Standard Plates for Construction

Revised: Sept, 2021

City of Maplewood
Public Works Department
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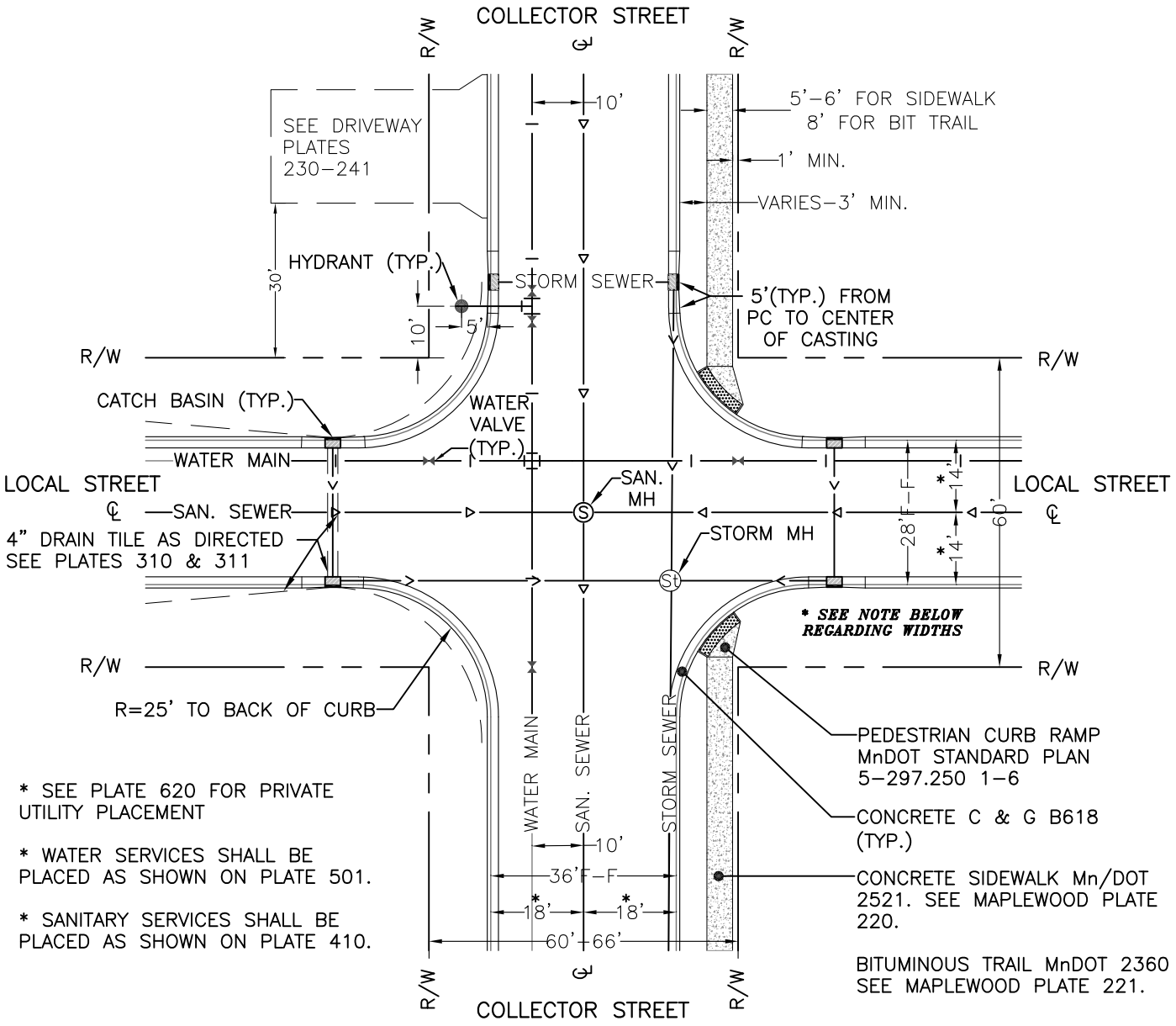
PLATE 110 IS FOR CONCEPT & GUIDELINE FOR STREET & UTILITIES LAYOUT ONLY. EACH DEVELOPMENT PROPOSAL IS UNIQUE AND MUST BY APPROVED BY CITY OF MAPLEWOOD PUBLIC WORKS AND COMMUNITY DEVELOPMENT.



* SEE PLATE 620 FOR PRIVATE UTILITY PLACEMENT

* WATER SERVICES SHALL BE PLACED AS SHOWN ON PLATE 501.

* SANITARY SERVICES SHALL BE PLACED AS SHOWN ON PLATE 410.

* STREET WIDTHS WILL VARY REGARDING CONCEPT, AVERAGE DAILY TRAFFIC, TURN LANES, PARKING LANES, ETC.

RIGHT OF WAY WIDTH TO BE 60' MIN. (TYP.) SOME STREETS MAY REQUIRE WIDER RIGHT OF WAY WIDTH.

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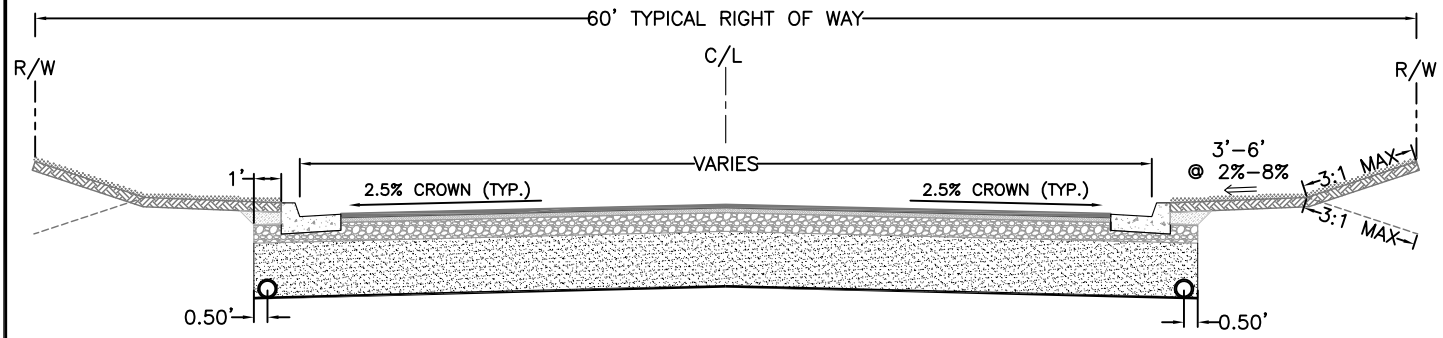
CITY OF MAPLEWOOD–ENGINEERING DEPT.

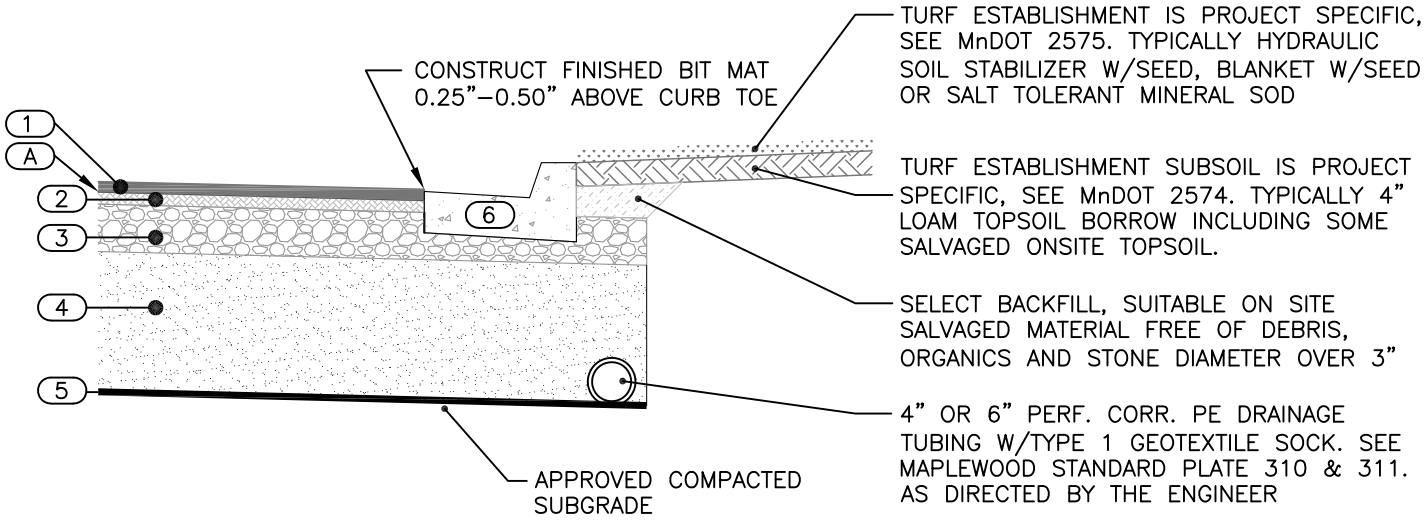
TYPICAL INTERSECTION

PLATE NO. 110

DRAWING NOT TO SCALE.
STANDARD PLATES ARE NOT PROJECT SPECIFIC.



ALL TYPICAL SECTIONS ARE PROJECT SPECIFIC. ENGINEERS WILL DESIGN COLLECTOR AND RESIDENTIAL STREET SECTIONS BASED ON SITE CONDITIONS



(1) RESIDENTIAL-1.5" PLANT MIXED ASPHALT PAVEMENT, WEARING COURSE, MnDOT 2360
COLLECTOR-2.0" PLANT MIXED ASPHALT PAVEMENT, WEARING COURSE, MnDOT 2360

(A) BITUMINOUS TACK COAT PLACED BETWEEN BASE & WEAR, MnDOT 2357

(2) RESIDENTIAL-2.0" PLANT MIXED ASPHALT PAVEMENT, NON-WEARING COURSE, MnDOT 2360
COLLECTOR-2.0" PLANT MIXED ASPHALT PAVEMENT, NON-WEARING COURSE, MnDOT 2360

(3) RESIDENTIAL/COMMERCIAL-8" CLASS 6 AGGREGATE BASE, MnDOT 2211 & 3138

(4) RESIDENTIAL/COMMERCIAL-12.0"-24.0" SELECT GRANULAR MATERIAL (AS DIRECTED BY THE ENGINEER), MnDOT 2106 & 3149

(5) GEOTEXTILE FABRIC TYPE V WOVEN (AS DIRECTED BY THE ENGINEER), MnDOT 2108 & 3733. FABRIC SHALL HAVE 48" LONGITUDINAL OVERLAP, 48" TRANSVERSE OVERLAP AND EXTEND 3' UP EACH SIDE OF ROAD, MEASURED FROM THE BOTTOM OF THE SUBCUT.

(6) CONCRETE CURB AND GUTTER, TYPICALLY DESIGN B618, MnDOT 2531.
JOINTING SHALL BE IN ACCORDANCE WITH MnDOT "CONCRETE FLATWORK AND JOINTING THUMBRULES".
CONCRETE SHALL BE PLANT CERTIFIED, MnDOT 2461

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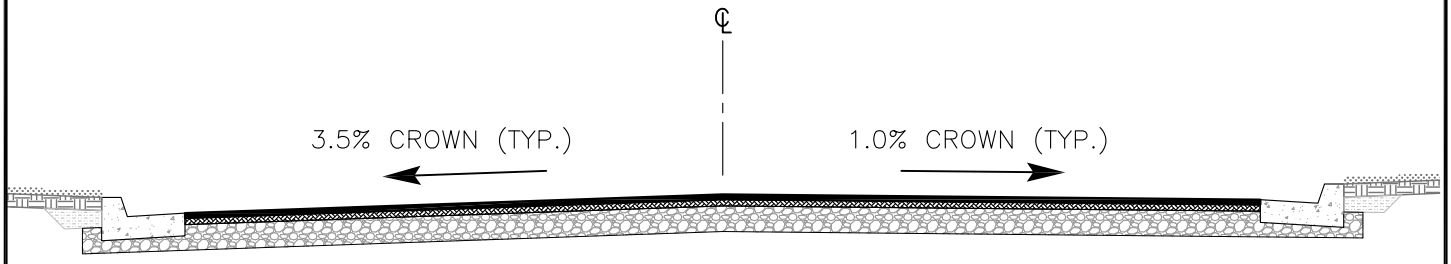
CITY OF MAPLEWOOD-ENGINEERING DEPT.

TYPICAL RESIDENTIAL STREET SECTION-URBAN

PLATE NO. 111

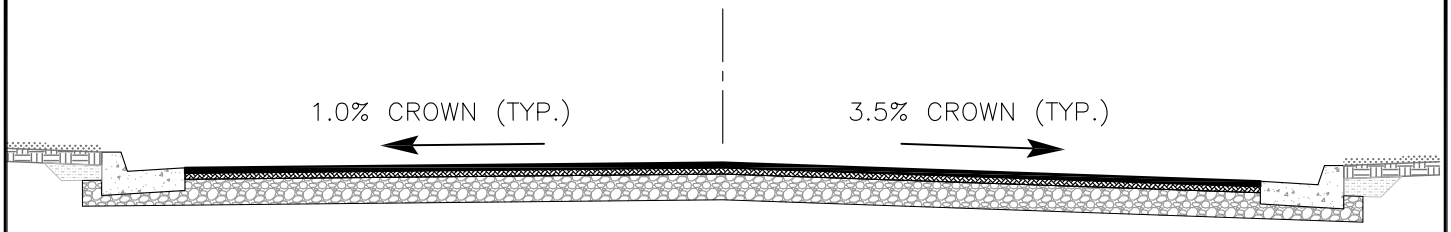
STANDARD PLATES ARE NOT PROJECT SPECIFIC.
REFER TO TYPICAL SECTION SPECIFIED PER EACH INDIVIDUAL PROJECT PLAN.
SEE MAPLEWOOD STANDARD PLATE #111 FOR SPECIFIED MATERIALS AND STANDARD TYPICAL SECTION.

OFFSET CROWNS MAY BE CONSIDERED IN AREAS OF STEEP DRIVEWAYS OR BOULEVARDS OF GRADES OVER 11%, AND DRIVEWAYS AND BOULEVARDS LOWER THAN CL HEIGHT OF STREET.

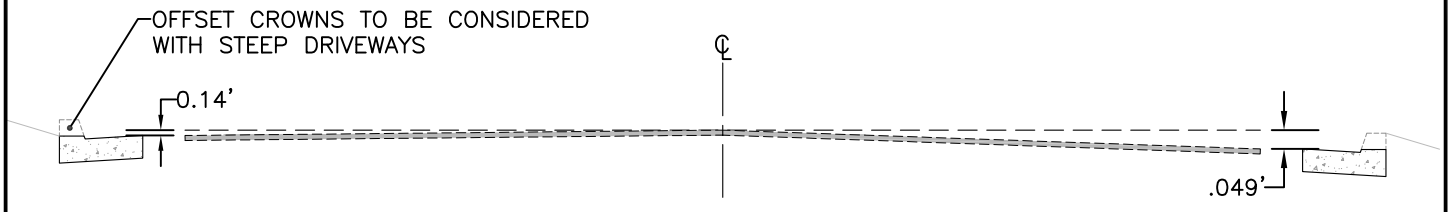


OFFSET CROWN MAXIMUM CROSS SLOPE IS 3.5%, MINIMUM SLOPE IS 1.0%. OFFSET CROWNS CAN HAVE ANY COMBINATION BETWEEN 1%–3.5%, OR CAN BE FOR BOTH SIDES.

STREET PROFILE MUST BE GREATER THAN 1.0% IN CROWN TRANSITION ZONE. WHEN TRANSITIONING FROM A 3.5% CROWN TO A 2.5% CROWN THE TRANSITION LENGTH SHALL BE 50' AT A MINIMUM.



THE DETAIL BELOW SHOWS ELEVATION WITH CL DIFFERENCE BASED ON 14 FOOT WIDE PAVING LANE FROM CL TO TOE OF CURB. WITH A 1% CROWN = 0.14' ELEVATION CHANGE, WITH A 3.5% CROWN = 0.49' ELEVATION CHANGE.



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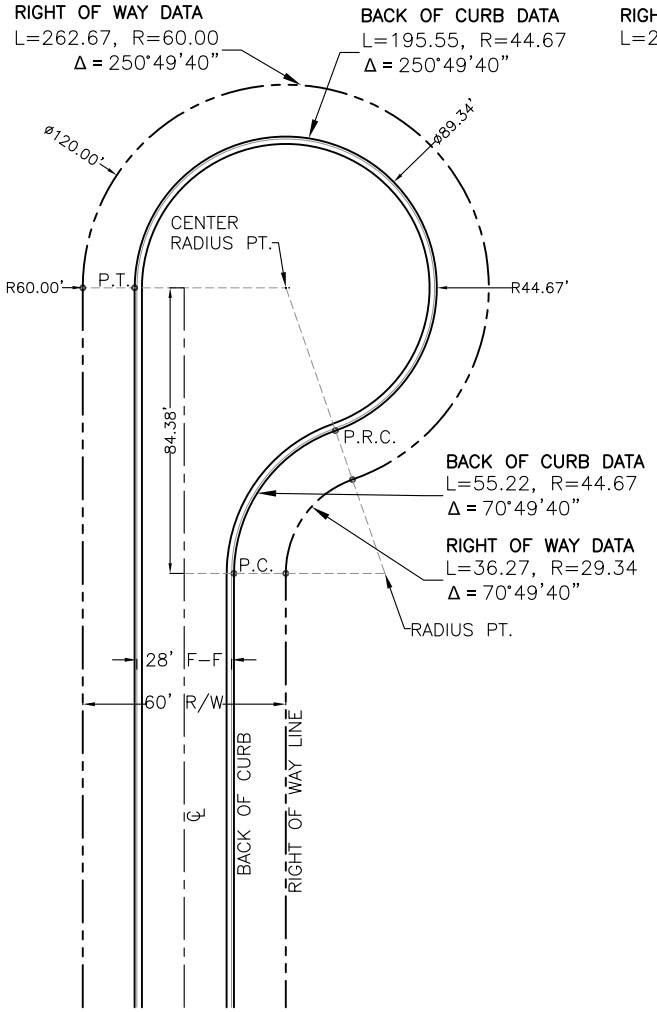
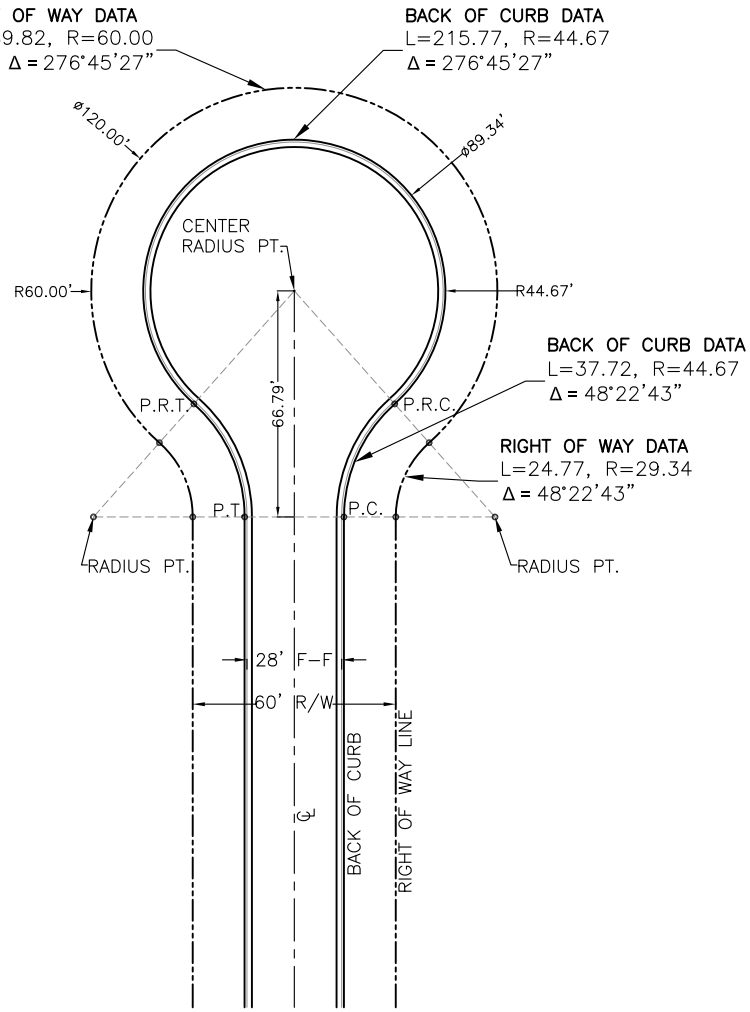
CITY OF MAPLEWOOD–ENGINEERING DEPT.

TYPICAL RESIDENTIAL STREET WITH OFFSET CROWN

PLATE NO. 113

STANDARD PLATES ARE NOT PROJECT SPECIFIC.





DIMENSIONS OF TYPICAL CUL-DE-SAC MAY VARY.
APPROVAL OF PROPOSED LAYOUT MUST BE APPROVED BY THE ENGINEER.
CUL-DE-SAC'S SHOWN ON THIS PLATE ARE FOR REPRESENTATION ONLY.

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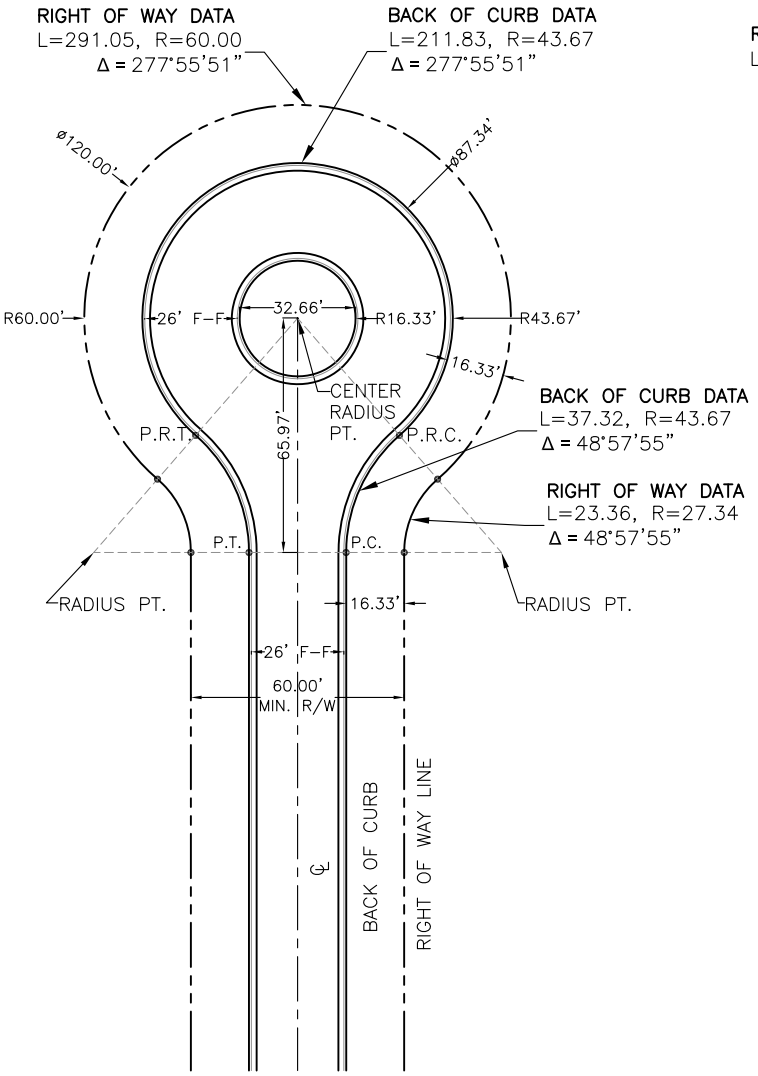
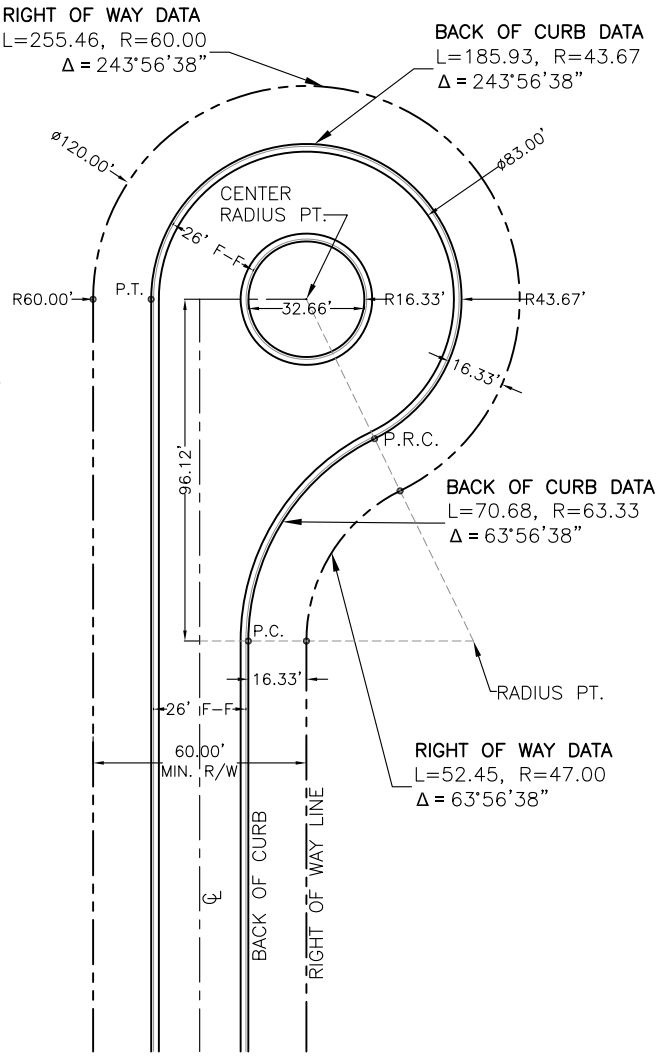
CITY OF MAPLEWOOD-ENGINEERING DEPT.

