

**ANOKA COUNTY HIGHWAY DEPARTMENT**  
**Design Requirements Checklist for County Highway Modifications**  
 (To be submitted with plans and specifications)

**Development/Project Name:** \_\_\_\_\_

**County Highway No.(s):** \_\_\_\_\_

**Submittal Date:** \_\_\_\_\_

**The design shall meet State Aid Standards and the following:** Revised: June 2021

Design Detail	Desired Standard	Minimum Standard	Standard Achieved (Yes* or No** or NA)	Notes * - if Yes, circle, highlight or note standard ** - if No provide value used with justification (additional documentation if necessary)
<b>ALL HIGHLIGHTED ITEMS MUST BE SHOWN IN PLANS AND/OR SPECIFICATIONS</b>				
<b>GENERAL</b>				
DESIGN YEAR	20-yr traffic	Existing Traffic		
DESIGN VEHICLE	WB-62	WB-50		
DESIGN SPEED	Posted			
<b>VERTICAL ALIGNMENT</b>				
HIGHWAY GRADE		0.5% Min		
STREET APPROACH GRADE	0.5% - 25' Landing	2% - 20' Landing		
ENTRANCE GRADES:				
Residential	<10%	15% Max		
Commercial	<6%	8% Max		
BIKE PATH GRADE	Mn/DOT Bikeway Facility Design Manual			
<b>INTERSECTION ELEMENTS</b>				
STREET/ENTRANCE APPROACH RADIUS	Design Vehicle	30' - Turning Movements for Design Vehicle		
STREET/ENTRANCE APPROACH		Label width of approach/entrance		
INTERSECTION DETAIL		1"=20' Scale of intersection with pavement elevations shown		
TRAFFIC SIGNAL	Contact ACHD Traffic Department If Applicable			
CROSSWALK	If signal			
STOP BAR	If signal			
ADA RAMP	All sidewalk/trail crossings			
SIGHT DISTANCE	MnDOT Road Design Manual Chapter 5			
<b>CROSS SECTION ELEMENTS</b>				
TYPICAL SECTION	Show widths, slopes, depths, materials, curb etc.			
CROSS SECTIONS - 1"= 20' SCALE	50' Intervals, show ditches.	100' Intervals, show ditches.		
SECTION DEPTH AND MATERIALS:				
Thru Lane	Using R value and 20-yr ESALS	2" Wear (SPWEB340C), 2" Non-Wear (SPWEB340C), 2" Non-Wear (2.0" SPNW330C), 6" CI 5		
Left Turn / Bypass Lane	Using Through Lane R value and 20-yr ESALS	2" Wear (SPWEB340C), 2" Non-Wear (SPWEB340C), 2" Non-Wear (2.0" SPNW330C), 6" CI 5		
Right Turn (See attached details)	Using Through Lane R value and 20-yr ESALS	Proj. ADT ≤ 5000: 2" Wear (SPWEB340C), 2" Non-Wear (SPWEB340C), 6" CI 5		

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Revised: June 2021

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Right Turn Lane (See attached details)	Using Through Lane R value and 20-yr ESALS	Proj. ADT 5000 TO 10,000: 1.5" Wear (SPWEB340C), 1.5" Non-Wear (SPWEB340C), 2" Non-Wear (2.0" SPNW330C), 6" CI 5		
Right Turn/ Lane (See attached details)	Using Through Lane R value and 20-yr ESALS	Proj. ADT ≥ 10,000: 2" Wear (SPWEB340C), 2" Non-Wear (SPWEB340C), 2" Non-Wear (2.0" SPNW330C), 6" CI 5		
<b>LANE WIDTH:</b>				
Through Lane		12'		
Left Turn Lane	13'	12'		
Right Turn Lane	13'	12'		
<b>SHOULDER WIDTH:</b>				
Urban	8'	2' (B-minor and below)		
Rural (ADT>1500)	8'	6' (collector and below)		
Rural (ADT<1500)	6'	2' or existing if greater		
CURB REACTION DISTANCE		1' (median) 2' (outside)		
<b>CROSS SLOPES:</b>				
Through Lane		2%		
Left Turn Lane		2%		
Right Turn Lane	2.5%	2%		
Shoulder		Match adjacent lane		
TURN LANE LENGTH (SEE ATTACHED DETAILS)	Based on Peak hour traffic	300'		
TURN LANE TAPER (SEE ATTACHED DETAILS)	1:15	1:10 (only if 1:15 not possible)		
<b>TYPE OF CURB AND GUTTER:</b>				
With Design Speed ≥ 45mph	B424	B418 (or match existing)		
With Design Speed < 45mph	B624	B618 (or match existing)		
MEDIAN WIDTH		4' (at turn lanes)		
MEDIAN SURFACE MATERIAL	Concrete			
<b>INSLOPE:</b>				
Urban		1:4 inside clear zone 1:3 outside clear zone		
Rural		1:4 inside clear zone 1:3 outside clear zone		
BACKSLOPE	1:4	1:3		
DITCH BOTTOM WIDTH	8'	5'		
<b>CLEAR ZONES:</b>				
Urban		10'		
Rural		30'		
Bike Path		2'		
BIKE PATH WIDTH		8'		

