PLAN SYMBOLS

STATE LINE
COUNTY LINE
TOWNSHIP OR RANGE LINE
SECTION LINE
QUARTER LINE
SIXTEENTH LINE
EXISTING RIGHT OF WAY LINE
PROPOSED RIGHT OF WAY LINE
PROPERTY LINE
CORPORATE OR CITY LIMITS
RAILROAD
RAILROAD RIGHT-OF-WAY
RIVER OF CREEK
CULVERT
GUARDRAIL
WOOD FENCE
BARBED WIRE FENCE
WOVEN WIRE FENCE
CHAIN LINK FENCE
TIMBER WALL
STONE WALL
HEDGE
RAILROAD CROSSING SIGN
CROSSING GATE
MEANDER CORNER
SLOPE EASEMENT (CONST. LIMITS)
MARSH
DECIDUOUS TREE
CONIFEROUS TREE
BUSH OR SHRUB
WOODS
CATCH BASIN
BRIDGE
IRON PIPE OR ROD
MONUMENT (STONE, CONCRETE OR METAL)
WOODEN HUB

UTILITY SYMBOLS

UTILITY POLE
GUY OR ANCHOR
STREET LIGHT
TELEPHONE PEDESTAL
GAS MAIN
WATER MAIN
TELEPHONE VAULT
ELECTRIC VAULT
TELEPHONE CABLE
ELECTRIC CABLE
STORM SEWER
SANITARY SEWER
SEWER MANHOLE
GATE VALVE
CONTROLLER CABINET
EXISTING HYDRANT
CABLE TELEVISION-BURIED
FIBER OPTIC CABLE
TRAFFIC SIGNAL LINE
TRAFFIC SIGNAL HAND HOLE

FOR PLANS AND UTILITIES SYMBOLS SEE MN/DOT TECHNICAL MANUAL.

-GOVERNING SPECIFICATIONS-

THE 2005 EDITION OF MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE MMUTCD, INCLUDING FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS, SEE HTTP://WWW.DOT.STATE.MN.US/TRAFFICENG/

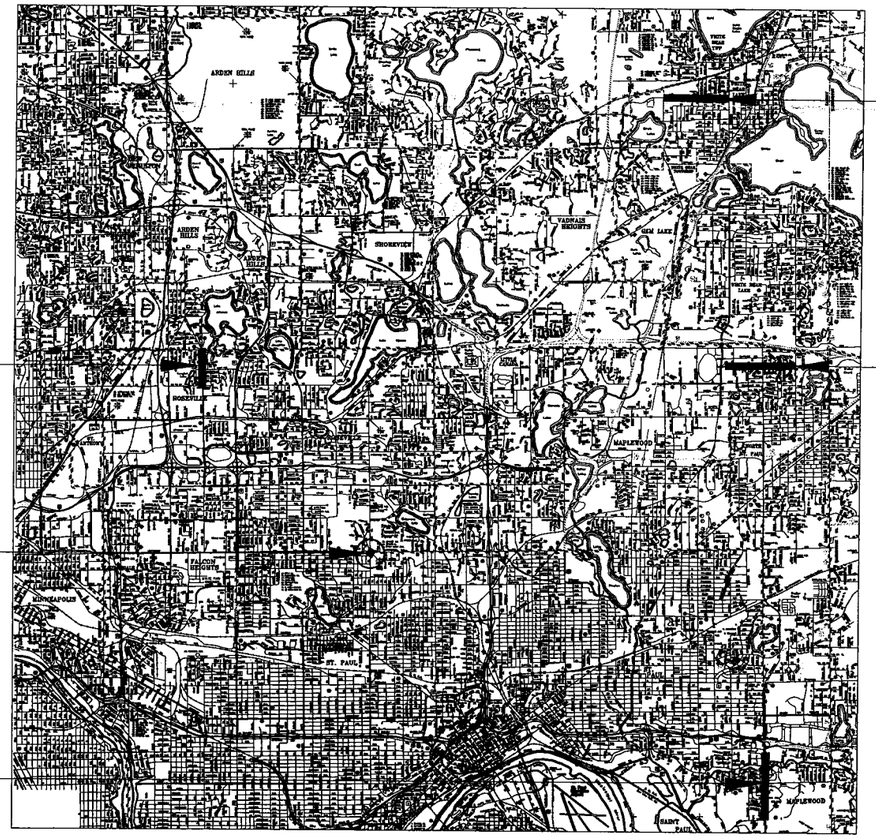
ALL APPLICABLE FEDERAL, STATE AND LOCAL LAWS AND ORDINANCES WILL BE COMPLIED WITH IN THE CONSTRUCTION OF THIS PROJECT.

	MCKNIGHT ROAD		FAIRVIEW AVENUE		LYDIA AVENUE		9TH STREET	
GROSS LENGTH	5,390 FEET	1.02 MILES	2,883 FEET	0.54 MILES	5,809 FEET	1.10 MILES	5,155 FEET	0.98 MILES
BRIDGE LENGTH	-----	-----	-----	-----	-----	-----	-----	-----
EXCEPTIONS	-----	-----	-----	-----	-----	-----	-----	-----
RAMP QUANTITY	27 RAMPS		4 RAMPS		18 RAMPS		27 RAMPS	

SCALES IN FEET

INDEX MAP 0 5000 10000

PLAN REVISIONS		
DATE	SHEET NO. & DESCRIPTION	BY



RAMSEY COUNTY

S.A.P. No. 062-030-014

CONSTRUCTION PLAN FOR RECONSTRUCTION OF PEDESTRIAN RAMPS ON:

MCKNIGHT ROAD (CSAH 68)
FAIRVIEW AVENUE (CSAH 48)
LYDIA AVENUE (CSAH 19)
9TH STREET (CR 93)

S.A.P. No. 062-668-050
S.A.P. No. 062-648-018
S.A.P. No. 062-619-032

AT VARIOUS LOCATIONS ON RAMSEY COUNTY ROADS IN THE CITIES OF WHITE BEAR LAKE, ST, PAUL, ROSEVILLE, AND MAPLEWOOD.

INDEX

THIS PLAN CONTAINS 10 SHEETS

DESIGN DESIGNATION	MCKNIGHT ROAD LOWER AFTON RD TO BURNS AVE	FAIRVIEW AVENUE COUNTY RD C2 TO COUNTY RD D	LYDIA AVENUE WHITE BEAR AVE TO BELLAIRE AVE	9TH STREET OTTER LAKE RD TO BALD EAGLE AVE
PRESENT ADT (2013)	10,950	7,600	3,100	2,500
PROJECTED ADT (2033)	13,140	9,120	3,720	3,000
FUNCTIONAL CLASS	A MINOR AUGMENTOR	A MINOR RELIEVER	B MINOR	A MINOR RELIEVER
TRAFFIC LANES	4	2	2	2
PARKING LANES	0	0	2	0

BASED ON STOPPING DISTANCE
HEIGHT OF EYE: 3.50 FEET
HEIGHT OF OBJECT: 2.00 FEET

DRAWN BY L. LORTIE DATE 4-16-13
CHECKED BY N. FISCHER DATE 4-29-2013

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.

