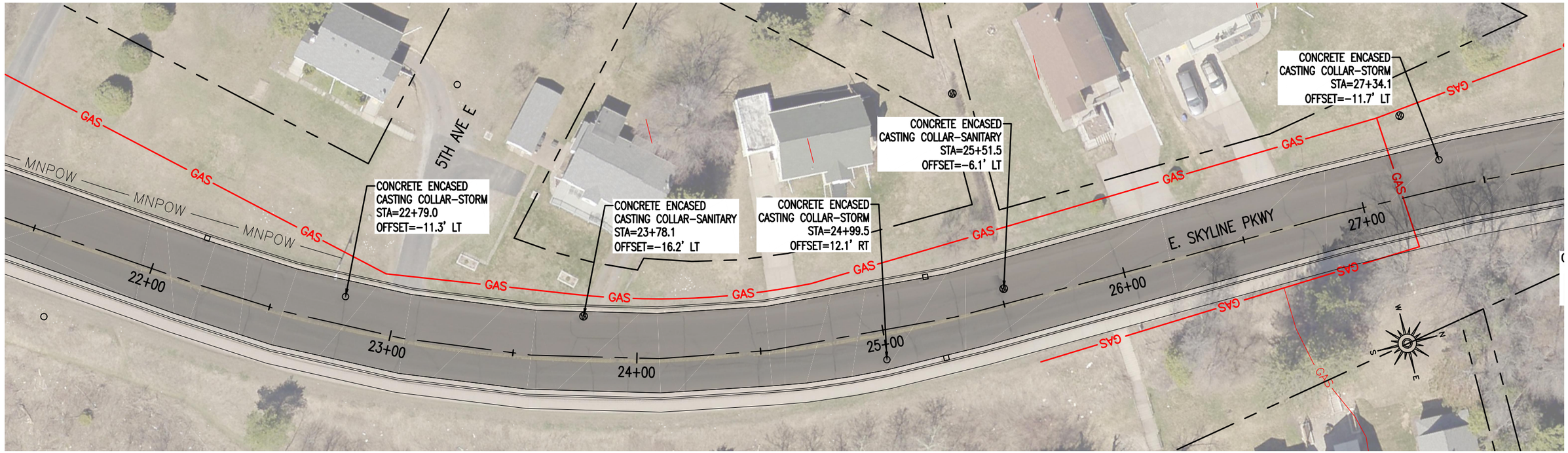
STATE AID PROJECT NO.: 118-114-004

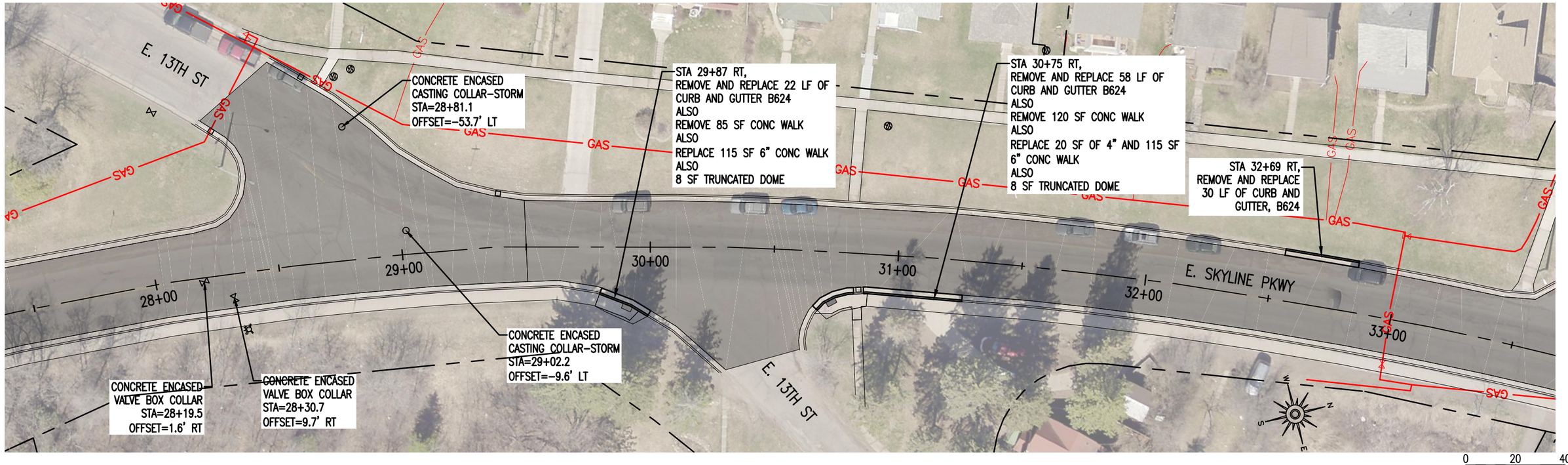
DRAWN BY: SCA

PLAN

SHEET NO. 11 OF 19

I:\PW\ENGINEER\PROJECTS\2015\1513_Skyline_PKWY_Mesaba_Ave_to_Kenwood\20-MAPS-GIS-DRAWINGS\Drawings\1382-SKYLINE E_BA.dwg