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Revised: June 2021

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BIKE PATH SURFACE	Bituminous			
RURAL: DISTANCE BETWEEN PATH AND THROUGH LANE	22'	10' (Design Speed < 40 mph)		
URBAN: DISTANCE BETWEEN PATH AND GUTTER	10'	6.5' (2.5' paved at turn lane)		
DISTANCE BETWEEN PATH AND RIGHT OF WAY	4'	2' (if no power poles)		
<b>RIGHT OF WAY WIDTH:</b>				
Principal Arterial	150'			
Minor Arterial (urban)	120'			
Minor Arterial (2-lane rural)	120'			
Minor Arterial (4-lane rural)	150'	140' (no trail)		
Collector	120'			
<b>DRAINAGE</b>				
GENERAL	Conform to NPDES Phase II Requirements			
HYDROLOGY	Rural areas and mixed urban and rural areas use SCS CN method	Urban areas with less than 25 acres use Rational method		
<b>DESIGN STORM (FOR DISCHARGE INTO COUNTY R/W):</b>				
Cities/Townships < 5000	5-year critical event			
Cities/Townships > 5000	10-year critical event			
DISCHARGE RATE (INTO COUNTY R/W)	Post-development < Pre-development			
<b>STORM SEWER</b>				
DESIGN FREQUENCY	10-year, 50-year at sags			
<b>PIPE SIZE:</b>				
Laterals	15"	12"		
Main	By Hydraulic Design	15"		
TYPE OF PIPE	RCP Design 3006			
MAXIMUM SPREAD	MnDOT State Aid Manual			
PIPE COVER	2'			
PIPE VELOCITY	3 ft./sec.			
STRUCTURE TYPE	Precast Concrete			
<b>CASTING ASSEMBLIES:</b>				
Catch Basins	MnDOT 816, 806, 825			
Manholes	MnDOT 715,700-4			
Drop Inlets	MnDOT 720 (Standard Plate 4140D)			
<b>CULVERTS</b>				
<b>DESIGN FREQUENCIES:</b>				
Street Approach/Driveway	10-year			
Centerline	50-year			

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<b>PIPE SIZE:</b>				
Driveway	By Hydraulic Design	15" (18" if L ≥ 60')		
Street Approach	By Hydraulic Design	18" (24" if L ≥ 60')		
Centerline	By Hydraulic Design	24"		
<b>CULVERT TYPE:</b>				
Residential Driveway	CSP			
Commercial Driveway	RCP Design 3006			
Street Approach	RCP Design 3006			
Centerline	RCP Design 3006			
PIPE COVER		2'		
PIPE BEDDING		Per Mn/DOT Guidelines		
ALLOWABLE HEADWATER		1' from shoulder PI		
<b>SAFETY APRONS:</b>				
Perpendicular Pipe	If ≥ 30" pipe end inside clear zone			
Parallel Pipe	If pipe end inside clear zone			
<b>SAFETY GRATES:</b>				
Perpendicular Pipe	If ≥ 30" pipe inside clear zone			
Parallel Pipe	If ≥ 24" pipe end inside clear zone			
TRASH GUARD		If outlet, then all inlets		
CONCRETE PIPE TIES	All Culvert Joints	Last 3 joints to outlet		
<b>PONDS</b>				
<b>NO PONDING ALLOWED IN ANOKA COUNTY RIGHT OF WAY</b>				
GRADING PLAN	1' contour interval			
TYPICAL SLOPES/BENCHES	1:10 at NWL for 10'; 1:4 above and below NWL	1:6 above and below NWL		
PERMANENT POOL VOLUME	Per watershed district requirement	Equal to runoff from 2.5" rainfall		
100-YEAR WATER LEVEL	1' below shoulder PI			
OUTLET STRUCTURE DESIGN	Control the proposed 1- or 2-year and 100-year runoff rates to pre-project rates.			
EMERGENCY SPILLWAY	Provide for events larger than 100-year			
<b>RIGHT OF WAY</b>				
GENERAL ROW COVERAGE	The right of way for any County road enhancement has been acquired or the right to occupy and use non right of way property (via easement) has been acquired.			
GENERAL ROW COVERAGE	Construction limits for county road enhancements are completely within the right of way or covered by easement?			
ROADWAY ELEMENTS	County road enhancements completely within the right of way or covered by easement?			
SIDEWALK ELEMENTS	Trail or walk elements completely within the right of way or covered by easement?			
CLEAR ZONES	County Road clear zone completely within the right of way or covered by easement?			