GERALD J. ROSE JR REG. NO. 26511 DATE 5/7/2013

RECOMMENDED FOR APPROVAL COUNTY ENGINEER DATE 5/9/13

APPROVED CITY OF ST. PAUL DATE 5/22/13

APPROVED CITY OF ROSEVILLE DATE 5/15/13

APPROVED CITY OF MAPLEWOOD DATE 5/15/13

APPROVED CITY OF WHITE BEAR LAKE DATE 5/21/13

MINNESOTA DEPARTMENT OF TRANSPORTATION

RECOMMENDED FOR APPROVAL DISTRICT STATE AID ENGINEER DATE 5/20/13

REVIEWED FOR COMPLIANCE WITH STATE AID AID RULES/POLICY

APPROVED For APPROVED FOR STATE AID AID FUNDING: STATE AID ENGINEER DATE 5/20/13

For

S.A.P. No. 060-030-014

STATEMENT OF ESTIMATED QUANTITIES

ITEM NO.	CONTRACT ITEM	UNIT	QUANTITY
2021.501	Mobilization	L.S.	1
2104.501	Remove Curb and Gutter	L.F.	1,594
2104.503	Remove Sidewalk	S.F.	9,236
2104.503	Remove Bituminous Walk	S.F.	229
2104.509	Remove Sign	Each	3
2104.513	Sawing Bituminous Pavement (Full Depth)	L.F.	35
2104.603	Remove and Replace Bituminous Pavement (ADA)	L.F.	1,609
2123.610	Street Sweeper	Hour	30
2506.522	Adjust Frame & Ring Casting	Each	3
2521.501	4" Concrete Walk (ADA)	S.F.	100
2521.501	6" Concrete Walk (ADA)	S.F.	9,991
2521.603	Sawing Concrete Walk	L.F.	937
2531.501	Concrete Curb and Gutter Design B624 (ADA)	L.F.	1,609
2531.502	Concrete Curb Design V (ADA)	L.F.	90
2531.618	Truncated Domes	S.F.	962
2563.601	Traffic Control	L.S.	1
2563.601	Temporary Pedestrian Access Control	L.S.	1
2564.537	Install Sign	Each	3
2573.530	Storm Drain Inlet Protection	Each	74
2575.602	Site Restoration (ADA)	Each	74

H:\PROJECTS\P-3XXX PEDESTRIAN RAMPS 2013\PROJECT MANAGEMENT\PED RAMP QTYS 2013.DWG May 30, 2013 9:20 AM

NO.	REV-DATE	BY:	DESCRIPTION

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.
SIGNED:
REG NO: 26541 DATE: 5/7/2013

PEDESTRIAN RAMPS
ON VARIOUS COUNTY ROADS

S.A.P. 062-030-014
COUNTY PROJ. P-3074

RAMSEY COUNTY

ESTIMATED QUANTITIES
SHEET 2 OF 10 SHEETS

Quantity Tabulations

Mainline Street	Cross Street	Corner Location	Remove Curb and Gutter	Remove Concrete Walk	Bituminous Walk Removal	Remove and Replace Bituminous Pavement	Sawing Concrete	Concrete Walk	Concrete Curb and Gutter	Concrete Curb Design V	Truncated Domes	Storm Drain Inlet Protection	Site Restoration	Curb Ramp Design (1)	Remarks
			LIN FT	SQ FT	SQ FT	LIN FT	LIN FT	SQ FT	LIN FT	LIN FT	SQ FT	EACH	EACH		
MCKNIGHT ROAD	HILLSDALE	SW	30	115		30	15	115	30		10 (2)	1	1	ONE-WAY DIRECTIONAL	
		NW	30	160		30	15	160	30		10 (2)	1	1	ONE-WAY DIRECTIONAL	
	GLENRIDGE	SW	30	160		30	15	160	30		10 (2)	1	1	ONE-WAY DIRECTIONAL	
		NW	20	130		20	15	130	20		10 (2)	1	1	ONE-WAY DIRECTIONAL	
	E FLACON	SW	25	175		25	15	175	25		10 (2)	1	1	ONE-WAY DIRECTIONAL	
		NW	25	160		25	15	160	25		10 (2)	1	1	ONE-WAY DIRECTIONAL	
	EDGEBROOK	SW	25	150		25	15	150	25		10 (2)	1	1	ONE-WAY DIRECTIONAL	
		NW	30	150		30	15	150	30		10 (2)	1	1	FAN	20.0 FT RADIUS
		NE	7	X		7	15	85	7		20 (2)	1	1	PERPENDICULAR	
	DELLRIDGE	SW	25	165		25	15	165	25		10 (2)	1	1	ONE-WAY DIRECTIONAL	
		NW	25	180		25	15	180	25		10 (2)	1	1	ONE-WAY DIRECTIONAL	
	CARDINAL	SW	25	160		25	15	160	25		10 (2)	1	1	ONE-WAY DIRECTIONAL	
		NW	25	160		25	15	160	25		10 (2)	1	1	ONE-WAY DIRECTIONAL	
	BERLAND	SW	25	160		25	15	160	25		10 (2)	1	1	ONE-WAY DIRECTIONAL	
		NW	25	160		25	15	160	25		10 (2)	1	1	ONE-WAY DIRECTIONAL	
	UPPER AFTON	SW	40	225		40	15	225	40		20 (2)	1	1	COMBINED DIRECTIONAL	
		NW	35	300		35	15	300	35	10	20 (2)	1	1	COMBINED DIRECTIONAL	
		NE	35	185		35	15	185	35	10	20 (2)	1	1	COMBINED DIRECTIONAL	
		SE	35	300		35	15	300	35		20 (2)	1	1	COMBINED DIRECTIONAL	
	LARRY HO	SW	30	275		30	15	275	30		20 (2)	1	1	ONE-WAY DIRECTIONAL	
		NW	30	240		30	15	240	30		20 (2)	1	1	ONE-WAY DIRECTIONAL	15.0 FEET BITUMINOUS SAW CUT
	N PARK	SW	25	120		25	15	120	25		10 (2)	1	1	PERPENDICULAR	20.0 FEET BITUMINOUS SAW CUT
		NW	30	275		30	15	275	30		10 (2)	1	1	COMBINED DIRECTIONAL	
		NE	X	X		15	15	75	15		10 (2)	1	1	PERPENDICULAR	ADDING PEDESTRIAN RAMP
	500' N OF N PARK	SW	25	125		25	15	125	25		10 (2)	1	1	PERPENDICULAR	
		NW	35	250		35	15	250	35		10 (2)	1	1	PERPENDICULAR	
		NE	25	75		25	15	75	25		24	1	1	PERPENDICULAR	TUNCATED DOMES WIDTH OF PATH
FAIRVIEW AVENUE	COUNTY C2	SE	25	X	85	25	X	85	25		12	1	1	PERPENDICULAR	
	LYDIA	SE	15	90		15	10	90	15		12	1	1	PERPENDICULAR	
	COUNTY D	NE	38	240		38	10	240	38		24	1	1	COMBINED DIRECTIONAL	
		SE	28	120		28	10	120	28		24	1	1	COMBINED DIRECTIONAL	
LYDIA AVENUE	175' W OF ARIEL	SW	10	165		10	15	165	10		10 (2)	1	1	ONE-WAY DIRECTIONAL	
		NE	10	60		10	15	60	10		10 (2)	1	1	ONE-WAY DIRECTIONAL	
	CHISHOLM	SW	20	120		20	15	120	20		10 (2)	1	1	ONE-WAY DIRECTIONAL	
		SE	20	150		20	15	150	20		10 (2)	1	1	ONE-WAY DIRECTIONAL	
	FREDERICK	SW	20	125		20	15	125	20		10 (2)	1	1	ONE-WAY DIRECTIONAL	
		SE	20	150		20	15	150	20		10 (2)	1	1	ONE-WAY DIRECTIONAL	
	BEEBE	SW	25	150		25	15	150	25		10 (2)	1	1	ONE-WAY DIRECTIONAL	
		SE	25	200		25	15	200	25		10 (2)	1	1	ONE-WAY DIRECTIONAL	
	STANBRIDGE	NW	20	100		20	15	100	20		10 (2)	1	1	ONE-WAY DIRECTIONAL	
		NE	20	100		20	15	100	20		10 (2)	1	1	ONE-WAY DIRECTIONAL	
	DORLAND	NW	20	100		20	15	100	20		10 (2)	1	1	ONE-WAY DIRECTIONAL	
		NE	20	100		20	15	100	20		10 (2)	1	1	ONE-WAY DIRECTIONAL	
	N LAKEWOOD	NW	30	200		30	15	200	30	15	10 (2)	1	1	ONE-WAY DIRECTIONAL	
		NE	20	100		20	15	100	20		10 (2)	1	1	ONE-WAY DIRECTIONAL	
	BARTLEMY	NW	20	100		20	15	100	20		10 (2)	1	1	ONE-WAY DIRECTIONAL	
		NE	20	100		20	15	100	20		10 (2)	1	1	ONE-WAY DIRECTIONAL	
	MARY	NW	30	100		30	15	100	30		20 (2)	1	1	COMBINED DIRECTIONAL	
		NE	30	100		30	15	100	30		20 (2)	1	1	COMBINED DIRECTIONAL	