0 20 40
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SIGNATURE: Duncan C. Schwensohn

DUNCAN SCHWENSOHN
TYPE NAME

DATE: 3-18-2016

LIC. NO: 45486

CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

E. SKYLINE, MESABA AVE TO KENWOOD AVE

CITY PROJECT NO.: 1513

STATE AID PROJECT NO.: 118–114–004

DRAWN BY: SCA

PLAN

SHEET NO. 12 OF 19

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#1
STA 38+71 LT,
REMOVE AND REPLACE 87 LF OF
CURB AND GUTTER B624
ALSO
REMOVE 205 SF CONC WALK
ALSO
REPLACE 160 SF OF 4" AND 80 SF
6" CONC WALK
ALSO
23 SF TRUNCATED DOME (RADIAL)

#2
STA 38+71 RT,
REMOVE AND REPLACE 55 LF OF
CURB AND GUTTER B624
ALSO
REMOVE 80 SF CONC WALK
ALSO
REPLACE 65 SF 6" CONC WALK
ALSO
15 SF TRUNCATED DOME
(RADIAL)

STA 38+30 LT,
REMOVE AND REPLACE 19 LF OF
CURB AND GUTTER B624
ALSO
REMOVE 230 SF CONC WALK
ALSO
REPLACE 185 SF OF 4" AND 65 SF
6" CONC WALK
ALSO
15 SF TRUNCATED DOME (RADIAL)

STA 38+30 RT,
REMOVE AND REPLACE 23 LF OF
CURB AND GUTTER B624
ALSO
REMOVE 95 SF CONC WALK
ALSO
REPLACE 25 SF OF 4" AND 95 SF
6" CONC WALK
ALSO
24 SF TRUNCATED DOME (RADIAL)

CONCRETE ENCASED
CASTING COLLAR–SANITARY
STA=38+46.6
OFFSET=–23.6' LT

CONCRETE ENCASED
CASTING COLLAR–STORM
STA=38+69.9
OFFSET=8.9' RT

CONCRETE ENCASED
CASTING COLLAR–STORM
STA=38+45.1
OFFSET=–34.8' LT

CONCRETE ENCASED
VALVE BOX COLLAR
STA=38+58.2
OFFSET=–34.1' LT

CONCRETE ENCASED
VALVE BOX COLLAR
STA=38+80.2
OFFSET=–28.8' LT

STA 43+12 LT,
REMOVE AND REPLACE 21 LF OF
CURB AND GUTTER B624
ALSO
REMOVE 190 SF CONC WALK
ALSO
REPLACE 125 SF 4" AND 45 SF
6" CONC WALK
ALSO
8 SF TRUNCATED DOME

CONCRETE ENCASED
CASTING COLLAR–SANITARY
STA=43+29.6
OFFSET=–32.8' LT

STA 43+49 LT,
REMOVE AND REPLACE 35 LF OF
CURB AND GUTTER B624
ALSO
REMOVE 160 SF CONC WALK
ALSO
REPLACE 115 SF 4" AND 35 SF
6" CONC WALK
ALSO
8 SF TRUNCATED DOME

STA 40+00 RT,
REMOVE AND REPLACE 30 LF OF
CONC CURB AND GUTTER B624

CONCRETE ENCASED
CASTING COLLAR–STORM
STA=42+84.9
OFFSET=5.8' RT

STA 43+50 RT,
REMOVE AND REPLACE 65 LF OF
CURB AND GUTTER B624
ALSO
REMOVE 280 SF CONC WALK
ALSO
REPLACE 200 SF 4" AND 3.75 SY
7" CONC DRIVEWAY PAVEMENT

0 20 40
SCALE IN FEET

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SIGNATURE: Duncan C. Schwensohn