TYPICAL CUL-DE-SAC

PLATE NO. 120

STANDARD PLATES ARE NOT PROJECT SPECIFIC.





DIMENSIONS OF CUL-DE-SAC'S DESIGNED FOR LIVING STREETS POLICY MAY VARY.
APPROVAL OF PROPOSED LAYOUT MUST BE APPROVED BY CITY STAFF.
CUL-DE-SAC SHOWN ON THIS PLATE ARE FOR REPRESENTATION ONLY.

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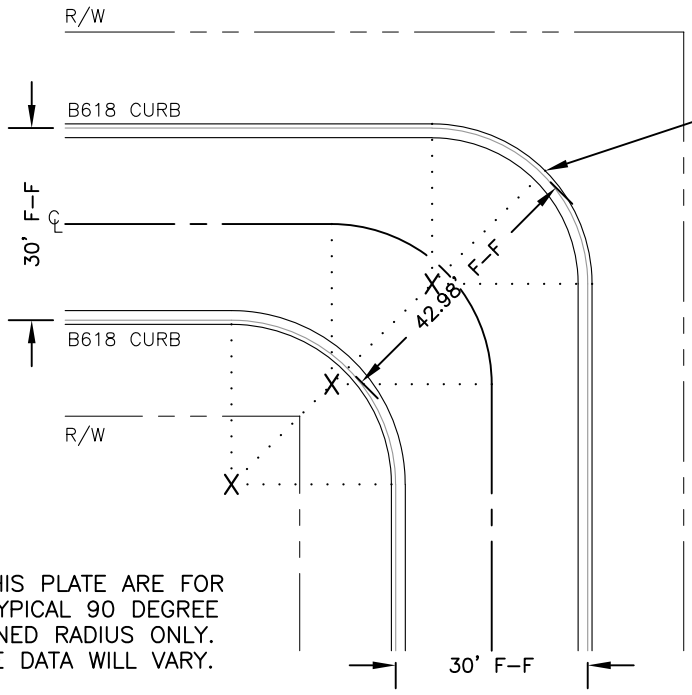
CITY OF MAPLEWOOD-ENGINEERING DEPT.

TYPICAL CUL-DE-SAC LIVING STREETS DESIGN

PLATE NO. 121

EXAMPLE OF CONSISTENT STREET WIDTH



ENGINEER TO VERIFY OUTSIDE RADIUS HAS A MINIMUM PROFILE OF 0.50%

X R=25' TO BACK OF CURB AND CL (TYP.)
L=39.27' Δ=90°
w/SEPARATE RADIUS POINTS

EXAMPLES SHOWN ON THIS PLATE ARE FOR REPRESENTATION OF A TYPICAL 90 DEGREE INTERSECTION WITH WIDENED RADIUS ONLY. STREET WIDTHS & CURVE DATA WILL VARY.

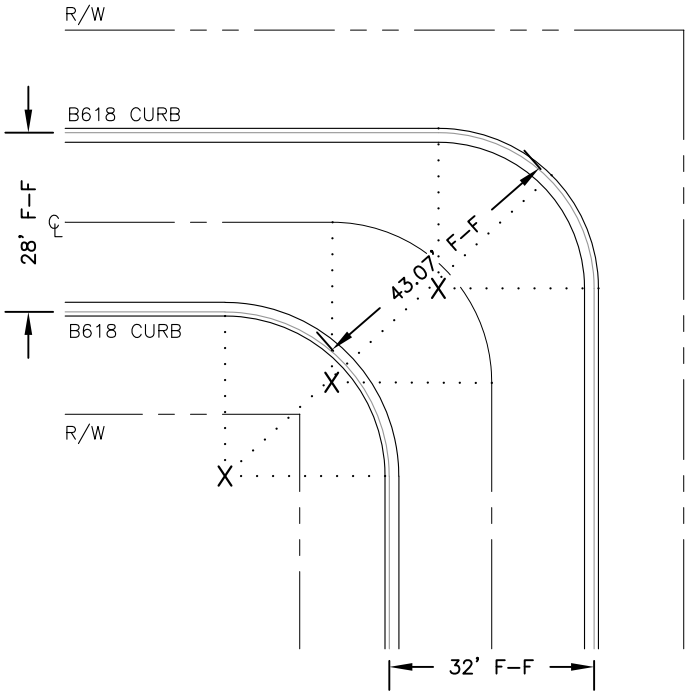
ALL DESIGNED INTERSECTIONS WILL BE APPROVED BY THE CITY ENGINEER.

THESE DESIGNS APPLY TO STREETS WHERE WIDTH IS 30' F-F OR LESS.

APPLY LAYOUT WITH SEPERATE RADIUS POINTS.

25' RADIUS(TYP.) 15' MINIMUM.

EXAMPLE OF VARYING STREET WIDTH



X R=25' TO BACK OF CURB AND CL (TYP.)
L=39.27' Δ=90°
w/SEPARATE RADIUS POINTS

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CITY OF MAPLEWOOD—ENGINEERING DEPT.

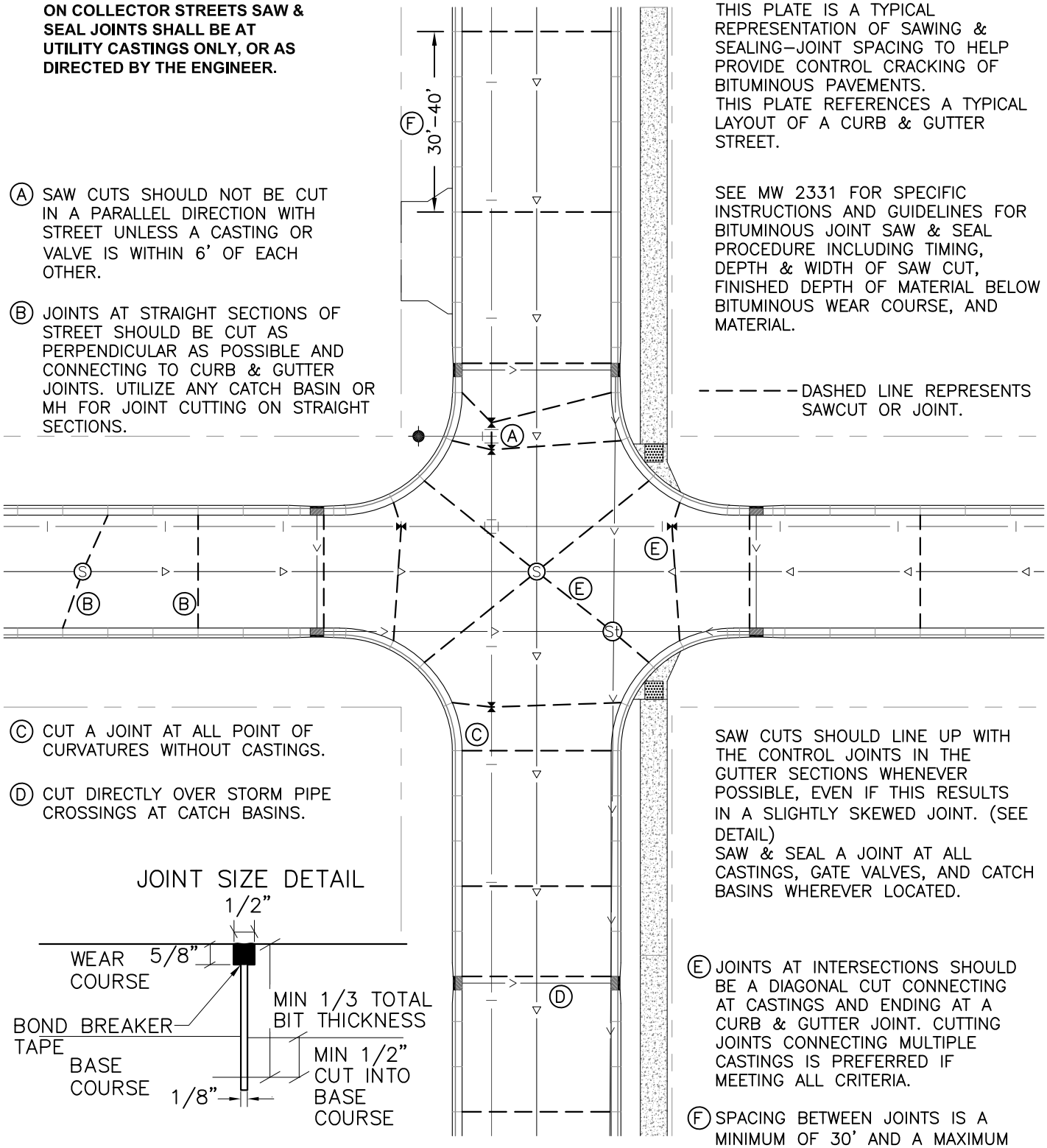
TYPICAL 90 DEGREE INTERSECTION

PLATE NO. 125

ON COLLECTOR STREETS SAW & SEAL JOINTS SHALL BE AT UTILITY CASTINGS ONLY, OR AS DIRECTED BY THE ENGINEER.

THIS PLATE IS A TYPICAL REPRESENTATION OF SAWING & SEALING–JOINT SPACING TO HELP PROVIDE CONTROL CRACKING OF BITUMINOUS PAVEMENTS.
THIS PLATE REFERENCES A TYPICAL LAYOUT OF A CURB & GUTTER STREET.

SEE MW 2331 FOR SPECIFIC INSTRUCTIONS AND GUIDELINES FOR BITUMINOUS JOINT SAW & SEAL PROCEDURE INCLUDING TIMING, DEPTH & WIDTH OF SAW CUT, FINISHED DEPTH OF MATERIAL BELOW BITUMINOUS WEAR COURSE, AND MATERIAL.



– – – – DASHED LINE REPRESENTS SAWCUT OR JOINT.

Ⓐ SAW CUTS SHOULD NOT BE CUT IN A PARALLEL DIRECTION WITH STREET UNLESS A CASTING OR VALVE IS WITHIN 6' OF EACH OTHER.

Ⓑ JOINTS AT STRAIGHT SECTIONS OF STREET SHOULD BE CUT AS PERPENDICULAR AS POSSIBLE AND CONNECTING TO CURB & GUTTER JOINTS. UTILIZE ANY CATCH BASIN OR MH FOR JOINT CUTTING ON STRAIGHT SECTIONS.

Ⓒ CUT A JOINT AT ALL POINT OF CURVATURES WITHOUT CASTINGS.

Ⓓ CUT DIRECTLY OVER STORM PIPE CROSSINGS AT CATCH BASINS.

SAW CUTS SHOULD LINE UP WITH THE CONTROL JOINTS IN THE GUTTER SECTIONS WHENEVER POSSIBLE, EVEN IF THIS RESULTS IN A SLIGHTLY SKEWED JOINT. (SEE DETAIL)
SAW & SEAL A JOINT AT ALL CASTINGS, GATE VALVES, AND CATCH BASINS WHEREVER LOCATED.

Ⓔ JOINTS AT INTERSECTIONS SHOULD BE A DIAGONAL CUT CONNECTING AT CASTINGS AND ENDING AT A CURB & GUTTER JOINT. CUTTING JOINTS CONNECTING MULTIPLE CASTINGS IS PREFERRED IF MEETING ALL CRITERIA.

Ⓕ SPACING BETWEEN JOINTS IS A MINIMUM OF 30' AND A MAXIMUM OF 40'.

JOINT SIZE DETAIL

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CITY OF MAPLEWOOD–ENGINEERING DEPT.

TYPICAL SAW & SEAL LAYOUT

PLATE NO. 130

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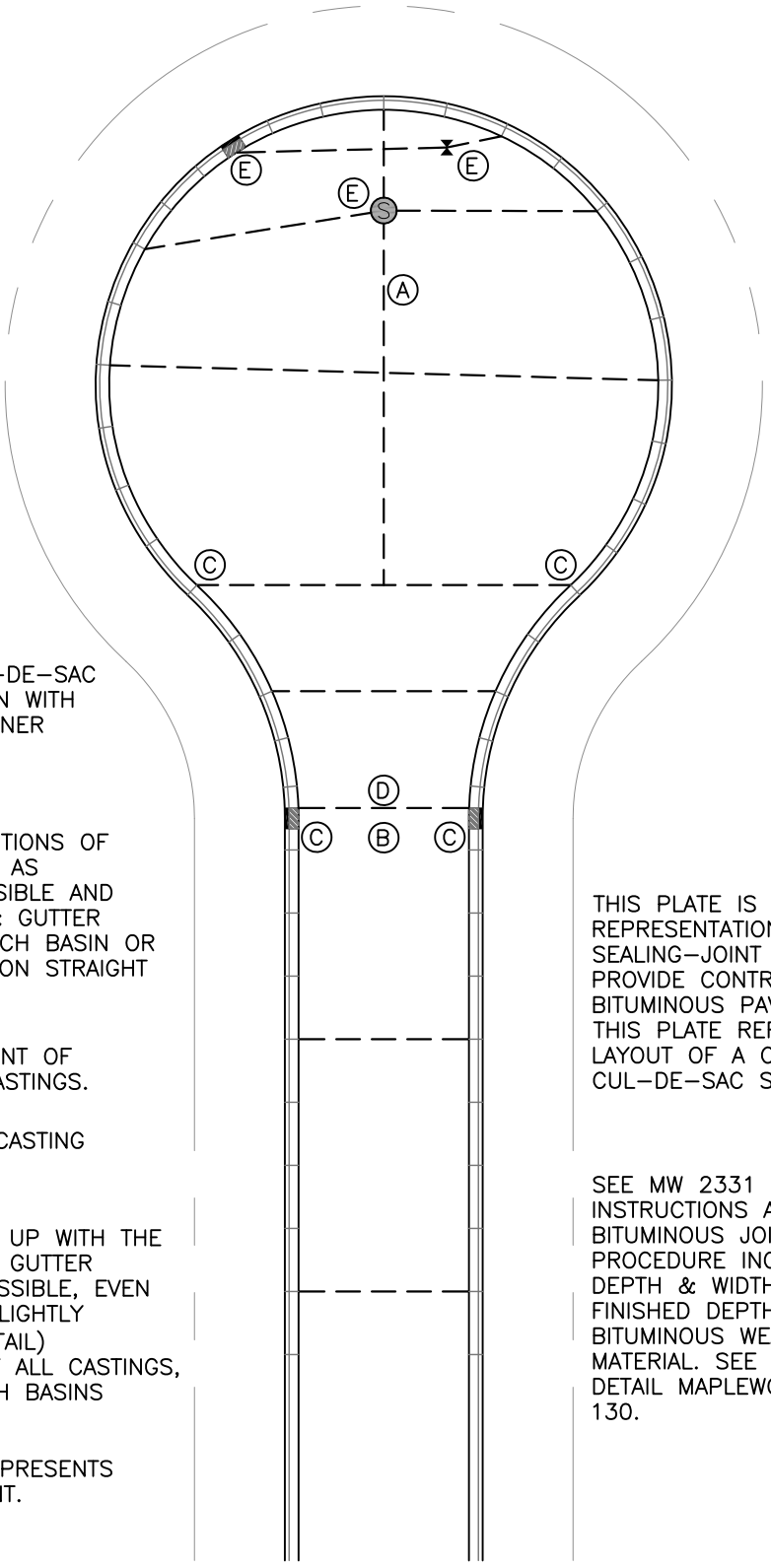

Ⓐ SAW CUT TO SPLIT CUL–DE–SAC IN A PARALLEL DIRECTION WITH STREET BEGINNING AT INNER CIRCLE OF CUL–DE–SAC

Ⓑ JOINTS AT STRAIGHT SECTIONS OF STREET SHOULD BE CUT AS PERPENDICULAR AS POSSIBLE AND CONNECTING TO CURB & GUTTER JOINTS. UTILIZE ANY CATCH BASIN OR MH FOR JOINT CUTTING ON STRAIGHT SECTIONS.

Ⓒ CUT A JOINT AT ALL POINT OF CURVATURES WITHOUT CASTINGS.

Ⓓ CUT FROM CORNER OF CASTING TO CORNER OF CASTING.

Ⓔ SAW CUTS SHOULD LINE UP WITH THE CONTROL JOINTS IN THE GUTTER SECTIONS WHENEVER POSSIBLE, EVEN IF THIS RESULTS IN A SLIGHTLY SKEWED JOINT. (SEE DETAIL) SAW & SEAL A JOINT AT ALL CASTINGS, GATE VALVES, AND CATCH BASINS WHEREVER LOCATED.

– – – – – DASHED LINE REPRESENTS SAWCUT OR JOINT.

THIS PLATE IS A TYPICAL REPRESENTATION OF SAWING & SEALING–JOINT SPACING TO HELP PROVIDE CONTROL CRACKING OF BITUMINOUS PAVEMENTS.
THIS PLATE REFERENCES A TYPICAL LAYOUT OF A CURB & GUTTER OF A CUL–DE–SAC STREET SECTION.

SEE MW 2331 FOR SPECIFIC INSTRUCTIONS AND GUIDELINES FOR BITUMINOUS JOINT SAW & SEAL PROCEDURE INCLUDING TIMING, DEPTH & WIDTH OF SAW CUT, FINISHED DEPTH OF MATERIAL BELOW BITUMINOUS WEAR COURSE, AND MATERIAL. SEE DEPTH & WIDTH DETAIL MAPLEWOOD STANDARD PLATE 130.

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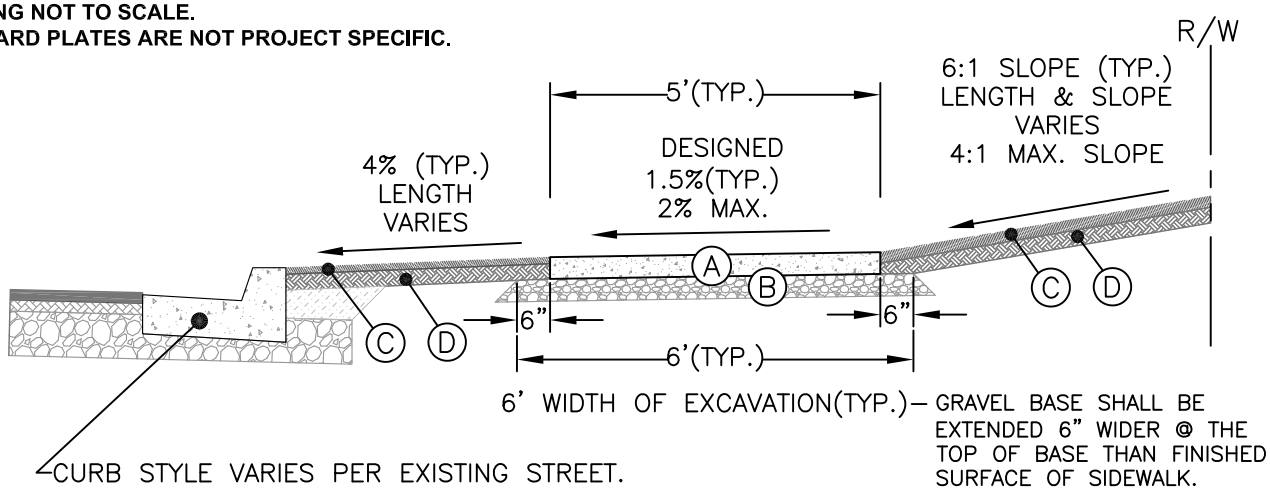
CITY OF MAPLEWOOD–ENGINEERING DEPT.

TYPICAL SAW & SEAL LAYOUT CUL–DE–SAC

PLATE NO. 131

DRAWING NOT TO SCALE.
STANDARD PLATES ARE NOT PROJECT SPECIFIC.



(A) 4", 6", OR 8" CONCRETE WALK, MnDOT 2521. SEE NOTE 2.

(B) 4" OR 6" AGGREGATE BASE CLASS 6, MnDOT 3138 & 2211. SEE NOTE 2.

(C) TURF ESTABLISHMENT IS PROJECT SPECIFIC, SEE MnDOT 2575. TYPICALLY HYDRAULIC SOIL STABILIZER W/SEED, BLANKET W/SEED OR SALT TOLERANT MINERAL SOD.

(D) TURF ESTABLISHMENT SUBSOIL IS PROJECT SPECIFIC, SEE MnDOT 2574. TYPICALLY 4" LOAM TOPSOIL BORROW INCLUDING SOME SALVAGED ONSITE TOPSOIL. DEPRESS STREET SIDE BOULEVARD 0.1' BELOW CURB AND FRONT OF SIDEWALK.

NOTES:

1. CONSTRUCT PEDESTRIAN CURB RAMPS AT ALL INTERSECTIONS AS DIRECTED. ALL SIDEWALK CONSTRUCTION MUST BE IN COMPLIANCE WITH CURRENT MnDOT ADA STANDARDS.

2.

SITUATION	CONCRETE	AGGREGATE BASE
CONCRETE SIDEWALK (TYP.)	4"	4"
CONCRETE SIDEWALK THROUGH RESIDENTIAL DRIVEWAY	6"	SEE MW PLATE 234
CONCRETE PEDESTRIAN RAMP	6"	4"
CONCRETE SIDEWALK THROUGH COMMERCIAL DRIVEWAY	8"	SEE MW PLATE 234

3. SEE MAPLEWOOD STANDARD PLATES 234–236 (FOR SIDEWALKS & TRAILS CROSSING DRIVEWAYS).

4. JOINT SPACING SHALL BE EVERY 5' @ MINIMUM 30% SIDEWALK DEPTH. ALL SIDEWALK JOINTS MUST MATCH JOINTS AT EACH CONCRETE DRIVEWAY. ALL JOINT WIDTHS MUST MEET ADA REQUIREMENTS.

5. PROVIDE EXPANSION MATERIAL AT START OF PEDESTRIAN RAMPS, CURVE POINTS., WHERE CONTAINED BETWEEN OR ADJACENT TO FIXED OBJECTS, OR AS DIRECTED.

6. CONCRETE FOR SIDEWALKS SHALL BE PLANT CERTIFIED TYPE 3F52 MnDOT 2461.

7. BLVD AND SIDEWALK MAY BE CONSTRUCTED SLOPING AWAY FROM STREET AS DIRECTED BY ENGINEER. SLOPES BETWEEN WALKS AND RIGHT OF WAY NEED TO MATCH IF EXISTING SLOPE IS STEEPER THAN 4:1.

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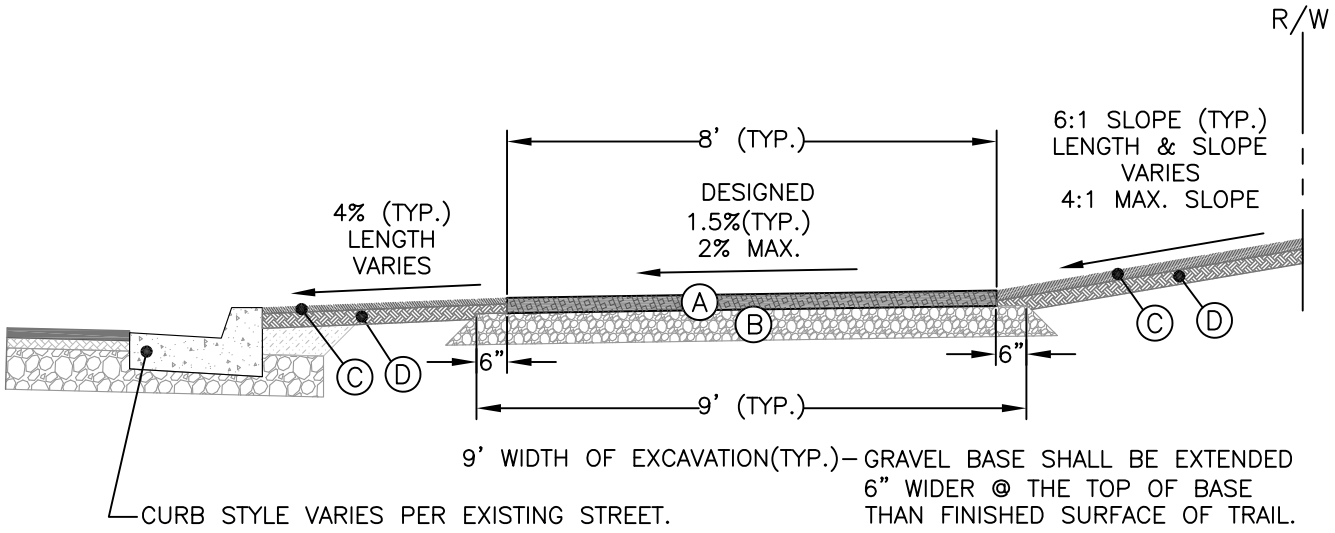
CITY OF MAPLEWOOD–ENGINEERING DEPT.