NOTES:

(1) SEE PEDESTRIAN CURB RAMP STANDARD PLANS FOR CONSTRUCTION DETAILS ON PAGES 4-8

(2) REQUIRES USE OF 24" X 30" TRUNCATED DOMES PLATES (STD PLATE 7038)

NO.	REV-DATE	BY:	DESCRIPTION

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.

SIGNED:

REG NO: 26571 DATE: 5/7/2013

PEDESTRIAN RAMPS

ON VARIOUS COUNTY ROADS

S.A.P. 062-030-014

COUNTY PROJ. P-3074

RAMSEY COUNTY

QUANTITY TABULATION

SHEET 3 OF 10 SHEETS

H:\PROJECTS\P-3XXX PEDESTRIAN RAMPS 2013\PROJECT MANAGEMENT\PED RAMP QTYS 2013.DWG May 7, 2013 9:59 AM

Quantity Tabulations

Mainline Street	Cross Street	Corner Location	Remove Curb and Gutter	Remove Concrete Walk	Bituminous Walk Removal	Remove and Replace Bituminous Pavement	Sawing Concrete	Concrete Walk	Concrete Curb and Gutter	Concrete Curb Design V	Truncated Domes	Storm Drain Inlet Protection	Site Restoration	Curb Ramp Design (1)	Remarks
			LIN FT	SQ FT	SQ FT	LIN FT	LIN FT	SQ FT	LIN FT	LIN FT	SQ FT	EACH	EACH		
9TH STREET	975' E OF OTTER LAKE	SW	16	120		16	10	120	16		12	1	1	ONE-WAY DIRECTIONAL	
		SE	16	145		16	10	145	16		12	1	1	ONE-WAY DIRECTIONAL	
	DEBRA	NE	15	84		15	10	84	15		12	1	1	ONE-WAY DIRECTIONAL	
	WOODCREST	SW	16	75		16	10	75	16		12	1	1	ONE-WAY DIRECTIONAL	
		NW	15	84		15	10	84	15	10	12	1	1	ONE-WAY DIRECTIONAL	
		NE	15	84		15	10	84	15	10	12	1	1	ONE-WAY DIRECTIONAL	
		SE	16	84		16	10	84	16		12	1	1	ONE-WAY DIRECTIONAL	
	CAMPANARO	NW	15	50		15	10	50	15		12	1	1	ONE-WAY DIRECTIONAL	
		NE	25	90		25	10	126	25		24	1	1	COMBINED DIRECTIONAL	ADD RAMP CROSSING SOUTH
		SE	10	X		10	10	36	10		12	1	1	ONE-WAY DIRECTIONAL	ADD RAMP
	GEORGIA	NW	15	50		15	10	50	15		12	1	1	ONE-WAY DIRECTIONAL	
		NE	25	50		25	10	86	25		24	1	1	COMBINED DIRECTIONAL	ADD RAMP CROSSING SOUTH
		SE	10	X		10	10	36	10		12	1	1	ONE-WAY DIRECTIONAL	ADD RAMP
	WOOD	SW	18	216		18	10	216	18		12	1	1	ONE-WAY DIRECTIONAL	
		SE	12	120		12	10	120	12		12	1	1	ONE-WAY DIRECTIONAL	
	W SCHOOL ENTRANCE	SW	17	156		17	10	156	17		12	1	1	ONE-WAY DIRECTIONAL	
		SE	10	66		10	10	66	10		12	1	1	ONE-WAY DIRECTIONAL	
	E SCHOOL ENTRANCE	SW	10	45		10	10	45	10	10	12	1	1	ONE-WAY DIRECTIONAL	
		NW	10	150		10	10	150	10		12	1	1	ONE-WAY DIRECTIONAL	
		SE	10	50		10	10	50	10		12	1	1	ONE-WAY DIRECTIONAL	
	WALNUT	SW	14	108		14	10	108	14		12	1	1	ONE-WAY DIRECTIONAL	
		NE	25	50		25	10	86	25		12	1	1	ONE-WAY DIRECTIONAL	
		SE	10	X		10	10	36	10		12	1	1	ONE-WAY DIRECTIONAL	
LARPENTEUR	STERLING	NE	X	X		X	X	150	X		12	1	1	ONE-WAY DIRECTIONAL	ADD RAMP CROSSING SOUTH
DALE STREET	LARPENTEUR	SW	46	134	144	46	2	278	46	25	24	1	1	FAN	20.0 FT RADIUS
TOTAL			**1594**	**9236**	**229**	**1609**	**937**	**9991**	**1609**	**90**	**962**	**74**	**74**		

NOTES:
(1) SEE PEDESTRIAN CURB RAMP STANDARD PLANS FOR CONSTRUCTION DETAILS ON PAGES 4-8
(2) REQUIRES USE OF 24" X 30" TRUNCATED DOMES PLATES (STD PLATE 7038)