DUNCAN SCHWENSOHN
TYPE NAME

DATE: 3-18-2016

LIC. NO: 45486

CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

E. SKYLINE, MESABA AVE TO KENWOOD AVE

CITY PROJECT NO.: 1513

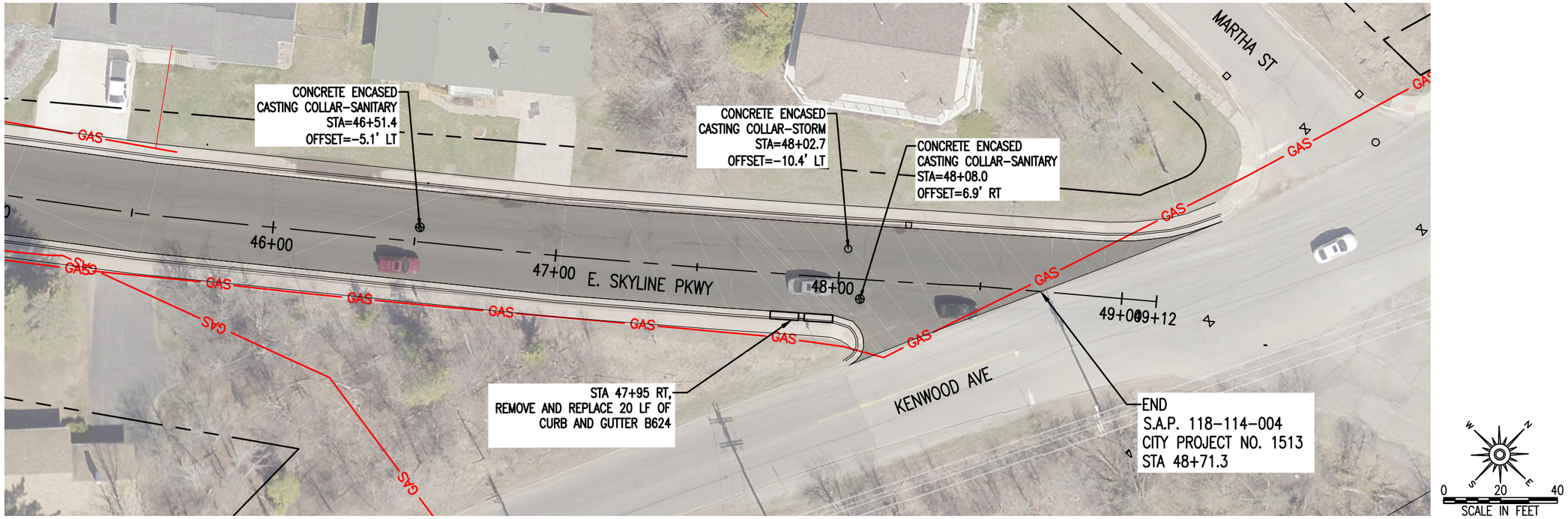
STATE AID PROJECT NO.: 118–114–004

DRAWN BY: SCA

PLAN

SHEET NO. 13 OF 19

I:\PW\ENGINEER\PROJECTS\2015\1513_Skyline_PKWY_Mesaba_Ave_to_Kenwood\20–MAPS–GIS–DRAWINGS\Drawings\1382–SKYLINE E_BA.dwg