TYPICAL SECTION CONCRETE SIDEWALK

PLATE NO. 220

DRAWING NOT TO SCALE.
STANDARD PLATES ARE NOT PROJECT SPECIFIC.



(A) 3" OR 4" BITUMINOUS TRAIL, SPWEA230B (TYP.) MnDOT 2360. SEE NOTE 2.

(B) 6" OR 8" AGGREGATE BASE CLASS 6, MnDOT 3138 & 2211. SEE NOTE 2.

(C) TURF ESTABLISHMENT IS PROJECT SPECIFIC, SEE MnDOT 2575. TYPICALLY HYDRAULIC SOIL STABILIZER W/SEED, BLANKET W/SEED OR SALT TOLERANT MINERAL SOD.

(D) TURF ESTABLISHMENT SUBSOIL IS PROJECT SPECIFIC, SEE MnDOT 2574. TYPICALLY 4" LOAM TOPSOIL BORROW INCLUDING SOME SALVAGED ONSITE TOPSOIL. DEPRESS STREET SIDE BOULEVARD 0.1' BELOW CURB AND FRONT OF SIDEWALK.

NOTES:

1. CONSTRUCT PEDESTRIAN CURB RAMPS AT ALL INTERSECTIONS AS DIRECTED. ALL TRAIL CONSTRUCTION MUST BE IN COMPLIANCE WITH CURRENT MnDOT APPROVED ADA STANDARDS.

2.

SITUATION	BITUMINOUS	AGGREGATE BASE
BITUMINOUS TRAIL (TYP.)	3" (1 LIFT)	6"
BITUMINOUS TRAIL THROUGH RESIDENTIAL DRIVEWAY	(CONCRETE)	SEE MW PLATE 236
CONCRETE PEDESTRIAN RAMP	6" (CONCRETE)	4"
BITUMINOUS TRAIL THROUGH COMMERCIAL DRIVEWAY	(CONCRETE)	SEE MW PLATE 234

3. BLVD AND TRAIL MAY BE CONSTRUCTED SLOPING AWAY FROM STREET AS DIRECTED BY ENGINEER. SLOPES BETWEEN WALKS AND RIGHT OF WAY NEED TO MATCH IF EXISTING SLOPE IS STEEPER THAN 4:1.

DESIGN: TMS	DATE: 5-15			
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REVISIONS	1-17	4-21		

Maplewood

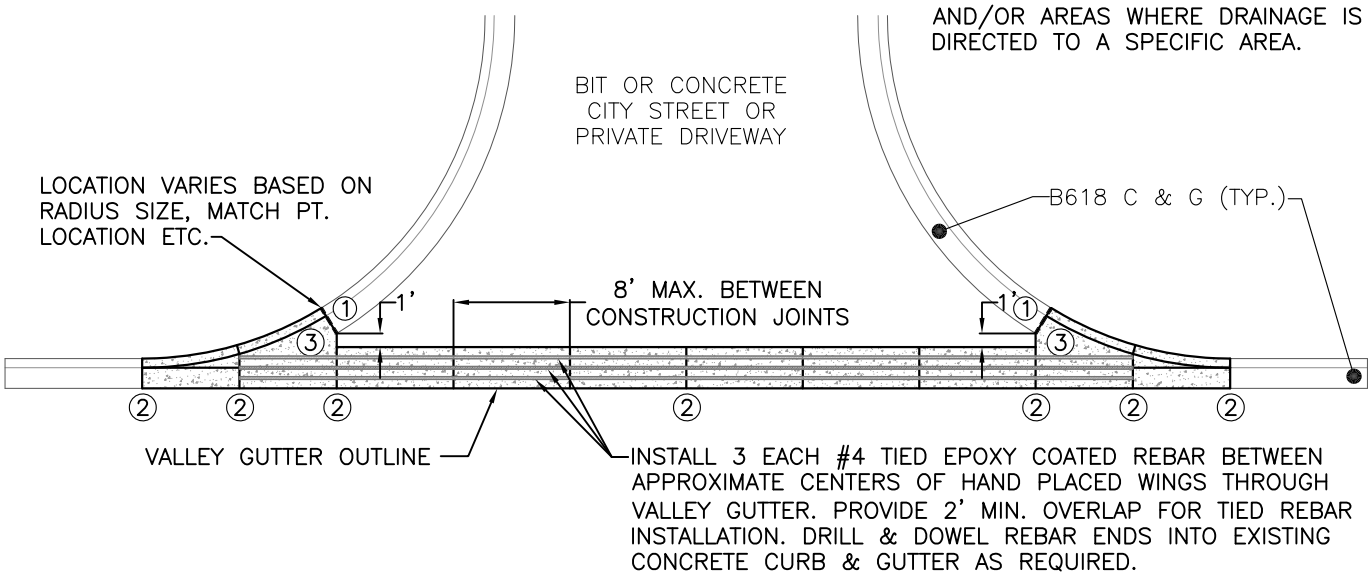
CITY OF MAPLEWOOD—ENGINEERING DEPT.

TYPICAL SECTION BITUMINOUS TRAIL

PLATE NO. 221

DRAWING NOT TO SCALE.
STANDARD PLATES ARE NOT PROJECT SPECIFIC.

VALLEY GUTTERS SHALL BE USED IN AREAS OF EXTREME FLAT PROFILE GRADES @ STREET INTERSECTIONS, AND/OR AREAS WHERE DRAINAGE IS DIRECTED TO A SPECIFIC AREA.

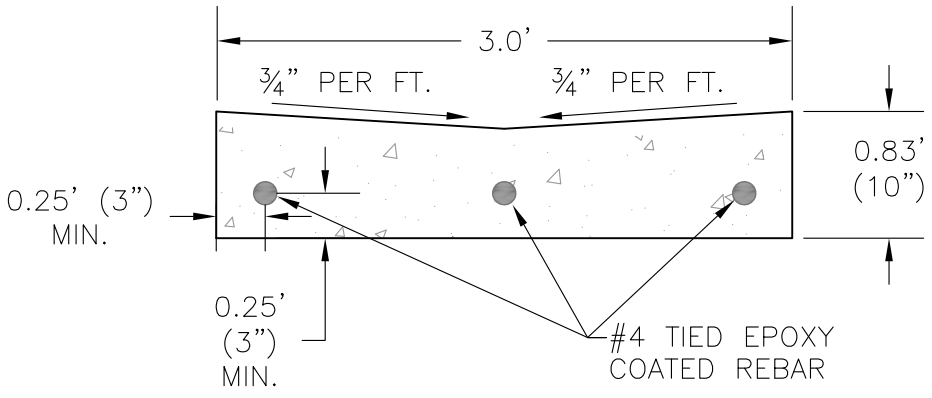


① EXPANSION MATERIAL AT EXISTING JOINT. CURB & GUTTER USE ½" BIT FELT.

② CURB & GUTTER CONTRACTION JOINTS SHALL BE CUT @ INCREMENTS 8' OR LESS THROUGH VALLEY GUTTER AND @ MID POINTS OF RADIUS. JOINTING SHALL BE IN ACCORDANCE WITH MnDOT "CONCRETE FLATWORK AND JOINTING THUMBRULES". CONCRETE SHALL BE PLANT CERTIFIED, MnDOT 2461

③ CONSTRUCT HAND PLACED TRANSITION WING, FROM MACHINE LAID B618 TO HAND PLACED VALLEY CROSS GUTTER TO (3' TYP.). MAINTAIN FRONT AND GL SEGMENTS STRAIGHT THRU INTERSECTION. TRANSITION BACK OF CURB @ RADIUS AREA. SEE DETAIL ABOVE.

VALLEY GUTTER DETAIL



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REVISIONS	4–15	1–17	4–21	

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CITY OF MAPLEWOOD–ENGINEERING DEPT.

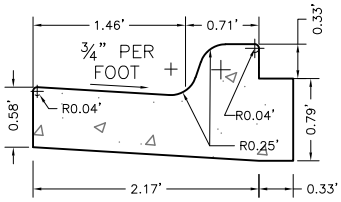
CONCRETE VALLEY GUTTER

PLATE NO. 222

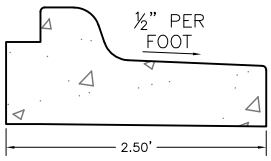
DRAWING NOT TO SCALE. STANDARD PLATES ARE NOT PROJECT SPECIFIC.

B612 & B618 MODIFIED CURB & GUTTER

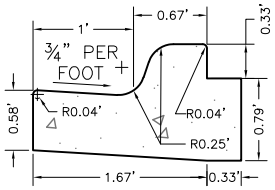
MODIFIED B618



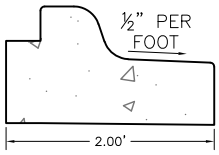
MODIFIED OUTFALL (TIP OUT) B618



MODIFIED B612



MODIFIED OUTFALL (TIP OUT) B612

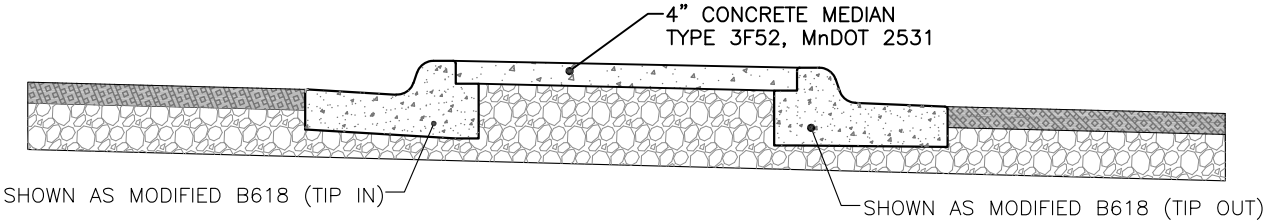


INFALL (TIP IN) OR OUTFALL (TIP OUT) CONCRETE CURB & GUTTER AS DIRECTED BY THE ENGINEER

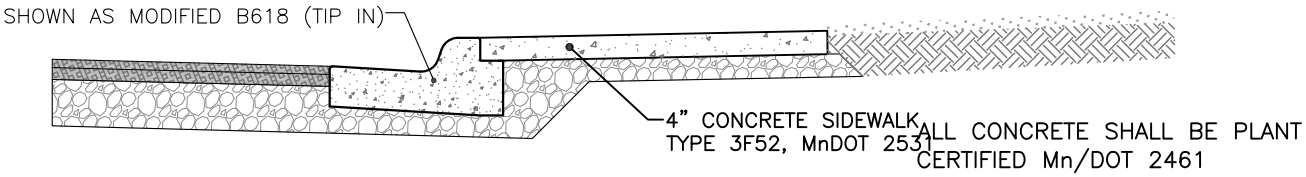
REFER TO MnDOT STANDARD PLATES 7109, 7108, 7107 & 7105 FOR MEDIAN NOSES, ENTRANCE NOSES, EXIT NOSES AND CONCRETE MEDIANS (MOUNTABLE).

MODIFIED B618 OR MODIFIED B612 CURB & GUTTER, SHALL BE USED AT ALL CONCRETE MEDIANS AND CURB W/ADJACENT SIDEWALKS (SEE BELOW).

MODIFIED B618 OR B612 CURB & GUTTER @ MEDIAN



MODIFIED B618 CURB & GUTTER W/ADJACENT SIDEWALK



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REVISIONS	4–15	1–17	4–21	

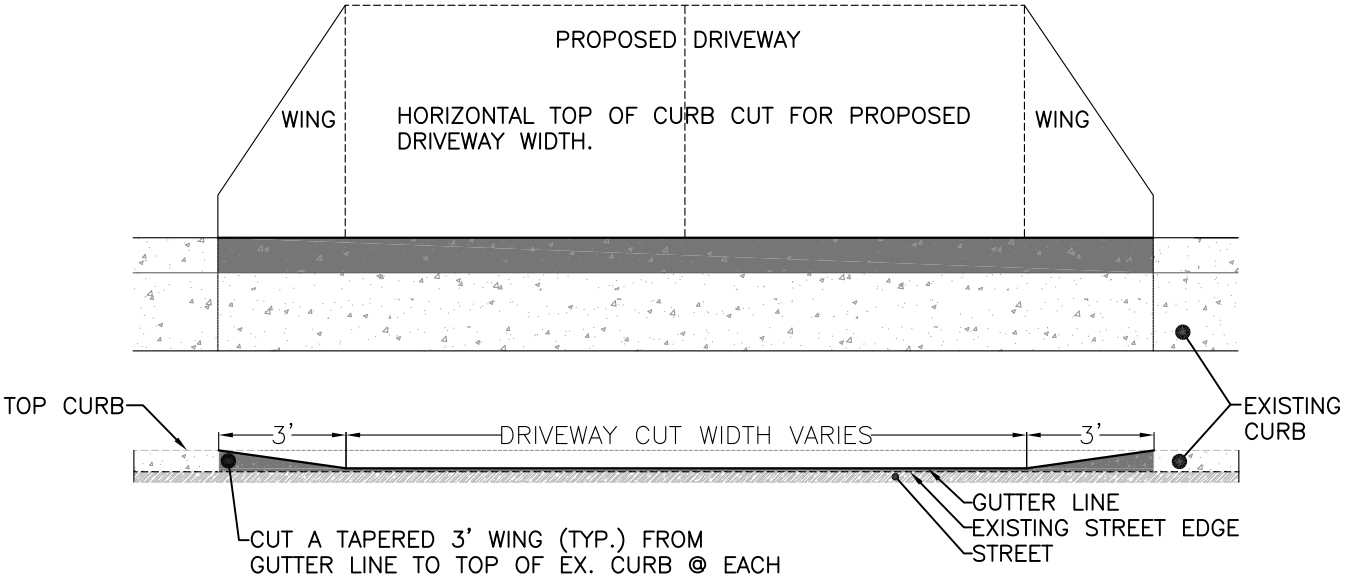
Maplewood

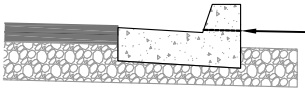
CITY OF MAPLEWOOD–ENGINEERING DEPT.

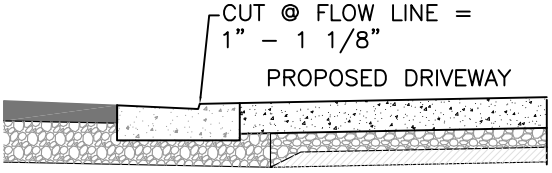
MODIFIED CONCRETE CURB & GUTTER FOR ISLANDS, MEDIANS, ADJACENT SIDEWALKS

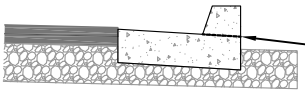
PLATE NO. 223

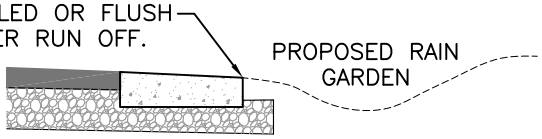
THIS DETAIL PLATE IS REPRESENTING THE TOP OF CURB TO BE HORIZONTALLY CUT OFF TO PROVIDE COMPLETE NEW DRIVEWAY OPENING & WIDEN EXISTING DRIVEWAY OPENINGS. THE DRIVEWAY OPENINGS MUST BE CUT WITH A 1" GUTTER LINE OR LIP.
CURB CUTTING MAY ALSO BE USED TO CONSTRUCT RAIN GARDENS OR DRAINAGE SPILLWAYS. CURB CUTS FOR RAIN GARDENS & SPILLWAYS MUST BE CONSTRUCTED WITH FLAT GUTTER LINE AND HAVE DIRECT RUNOFF.
THIS PROCEDURE CANNOT BE USED FOR ADA PED RAMPS.
THE CURB CAN BE CUT WITH PRECISION AND HAVE NO STRUCTURAL DAMAGE OR IMPACT TO STREETS OR IN PLACE EXISTING CURB.



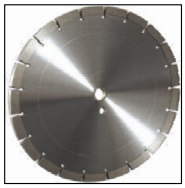








ALL PRECISION CURB CUTTING SHOULD BE APPLIED WITH DIAMOND BLADE OR APPROVED EQUAL.



HORIZONTAL CURB CUTS SHALL BE CONSTRUCTED WITH MOBILE UNIT, OR WITH WHEEL DRIVEN SELF PROPELLED HIGH SPEED CUTTER. HANDHELD SAWING WILL NOT BE ALLOWED AS AN ALTERNATIVE.

DRAWING NOT TO SCALE. DETAIL PLATES ARE NOT PROJECT SPECIFIC.

DESIGN: TMS	DATE: 4–17		
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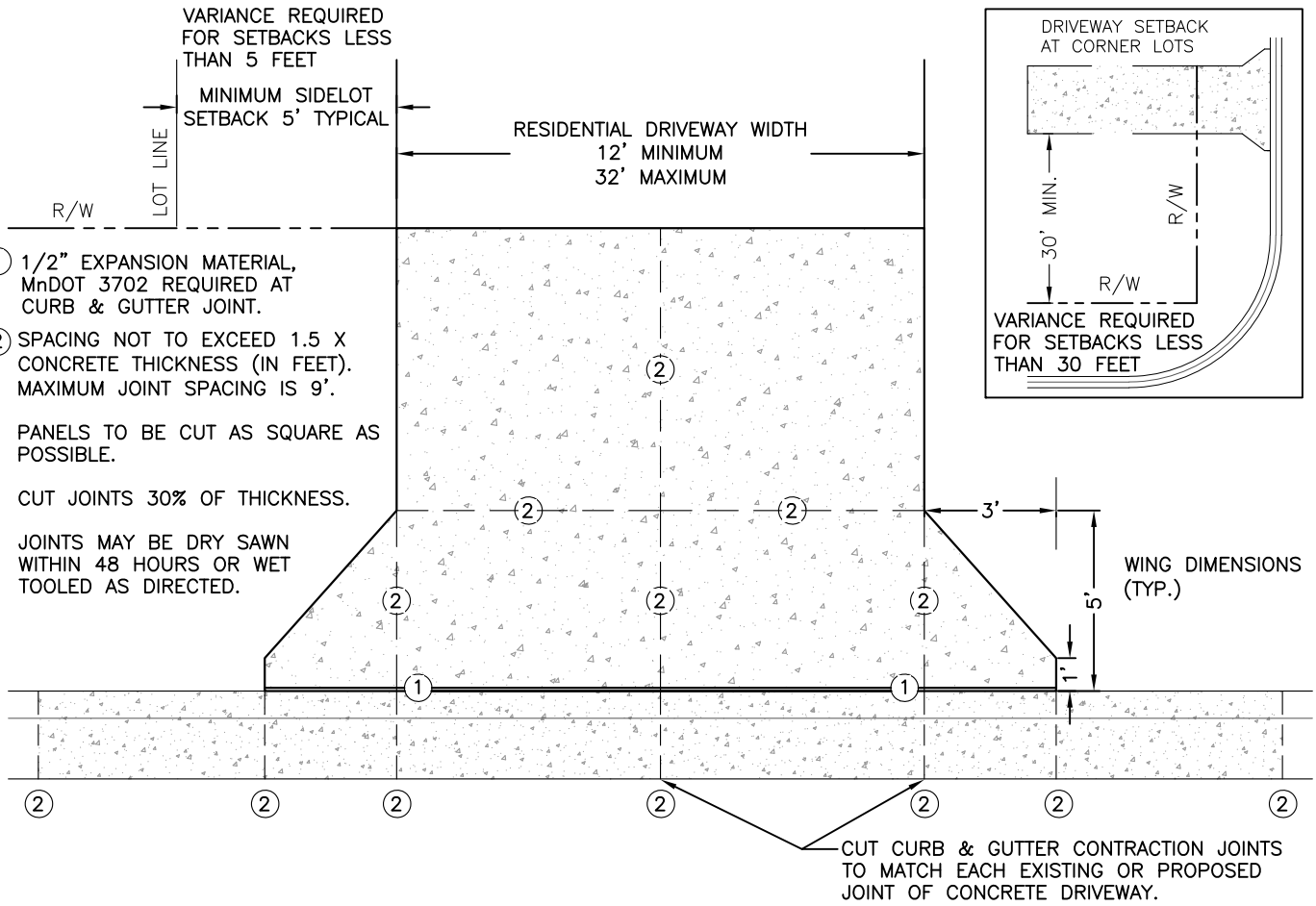
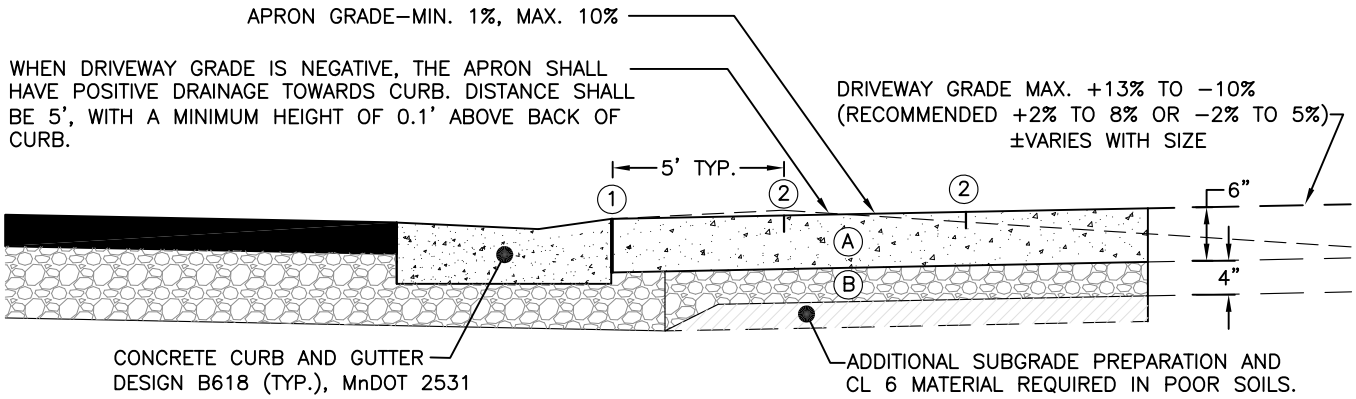
CITY OF MAPLEWOOD–ENGINEERING DEPT.

HORIZONTAL SAW CUTTING @ TOP OF CURB FOR DRIVEWAY OPENING

PLATE NO. 224

DRAWING NOT TO SCALE.
STANDARD PLATES ARE NOT PROJECT SPECIFIC.





A 6" RESIDENTIAL CONCRETE DRIVEWAY, MnDOT 2531

B 4" AGGREGATE BASE CLASS 6, MnDOT 3138 & 2211

SEE MAPLEWOOD SPECIFICATIONS FOR CONCRETE TESTING REQUIREMENTS AND ALL APPROVED CURING METHODS. ALL CONCRETE SHALL BE PLANT CERTIFIED MnDOT 2461.