H:\PROJECTS\P-3XXX PEDESTRIAN RAMPS 2013\PROJECT MANAGEMENT\PED RAMP QTYS 2013.DWG May 7, 2013 9:59 AM

NO.	REV-DATE	BY:	DESCRIPTION

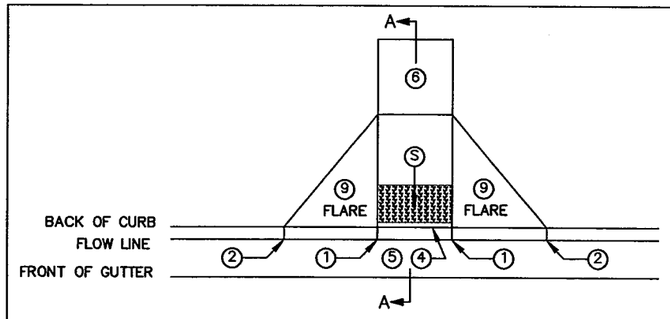
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
SIGNED:
REG NO: 26571 DATE: 5/7/2013

PEDESTRIAN RAMPS
ON VARIOUS COUNTY ROADS

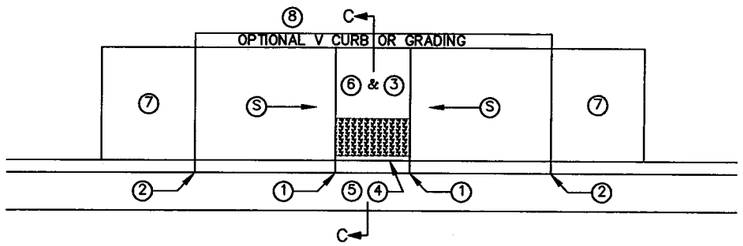
S.A.P. 062-030-014
COUNTY PROJ. P-3074

RAMSEY COUNTY

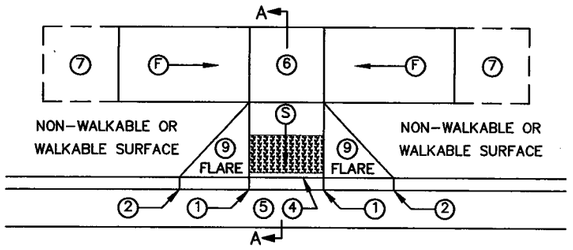
QUANTITY TABULATION
SHEET 4 OF 10 SHEETS



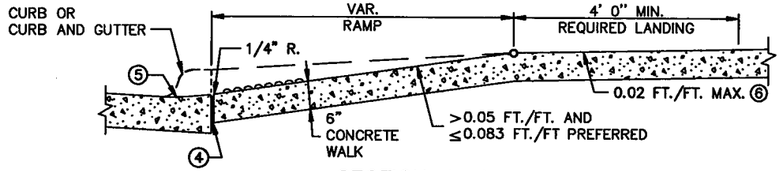
PERPENDICULAR



PARALLEL

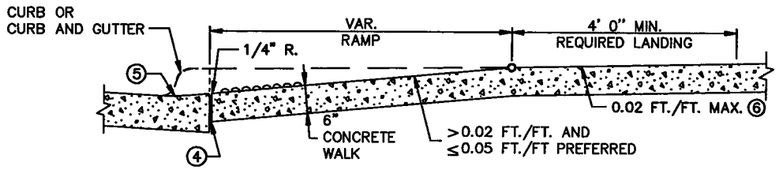


TIERED PERPENDICULAR



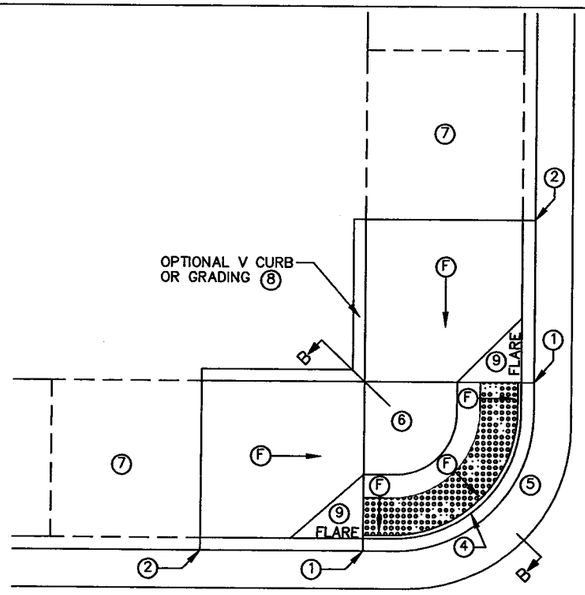
SECTION A–A

PERPENDICULAR/TIERED/DIAGONAL



SECTION B–B

FAN



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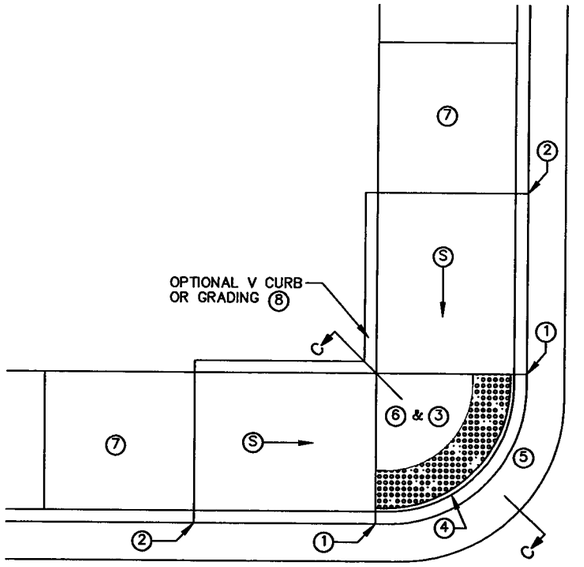
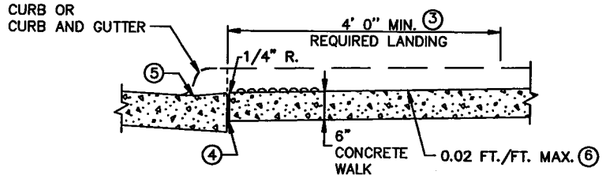
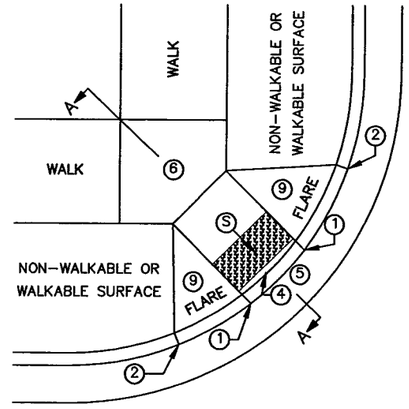


DEPRESSED CORNER



SECTION C–C

PARALLEL/DEPRESSED CORNER



DIAGONAL (10)

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%

STANDARD PLAN SHEET NO. 5–297.250 (1 OF 5)	PEDESTRIAN CURB RAMP DETAILS
STANDARD APPROVED: APRIL 10, 2013	
S.A.P.062–030–014	SHEET NO. 5 OF 10 SHEETS