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DULUTH MINNESOTA

CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

E. SKYLINE, MESABA AVE TO KENWOOD AVE

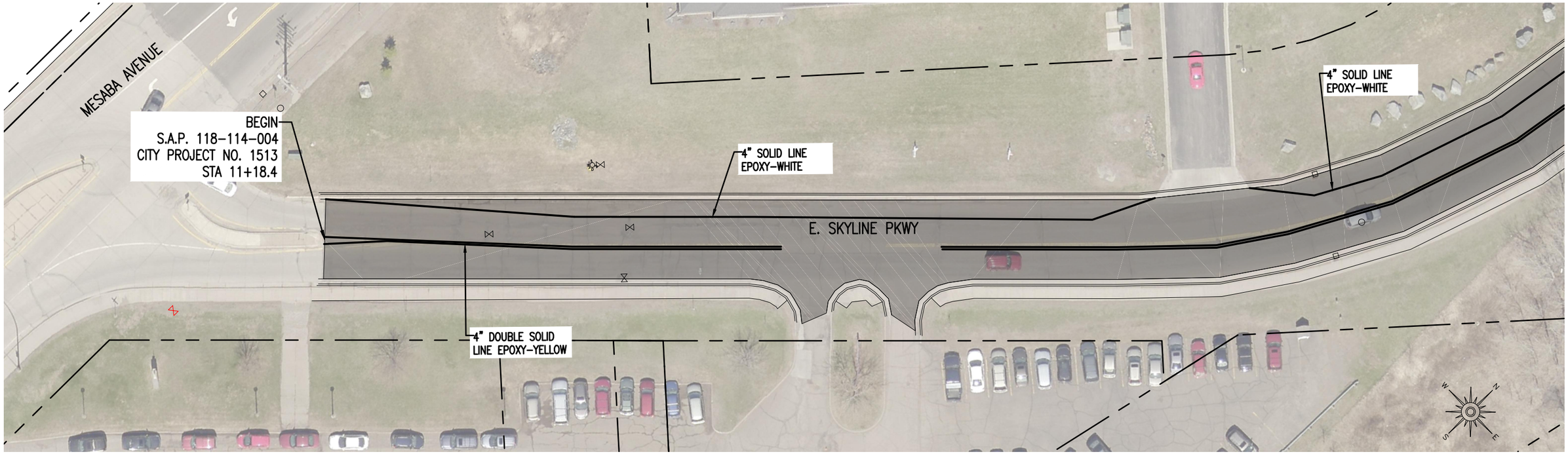
CITY PROJECT NO.: 1513

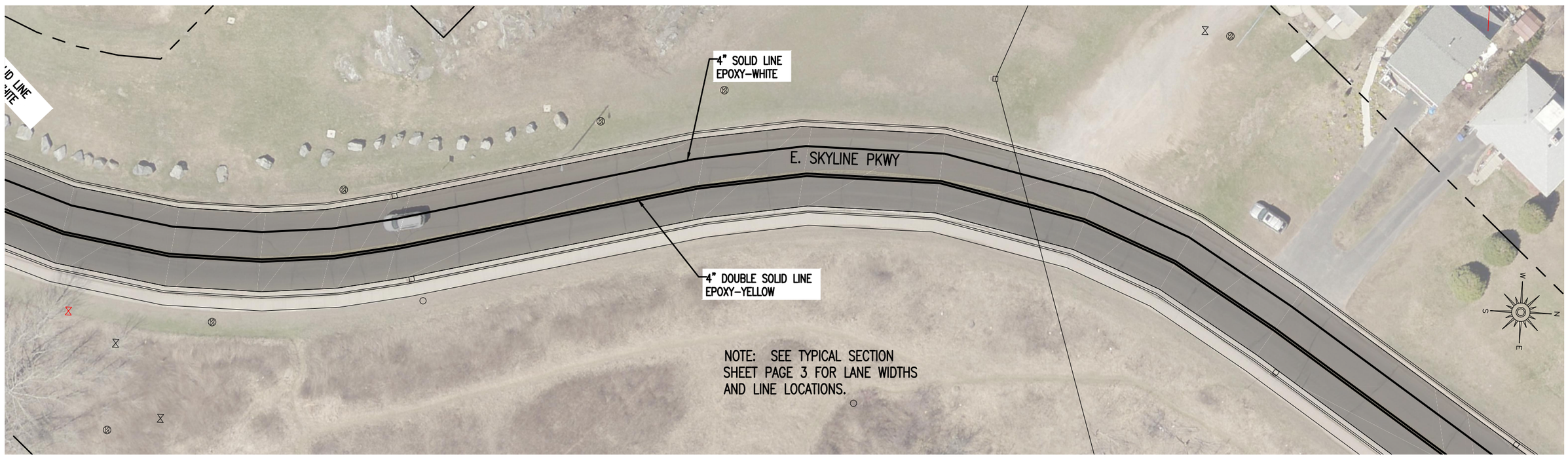
STATE AID PROJECT NO.: 118–114–004

DRAWN BY: SCA

PLAN

SHEET NO. 14 OF 19





NOTE: SEE TYPICAL SECTION SHEET PAGE 3 FOR LANE WIDTHS AND LINE LOCATIONS.

0 20 40
SCALE IN FEET

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ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