DESIGN: TMS		DATE: 3–04		
DRAWN: RKL		FILENAME:P:\WORKS\CAD\PLATES2021\P230		
REVISIONS	3–06	3–07	2–08	
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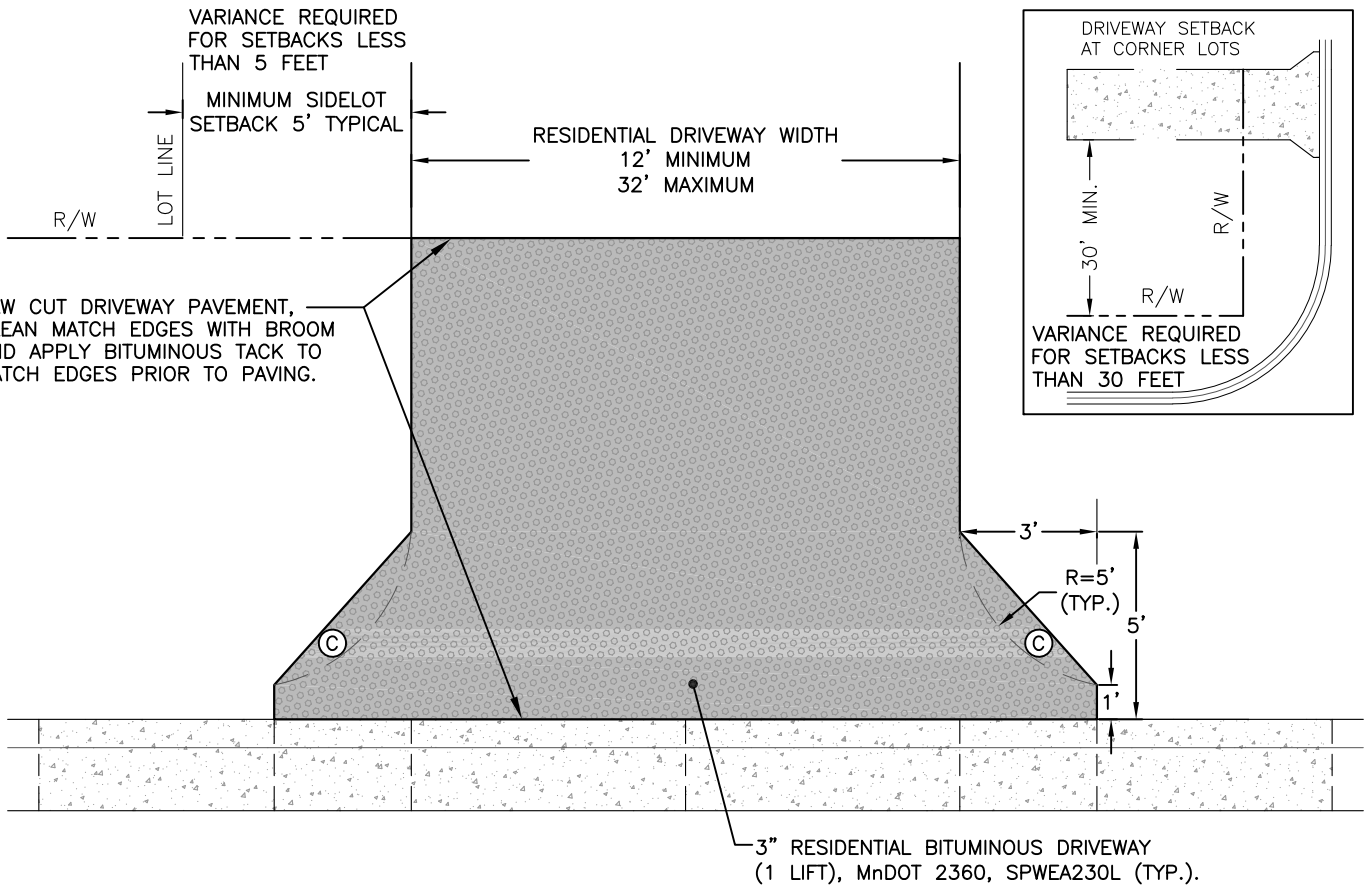
Maplewood

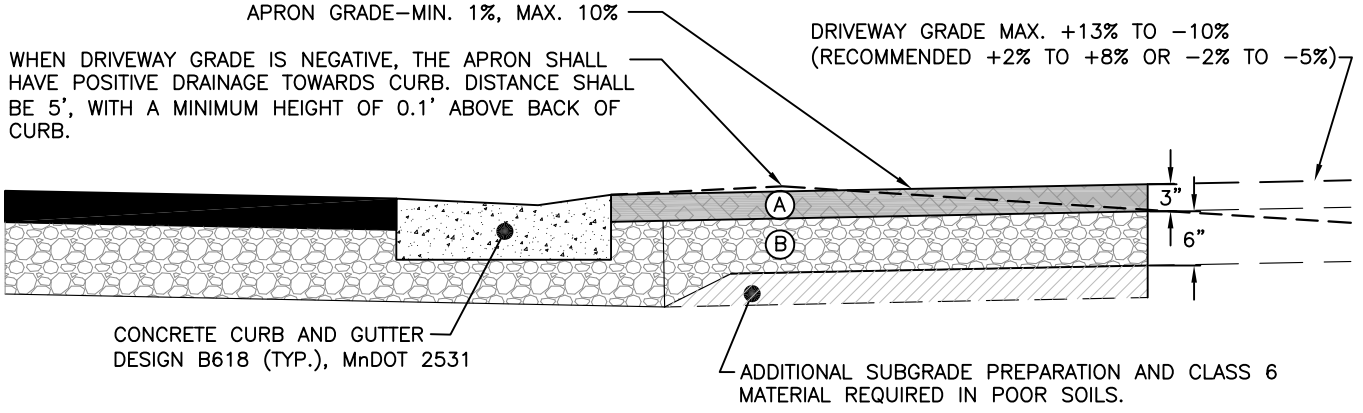
CITY OF MAPLEWOOD—ENGINEERING DEPT.

RESIDENTIAL CONCRETE DRIVEWAY WITH CURB & GUTTER

PLATE NO. 230

DRAWING NOT TO SCALE.
STANDARD PLATES ARE NOT PROJECT SPECIFIC.





(A) 3" RESIDENTIAL BITUMINOUS DRIVEWAY (1 LIFT), MnDOT 2360, SPWEA230L (TYP.).

(B) 6" AGGREGATE BASE CLASS 6, MnDOT 3138 & 2211.

(C) DRIVEWAY WING MAY BE PLACED AS AN ARC OR STRAIGHT STANDARD DIMENSION WING.

DESIGN: JEJ		DATE: 3–04		
DRAWN: RKL		FILENAME:P:\WORKS\CAD\PLATES2021\P231		
REVISIONS	3–06	3–07	2–08	
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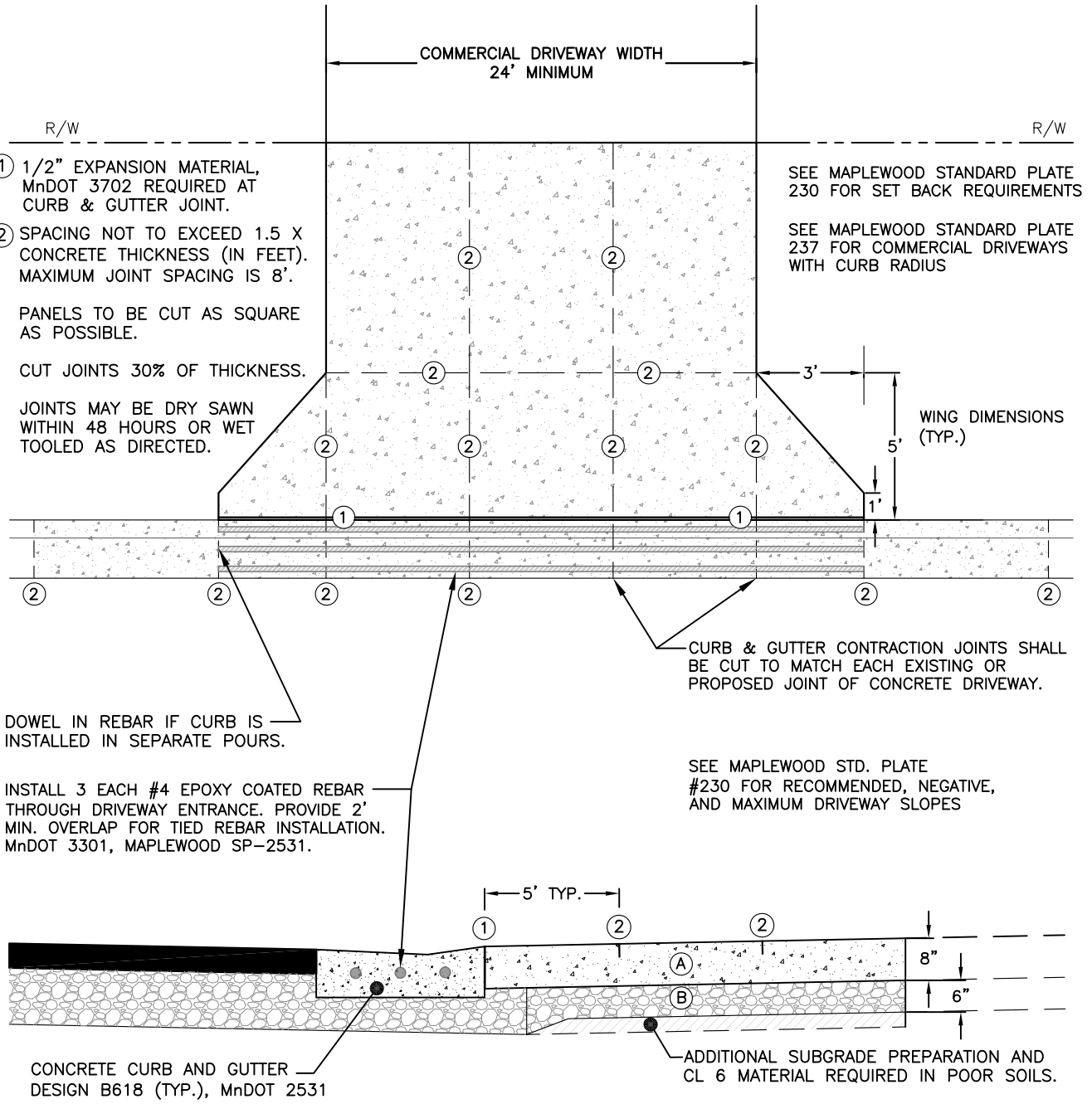
CITY OF MAPLEWOOD–ENGINEERING DEPT.

RESIDENTIAL BITUMINOUS DRIVEWAY WITH CURB & GUTTER

PLATE NO. 231

DRAWING NOT TO SCALE.
STANDARD PLATES ARE NOT PROJECT SPECIFIC.



(A) 8" COMMERCIAL CONCRETE DRIVEWAY, MnDOT 2531

(B) 6" AGGREGATE BASE CLASS 6, MnDOT 3138 & 2211

SEE MAPLEWOOD SPECIFICATIONS FOR CONCRETE TESTING REQUIREMENTS AND ALL APPROVED CURING METHODS. ALL CONCRETE SHALL BE PLANT CERTIFIED MnDOT 2461.

DESIGN: TMS	DATE: 3-06			
DRAWN: RKL	FILENAME:P:\WORKS\CAD\PLATES2021\P232			
REVISIONS	3-06	2-08	4-15	
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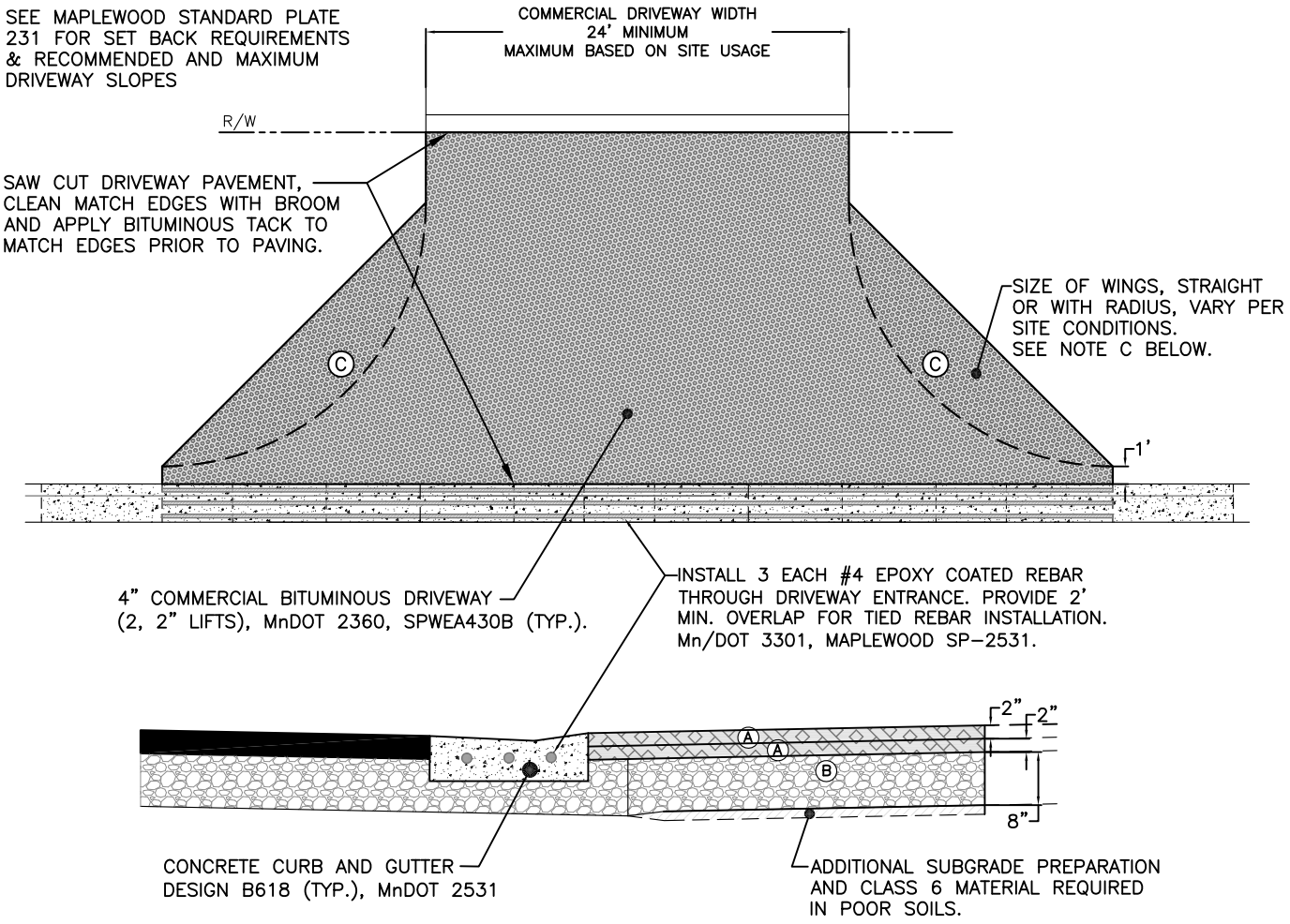
CITY OF MAPLEWOOD—ENGINEERING DEPT.

COMMERCIAL CONCRETE DRIVEWAY WITH CURB & GUTTER

PLATE NO. 232

DRAWING NOT TO SCALE.
STANDARD PLATES ARE NOT PROJECT SPECIFIC.



(A) 4" COMMERCIAL BITUMINOUS DRIVEWAY (2, 2" LIFTS), MnDOT 2360, SPWEA430B (TYP.)

(B) 8" AGGREGATE BASE CLASS 6, MnDOT 3138 & 2211.

(C) DRIVEWAY WING MAY BE PLACED AS AN ARC OR STRAIGHT STANDARD DIMENSION WING.

DESIGN: TMS	DATE: 4-15			
DRAWN: RKL	FILENAME:P:\WORKS\CAD\PLATES2021\P233			
REVISIONS	1-17	4-21		

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CITY OF MAPLEWOOD-ENGINEERING DEPT.

COMMERCIAL BITUMINOUS DRIVEWAY WITH CURB AND GUTTER

PLATE NO. 233

DRAWING NOT TO SCALE.
STANDARD PLATES ARE NOT PROJECT SPECIFIC.

① 1/2" EXPANSION MATERIAL, MnDOT 3702 REQUIRED AT CURB & GUTTER JOINT.

② SPACING NOT TO EXCEED 1.5 X CONCRETE THICKNESS (IN FEET). MAXIMUM JOINT SPACING IS 8'.

PANELS TO BE CUT AS SQUARE AS POSSIBLE.

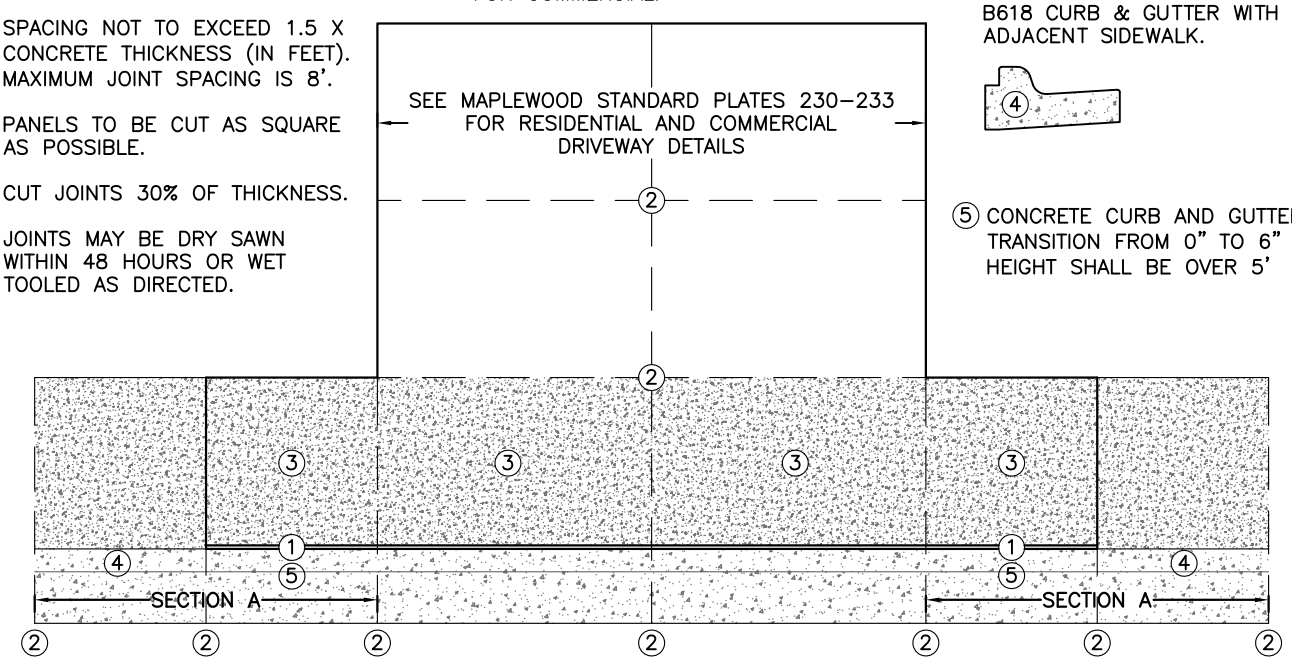
CUT JOINTS 30% OF THICKNESS.

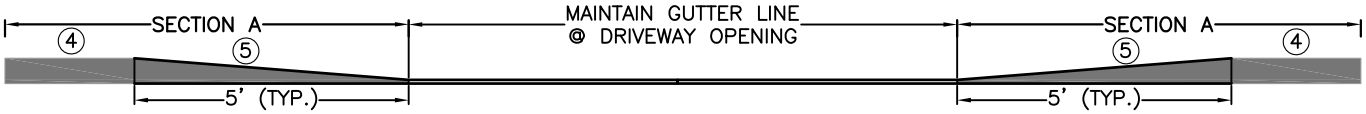
JOINTS MAY BE DRY SAWN WITHIN 48 HOURS OR WET TOOLED AS DIRECTED.

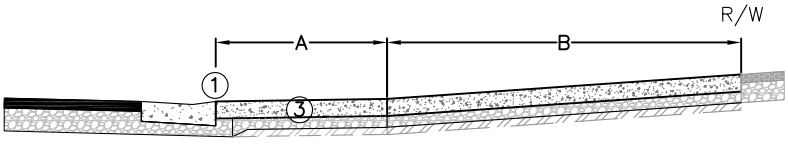
③ SIDEWALK THROUGH DRIVEWAY SHALL BE CONSTRUCTED AS DRIVEWAY SECTION, 6" FOR RESIDENTIAL & 8" FOR COMMERCIAL.

④ NEW CONSTRUCTION: INSTALL MODIFIED B618 CURB & GUTTER. SEE MAPLEWOOD STANDARD PLATE 223 MODIFIED B618 CURB & GUTTER WITH ADJACENT SIDEWALK.

⑤ CONCRETE CURB AND GUTTER TRANSITION FROM 0" TO 6" HEIGHT SHALL BE OVER 5'







A. 5' OR 6' WIDTH AS DIRECTED BY THE ENGINEER. MAINTAIN CROSS SLOPE THROUGH DRIVEWAY.
MAX. SLOPE = 2.00%
MIN. SLOPE = 0.50%

B. RESIDENTIAL & COMMERCIAL MIN. GRADES
BITUMINOUS = 1% CONCRETE = 0.5%
RESIDENTIAL MAX. GRADE = +13% TO −10%
COMMERCIAL MAX. GRADE = +10% TO −10%

SEE MAPLEWOOD SPECIFICATIONS FOR CONCRETE TESTING REQUIREMENTS AND APPROVED CURING METHODS.
ALL CONCRETE SHALL BE PLANT CERTIFIED MnDOT 2461.

TYPE	DRIVEWAY MATERIAL	AGGREGATE BASE
RESIDENTIAL CONCRETE DRIVEWAY	6" CONCRETE, MnDOT 2531	4" CL 6, MnDOT 3138 & 2211
COMMERCIAL CONCRETE DRIVEWAY	8" CONCRETE, MnDOT 2531	6" CL 6, MnDOT 3138 & 2211
RESIDENTIAL BITUMINOUS DRIVEWAY	3" BITUMINOUS (1 LIFT), MnDOT 2360, SPWEA230L	6" CL 6, MnDOT 3138 & 2211
COMMERCIAL BITUMINOUS DRIVEWAY	4" BITUMINOUS (2, 2" LIFTS), MnDOT 2360, SPWEA430B	8" CL 6, MnDOT 3138 & 2211

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REVISIONS	4–15	1–17	8–21	

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CITY OF MAPLEWOOD–ENGINEERING DEPT.

RESIDENTIAL/COMMERCIAL DRIVEWAY WITH ADJACENT CONCRETE SIDEWALK

PLATE NO. 234

DRAWING NOT TO SCALE.
STANDARD PLATES ARE NOT PROJECT SPECIFIC.

① 1/2" EXPANSION MATERIAL, MnDOT 3702 REQUIRED AT CURB & GUTTER JOINT.

② SPACING NOT TO EXCEED 1.5 X CONCRETE THICKNESS (IN FEET). MAXIMUM JOINT SPACING IS 8' FOR COMMERCIAL AND 9' FOR RESIDENTIAL.

PANELS TO BE CUT AS SQUARE AS POSSIBLE.

CUT JOINTS 30% OF THICKNESS.

JOINTS MAY BE DRY SAWN WITHIN 48 HOURS OR WET TOOLED AS DIRECTED.

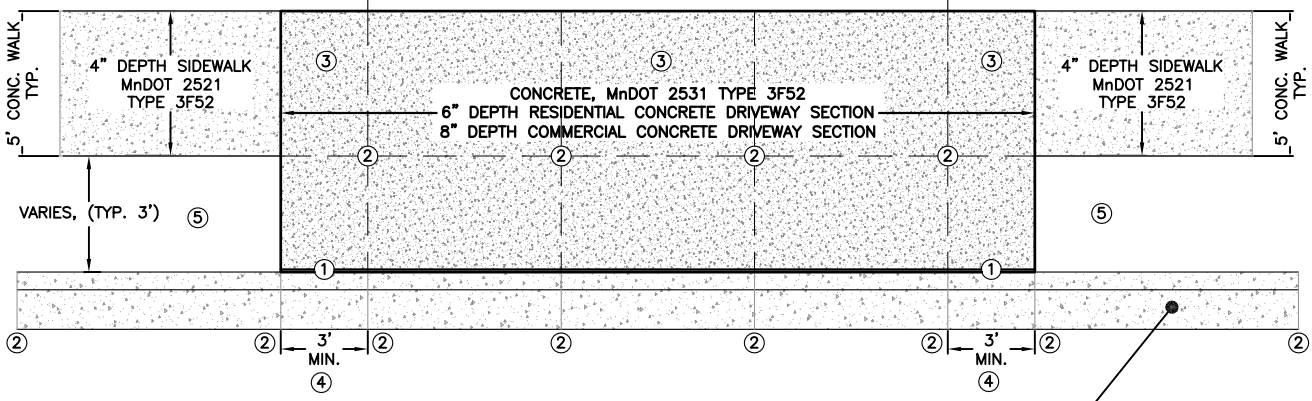
③ SIDEWALK THROUGH DRIVEWAY SHALL BE CONSTRUCTED AS DRIVEWAY SECTION, 6" FOR RESIDENTIAL & 8" FOR COMMERCIAL.

SEE MAPLEWOOD STANDARD PLATES 230–233 FOR RESIDENTIAL AND COMMERCIAL DRIVEWAY DETAILS

CONSTRUCT WIDTH AND MATERIAL TO THAT OF EXISTING DRIVE OR AS DIRECTED BY THE ENGINEER OR OWNER. BITUMINOUS OR CONCRETE.

④ CONCRETE CURB AND GUTTER TRANSITION FROM 0" TO 6" HEIGHT SHALL BE OVER 3'

⑤ TURF ESTABLISHMENT IS PROJECT SPECIFIC, SEE MnDOT 2575. TYPICALLY HYDRAULIC SOIL STABILIZER W/SEED, BLANKET W/SEED OR SALT TOLERANT MINERAL SOD. DEPRESS BOULEVARD 0.1' BELOW CURB HEIGHT BETWEEN CURB AND SIDEWALK.



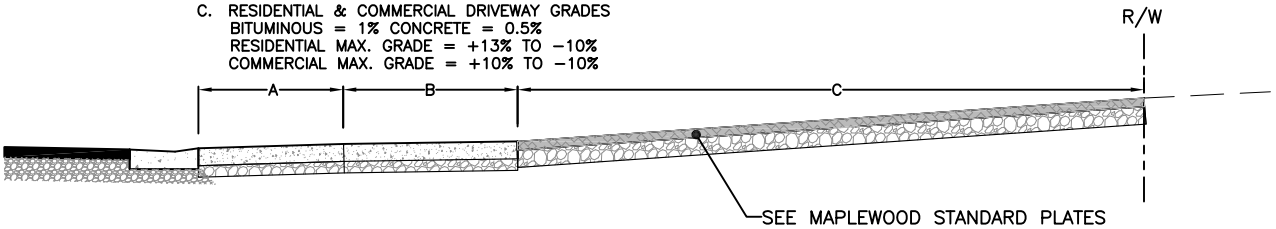
CONCRETE CURB STYLE VARIES PER EXISTING STREET. B618 TYP.