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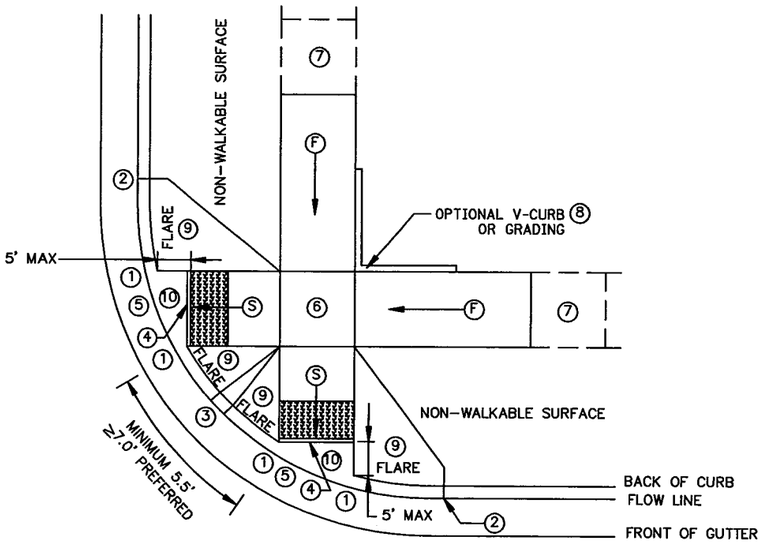
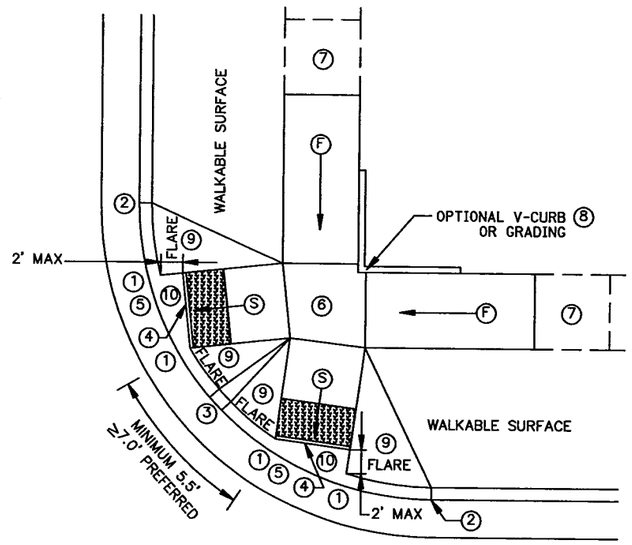
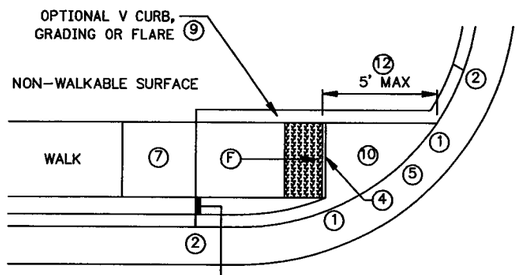


ADJACENT TO NON-WALKABLE SURFACE

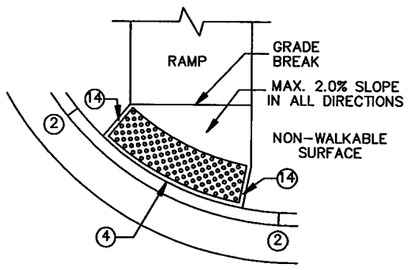


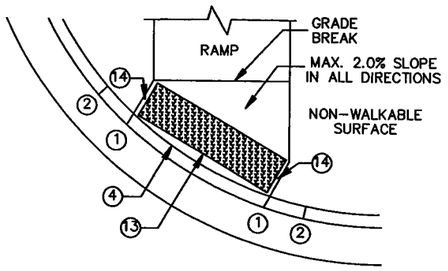
ADJACENT TO WALKABLE SURFACE

COMBINED DIRECTIONAL (15)

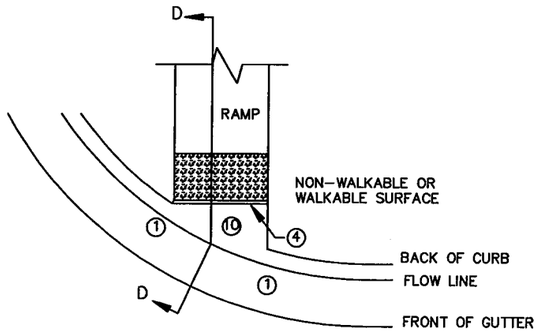


ONE-WAY DIRECTIONAL

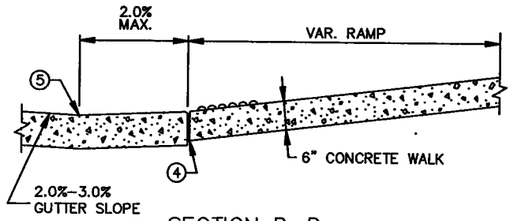




DETECTABLE WARNING PLACEMENT WHEN SETBACK CRITERIA IS EXCEEDED



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%

STANDARD PLAN SHEET NO. 5-297.250 (2 OF 5)	PEDESTRIAN CURB RAMP DETAILS
STANDARD APPROVED: APRIL 10, 2013	
S.A.P.062-030-014	SHEET NO. 6 OF 10 SHEETS

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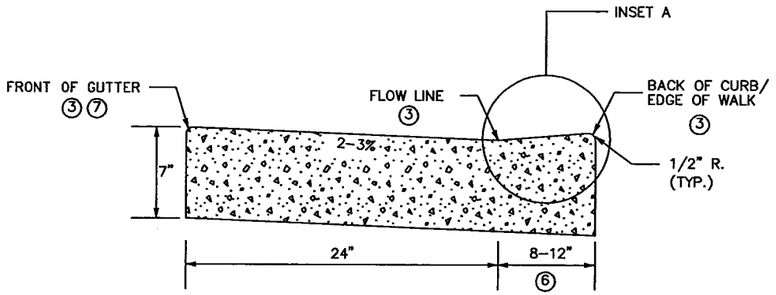
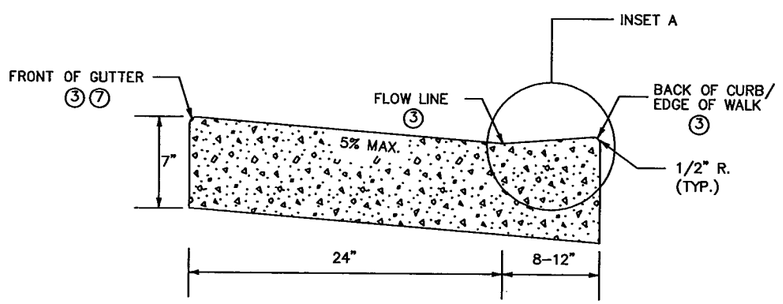
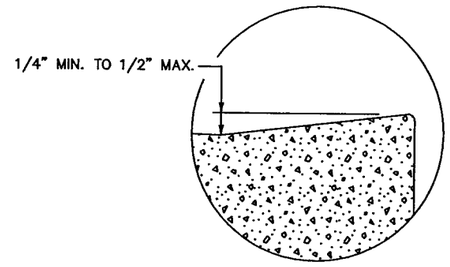