E. SKYLINE, MESABA AVE TO KENWOOD AVE

CITY PROJECT NO.: 1513

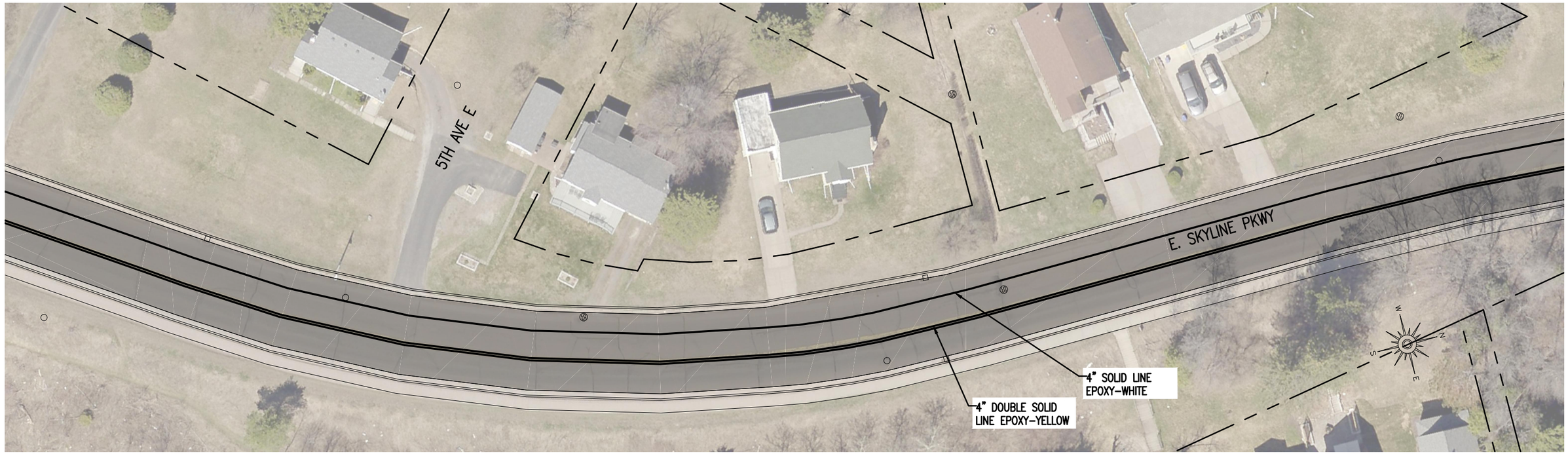
STATE AID PROJECT NO.: 118-114-004

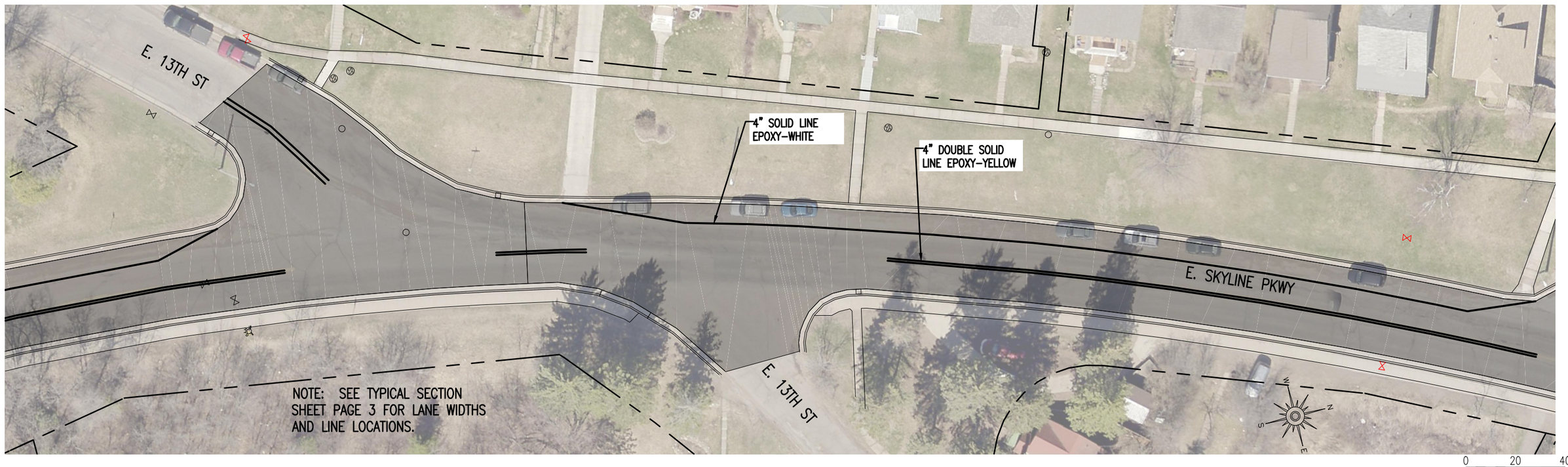
DRAWN BY: SCA

PAVEMENT MARKINGS

SHEET NO. 15 OF 19

I:\PWU\ENGINEER\PROJECTS\2015\1513_Skyline_PKWY_Mesaba_Ave_to_Kenwood\20-MAPS-GIS-DRAWINGS\Drawings\1382_PAVEMENT MARKINGS EAST.dwg





0 20 40
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TYPE NAME

DATE: 3-18-2016

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ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

E. SKYLINE, MESABA AVE TO KENWOOD AVE

CITY PROJECT NO.: 1513

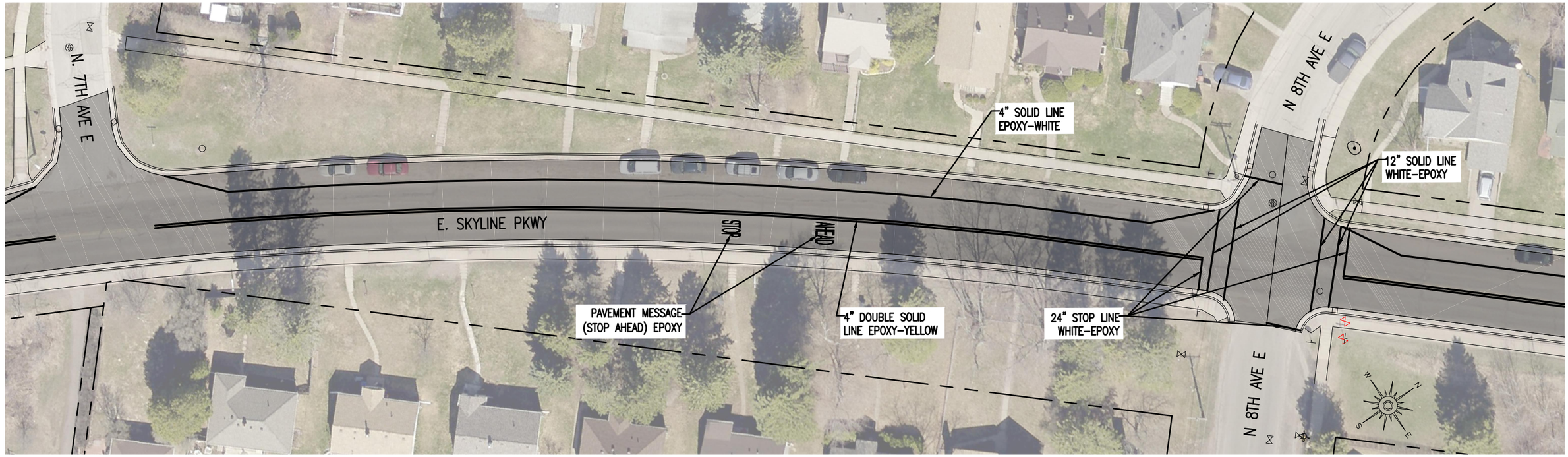
STATE AID PROJECT NO.: 118-114-004

DRAWN BY: SCA

PAVEMENT MARKINGS

SHEET NO. 16 OF 19

I:\PWU\ENGINEER\PROJECTS\2015\1513_Skyline_PKWY_Mesaba_Ave_to_Kenwood\20-MAPS-GIS-DRAWINGS\Drawings\1382_PAVEMENT MARKINGS EAST.dwg