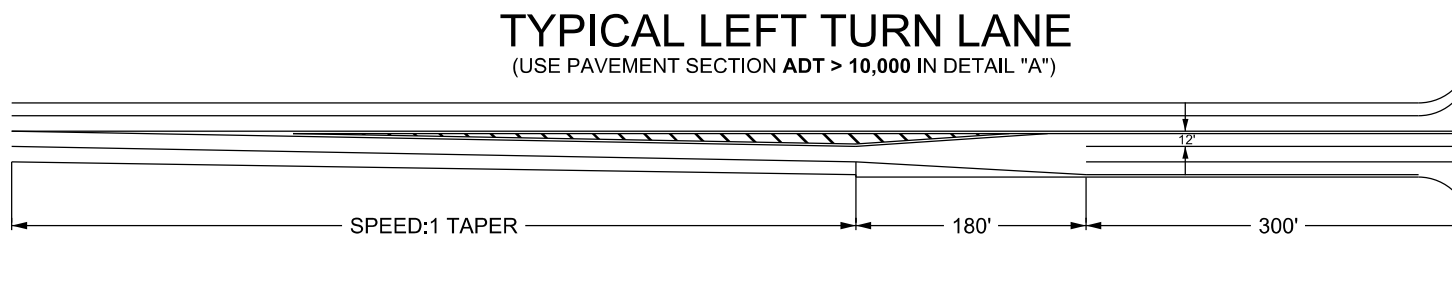
The design shall meet State Aid Standards and the following:

Revised: June 2021

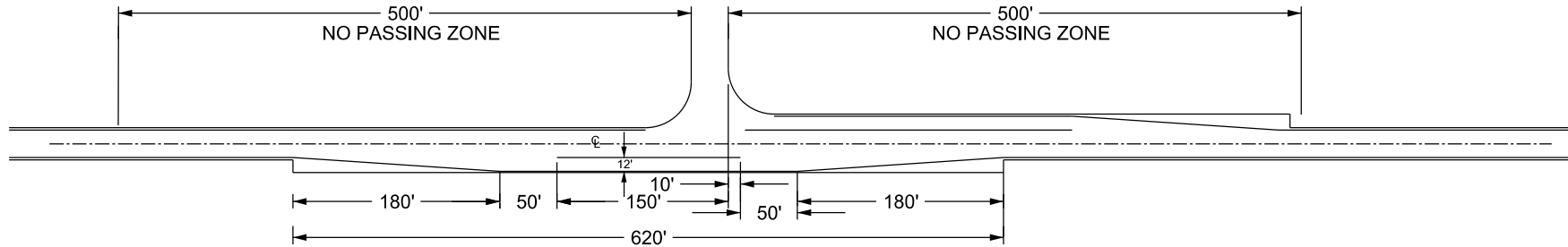
Design Detail	Desired Standard	Minimum Standard	Standard Achieved (Yes* or No** or NA)	Notes * - if Yes, circle, highlight or note standard ** - if No provide value used with justification (additional documentation if necessary)
<b>EROSION CONTROL</b>				
REQUIREMENT	Conform to NPDES Phase II			
SILT FENCE	Placed around project perimeter.	All points of discharge off the project		
ROCK ENTRANCES, 1.5" WASHED ROCK	Length 100'	Length 50'		
REFERENCE	MnDOT Erosion Control Handbook, by Office of Environmental Services			
<b>MISCELLANEOUS</b>				
LANDSCAPING/STREETSCAPING	Conform to ACHD Landscape/Streetscape Guidelines			
<b>TURF ESTABLISHMENT:</b>				
Sod	Residential yards; commercial boulevards where irrigated			
Sod Type	Per Mn/DOT Spec 3878			
Seed and Mulch	All other areas, including blvds that are not irrigated.			
Seed Type	25-141 - ditches, 25-131 - boulevards			
Mulch Type	Type 1, Disk Anchored			
EROSION CONTROL BLANKET	On slopes 1:3 and steeper			
<b>PAVEMENT MARKINGS:</b>				
Lane Markings	Epoxy	Latex		
Pavement Messages, Arrows, Crosswalks, Stop Lines	Durable Marking			
UTILITIES	Precon mtg. w/all area designs	Notify all utilities prior to const. to allow for relocation		
LIST OF STANDARD PLATES	All standard plates used in ACHD right-of-way			
<b>TRAFFIC CONTROL</b>				
Impact to Traffic	Traffic control plan signed by P.E. required			
MEETS LONGITUDINAL DROP-OFF GUIDELINES	Label depth of excavation and lateral offset from adjacent thru lane (to determine if J-barrier is required)			
<b>NOTE (1) DESIGN REQUIREMENTS NOT TO BE CONSTRUED AS COMPREHENSIVE. ADDITIONAL ITEMS MAY BE REQUIRED.</b>				
<b>NOTE (2) BETWEEN MAY 15<sup>TH</sup> AND OCT. 15<sup>TH</sup> ANOKA COUNTY CREWS MAY DO THE STRIPING WORK (COORDINATED THROUGH PERMIT).</b>				
<u>By signing below, I certify the information provided in this form is true and correct to the best of my knowledge.</u>				
SIGNATURE _____			DATE _____	
MN P.E. REGISTRATION NUMBER _____			COMPANY _____	

# ANOKA COUNTY HIGHWAY DEPARTMENT

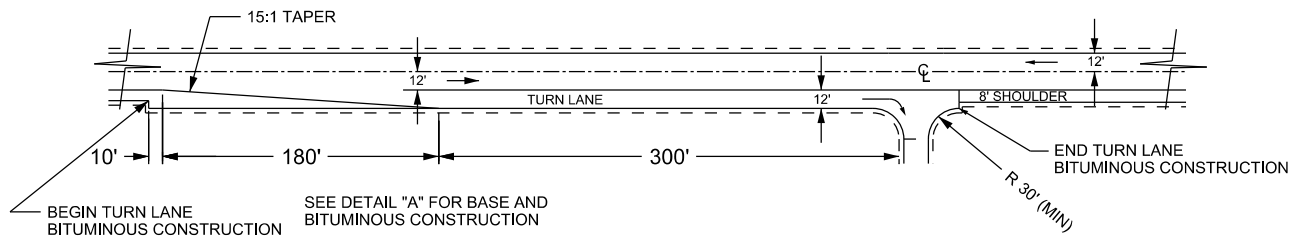
## TYPICAL LEFT TURN LANE (USE PAVEMENT SECTION ADT > 10,000 IN DETAIL "A")



## TYPICAL BY-PASS (USE PAVEMENT SECTION ADT > 10,000 IN DETAIL "A")



## TYPICAL RIGHT TURN LANE



ALL DISTURBED SOIL MUST BE SEEDED, MULCHED, AND DISK ANCHORED IN ACCORDANCE WITH MN/DOT STANDARD SPECIFICATIONS. RAPID-DEGRADABLE STRAW BLANKET SHALL BE USED IN AREAS OF HIGH EROSION.