NON PERPENDICULAR ①

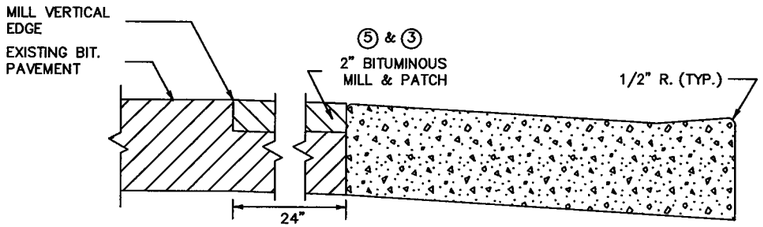


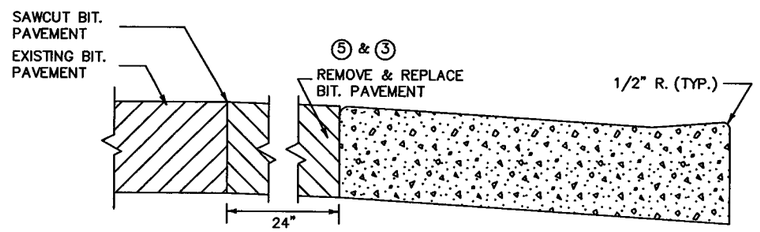
PERPENDICULAR ②

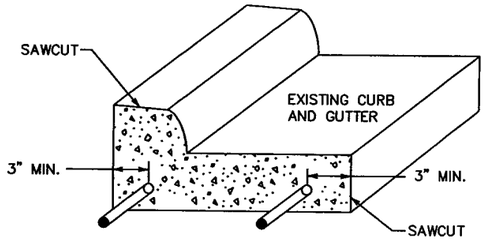


INSET A

PEDESTRIAN ACCESS ROUTE CURB & GUTTER DETAIL

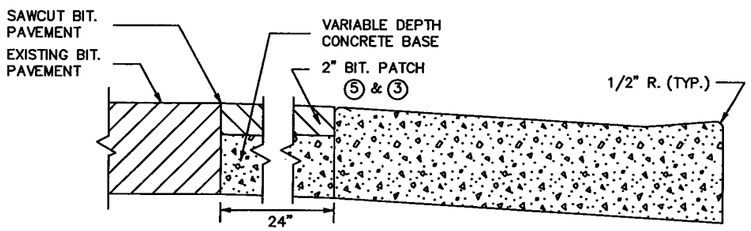


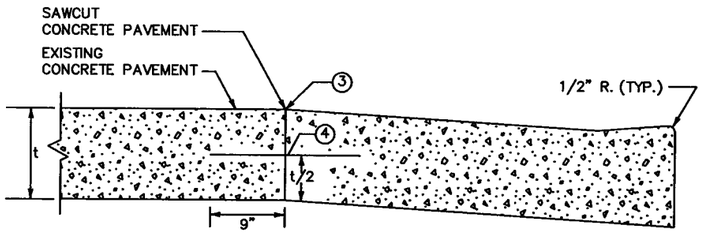




CURB AND GUTTER REINFORCEMENT ⑧

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).

STANDARD PLAN SHEET NO. 5–297.250 (3 OF 5)	PEDESTRIAN CURB RAMP DETAILS
STANDARD APPROVED: APRIL 10, 2013	
S.A.P.062–030–014	SHEET NO. 7 OF 10 SHEETS

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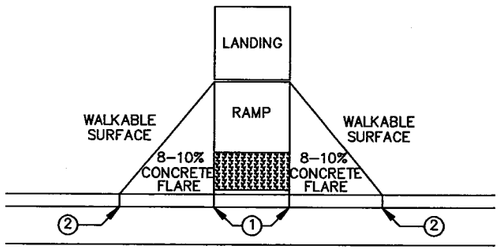
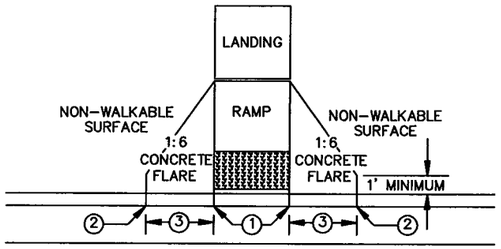
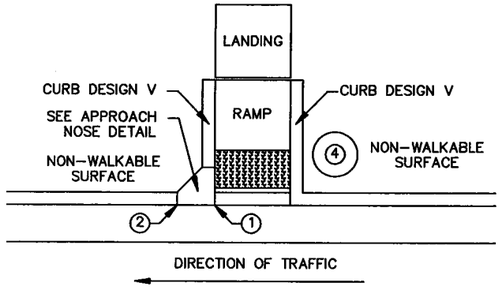


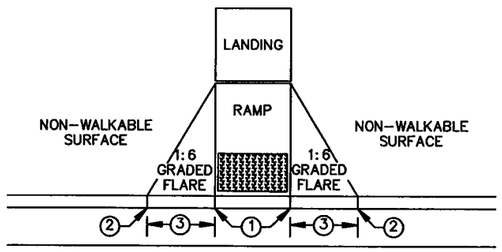
PAVED FLARES
ADJACENT TO WALKABLE SURFACE