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DUNCAN SCHWENSOHN
TYPE NAME

DATE: 3-18-2016

LIC. NO: 45486

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ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

E. SKYLINE, MESABA AVE TO KENWOOD AVE

CITY PROJECT NO.: 1513

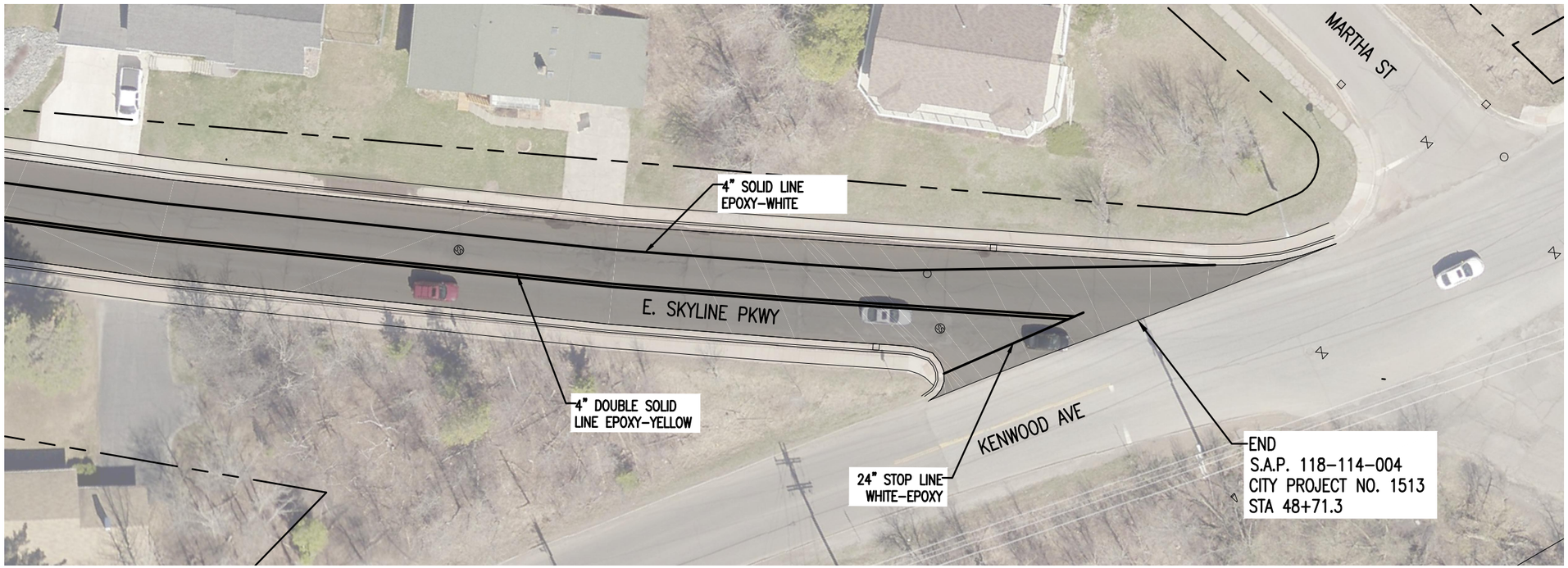
STATE AID PROJECT NO.: 118-114-004

DRAWN BY: SCA

PAVEMENT MARKINGS

SHEET NO. 17 OF 19

I:\PW\ENGINEER\PROJECTS\2015\1513_Skyline_PKWY_Mesaba_Ave_to_Kenwood\20-MAPS-GIS-DRAWINGS\Drawings\1382_PAVEMENT MARKINGS EAST.dwg

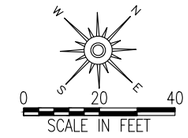


GENERAL REQUIREMENTS

THE ENGINEERS INVOLVEMENT IN THE APPLICATION OF THE MATERIAL SHALL BE LIMITED TO FIELD SPOTTING, LOCATION AND INSPECTION. THE ENGINEER WILL PLACE NECESSARY "SPOTTING" AT APPROPRIATE POINTS TO PROVIDE HORIZONTAL CONTROL FOR STRIPING AND TO DETERMINE NECESSARY STARTING AND CUTOFF POINTS. BROKEN LINE INTERVALS WILL NOT BE MARKED. LONGITUDINAL JOINTS. PAVEMENT EDGES, AND EXISTING MARKINGS SHALL SERVE AS HORIZONTAL CONTROL WHEN SO DIRECTED. EDGE LINES IN ALL AREAS AND LANE LINES IN URBAN AREAS ARE TO BE BROKEN ONLY AT INTERSECTIONS WITH PUBLIC ROADS AND AT PRIVATE ENTRANCES IF THEY ARE CONTROLLED BY A YIELD SIGN, STOP SIGN, OR TRAFFIC SIGNAL. THE BREAK POINT IS TO BE AT THE START OF THE RADIUS FOR THE INTERSECTION OR AT MARKED STOP LINES OR CROSSWALKS.