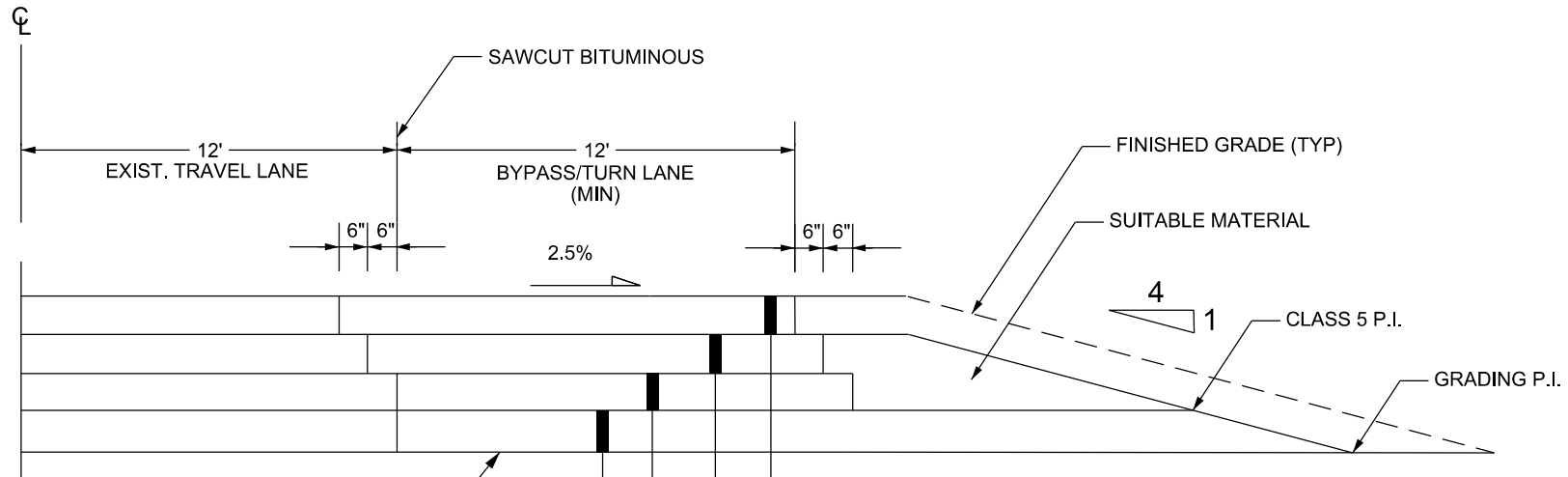
Turn/Bypass Lane Addition  
On Existing Highway

NOT TO SCALE

EXHIBIT 1

January 2020

# ANOKA COUNTY HIGHWAY DEPARTMENT



GRADING GRADE (TYP)

ADT ≤ 5,000	5,000 < ADT ≤ 10,000	ADT > 10,000
2.0" SPWEB340C	1.5" SPWEB340E	2.0" SPWEB340F
2.0" SPWEB340C	1.5" SPWEB340E	2.0" SPWEB340F
N/A	2.0" SPNW330B	2.0" SPNW330B
6.0" CLASS 5	6.0" CLASS 5	6.0" CLASS 5

MIX DESIGN  
(2360 SPEC)