PAVED FLARES
ADJACENT TO NON–WALKABLE SURFACE

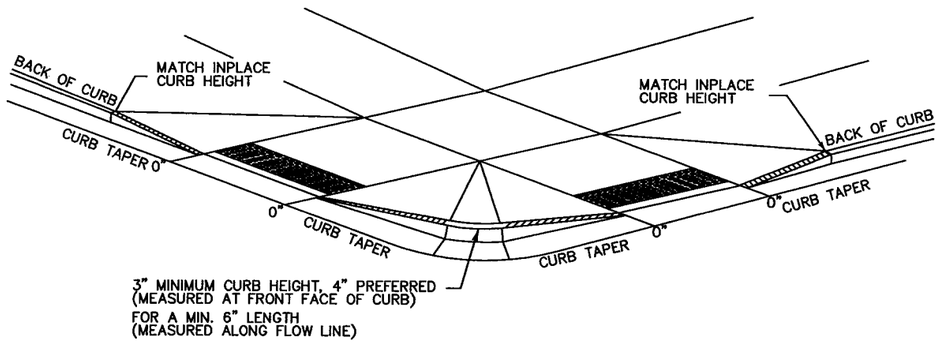


RETURNED CURB

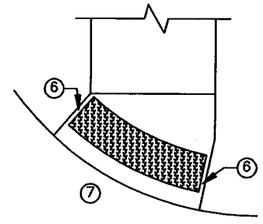


GRADED FLARES

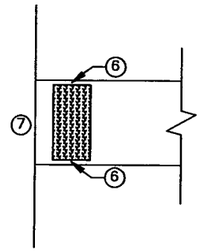
TYPICAL SIDE TREATMENT OPTIONS ⑤



DETECTABLE EDGE WITH
CURB AND GUTTER ⑧

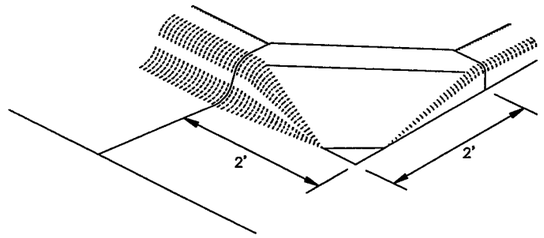


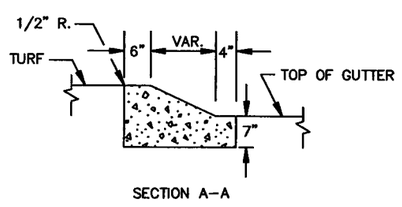
RADIAL DETECTABLE WARNING



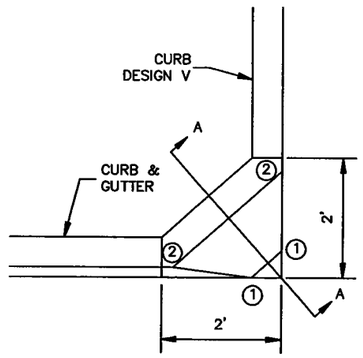
RECTANGULAR DETECTABLE WARNING

DETECTABLE EDGE WITHOUT CURB AND GUTTER





SECTION A–A



APPROACH NOSE DETAIL
FOR DOWNSTREAM SIDE OF TRAFFIC

NOTES:

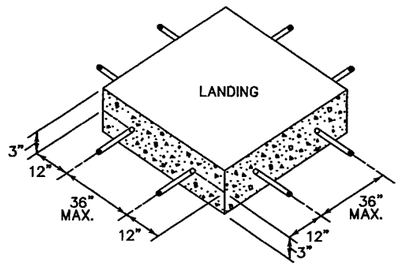
SEE STANDARD PLATE 7038 AND THIS SHEET FOR ADDITIONAL DETAILS ON DETECTABLE WARNING.

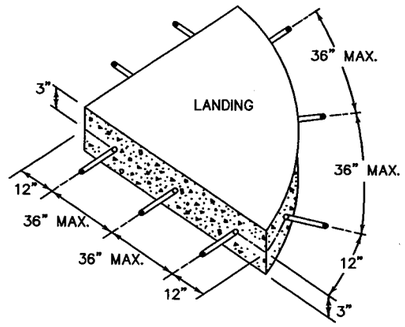
WHETHER A SURFACE IS WALKABLE OR NOT SHALL BE DETERMINED BY THE ENGINEER.

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

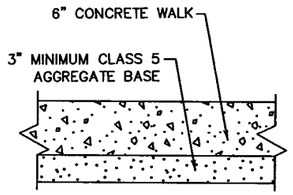
① 0" CURB HEIGHT.
② FULL CURB HEIGHT.
③ 2' – 3' FLARE.
④ IMMOVABLE OBJECT OR OBSTRUCTION.
⑤ SIDE TREATMENTS ARE APPLICABLE TO ALL RAMP TYPES AND SHOULD BE IMPLEMENTED AS NEEDED ON ALL RAMPS AS FIELD CONDITIONS DICTATE. THE ENGINEER SHALL DETERMINE THE RAMP SIDE TREATMENTS BASED ON MAINTENANCE OF BOTH 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.

STANDARD PLAN SHEET NO. 5–297.250 (4 OF 5)	PEDESTRIAN CURB RAMP DETAILS
STANDARD APPROVED: APRIL 10, 2013	
S.A.P.062–030–014	SHEET NO. 8 OF 10 SHEETS

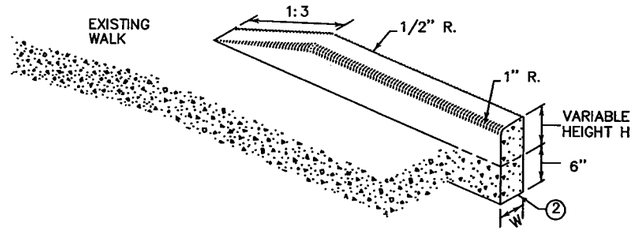




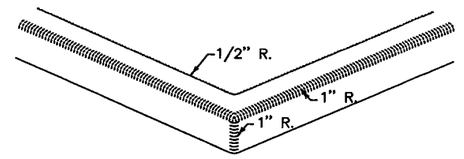
SIDEWALK REINFORCEMENT ⑤ ⑥



TYPICAL SIDEWALK SECTION
WITHIN INTERSECTION CORNER

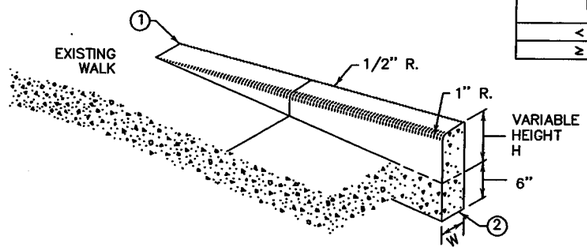


V CURB ADJACENT TO LANDSCAPE
CURB WITHIN SIDEWALK LIMITS

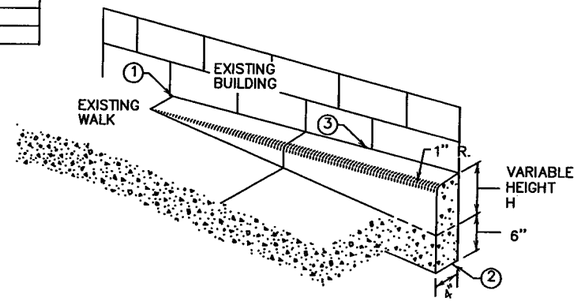


V CURB INTERSECTION

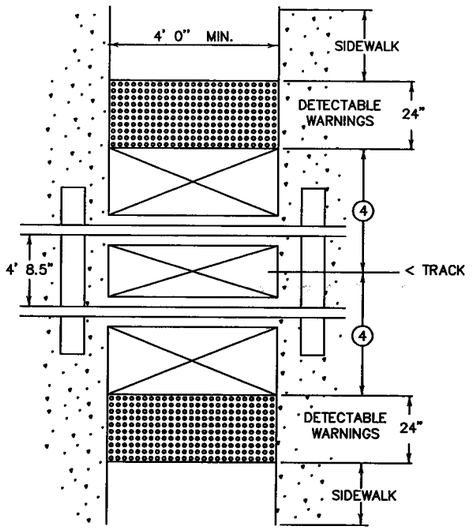
CONCRETE CURB DESIGN V	
CURB HEIGHT H	CURB WIDTH W
< 6"	4"
≥ 6"	6"