A TOLERANCE OF 1/4 INCH UNDER OR 1/4 INCH OVER THE SPECIFIED WIDTH WILL BE ALLOWED FOR STRIPING PROVIDED THE VARIATION IS GRADUAL AND DOES NOT DETRACT FROM THE GENERAL APPEARANCE. BROKEN LINE SEGMENTS MAY VARY UP TO 1/2 FOOT FROM THE SPECIFIED LENGTHS PROVIDED THE OVER AND UNDER VARIATIONS ARE REASONABLY COMPENSATORY. ALIGNMENT DEVIATIONS FROM THE CONTROL GUIDE SHALL NOT EXCEED 2 INCHES. MATERIAL SHALL NOT BE APPLIED OVER LONGITUDINAL JOINT. ESTABLISHMENT OF APPLICATION TOLERANCES SHALL NOT RELIEVE THE CONTRACTOR OF THEIR RESPONSIBILITY TO COMPLY AS CLOSELY AS PRACTICABLE WITH THE PLANNED DIMENSIONS.

NOTE: SEE TYPICAL SECTION SHEET PAGE 3 FOR LANE WIDTHS AND LINE LOCATIONS.



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: Duncan C. Schwensohn

DUNCAN SCHWENSOHN
TYPE NAME

DATE: 3-18-2016

LIC. NO: 45486

CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

E. SKYLINE, MESABA AVE TO KENWOOD AVE

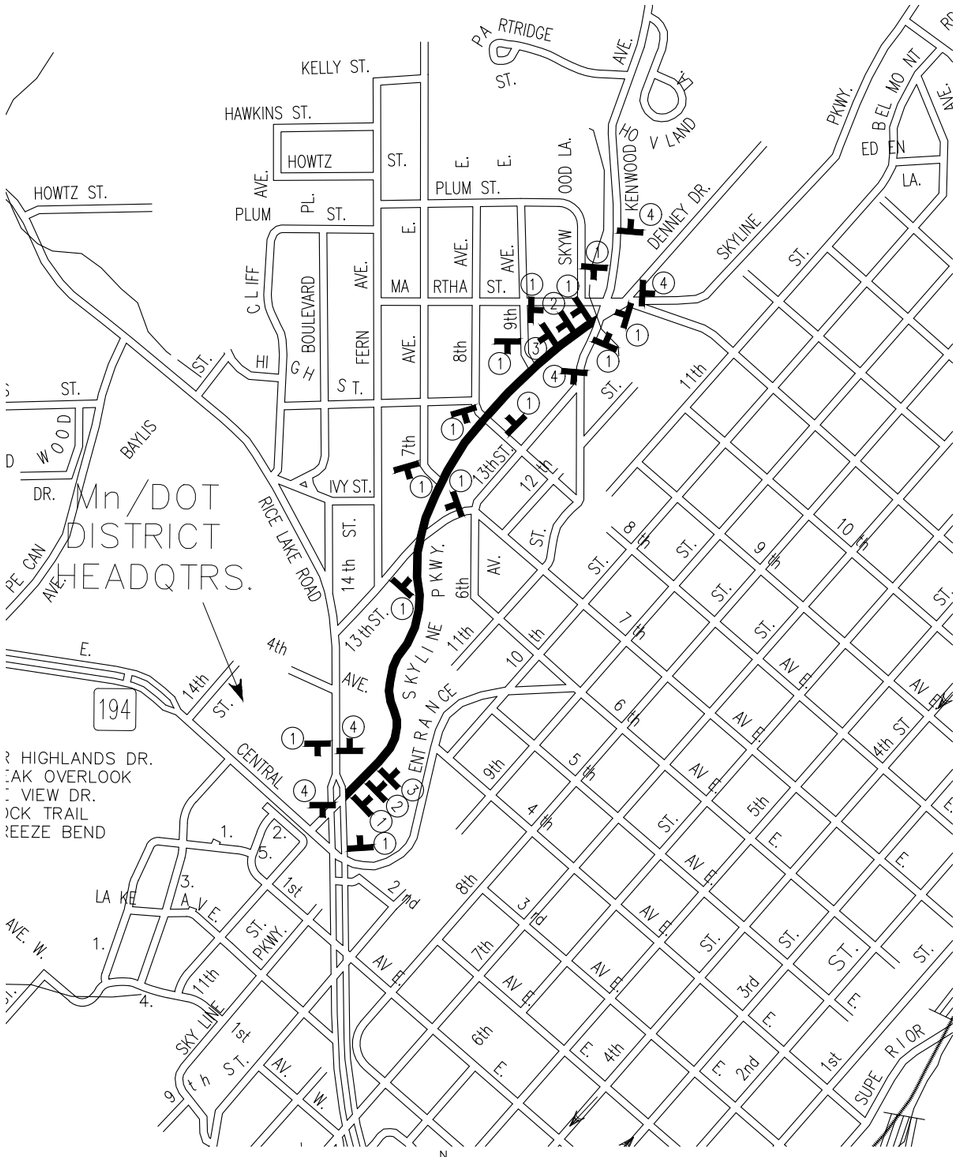
CITY PROJECT NO.: 1513

STATE AID PROJECT NO.: 118-114-004

DRAWN BY: SCA

PAVEMENT MARKINGS

SHEET NO. 18 OF 19



N
W E
S

500' 0 500' 1000'