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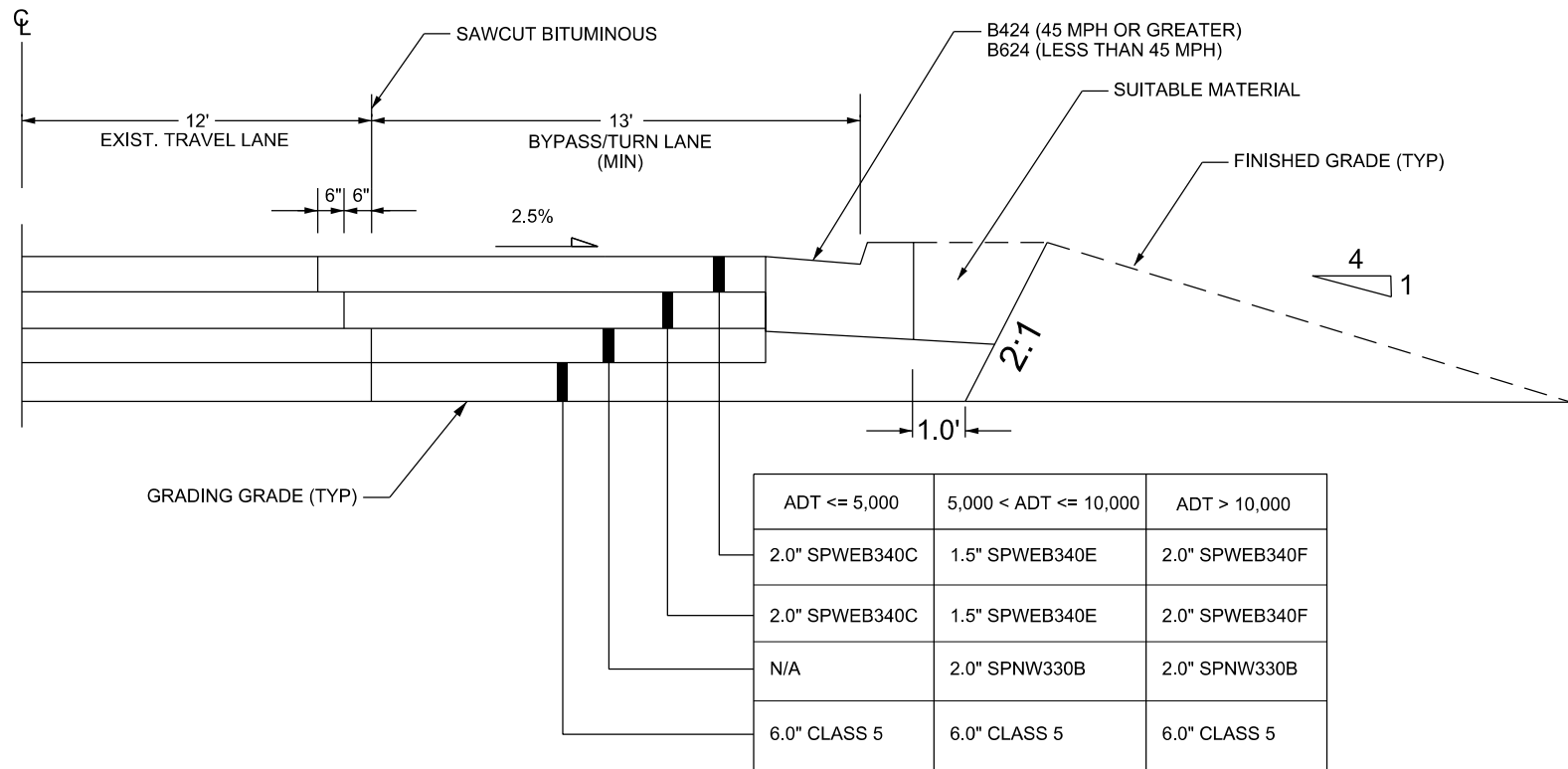
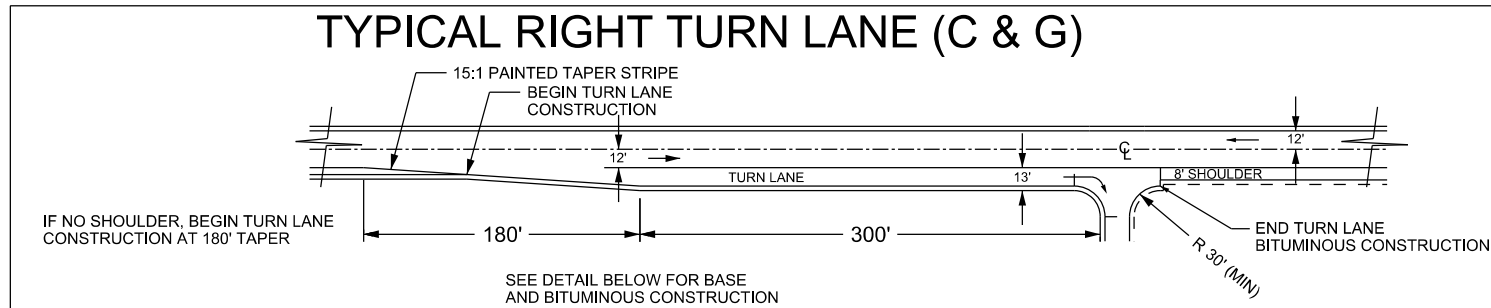
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## Base and Bituminous Construction Detail

DETAIL A  
September 2019



# ANOKA COUNTY HIGHWAY DEPARTMENT



MIX DESIGN  
(2360 SPEC)

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NOT TO SCALE

## Base and Bituminous Construction Detail For Curb and Gutter Section

## DETAIL A

January 2020