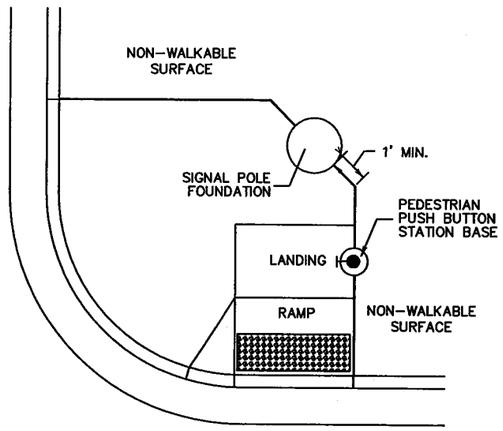
V CURB ADJACENT TO LANDSCAPE
CURB OUTSIDE SIDEWALK LIMITS



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 EDGE OF DETECTABLE WARNING SURFACES SHALL BE PLACED 15' MAXIMUM FROM THE CENTERLINE OF THE TRACK. WHEN PEDESTRIAN GATES ARE PROVIDED, DETECTABLE WARNING SURFACES SHALL BE PLACED ON THE SIDE OF THE GATES OPPOSITE THE RAIL, 17" – 19" FROM THE APPROACHING SIDE OF THE GATE ARM.

⑤ WHEN PLAN SPECIFIES, DRILL AND GROUT NO. 4 12" LONG REINFORCEMENT BARS AT 36" MAX. CENTER TO CENTER (EPOXY COATED).

⑥ TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONCTRUCTED, LANDINGS MAY BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON THIS SHEET WHEN LANDINGS ARE CAST SEPARATELY.

STANDARD PLAN SHEET NO. 5–297.250 (5 OF 5)	PEDESTRIAN CURB RAMP DETAILS
STANDARD APPROVED: APRIL 10, 2013	
S.A.P.062–030–014	SHEET NO. 9 OF 10 SHEETS

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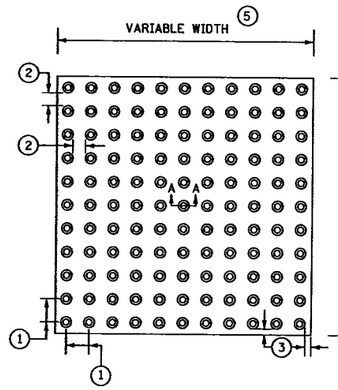
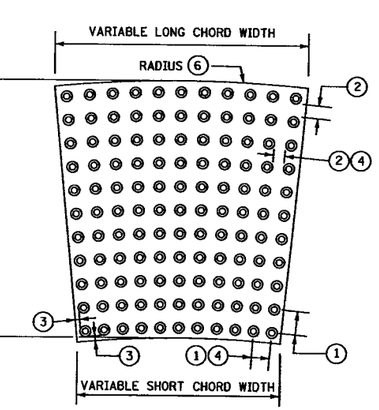
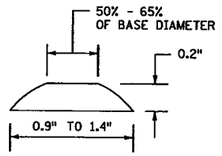


RECTANGULAR PLATES



RADIAL PLATES



SECTION A-A
TRUCKATED DOME

TYPICAL RADIAL TRUNCATED DOME PLATES			
RADIUS (FEET) (7)	LONG CHORD WIDTH (INCHES)	SQ. FT. PER PLATE	PLATES REQUIRED FOR 90 DEGREE TURN
10	23-1/2	3.53	8
15	18-13/16	2.93	15
15	23-1/2	3.67	12
20	18-13/16	3.00	20
20	18-7/8	2.98	20
25	20-1/2	3.28	23
25	23-9/16	3.77	20
30	22-5/8	3.65	25
35	22	3.56	30

NOTES:

DETECTABLE WARNING SURFACES SHALL FOLLOW THE PUBLIC RIGHTS-OF-WAY ACCESSIBILITY GUIDELINES (PROWAG).

DETECTABLE WARNINGS CONSIST OF TRUNCATED DOMES ALIGNED IN A SQUARE OR RADIAL GRID PATTERN.

DETECTABLE WARNINGS ARE REQUIRED:
- -WHERE RAMPS, LANDINGS, OR BLENDED TRANSITIONS PROVIDE A FLUSH PEDESTRIAN CONNECTION TO THE ROADWAY.
- -WHERE PEDESTRIAN ACCESS ROUTES CROSS COMMERCIAL DRIVEWAYS THAT ARE PROVIDED WITH TRAFFIC CONTROL DEVICES OR OTHERWISE PERMITTED TO OPERATE LIKE A PUBLIC ROADWAY.
- -AT PEDESTRIAN RAILWAY CROSSINGS.
- -ON RAIL PLATFORMS WHERE BOARDING EDGES ARE NOT PROTECTED.

DETECTABLE WARNINGS SHALL EXTEND:
- -A MINIMUM OF 24" IN THE DIRECTION OF TRAVEL.
- -THE FULL WIDTH OF THE RAMP, LANDING, OR BLENDED TRANSITION, WITHIN 3" OF FULL WIDTH ON EITHER END.
- -THE FULL LENGTH OF THE PUBLIC USE AREA OF A RAIL PLATFORM.

DETECTABLE WARNING SURFACES SHALL CONTRAST VISUALLY WITH ADJACENT GUTTER, ROADWAY, OR WALKWAY, EITHER A LIGHT-ON-DARK OR DARK-ON-LIGHT. CONTRAST MAY BE PROVIDED ON THE FULL RAMP SURFACE, EXCLUDING THE FLARED SIDES.

FOR MN/DOT PROJECTS, SEE MN/DOT'S APPROVED/QUALIFIED PRODUCT LISTS.

DETECTABLE WARNING SURFACE SHALL BE PAID FOR AS TRUNCATED DOMES BY THE SQUARE FOOT.

ALL TRUNCATED DOME SYSTEMS SHALL BE PLACED IN STRICT ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER.

(1) CENTER TO CENTER DOME SPACING: 1.6" MINIMUM, 2.4" MAXIMUM.

(2) BASE TO BASE DOME SPACING: 0.65" MINIMUM.

(3) DOME BASE TO PLATE EDGE SPACING: 0.35" MINIMUM, 0.75" MAXIMUM.

(4) SPACING VARIES ON RADIAL PLATES.

(5) TYPICAL WIDTHS AVAILABLE: 12", 18", 24", 30", 36". CHECK WITH MANUFACTURERS FOR AVAILABLE WIDTHS.

(6) ON RADIAL PLATE, RADIUS DEFINED AT BACK OF CURB.

(7) TYPICAL RADII. CHECK WITH MANUFACTURERS FOR AVAILABLE RADII.

APPROVED AUGUST 23, 2010 STATE DESIGN ENGINEER	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION DETECTABLE WARNING SURFACE TRUNCATED DOMES	SPECIFICATION REFERENCE 2531	STANDARD PLATE NO. 7038A

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NO.	REV-DATE	BY:	DESCRIPTION

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.
SIGNED:
REG NO: 26511 DATE: 5/7/2013

PEDESTRIAN RAMPS
ON VARIOUS COUNTY ROADS

S.A.P. 062-030-014
COUNTY PROJ. P-3074

RAMSEY COUNTY

STANDARD PLATES
SHEET 10 OF 10 SHEETS