SIDEWALK SECTIONS ON EXISTING STREETS WITH BIT CURB OR NO CURB SHALL HAVE MODIFICATIONS THROUGH DRIVEWAY @ EXTENDED GUTTER LINE AS DIRECTED BY THE ENGINEER PER PROJECT.

A. WIDTH VARIES, TYP. 3'
MAX SLOPE = 8.33%
MIN SLOPE = 1.00%

B. 5' OR 6' WIDTH AS DIRECTED BY THE ENGINEER.
MAINTAIN CROSS SLOPE THROUGH DRIVEWAY.
MAX SLOPE = 2.00%
MIN. SLOPE = 0.50%

C. RESIDENTIAL & COMMERCIAL DRIVEWAY GRADES
BITUMINOUS = 1% CONCRETE = 0.5%
RESIDENTIAL MAX. GRADE = +13% TO −10%
COMMERCIAL MAX. GRADE = +10% TO −10%



SEE MAPLEWOOD STANDARD PLATES 230–233 FOR RESIDENTIAL AND COMMERCIAL DRIVEWAY DETAILS

TYPE	DRIVEWAY MATERIAL	AGGREGATE BASE
RESIDENTIAL CONCRETE DRIVEWAY	6" CONCRETE, MnDOT 2531	4" CL 6, MnDOT 3138 & 2211
COMMERCIAL CONCRETE DRIVEWAY	8" CONCRETE, MnDOT 2531	6" CL 6, MnDOT 3138 & 2211
RESIDENTIAL BITUMINOUS DRIVEWAY	3" BITUMINOUS (1 LIFT), MnDOT 2360, SPWEA230L	6" CL 6, MnDOT 3138 & 2211
COMMERCIAL BITUMINOUS DRIVEWAY	4" BITUMINOUS (2, 2" LIFTS), MnDOT 2360, SPWEA430B	8" CL 6, MnDOT 3138 & 2211

DESIGN: TMS	DATE: 4–15
DRAWN: RKL	FILENAME:P:\WORKS\CAD\PLATES2021\P235
REVISIONS	1–17 / 8–17 / 4–22

Maplewood

CITY OF MAPLEWOOD–ENGINEERING DEPT.

RESIDENTIAL/COMMERCIAL DRIVEWAY WITH CONCRETE SIDEWALK

PLATE NO. 235

DRAWING NOT TO SCALE.
STANDARD PLATES ARE NOT PROJECT SPECIFIC.

③ TRAIL THROUGH DRIVEWAY SHALL BE CONSTRUCTED AS CONCRETE SECTION, 6" FOR RESIDENTIAL & 8" FOR COMMERCIAL.

① 1/2" EXPANSION MATERIAL, MnDOT 3702 REQUIRED AT CURB & GUTTER JOINT.

② SPACING NOT TO EXCEED 1.5 X CONCRETE THICKNESS (IN FEET). MAXIMUM JOINT SPACING IS 8' FOR COMMERCIAL AND 9' FOR RESIDENTIAL.

PANELS TO BE CUT AS SQUARE AS POSSIBLE.

CUT JOINTS 30% OF THICKNESS.

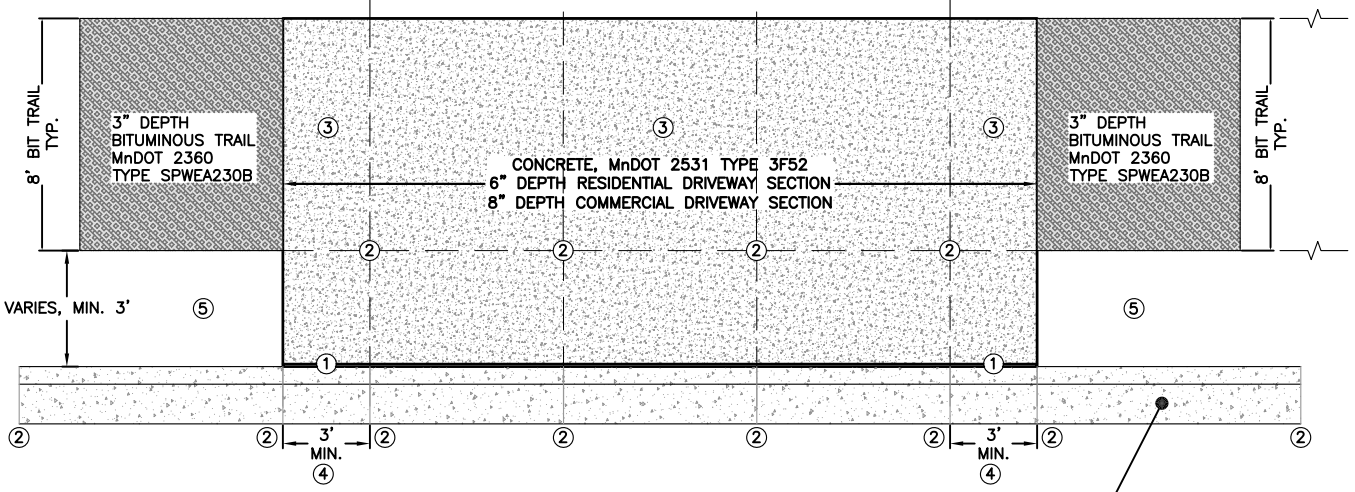
JOINTS MAY BE DRY SAWN WITHIN 48 HOURS OR WET TOOLED AS DIRECTED.

SEE MAPLEWOOD STANDARD PLATES 230–233 FOR RESIDENTIAL AND COMMERCIAL DRIVEWAY DETAILS

CONSTRUCT WIDTH AND MATERIAL TO THAT OF EXISTING DRIVE OR AS DIRECTED BY THE ENGINEER OR OWNER.

④ CONCRETE CURB AND GUTTER TRANSITION FROM 0" TO 6" HEIGHT SHALL BE OVER 3'

⑤ TURF ESTABLISHMENT IS PROJECT SPECIFIC, SEE MnDOT 2575. TYPICALLY HYDRAULIC SOIL STABILIZER W/SEED, BLANKET W/SEED OR SALT TOLERANT MINERAL SOD. DEPRESS BOULEVARD 0.1' BELOW CURB HEIGHT BETWEEN CURB AND SIDEWALK.



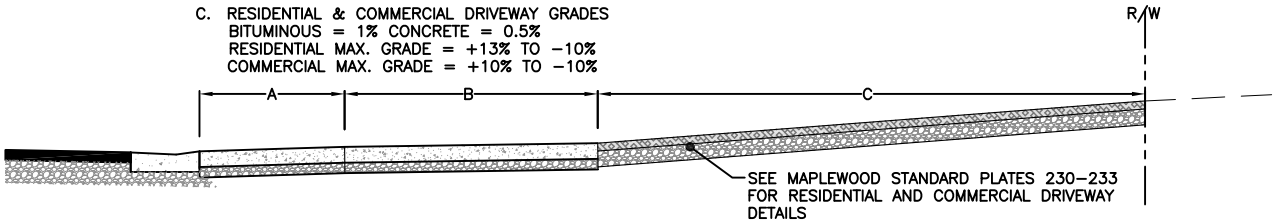
CONCRETE CURB STYLE VARIES PER EXISTING STREET. B618 TYP.

SIDEWALK SECTIONS ON EXISTING STREETS WITH BIT CURB OR NO CURB SHALL HAVE MODIFICATIONS THROUGH DRIVEWAY Ⓒ EXTENDED GUTTER LINE AS DIRECTED BY THE ENGINEER PER PROJECT.

A. WIDTH VARIES, TYP. 3'
MAX SLOPE = 8.33%
MIN SLOPE = 1.00%

B. 8' WIDTH AS DIRECTED BY THE ENGINEER.
MAINTAIN CROSS SLOPE THROUGH DRIVEWAY.
MAX SLOPE = 2.00%
MIN. SLOPE = 0.50%

C. RESIDENTIAL & COMMERCIAL DRIVEWAY GRADES
BITUMINOUS = 1% CONCRETE = 0.5%
RESIDENTIAL MAX. GRADE = +13% TO −10%
COMMERCIAL MAX. GRADE = +10% TO −10%



TYPE	DRIVEWAY MATERIAL	AGGREGATE BASE
RESIDENTIAL CONCRETE DRIVEWAY	6" CONCRETE, MnDOT 2531	4" CL 6, MnDOT 3138 & 2211
COMMERCIAL CONCRETE DRIVEWAY	8" CONCRETE, MnDOT 2531	6" CL 6, MnDOT 3138 & 2211
RESIDENTIAL BITUMINOUS DRIVEWAY	3" BITUMINOUS (1 LIFT), MnDOT 2360, SPWEA230L	6" CL 6, MnDOT 3138 & 2211
COMMERCIAL BITUMINOUS DRIVEWAY	4" BITUMINOUS (2, 2" LIFTS), MnDOT 2360, SPWEA430B	8" CL 6, MnDOT 3138 & 2211

DESIGN: TMS	DATE: 4–15			
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REVISIONS	1–17	8–21		

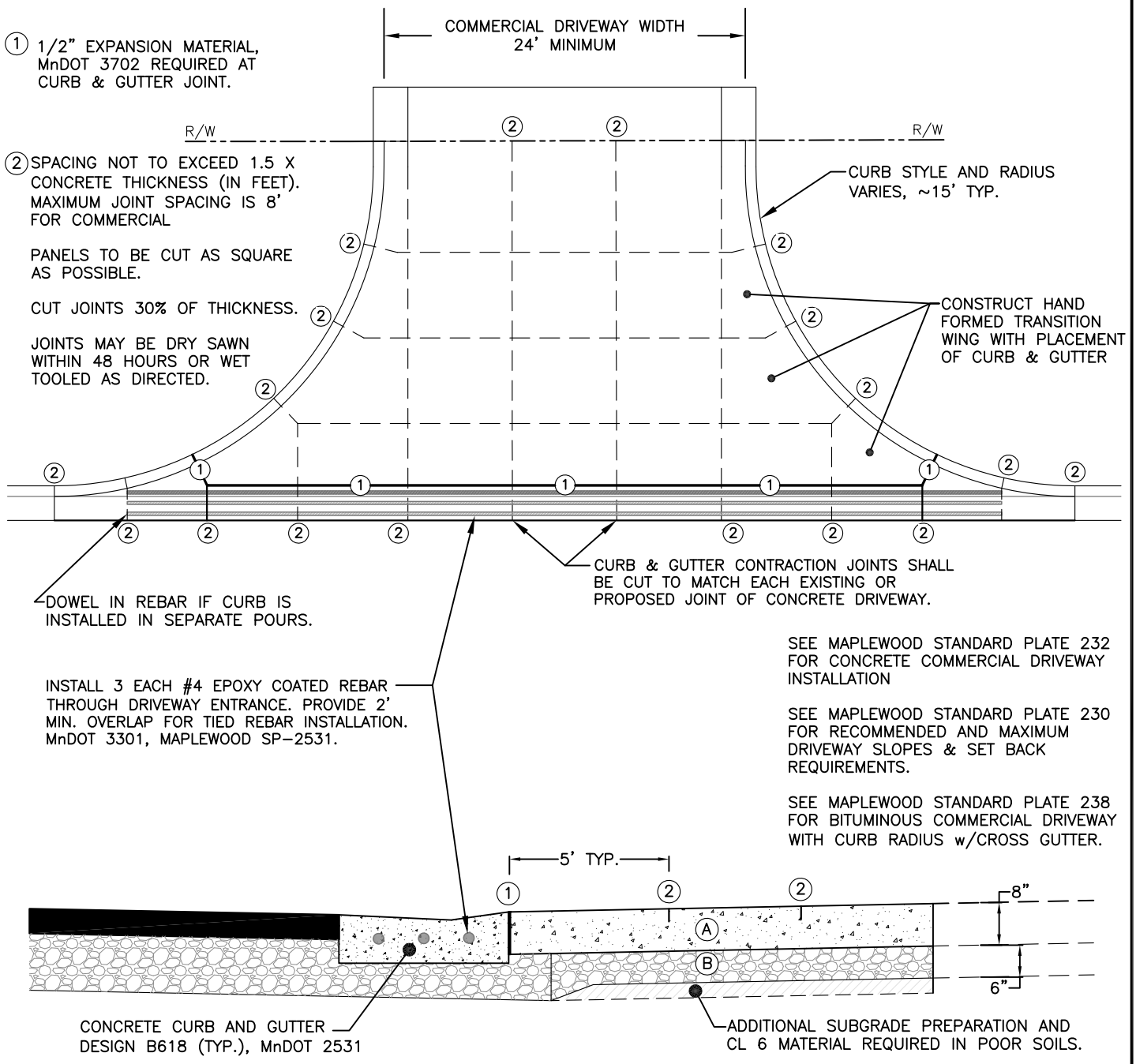
Maplewood

CITY OF MAPLEWOOD–ENGINEERING DEPT.

RESIDENTIAL/COMMERCIAL DRIVEWAY WITH BITUMINOUS TRAIL

PLATE NO. 236

DRAWING NOT TO SCALE.
STANDARD PLATES ARE NOT PROJECT SPECIFIC.



(1) 1/2" EXPANSION MATERIAL, MnDOT 3702 REQUIRED AT CURB & GUTTER JOINT.

(2) SPACING NOT TO EXCEED 1.5 X CONCRETE THICKNESS (IN FEET). MAXIMUM JOINT SPACING IS 8' FOR COMMERCIAL

PANELS TO BE CUT AS SQUARE AS POSSIBLE.

CUT JOINTS 30% OF THICKNESS.

JOINTS MAY BE DRY SAWN WITHIN 48 HOURS OR WET TOOLED AS DIRECTED.

INSTALL 3 EACH #4 EPOXY COATED REBAR THROUGH DRIVEWAY ENTRANCE. PROVIDE 2' MIN. OVERLAP FOR TIED REBAR INSTALLATION. MnDOT 3301, MAPLEWOOD SP-2531.

SEE MAPLEWOOD STANDARD PLATE 232 FOR CONCRETE COMMERCIAL DRIVEWAY INSTALLATION

SEE MAPLEWOOD STANDARD PLATE 230 FOR RECOMMENDED AND MAXIMUM DRIVEWAY SLOPES & SET BACK REQUIREMENTS.

SEE MAPLEWOOD STANDARD PLATE 238 FOR BITUMINOUS COMMERCIAL DRIVEWAY WITH CURB RADIUS w/CROSS GUTTER.

(A) 8" COMMERCIAL CONCRETE DRIVEWAY, MnDOT 2531

(B) 6" AGGREGATE BASE CLASS 6, MnDOT 3138 & 2211

SEE MAPLEWOOD SPECIFICATIONS FOR CONCRETE TESTING REQUIREMENTS AND ALL APPROVED CURING METHODS. ALL CONCRETE SHALL BE PLANT CERTIFIED MnDOT 2461.

DESIGN: TMS	DATE: 4-15		
DRAWN: RKL	FILENAME:P:\WORKS\CAD\PLATES2021\P237		
REVISIONS	1-17	6-21	

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CITY OF MAPLEWOOD—ENGINEERING DEPT.

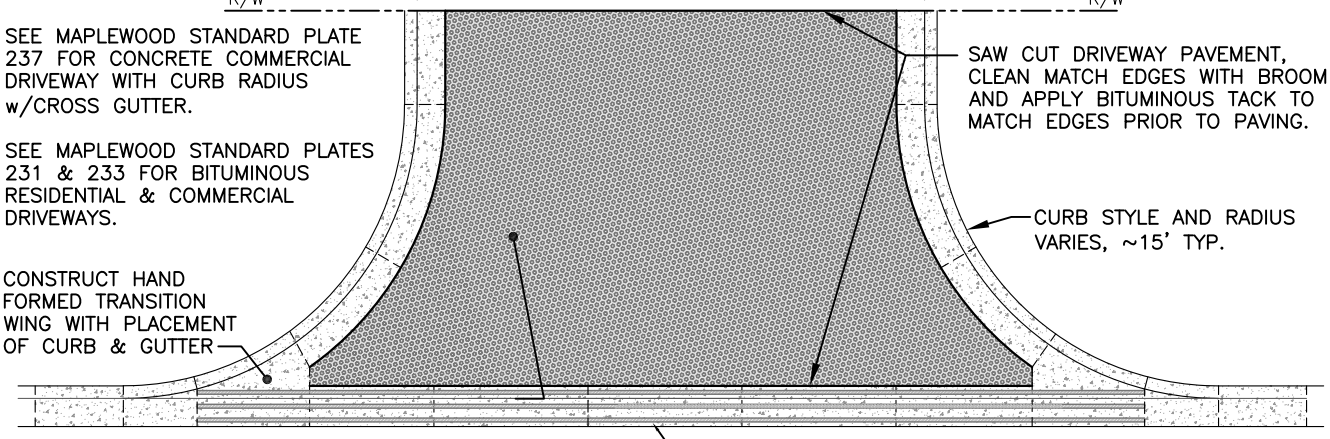
COMMERCIAL CONCRETE DRIVEWAY WITH CROSS GUTTER & CURB RADIUS

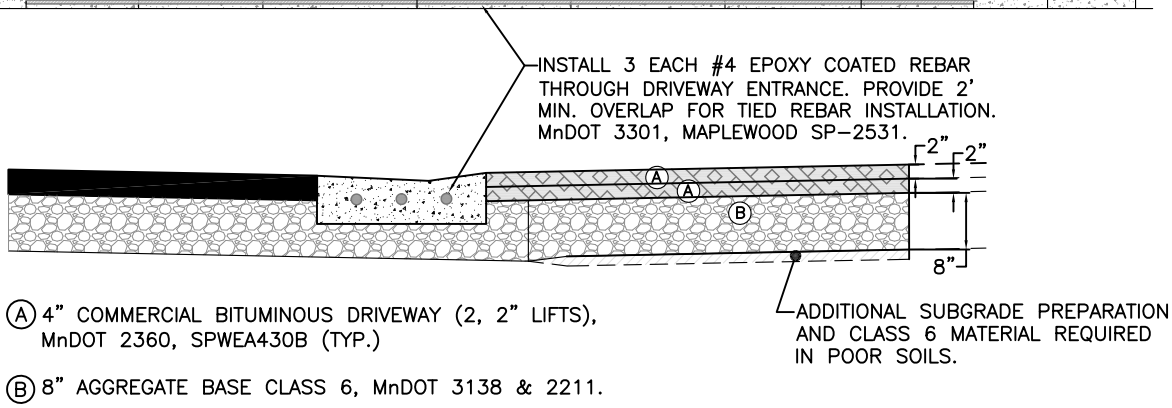
PLATE NO. 237

DRAWING NOT TO SCALE.
STANDARD PLATES ARE NOT PROJECT SPECIFIC.

LAYOUT OPTION A

COMMERCIAL DRIVEWAY WIDTH
24' MINIMUM



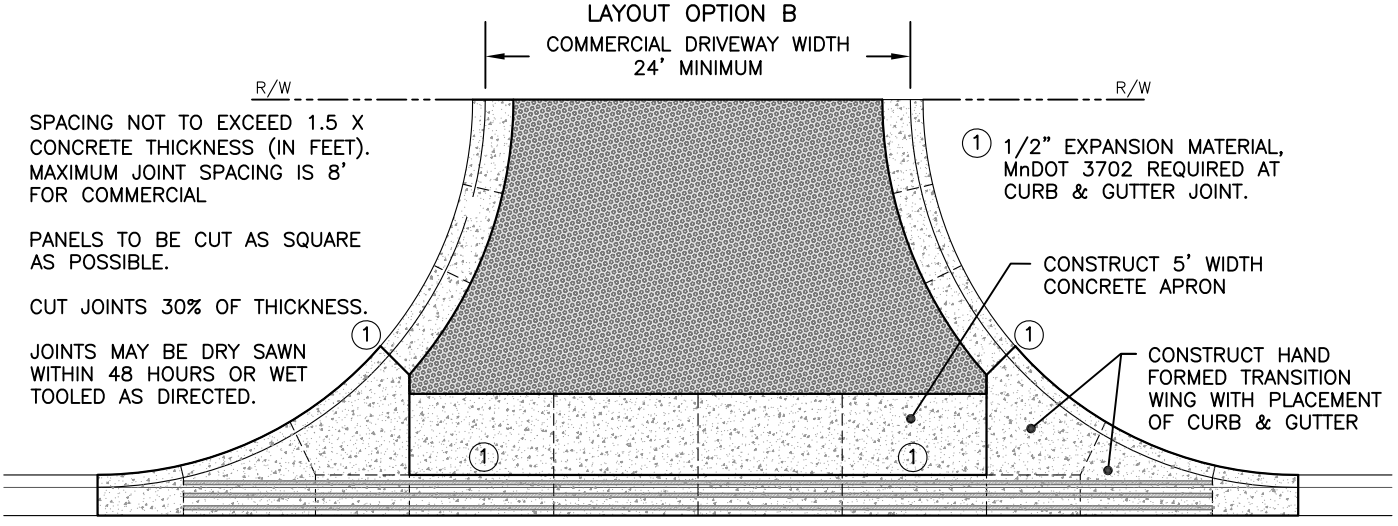


(A) 4" COMMERCIAL BITUMINOUS DRIVEWAY (2, 2" LIFTS), MnDOT 2360, SPWEA430B (TYP.)

(B) 8" AGGREGATE BASE CLASS 6, MnDOT 3138 & 2211.

LAYOUT OPTION B

COMMERCIAL DRIVEWAY WIDTH
24' MINIMUM



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DRAWN: RKL	FILENAME:P:\WORKS\CAD\PLATES2021\P238		
REVISIONS	1-17	4-21	

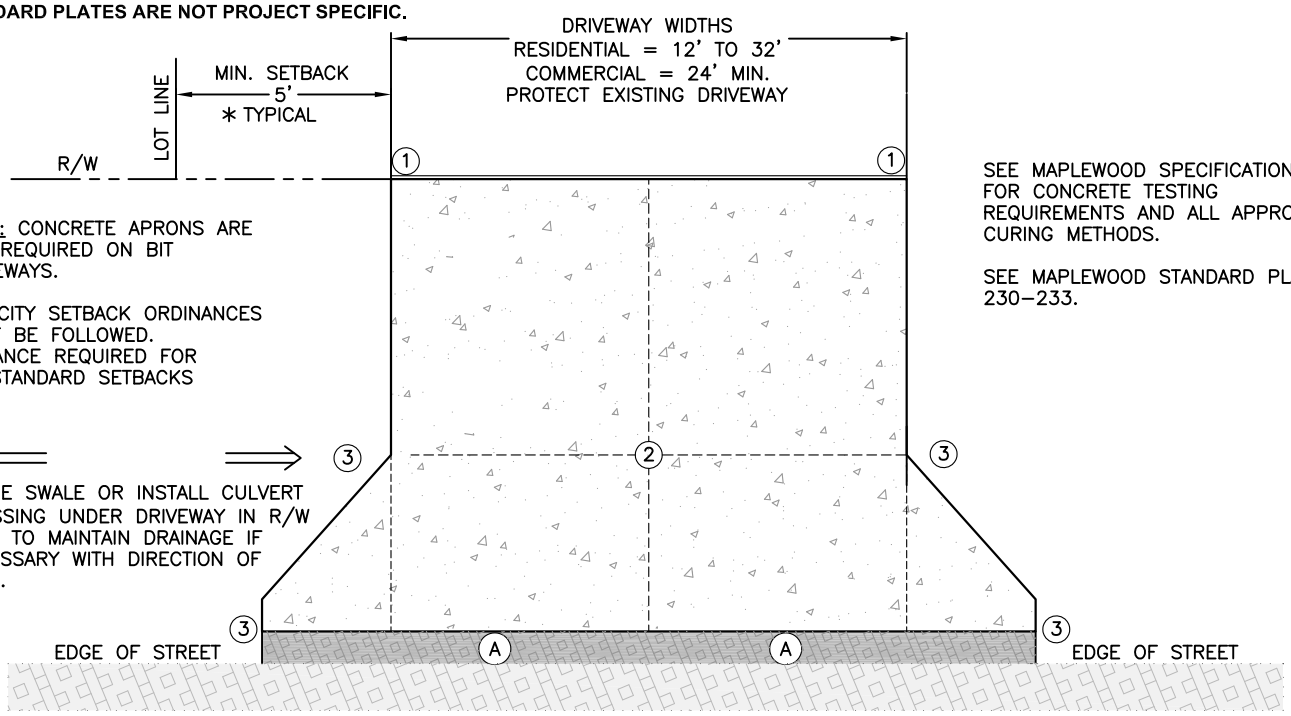
Maplewood

CITY OF MAPLEWOOD—ENGINEERING DEPT.

COMMERCIAL BITUMINOUS DRIVEWAY WITH CROSS GUTTER & CURB RADIUS

PLATE NO. 238

DRAWING NOT TO SCALE.
STANDARD PLATES ARE NOT PROJECT SPECIFIC.