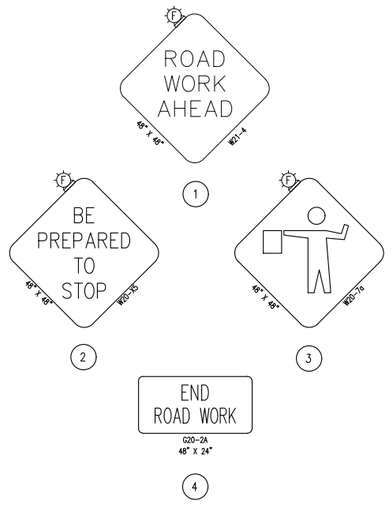
(IN FEET)

1 INCH = 1000 FT.

PROPOSED CONSTRUCTION AREA

TRAFFIC SIGN LEGEND

SYMBOL	DESCRIPTION
F	FLASHING AMBER WARNING LIGHTS



SIGNAGE ESTIMATED QUANTITIES

ITEM	DESIGN	NO.	REMARKS
ROAD WORK AHEAD	W20-1	14	48" x 48" DOUBLE POST MOUNTED WITH FLASHER
BE PREPARED TO STOP	W20-X5	2	48" x 48" DOUBLE POST MOUNTED WITH FLASHER
FLAGGER AHEAD	M20-7a	2	48" x 48" DOUBLE POST MOUNTED WITH FLASHER
END ROAD WORK	G20-2a	5	48" x 24" SINGLE POST
FLASHING AMBER WARNING LIGHTS	LOW INTENSITY	18	AS REQUIRED

TRAFFIC CONTROL NOTES

1. THE CONTRACTOR SHALL FURNISH, INSTALL AND MAINTAIN THE DEVICES IN THIS TRAFFIC CONTROL PLAN UNLESS OTHERWISE NOTED.
2. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MMUTCD) INCLUDING " "TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS" DATED JANUARY 2014. AVAILABLE AT: (http://www.dot.state.mn.us/trafficeng/publ/fieldmanual/index.html)
3. FIELD CONDITIONS MAY REQUIRE MODIFICATIONS OF THIS LAYOUT AS DEEMED NECESSARY BY THE ENGINEER.
4. THE NUMBER AND PLACEMENT OF TRAFFIC CONTROL DEVICES WILL DEPEND UPON THE SEQUENCE OF THE CONTRACTOR'S OPERATION.
5. ALL DISTANCES DIPICTED ARE APPROXIMATE.
6. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING ANY WORK AREAS NEAR TRAFFIC IN ACCORDANCE WITH THE MMUTCD.
7. IF THE CONTRACTOR DECIDES TO PERFORM THE CONSTRUCTION WORK IN A SEQUENCE OTHER THAN SHOWN IN THIS TRAFFIC CONTROL PLAN, THE CONTRACTOR SHALL PROVIDE COMPLETE REVISED TRAFFIC CONTROL PLANS TO BE APPROVED BY THE ENGINEER.
8. ALL TRAFFIC CONTROL DEVICES, INCLUDING OVERHEAD SIGNS ON ROADS OPEN TO TRAFFIC THAT ARE NOT CONSISTENT WITH TRAFFIC OPERATION, SHALL BE COVERED, REMOVED OR REVISED AS DIRECTED BY THE ENGINEER.
9. "ROAD WORK AHEAD" SIGNS SHALL BE MOUNTED APPROX. 300 FT (1 BLOCK) IN ADVANCE OF THE CONSTRUCTION AND SHALL HAVE A TYPE "A" LOW INTENSITY FLASHING AMBER WARNING LIGHT MOUNTED ON THEM.
10. "ROAD CLOSED AHEAD" SIGNS SHALL BE ERECTED APPROX. 300 FT (1 BLOCK) IN ADVANCE OF THE CLOSURE.
11. TYPE "A" LOW INTENSITY AMBER WARNING LIGHTS SHALL BE MOUNTED ON ALL ADVANCE WARNING SIGNS AND ON ALL TYPE I AND TYPE III BARRICADES WHEN USED AT NIGHT OR TO IDENTIFY HAZARDS.
12. ADDITIONAL SIGNING MAY BE REQUIRED FOR SEPARATE LANE CLOSURES. THE SIGNING SHALL BE IN CONFORMANCE WITH "TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS" FIELD MANUAL DATED JANUARY 2014 AND SHALL BE CONSIDERED INCIDENTAL.
13. THE CONTRACTOR SHALL PLACE DRUMS THROUGHOUT THE PROJECT TO DELINEATE HAZARDOUS AREAS AND FACILITATE DAY-TO-DAY CHANNELIZATION OF TRAFFIC (INCIDENTAL).

I:\PW\ENGINEER\PROJECTS\2015\1513_Skyline_PKWY_Mesaba_Ave_to_Kenwood\20-MAPS-GIS-DRAWINGS\Drawings\1382_TRAFFIC_CONTROL-EAST.dwg

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TRAFFIC CONTROL

SHEET NO. 19 OF 19