NOTE: CONCRETE APRONS ARE NOT REQUIRED ON BIT DRIVEWAYS.

ALL CITY SETBACK ORDINANCES MUST BE FOLLOWED. VARIANCE REQUIRED FOR SUBSTANDARD SETBACKS

GRADE SWALE OR INSTALL CULVERT CROSSING UNDER DRIVEWAY IN R/W AREA TO MAINTAIN DRAINAGE IF NECESSARY WITH DIRECTION OF FLOW.

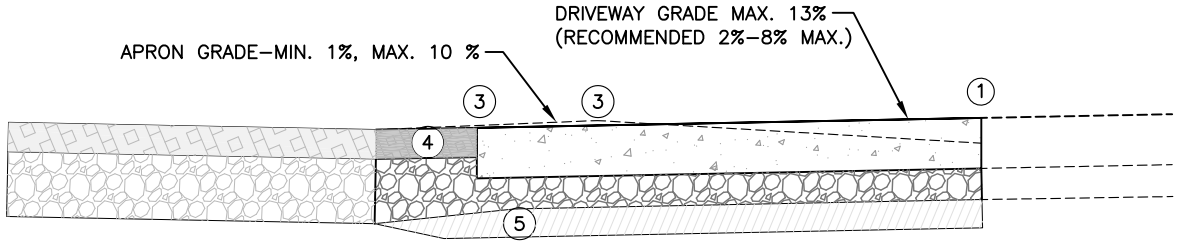
SEE MAPLEWOOD SPECIFICATIONS FOR CONCRETE TESTING REQUIREMENTS AND ALL APPROVED CURING METHODS.

SEE MAPLEWOOD STANDARD PLATES 230–233.

(1) IF REPLACING PORTION OF EXISTING CONCRETE DRIVEWAY EXPANSION MATERIAL SHALL BE PLACED AT MATCH PT. OR AT R/W LINE AS DIRECTED. 1/2" FOR RESIDENTIAL & COMMERCIAL

(2) CONTRACTION JOINTS TO BE CUT TO 30% DEPTH OF DRIVEWAY THICKNESS.

(3) WHEN BITUMINOUS DRIVEWAY GRADE IS NEGATIVE, GRADE BASE AND PLACE BITUMINOUS TO HAVE POSITIVE DRAINAGE TOWARDS STREET A MINIMUM 0.1'. THE DISTANCE AT GRADE BREAK CAN VARY FROM 2'–5' FROM EDGE OF STREET. THE DRIVEWAY SHAL HAVE CROSS SLOPE MIN. 1%.



(4) CONCRETE DRIVEWAY SHALL END 1' MINIMUM FROM EDGE OF EXISTING STREET. THE AREA BETWEEN STREET AND DRIVEWAY SHALL BE PATCHED WITH 2 LIFTS OF 2" EACH BITUMINOUS. MAINTAIN POSITIVE DRAINAGE TOWARDS STREET AND TO MATCH TO PROFILE OF STREET.

BITUMINOUS DRIVEWAYS MAY BE PAVED TO EDGE OF STREET.

REMOVAL & PATCHING OF EXISTING STREET MUST BE APPROVED BY THE ENGINEER.

(5) ADDITIONAL SUBGRADE PREPARATION AND CL 6 MATERIAL REQUIRED IN POOR SOILS.

TYPE	DRIVEWAY MATERIAL	AGGREGATE BASE
RESIDENTIAL CONCRETE DRIVEWAY	6" CONCRETE, MnDOT 2531	4" CL 6, MnDOT 3138 & 2211
COMMERCIAL CONCRETE DRIVEWAY	8" CONCRETE, MnDOT 2531	6" CL 6, MnDOT 3138 & 2211
RESIDENTIAL BITUMINOUS DRIVEWAY	3" BITUMINOUS (1 LIFT), MnDOT 2360, SPWEA230L	6" CL 6, MnDOT 3138 & 2211
COMMERCIAL BITUMINOUS DRIVEWAY	4" BITUMINOUS (2, 2" LIFTS), MnDOT 2360, SPWEA430B	8" CL 6, MnDOT 3138 & 2211

DESIGN: TMS	DATE: 3–95			
DRAWN: RKL	FILENAME:P:\WORKS\CAD\PLATES2021\P239			
REVISIONS	1–02	3–04	2–08	
4–11	1–17	8–21		

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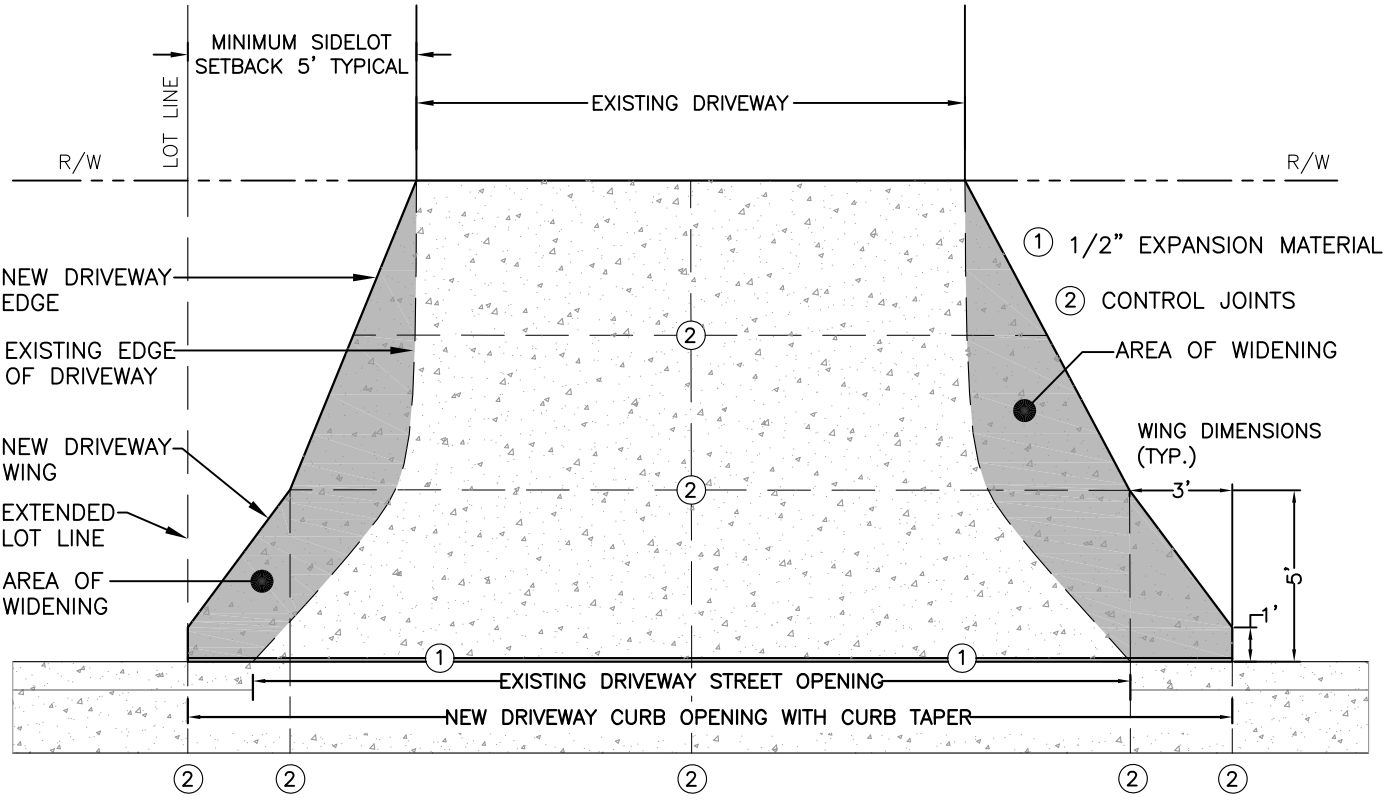
CITY OF MAPLEWOOD–ENGINEERING DEPT.

DRIVEWAYS WITHOUT CURB & GUTTER

PLATE NO. 239

DRAWING NOT TO SCALE.
STANDARD PLATES ARE NOT PROJECT SPECIFIC.

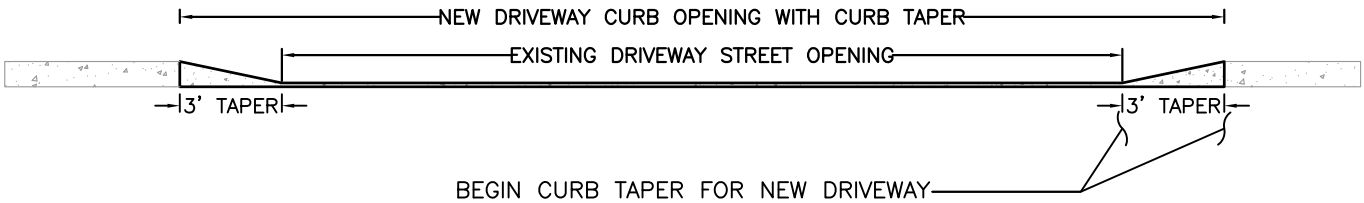
THIS STANDARD PLATE INTENDS TO SHOW AN OPTIONAL DRIVEWAY LAYOUT FOR RECONSTRUCTION PROJECTS.



SEE MAPLEWOOD STANDARD PLATE 230 FOR INSTALLATION OF TYPICAL RESIDENTIAL CONCRETE DRIVEWAY, APPLY ALL CONSTRUCTION NOTES LISTED.

NEW CONCRETE WINGS WILL HAVE A 3' TAPER @ CURB LINE.

IN NO CIRCUMSTANCES CAN ANY PORTION OF THE NEW DRIVEWAY EXTEND PASS THE PROJECTED LOT LINE BETWEEN THE RIGHT OF WAY LINE AND BACK OF CURB.



DESIGN: TMS	DATE: 8-21		
DRAWN: RKL	FILENAME:P:\WORKS\CAD\PLATES2021\P240		
REVISIONS			

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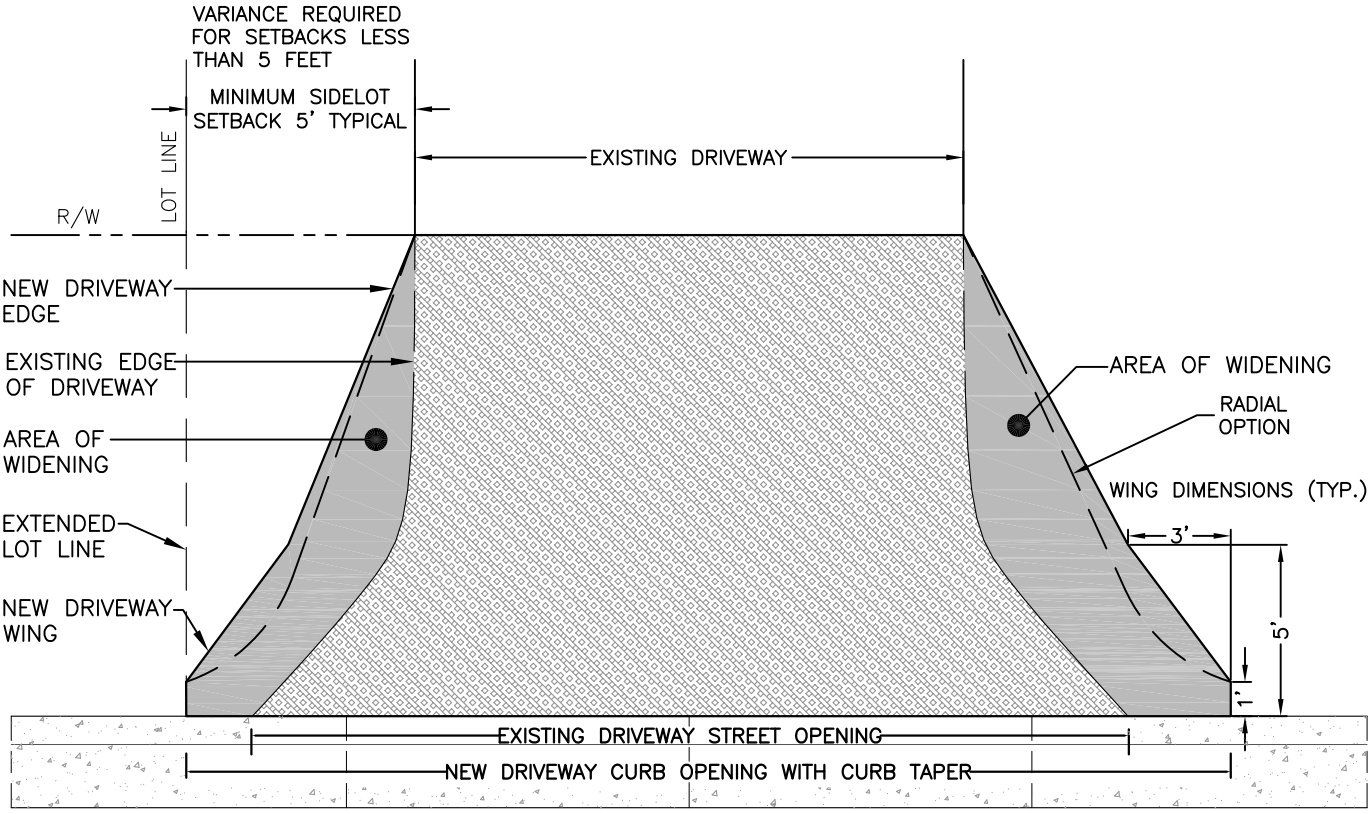
CITY OF MAPLEWOOD—ENGINEERING DEPT.

OPTIONAL RESIDENTIAL CONCRETE DRIVEWAY LAYOUT, STREET PROJECTS

PLATE NO. 240

DRAWING NOT TO SCALE.
STANDARD PLATES ARE NOT PROJECT SPECIFIC.

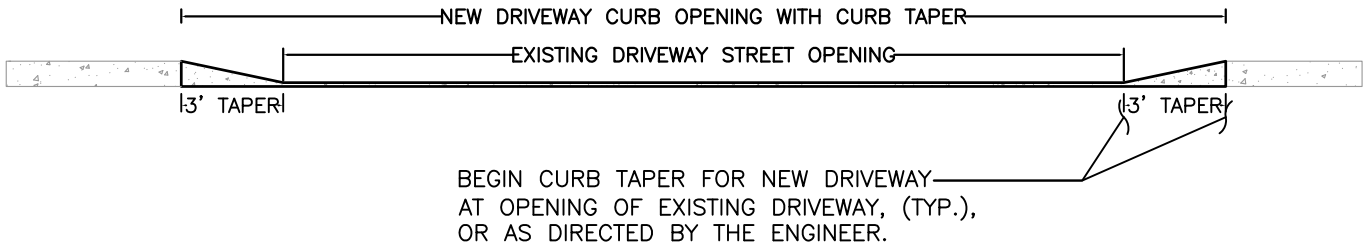
THIS STANDARD PLATE INTENDS TO SHOW AN OPTIONAL DRIVEWAY LAYOUT FOR RECONSTRUCTION PROJECTS.



SEE MAPLEWOOD STANDARD PLATE #231, "NEW RESIDENTIAL BITUMINOUS DRIVEWAY" APPLY ALL CONSTRUCTION NOTES LISTED FOR THIS PLATE.

NEW BITUMINOUS WINGS WILL HAVE A 3' TAPER @ CURB LINE.

IN NO CIRCUMSTANCES CAN ANY PORTION OF THE NEW DRIVEWAY EXTEND PASS THE PROJECTED LOT LINE BETWEEN THE RIGHT OF WAY LINE AND BACK OF CURB.



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DRAWN: RKL	FILENAME:P:\WORKS\CAD\PLATES2021\P241		
REVISIONS			

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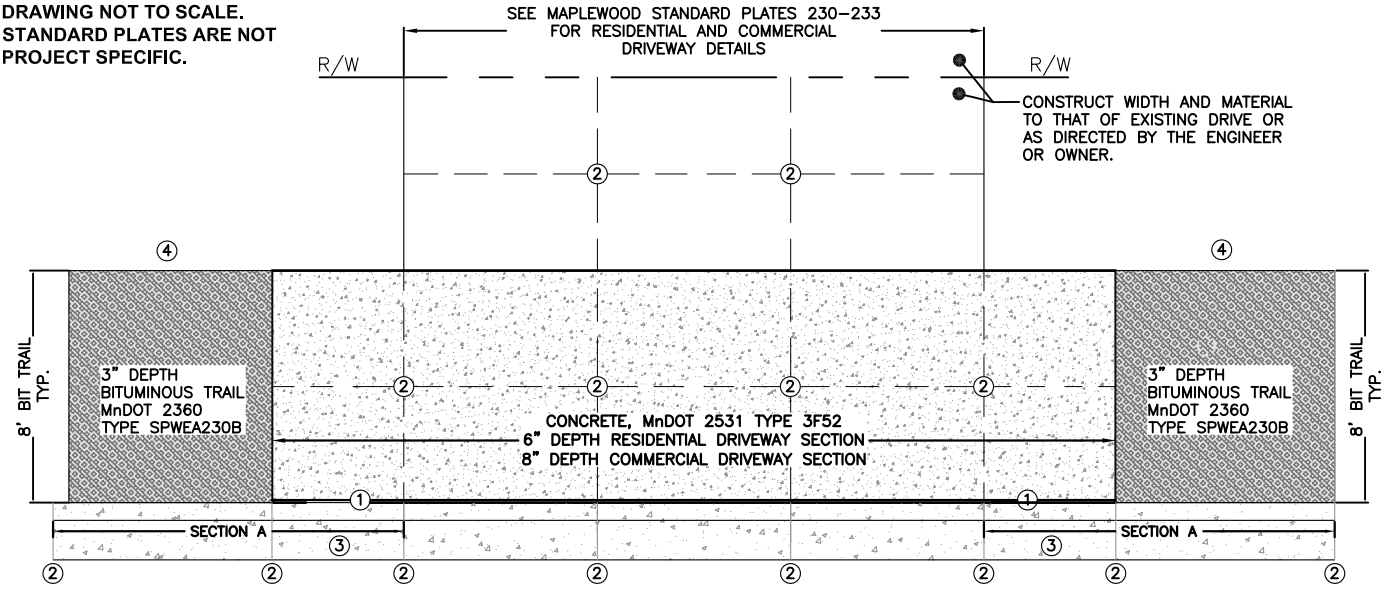
CITY OF MAPLEWOOD—ENGINEERING DEPT.

OPTIONAL RESIDENTIAL BITUMINOUS DRIVEWAY LAYOUT, STREET PROJECTS

PLATE NO. 241

DRAWING NOT TO SCALE.
STANDARD PLATES ARE NOT PROJECT SPECIFIC.



① 1/2" EXPANSION MATERIAL, MnDOT 3702 REQUIRED AT CURB & GUTTER JOINT.

② SPACING NOT TO EXCEED 1.5 X CONCRETE THICKNESS (IN FEET). MAXIMUM JOINT SPACING IS 8' FOR COMMERCIAL AND 9' FOR RESIDENTIAL.

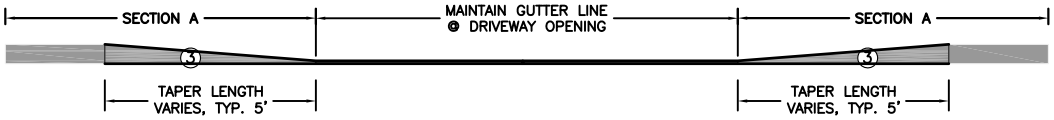
PANELS TO BE CUT AS SQUARE AS POSSIBLE.

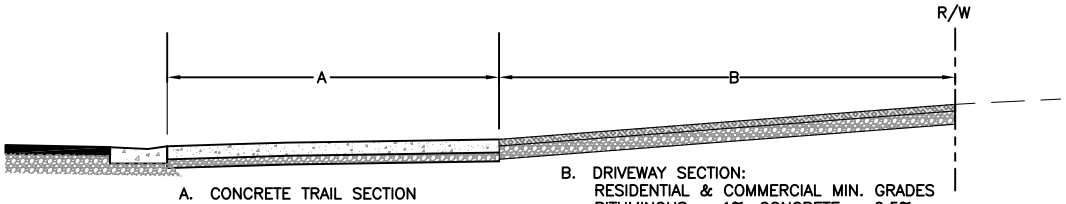
CUT JOINTS 30% OF THICKNESS.

JOINTS MAY BE DRY SAWN WITHIN 48 HOURS OR WET TOOLED AS DIRECTED.

③ CONCRETE CURB AND GUTTER TRANSITION FROM 0" TO 6" HEIGHT SHALL BE OVER 5'

④ TURF ESTABLISHMENT IS PROJECT SPECIFIC, SEE MnDOT 2575. TYPICALLY HYDRAULIC SOIL STABILIZER W/SEED, BLANKET W/SEED OR SALT TOLERANT MINERAL SOD. DEPRESS BOULEVARD 0.1' BELOW CURB HEIGHT BETWEEN CURB AND SIDEWALK.





A. CONCRETE TRAIL SECTION
6" DEPTH FOR RESIDENTIAL
8" DEPTH FOR COMMERCIAL
MAINTAIN CROSS SLOPE THROUGH DRIVEWAY
MAX SLOPE = 2.00%
MIN. SLOPE = 0.50%

B. DRIVEWAY SECTION:
RESIDENTIAL & COMMERCIAL MIN. GRADES
BITUMINOUS = 1%, CONCRETE = 0.5%
RESIDENTIAL MAX. GRADE = +13% TO −10%
COMMERCIAL MAX. GRADE = +10% TO −10%

TYPE	DRIVEWAY MATERIAL	AGGREGATE BASE
RESIDENTIAL CONCRETE DRIVEWAY	6" CONCRETE, MnDOT 2531	4" CL 6, MnDOT 3138 & 2211
COMMERCIAL CONCRETE DRIVEWAY	8" CONCRETE, MnDOT 2531	6" CL 6, MnDOT 3138 & 2211
RESIDENTIAL BITUMINOUS DRIVEWAY	3" BITUMINOUS (1 LIFT), MnDOT 2360, SPWEA230L	6" CL 6, MnDOT 3138 & 2211
COMMERCIAL BITUMINOUS DRIVEWAY	4" BITUMINOUS (2, 2" LIFTS), MnDOT 2360, SPWEA430B	8" CL 6, MnDOT 3138 & 2211

DESIGN: TMS	DATE: 8–21				
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REVISIONS					

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CITY OF MAPLEWOOD—ENGINEERING DEPT.

RESIDENTIAL/COMMERCIAL DRIVEWAY WITH ADJACENT BITUMINOUS TRAIL

PLATE NO. 242

DESIGN: MnDOT	DATE: 3–17		
DRAWN: MnDOT	FILENAME:P:\WORKS\CAD\PLATES2021\P250		
REVISIONS	3–17		

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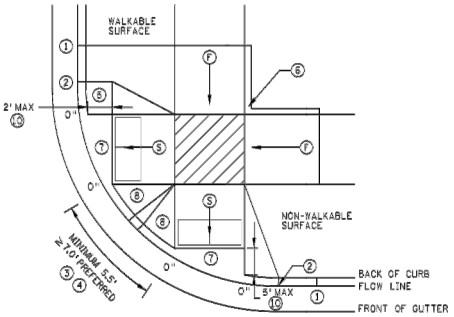
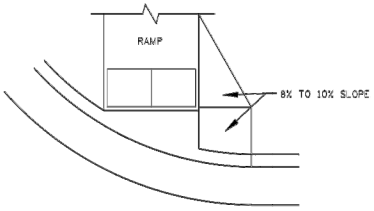
CITY OF MAPLEWOOD—ENGINEERING DEPT.

PEDESTRIAN CURB RAMP DETAILS MnDOT 1 of 6

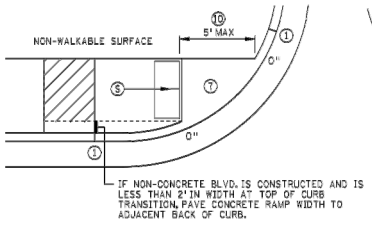
PLATE NO. 250



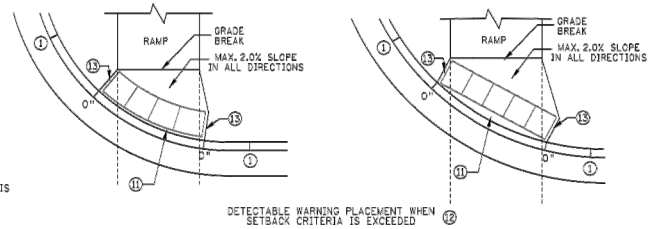
COMBINED DIRECTIONAL ⑨



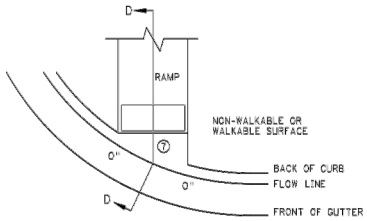
DIRECTIONAL RAMP WALKABLE FLARE

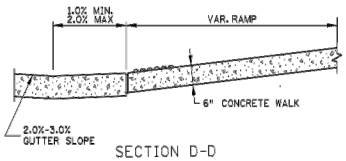


STANDARD ONE-WAY DIRECTIONAL ⑤



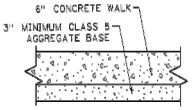
ONE-WAY DIRECTIONAL WITH DETECTABLE WARNING AT BACK OF CURB





SECTION D-D

CURB FOR DIRECTIONAL RAMPS ⑭



TYPICAL SIDEWALK SECTION WITHIN INTERSECTION CORNER

NOTES:

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

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

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

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

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

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

TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

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

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

4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MIN. OF 24" IN THE PATH OF TRAVEL. DETECTABLE WARNING TO COVER ENTIRE WIDTH OF SHARED-USE PATH AND THE ENTIRE PAR WIDTH OF THE WALK. DETECTABLE WARNING SHOULD BE 6" LESS THAN THE PAR/PATH WIDTH. ARC LENGTH OF RADIAL DETECTABLE WARNINGS SHOULD NOT BE GREATER THAN 20 FEET.

RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB. SEE NOTES ⑬ & ⑪ FOR INFORMATION REGARDING RECTANGULAR DETECTABLE WARNING PLACEMENT.

① MATCH FULL CURB HEIGHT.

② 3" HIGH CURB WHEN USING A 3' LONG RAMP
4" HIGH CURB WHEN USING A 4' LONG RAMP.

③ 3" MINIMUM CURB HEIGHT (5.5' MIN. DISTANCE REQUIRED BETWEEN DOMES)
4" PREFERRED (7' MIN. DISTANCE REQUIRED BETWEEN DOMES).

④ THE "BUMP" IN BETWEEN THE RAMPS SHOULD NOT BE IN THE PATH OF TRAVEL FOR COMBINED DIRECTIONAL RAMPS. IF THIS OCCURS MODIFY THE RAMP LOCATION OR SWITCH RAMP TO A FAN/DEPRESSED CORNER.

⑤ WHEN USING CONCRETE PAVED FLARES ON THE OUTSIDE OF DIRECTIONAL RAMPS, AND ADJACENT TO A WALKABLE SURFACE, DIRECTIONAL RAMP FLARES SHOULD BE USED. SEE THE DETAIL ON THIS SHEET.

⑥ GRADING SHALL ALWAYS BE USED WHEN FEASIBLE. V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. WHEN ADJACENT TO PARKING LOTS, CONCRETE OR BITUMINOUS TAPERS SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.

⑦ MAX. 2.0% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK AND DRAIN TO FLOW LINE. SHALL BE CONSTRUCTED INTEGRAL WITH CURB AND GUTTER.

⑧ 8% TO 10% WALKABLE FLARE.

⑨ PLACE DOMES AT THE BACK OF CURB WHEN ALLOWABLE SETBACK CRITERIA IS EXCEEDED.

⑩ FRONT EDGE OF DETECTABLE WARNING SHALL BE SET BACK 2' MAXIMUM WHEN ADJACENT TO WALKABLE SURFACE, AND 5' MAXIMUM WHEN ADJACENT TO NON-WALKABLE SURFACE WITH ONE CORNER SET 3" FROM BACK OF CURB. A WALKABLE SURFACE IS DEFINED AS A PAVED SURFACE ADJACENT TO A CURB RAMP WITHOUT RAISED OBSTACLES THAT COULD MISTAKENLY BE TRAVERSED BY A USER WHO IS VISUALLY IMPAIRED.

⑪ RECTANGULAR DETECTABLE WARNINGS MAY BE SETBACK UP TO 9" FROM THE BACK OF CURB WITH CORNERS SET 3" FROM BACK OF CURB. IF 9" SETBACK IS EXCEEDED USE RADIAL DETECTABLE WARNINGS.

⑫ FOR DIRECTIONAL RAMPS WITH THE DETECTABLE WARNINGS PLACED AT THE BACK OF CURB, THE DETECTABLE WARNINGS SHALL COVER THE ENTIRE WIDTH OF THE WALK/PATH. THIS ENSURES A DETECTABLE EDGE AND HELPS ELIMINATE THE CURB TAPER OBSTRUCTING THE PATH OF PEDESTRIAN TRAVEL.

⑬ THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE BACK OF CURB. MAINTAIN 3" BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.

⑭ TO BE USED FOR ALL DIRECTIONAL RAMPS, EXCEPT WHERE DOMES ARE PLACED ALONG THE BACK OF CURB.

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%.

LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PARS.

X" CURB HEIGHT

REVISION:
APPROVED: JANUARY 23, 2017
OPERATIONS ENGINEER

REVISED:
APPROVED: 1-23-2017
STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

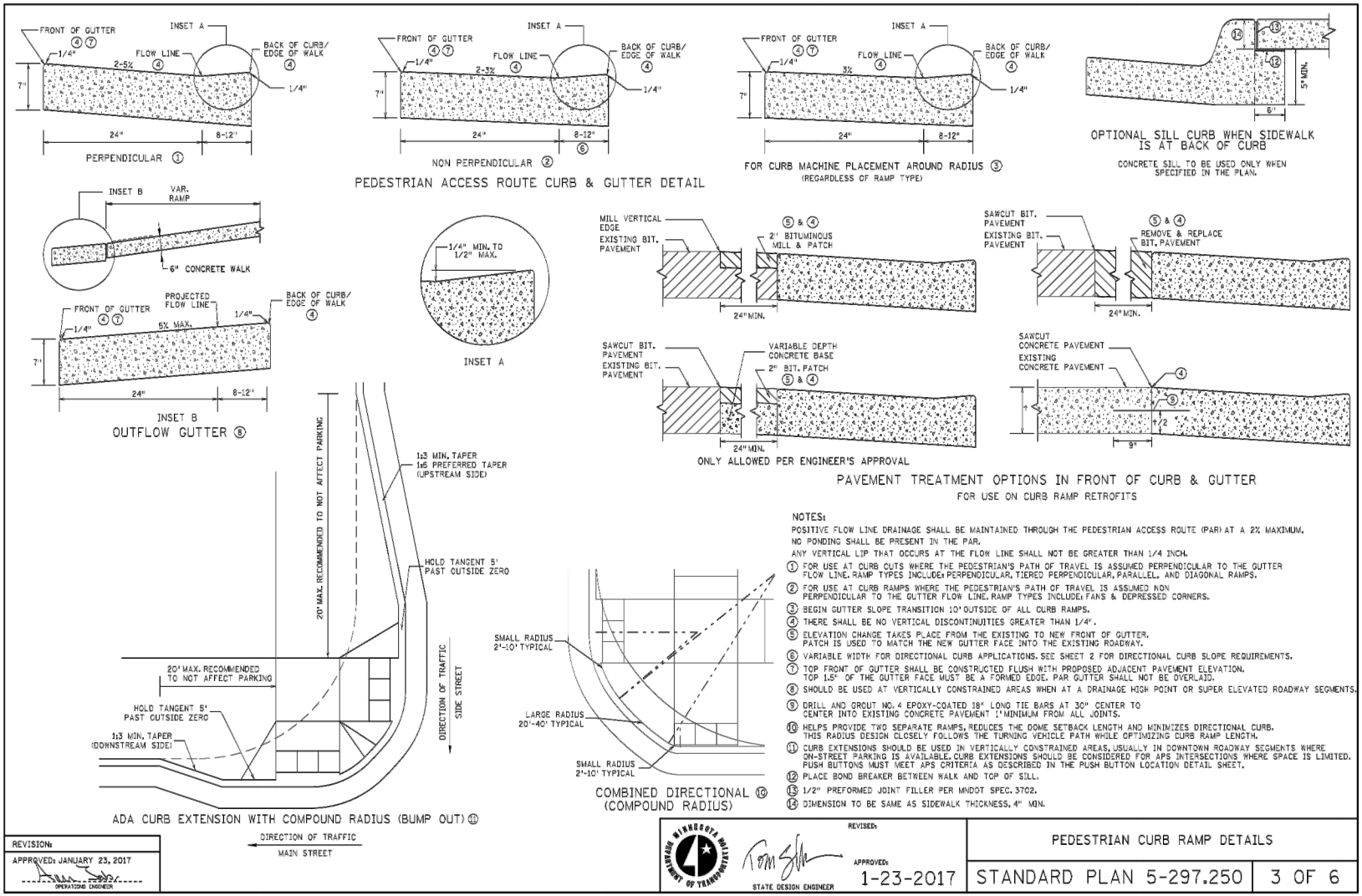
STANDARD PLAN 5-297.250 | 2 OF 6

DESIGN: MnDOT | DATE: 3-17
DRAWN: MnDOT | FILENAME: P:\WORKS\CAD\PLATES2015\P251
REVISIONS | 3-17

CITY OF MAPLEWOOD—ENGINEERING DEPT.

PEDESTRIAN CURB RAMP
DETAILS MnDOT 2 of 6

PLATE NO. 251



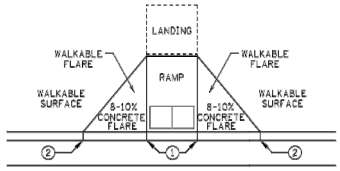
DESIGN: MnDOT | DATE: 3-17
DRAWN: MnDOT | FILENAME: P:\WORKS\CAD\PLATES2021\P252
REVISIONS 3-17

Maplewood

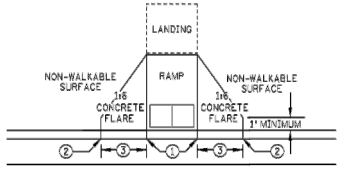
CITY OF MAPLEWOOD—ENGINEERING DEPT.

PEDESTRIAN CURB RAMP DETAILS MnDOT 3 of 6

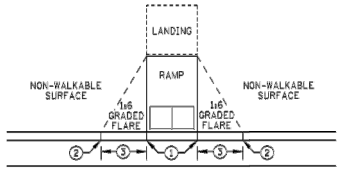
PLATE NO. 252



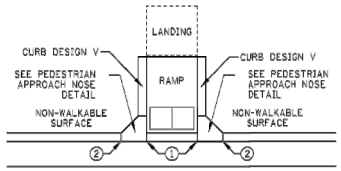
PAVED FLARES
ADJACENT TO WALKABLE SURFACE



PAVED FLARES
ADJACENT TO NON-WALKABLE SURFACE

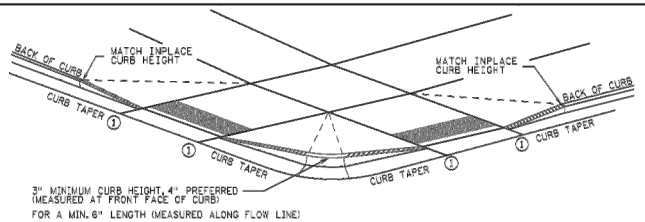


GRADED FLARES

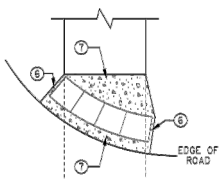


RETURNED CURB ⑤

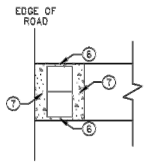
TYPICAL SIDE TREATMENT OPTIONS ④ ⑪



DETECTABLE EDGE WITH ⑧
CURB AND GUTTER

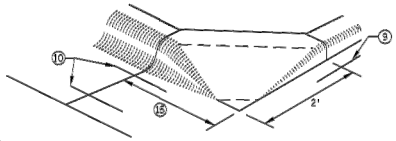


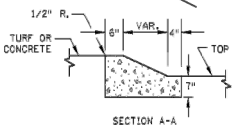
RADIAL DETECTABLE WARNING

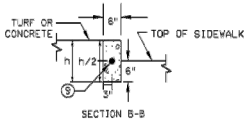


RECTANGULAR DETECTABLE WARNING

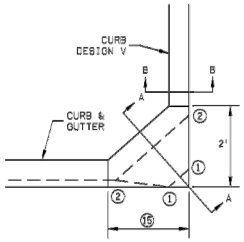
DETECTABLE EDGE WITHOUT CURB AND GUTTER

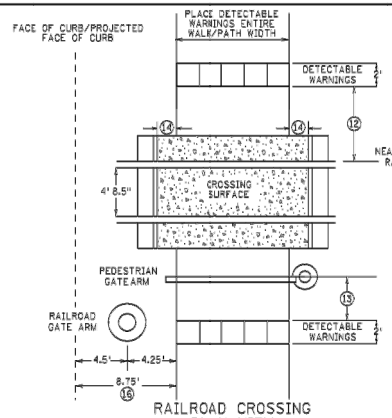






PEDESTRIAN APPROACH
NOSE DETAIL
(FOR RETURNED CURB
SIDE TREATMENT)





RAILROAD CROSSING
PLAN VIEW

NOTES:

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

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

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

① 0" CURB HEIGHT.

② FULL CURB HEIGHT.

③ 2' FOR 4" HIGH CURB AND 3' FOR 6" HIGH CURB.

④ SIDE TREATMENTS ARE APPLICABLE TO ALL RAMP TYPES AND SHOULD BE IMPLEMENTED AS NEEDED AS FIELD CONDITIONS DICTATE. THE ENGINEER SHALL DETERMINE THE RAMP SIDE TREATMENTS BASED ON MAINTENANCE OF BOTH ROADWAY AND SIDEWALK, ADJACENT PROPERTY CONSIDERATIONS, AND MITIGATING CONSTRUCTION IMPACTS.

⑤ TYPICALLY USED FOR MEDIANS AND ISLANDS.

⑥ WHEN NO CONCRETE FLARES ARE PROPOSED, THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE EDGE OF ROADWAY. MAINTAIN 3" MAX. BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.

⑦ IF NO CURB AND GUTTER IS PLACED IN RURAL SECTIONS, DETECTABLE WARNINGS SHALL BE PLACED 1' FROM THE EDGE OF BITUMINOUS ROADWAY AND/OR BITUMINOUS SHARED-USE PATH TO PROVIDE VISUAL CONTRAST.

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.

⑨ DRILL AND GROUT 1 - NO. 4 12" LONG REINFORCEMENT BAR (EPOXY COATED) WITH 3" MIN. COVER. REINFORCEMENT BARS ARE NOT NEEDED IF THE APPROACH NOSE IS POURED INTEGRAL WITH THE V CURB.

⑩ DRILL AND GROUT 2 - NO. 4 12" LONG REINFORCEMENT BARS (EPOXY COATED) WITH 3" MIN. COVER. REINFORCEMENT BARS ARE NOT NEEDED IF THE APPROACH NOSE IS POURED INTEGRAL WITH THE CURB AND GUTTER.

⑪ SIDE TREATMENT EXAMPLES SHOWN ARE WHEN THE INITIAL LANDING IS APPROXIMATELY LEVEL WITH THE FULL HEIGHT CURB (I.E. 6' LONG RAMP FOR 6" HIGH CURB). WHEN THE INITIAL LANDING IS MORE THAN 1" BELOW FULL HEIGHT CURB REFER TO SHEETS 1 & 2 TO MODIFY THE CURB HEIGHT TAPERS AND MAINTAIN POSITIVE BOULEVARD DRAINAGE.

⑫ 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.

⑬ WHEN PEDESTRIAN GATES ARE PROVIDED, DETECTABLE WARNING SURFACES SHALL BE PLACED ON THE SIDE OF THE GATES OPPOSITE THE RAIL, 2' FROM THE APPROACHING SIDE OF THE GATE ARM. THIS CRITERIA GOVERNS OVER NOTE ⑫.

⑭ CROSSING SURFACE SHALL EXTEND 2' MINIMUM PAST THE OUTSIDE EDGE OF WALK OR SHARED-USE PATH.

⑮ 3' FOR MEDIANS AND SPLITTER ISLANDS. NOSE CAN BE REDUCED TO 2' ON FREE RIGHT ISLANDS.

⑯ SIDEWALK TO BE PLACED 8.75' MIN. FROM THE FACE OF CURB/PROJECTED FACE OF CURB. THIS ENSURES MIN. CLEARANCE BETWEEN THE SIDEWALK AND GATE ARM COUNTERWEIGHT SUPPORTS.

REVISION:
APPROVED: JANUARY 23, 2017
OPERATIONS ENGINEER

REVISED:
APPROVED: 1-23-2017
STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5-297.250 | 4 OF 6

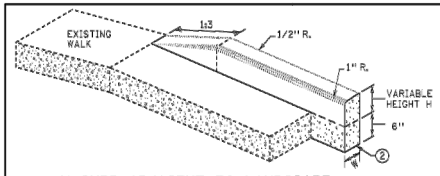
DESIGN: MnDOT | DATE: 3-17
DRAWN: MnDOT | FILENAME:P:\WORKS\CAD\PLATES2021\P253
REVISIONS 3-17

Maplewood

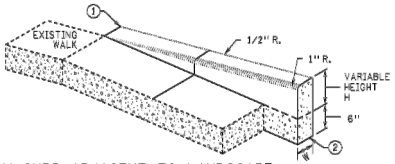
CITY OF MAPLEWOOD—ENGINEERING DEPT.

PEDESTRIAN CURB RAMP
DETAILS MnDOT 4 of 6

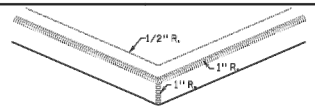
PLATE NO. 253



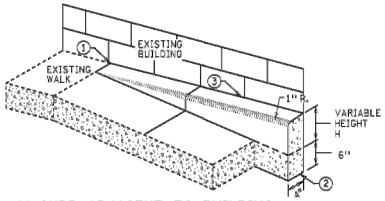
V CURB ADJACENT TO LANDSCAPE
CURB WITHIN SIDEWALK LIMITS



V CURB ADJACENT TO LANDSCAPE
CURB OUTSIDE SIDEWALK LIMITS

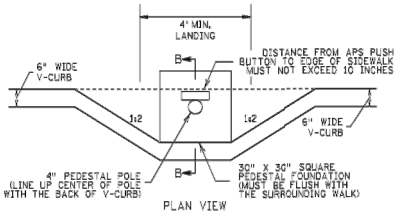


V CURB INTERSECTION

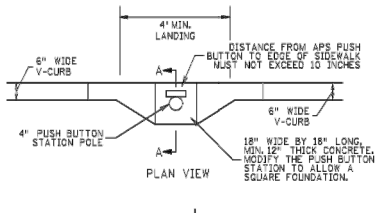


V CURB ADJACENT TO BUILDING OR BARRIER

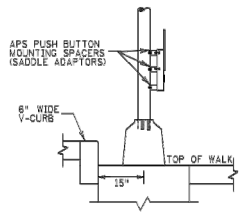
CONCRETE CURB DESIGN V	
CURB HEIGHT H	CURB WIDTH W
< 6"	4"
≥ 6"	6"



PLAN VIEW

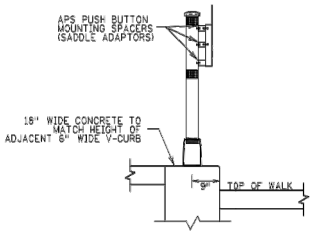


PLAN VIEW



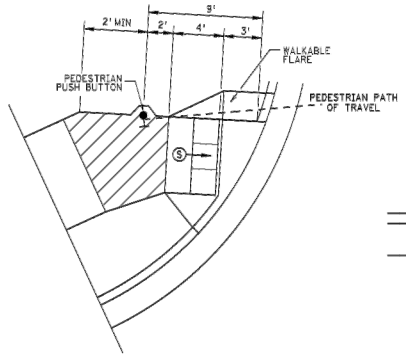
SECTION B-B

SIGNAL PEDESTAL & PUSH BUTTON (V-CURB)



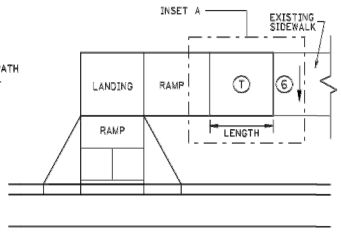
SECTION A-A

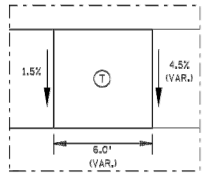
PUSH BUTTON STATION (V-CURB)



SEMI-DIRECTIONAL RAMP (3,4,9)
3' DOME SETBACK, 4' LONG RAMP AND PUSH BUTTON 9' FROM THE BACK OF CURB

PRIMARILY USED FOR APS APPLICATIONS WHERE THE PAR DOES NOT CONTINUE PAST THE PUSH BUTTON (DEAD-END SIDEWALK)





TRANSITION PANEL 4 5

NOTES:

A WALKABLE FLARE IS AN 8-10% CONCRETE FLARE THAT IS REQUIRED WHEN THE FLARE IS ADJACENT TO A WALKABLE SURFACE, OR WHEN THE PEDESTRIAN PATH OF TRAVEL OF A PUSH BUTTON TRAVERSES THE FLARE.

ALL V CURB CONTRACTION JOINTS SHALL MATCH CONCRETE WALK JOINTS.

WHERE RIGHT-OF-WAY ALLOWS, USE OF V CURB SHOULD BE MINIMIZED. GRADING ADJACENT TURF OR SLOPING ADJACENT PAVEMENT IS PREFERRED.

V CURB SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS.

V CURB NEXT TO BUILDING SHALL BE A 4" WIDTH AND SHALL MATCH PREVIOUS TOP OF SIDEWALK ELEVATIONS.

1. END TAPERS AT TRANSITION SECTION SHALL MATCH INPLACE SIDEWALK GRADES.
2. ALL V CURB SHALL MATCH BOTTOM OF ADJACENT WALK.
3. 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. THE MAX. RATE OF CROSS SLOPE TRANSITIONING IS 1' LINEAR FOOT OF SIDEWALK PER HALF PERCENT CROSS SLOPE. WHEN PAR WIDTH IS GREATER THAN 6' OR THE RUNNING SLOPE IS GREATER THAN 5%, DOUBLE THE CALCULATED TRANSITION LENGTH.
5. TRANSITION PANELS ARE TO ONLY BE USED AFTER THE RAMP, OR IF NEEDED, LANDING ARE AT THE FULL CURB HEIGHT (TYPICAL SECTION).
6. EXISTING CROSS SLOPE GREATER THAN 2.0%.

LEGEND

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

- (5) INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.
- LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PARS.
- (T) TRANSITION PANEL(S) - TO BE USED FOR TRANSITIONING THE CROSS-SLOPE OF A RAMP TO THE EXISTING WALK CROSS-SLOPE. RATE OF TRANSITION SHOULD BE 0.5% PER 1 LINEAR FOOT OF WALK. SEE THIS SHEET FOR ADDITIONAL INFORMATION.

REVISIONS:
APPROVED: JANUARY 23, 2017
OPERATIONS ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION
REVISED:
APPROVED: 1-23-2017
STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5-297.250 | 5 OF 6

DESIGN: MnDOT | DATE: 3-17
DRAWN: MnDOT | FILENAME:P:\WORKS\CAD\PLATES2021\P254
REVISIONS 3-17

Maplewood

CITY OF MAPLEWOOD—ENGINEERING DEPT.

PEDESTRIAN CURB RAMP
DETAILS MnDOT 5 of 6

PLATE NO. 254

DESIGN: MnDOT	DATE: 3–17		
DRAWN: MnDOT	FILENAME:P:\WORKS\CAD\PLATES2021\P255		
REVISIONS	3–17		

Maplewood

CITY OF MAPLEWOOD—ENGINEERING DEPT.

PEDESTRIAN CURB RAMP DETAILS MnDOT 6 of 6

PLATE NO. 255

REVISED: 8/5/16

MnDOT ADA Standards

"All designs need to be ADA compliant and follow the ADA Preferred Designs unless all alternatives have been explored and the ***results have been documented*** *. While ADA compliance is the minimum standard that must be met, in order to meet the long term objectives, all designs must also be constructible, maintainable, and address the range of pedestrian user needs.* ***The ADA Preferred Designs*** *were created to implement best practices and incorporate lessons learned into a manner that provides construction tolerances and meets the long term maintenance and usability needs."*

REASON(S) FOR PREFERRED
{C} = CONSTRUCTION
{M} = MAINTENANCE
{U} = USABILITY

Design to the nearest minimum half foot increment, one foot increment (preferred) for all ADA and APS Applications.

CURB RAMP DESIGN CRITERIA

ITEM		MIN	MAX	PREFERRED	REASON	GUIDANCE
LANDING		4' X 4'	VARIES	5' X 5'	C & U	MATCH PAR's, enlarge landings to achieve perpendicular grade breaks, landings should be designed in one continous plane
RAMP SLOPE	(F)	2.0%	5.0%	4.0%	C, M & U	(1) Maintains drainage in gutter (2) Blend in better with surrounding terrain (3) Reduce removal limits while minimizing v-curb *The min. radius allowed for the grade break between the landing and ramp of a Fan ramp is 7'
	(S)	5.0%	8.3%	7.0%		
	FAN	2.0%	8.3%	4.0%		
ONCE YOU HAVE REACHED THE 3" MIN CURB HEIGHT, THE CURB HEIGHT SHOULD MATCH PAR HEIGHT. SHOW INTERMEDIATE CURB HEIGHTS WHEN (1) LANDING ELEVATIONS ARE LESS THAN THE TYPICAL CURB SECTION OR (2) BLVD's ARE LESS THAN 3 FEET AT THE CURB RAMP OR (3) WHEN SIDEWALK IS AT BACK OF CURB.					M & U	Avoid inverse sloped boulevards and keep landing above gutter line to reduce trip hazards. Utilizing an appropriate ramp slope helps maintain the PAR height and provides a very usable pedestrian network, in addition to the guidance seen above
RAMP WIDTH		4'	VARIES	6' APS/COMMERCIAL AREAS MATCH TRAIL WIDTH	M & U	Match PAR's
RAMP LENGTH		3'	15'	4' MIN 6' MAX	C & U	Construction can build a minimum 2.5' ramp if necessary
LANDING & RAMP CROSS SLOPE		POSITIVE FLOW	2.0%	1.0% MIN 1.5% MAX	C	Steep trails and side landings use 0.5% cross slope.
FLOWLINE		POSITIVE FLOW	2.0%	1.0% MIN 1.5% MAX	C	Maintain positive drainage, flowline with radial domes show have a continous grade, show tabling of curb and gutter if existing flow line is over 3%. If 2-3% provide contractor friendly term to obtain <2% with note on plan
ROADWAY CROSS SLOPE		POSITIVE FLOW	5.0%	1.0% MIN 5.0% MAX	C & U	Used when adjusting flow lines, maintain positive drainage to edge of road and don't exceed 5%
When inverse grades are present minimize the elevation of the PAR, unless proven necessary to maintain drainage.						
Grading or concrete/bit patch is always preferred over V-curb when needed to match surrounding property elevations. Talk with owners to see which treatment they would prefer.						
Avoid introducing a bump in between ramps when it's in line with the direction of ped travel. This typically happens when ramp separation is minimal on a combined directional and either no or narrow boulevard is present. In these certain instances a Fan ramp or Depressed Corner will alleviate this problem and provide better maintainability and usability.						
Flowlines need a 3" minimum freeboard to doorways. (3" below threshold) 4" min. for all other cases. (I.E depressed corners must not be used when adjacent to corner doorways at buildings.)						

DESIGN: MnDOT | DATE: 3-17
DRAWN: MnDOT | FILENAME:P:\WORKS\CAD\PLATES2021\P256
REVISIONS 3-17

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CITY OF MAPLEWOOD—ENGINEERING DEPT.

MnDOT ADA STANDARDS

MnDOT 1 of 3

PLATE NO. 256

REVISED: 8/5/16

APS DESIGN CRITERIA

ITEM	MIN	MAX	PREFERRED	REASON	GUIDANCE
Push Button Station Setback	1.5'	10'	4' MIN URBAN, 6-8' MIN RURAL, 9.5' MAX	M	Push Button setback from the back of curb (urban) or edge of roadway (rural)
Push Button from grade break or back of walk	0.75'	-	2' MIN	U	6' MAR trumps this preferred criteria
Maintenance Access Route (MAR)	6'	-	-	M & U	Move push button to back of landing when 6' MAR cannot be achieved. Talk with local agencies to understand their snow and ice maintenance requirement widths
Push Button offset from outside edge of crosswalk	0'	5'	-	U	When the push button is offset from the edge of crosswalk a walkable flare is preferred over a graded flare so users who depart from the push button will traverse a concrete surface.
Push Button Separation	10'	-	10.5 MIN	C	Must meet MIN. MAR criteria at Porkchops
Keep all Pushbuttons outside of sidewalk PAR's. PB's shall not be in the middle of shared use paths.					Allowable PB encroachment: 2' on 10' trails and 1' on 8' trails.
When sidewalk is at the back of curb, the push button should be toward the back of walk. Typ. 8'-9.5' from the back of curb.					
When installing new signal poles it's preferred to get them out of the way as to not obstruct the pedestrian facilities. When in congested quadrants (i.e. downtown corridors) or rural quadrants that have much flexibility, APS push buttons on signal poles are preferred.					
When a sidewalk dead-ends (i.e. on freeway ramps where the PAR doesn't continue down the freeway ramp) a semi-directional ramp is preferred over a perpendicular ramp since the perpendicular ramp acts more like a diagonal ramp directing peds into the intersection. The directionality is governed by the APS Criteria, so a **3'** dome setback, **4'** long ramp and **9'** PB setback is the Max semi-directional ramp that can be constructed **(3,4,9).**					

SIDEWALK DESIGN CRITERIA

ITEM	MIN	MAX	PREFERRED	REASON	GUIDANCE
LANDING	5' X 5'	VARIES	-	C & U	MATCH PAR's, enlarge landings to achieve perpendicular grade breaks
ONCE YOU HAVE REACHED THE 3" MIN CURB HEIGHT, THE CURB HEIGHT SHOULD MATCH PAR HEIGHT. SHOW INTERMEDIATE CURB HEIGHTS WHEN (1) PAR ELEVATIONS ARE LESS THAN THE TYPICAL CURB SECTION OR (2) WHEN SIDEWALK IS AT BACK OF CURB.				-	When inverse grades are present, minimize the elevation of the PAR, unless needed to maintain drainage.
SIDEWALK CROSS SLOPE	POSITIVE FLOW	2.0%	1.5% MAX 1.0% MIN	C	For steep sidewalk running slopes greater than 5%, flatter cross-slopes should be used 0.5% typical.
FLOWLINE	POSITIVE FLOW	2.0%	1.5% MAX 1.0% MIN	C	Maintain positive drainage, show tabling of curb and gutter if existing flow line is over 3%. If 2-3% provide contractor friendly term to obtain <2% with note on plan.
SIDEWALK RUNNING SLOPE	2.0%	5.0%	4.0%	C, M & U	For sidewalk running slopes, the max. running slope is 5% (unless roadway grade is steeper). When sidewalk running slope is greater than 5% a landing is needed for every 30" of vertical rise with compliant handrails on both sides.
SIDEWALK RAMP SLOPE	5.0%	8.3%	7.0%		
SIDEWALK OFFSET AND TAPER	-	-	-	M & U	Maximum offset is 1/2 the width of the ramp. On Curb ramp retro fit projects the min. sidewalk taper is 1:3 with 1:5 being preferred. However the min. taper for sidewalk reconstruction projects is 1:10.
SIDEWALK WIDTH	5'	VARIES	6' APS/COMMERCIAL AREAS MATCH TRAIL WIDTH	M & U	Talk with local agencies to understand their snow and ice maintenance requirements.

DESIGN: MnDOT
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DATE: 3-17
FILENAME:P:\WORKS\CAD\PLATES2021\P257
REVISIONS 3-17

Maplewood

CITY OF MAPLEWOOD—ENGINEERING DEPT.

MnDOT ADA STANDARDS

MnDOT 2 of 3

PLATE NO. 257

REVISED: 8/5/16

SIDEWALK DESIGN CRITERIA (Cont.)

ITEM	MIN	MAX	PREFERRED	REASON	GUIDANCE
SIDEWALK WIDTH AT BACK OF CURB	5'-6'	VARIES	7' MIN 8' PREFERRED	M & U	The sidewalk minimums of 5'-6' should only be used if there are no driveway, lighting or sign impacts present with in the sidewalk.
SIDEWALK PAVED BOULEVARD SLOPE	POSITIVE FLOW	8%	5%	M & U	Slopes greater than 8% can become tripping hazards for user traversing the curb and sloped blvd from the street. Other factors should be adjusted such as centerline road profile or flattening of the shoulder/parking lane to raise the curb line.
PAVED BOULEVARD WIDTH	2' MIN	-	1/3 BLVD. WIDTH TO 2/3 PAR WIDTH	M & U	For example a 9' sidewalk at a min. should have 6' wide par with a 3' wide blvd.
GRASS BOULEVARD WIDTH	3' MIN	-	4' FOR 4" HIGH CURB 6' FOR 6" HIGH CURB	M & U	When the blvd. is less than 3', it should be paved.
PAR WIDTH	4' MIN	VARIES	6' MIN ADJ. TO BUILDINGS 2/3 PAR MIN TO 1/3 BLVD	M & U	Par width adjacent to buildings should be 6' min. to allow for a 1' buffer to the building and doorways. The min. 2/3 PAR width to 1/3 Blvd. trumps the 6' min. criteria

DRIVEWAY DESIGN CRITERIA

ITEM	MIN	MAX	PREFERRED	REASON	GUIDANCE
APRON LENGTH	18"	-	6' FOR 6" CURB HEIGHT, 4' FOR 4" CURB HEIGHT	U	Add one foot of driveway apron length for every inch of designed curb height if ROW allows.
COMMERCIAL APRON SLOPE RESEDENTIAL APRON SLOPE	0.5%	10% 12%	8.0% MAX	U	Design adequate slope for landing height to match designed curb height, maintain PAR elevation and limit the sidewalk roller coaster effect.
PAR HEIGHT (6" C&G)	0"	6"	3" MIN, 6" DESIRABLE	M & U	Minimize sidewalk roller coaster effect. Desirable to keep PAR elevation continuous or at least in the upper half of curb height. In addition don't introduce unnecessary elevation changes into the PAR.
PAR HEIGHT (4" C&G)	0"	4"	2" MIN, 4" DESIRABLE		
CROSS SLOPE	0.5%	2.0%	1.5%	C, M & U	-
SIDEWALK RUNNING SLOPE	2.0%	5.0%	4.0%		-
SIDEWALK RAMP SLOPE	5.0%	8.3%	7.0%		Allowable only when road slope is greater than 5%
Pedestrian Access Route (PAR)	4'	VARIES	4.5' MIN	C & U	Preferred to match sidewalk/trail widths
Back of Curb Height at Driveway Apron	1"	2.5"	2" IF VERTICALLY CONSTRAINED	M & U	If the street has parking or shoulders use 1" as MAX. Curb Height. Vertically constrained curb may be used to help contain drainage when the driveway is sloping away from the roadway.
Negative driveway drainage trumps. 4" curb height is preferred when you have narrow boulevards or driveways sloping down from the roadway.					

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DATE: 3-17
FILENAME:P:\WORKS\CAD\PLATES2021\P258
REVISIONS 3-17

Maplewood

CITY OF MAPLEWOOD—ENGINEERING DEPT.

MnDOT ADA STANDARDS

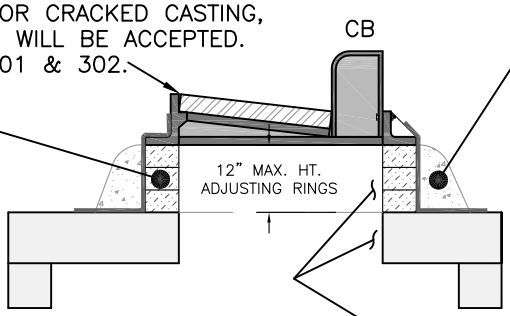
MnDOT 3 of 3

PLATE NO. 258

DRAWING NOT TO SCALE.
STANDARD PLATES ARE NOT PROJECT SPECIFIC.

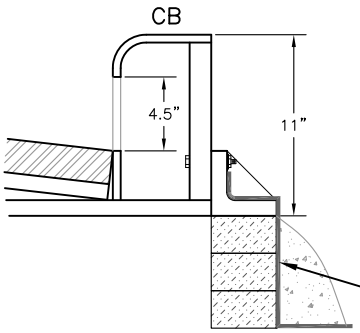
NO BROKEN OR CRACKED CASTING, OF ANY TYPE WILL BE ACCEPTED. SEE PLATE 301 & 302.

12" MAXIMUM HEIGHT ON ALL ADJUSTING RINGS. THICKER RINGS ARE ENCOURAGED TO BE USED. SEE STANDARD PLATE 300A FOR APPROVED MATERIALS.



4" CONCRETE COLLAR, USE ONLY AT CATCH BASINS IN CURB & GUTTER UNLESS DIRECTED BY THE ENGINEER.

NO CORBELLING OR HORIZONTAL OFFSET OF RINGS IS ALLOWED. CONTRACTOR TO EXPOSE OPENING OF CATCH BASIN PRIOR TO PLACING CURB & GUTTER. RINGS TO MATCH OPENING OF STRUCTURE.

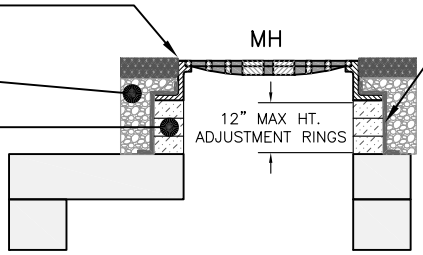


EXTERNAL NON–WOVEN FILTER FABRIC. REFER TO MANUFACTURERS SPECIFICATIONS FOR FABRIC INSTALLATION DETAIL. PLACE ON MH'S OR CATCH BASINS AS DIRECTED BY THE ENGINEER.

MANHOLE RIM ELEVATION TO BE 1/4"–1/2" BELOW PAVED SURFACE.

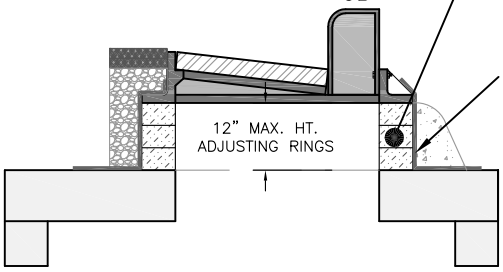
COMPACTED CLASS 6 ADJACENT TO MH RINGS UNLESS DIRECTED BY ENGINEER.

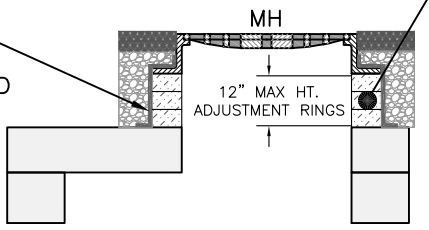
CONSTRUCTION OF ALL APPROVED ADJUSTMENT RINGS FOR MANHOLES TO BE CONSISTENT w/CATCH BASINS AS SHOWN ON THIS DETAIL. SEE STANDARD PLATE 300A.



INSTALL U.V. RESISTANT HDPE ADJUSTMENT RINGS. FOLLOW MANUFACTURERS GUIDELINES w/APPROVED ADHESIVE SEALANT OR BUTYL. DO NOT USE TUBED CAULK. NO CONCRETE COLLAR. SEE PLATE 300A.

INSTALL EXTERNAL NON–WOVEN FILTER FABRIC AS DIRECTED w/HDPE RINGS.





EXISTING DAMAGED, OR UNLEVEL TOP CONCRETE SLABS MAY REQUIRE MORTAR (MnDOT 3107) FOR LEVELING. USE CEMENTITIOUS GROUT FOR REPAIRING BROKEN PIECES OF TOP SLAB, SECTION, OR CONE.

DESIGN: TMS		DATE: 3–95		
DRAWN: RKL		FILENAME:P:\WORKS\CAD\PLATES2021\P300		
REVISIONS	3–97	3–02	3–06	
2–08	12–16	1–17	4–21	

Maplewood

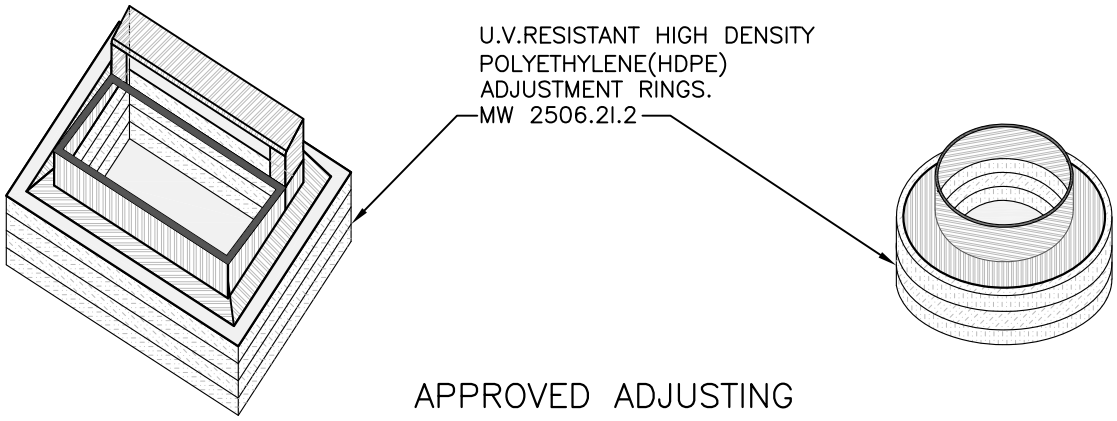
CITY OF MAPLEWOOD–ENGINEERING DEPT.

FRAME PLACEMENT DETAILS

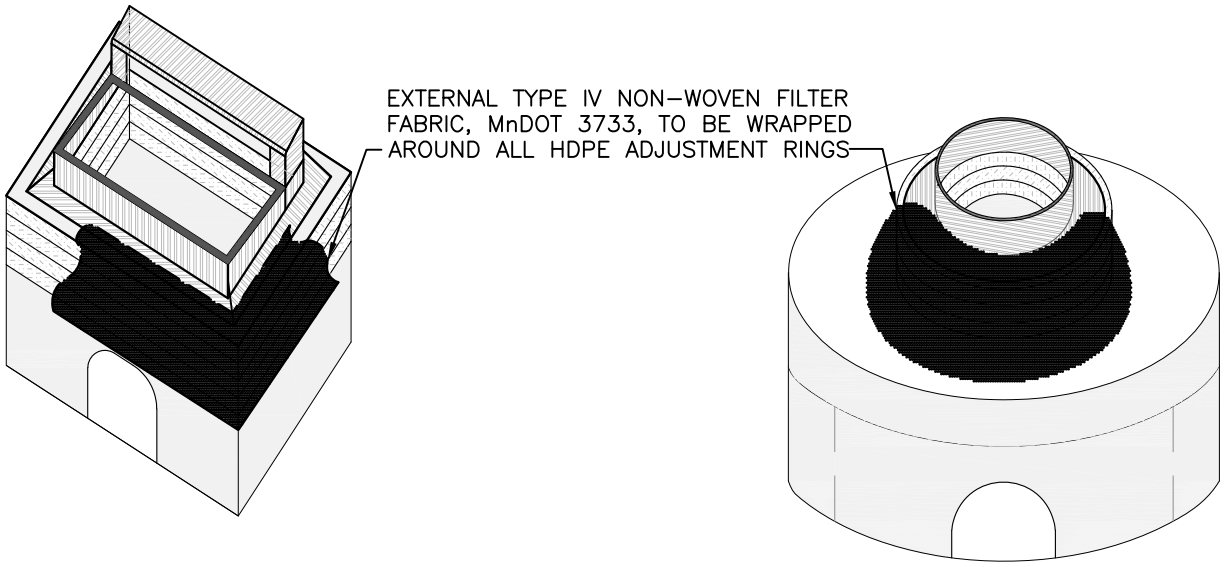
PLATE NO. 300

RECTANGULAR 2'x3' HDPE RINGS
2"–4" THICK.
SLOPE RINGS TO BE USED AS
NEEDED TO MATCH FINISH GRADE.

ROUND 24" & 27" HDPE RINGS
2"–4" THICK.
SLOPE RINGS TO BE USED AS
NEEDED TO MATCH FINISH GRADE.



APPROVED ADJUSTING MATERIALS



NOTES:

SIZE VARIES FOR ALL ADJUSTING RINGS (MATCH STRUCTURE OPENING SIZE) USE THICKER RINGS WHEN POSSIBLE.
NO DAMAGED RINGS OF ANY TYPE OR SIZE CAN BE USED.

CORBELLING OR HORIZONTAL OFFSET OF RINGS IS NOT ALLOWED.
CONTRACTOR TO EXPOSE OPENING OF CATCH BASIN PRIOR TO PLACING CURB & GUTTER.

REFER TO MANUFACTURER SPECIFICATION FOR RING ASSEMBLY AND GLUE REQUIREMENTS.

SHIMS ARE NOT ALLOWED UNLESS APPROVED BY RING MANUFACTURER.

SEE PLATE 300 FOR FRAME PLACEMENT DETAILS.

**DRAWING NOT TO SCALE.
STANDARD PLATES ARE
NOT PROJECT SPECIFIC.**

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REVISIONS	12–16	1–17	4–21	

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CITY OF MAPLEWOOD–ENGINEERING DEPT.

FRAME PLACEMENT MATERIALS

PLATE NO. 300A

DRAWING NOT TO SCALE.
STANDARD PLATES ARE NOT PROJECT SPECIFIC.

STANDARD ADJUSTMENT PROCEDURE
SEE PLATES 300–303, 306, AND 400
FOR STANDARD ADJUSTMENT PROCEDURE

NO BROKEN OR CRACKED CASTING, OF ANY TYPE WILL BE ACCEPTED. SEE PLATE 301 & 302.

2'X3' CASTING

WHEN ADJUSTMENT HEIGHT EXCEEDS 15", FOR 2'x3' OPENINGS USE 12" CONCRETE RINGS IN ADDITION TO HDPE ADJUSTMENT RINGS. THICKER HDPE RINGS ARE ENCOURAGED TO MINIMIZE JOINTS.

HT. EXCEEDING 15" ADJUSTING RINGS

NON–SHRINK GROUT:
CORP OF ENGINEERS CRD–C–621
ASTM C1107 GRADE
A–PREHARDENING.
VOLUME ADJUSTING.
USE FOR ALL CONCRETE REPAIR AND MORTAR WORK. (TYP.)

4" CONCRETE COLLAR, USE ONLY AT CATCH BASINS IN CURB & GUTTER UNLESS DIRECTED BY THE ENGINEER. (TYP.)

NO CORBELLING OR HORIZONTAL OFFSET OF RINGS IS ALLOWED. CONTRACTOR TO EXPOSE OPENING OF CATCH BASIN PRIOR TO PLACING CURB & GUTTER. RINGS TO MATCH OPENING OF STRUCTURE. (TYP.)

6" MIN. (TYP.)

27" ROUND CB CASTING

PLACE 6" MIN. THICK CONCRETE BEHIND CASTING, USE ONLY AT ROUND STYLE CATCH BASINS IN CURB & GUTTER UNLESS DIRECTED BY THE ENGINEER. (TYP.)

WHEN ADJUSTMENT HEIGHT EXCEEDS 15", FOR ROUND OPENINGS USE (1) 12" CONCRETE RING IN ADDITION TO HDPE ADJUSTMENT RINGS. THICKER HDPE RINGS ARE ENCOURAGED TO MINIMIZE JOINTS.

HT. EXCEEDING 15" ADJUSTING RINGS

EXTERNAL NON–WOVEN FILTER FABRIC. REFER TO MANUFACTURERS SPECIFICATIONS FOR FABRIC INSTALLATION DETAIL. PLACE ON MH'S OR CATCH BASINS AS DIRECTED BY THE ENGINEER. (TYP.)

COMPACTED CLASS 6 ADJACENT TO MH RINGS UNLESS DIRECTED BY ENGINEER. NO CONCRETE COLLAR FOR MH'S IN THE STREET

SANITARY OR STORM MH

MANHOLE RIM ELEVATION TO BE 1/4"–1/2" BELOW PAVED SURFACE. (TYP.)

WHEN ADJUSTMENT HEIGHT EXCEEDS 15", FOR ROUND OPENINGS USE (1) 12" CONCRETE RING IN ADDITION TO HDPE ADJUSTMENT RINGS. THICKER HDPE RINGS ARE ENCOURAGED TO MINIMIZE JOINTS.

HT. EXCEEDING 15" ADJUSTING RINGS

INSTALL U.V. RESISTANT HDPE ADJUSTMENT RINGS. FOLLOW MANUFACTURERS GUIDELINES w/APPROVED ADHESIVE SEALANT OR BUTYL. DO NOT USE TUBED CAULK. PLACE APPROVED FILTER FABRIC OVER ALL RINGS AS DIRECTED. (TYP.)
SEE PLATE 300A

EXISTING DAMAGED, OR UNLEVEL TOP CONCRETE SLABS MAY REQUIRE MORTAR (MnDOT 3107) FOR LEVELING. USE CEMENTITIOUS GROUT FOR REPAIRING BROKEN PIECES OF TOP SLAB, SECTION, OR CONE.

DESIGN: TMS	DATE: 5–21				
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REVISIONS					

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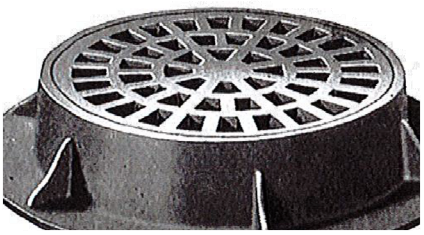
CITY OF MAPLEWOOD–ENGINEERING DEPT.

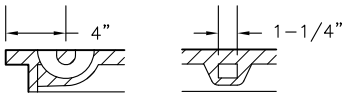
FRAME PLACEMENT SPECIAL DETAIL

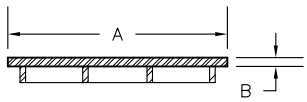
PLATE NO. 300B

PAVED AREA
RADIAL–SURFACE DRAIN

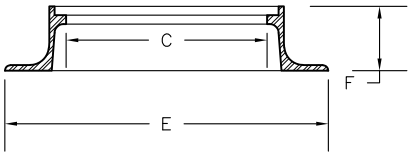


CONCEALED PICKHOLE



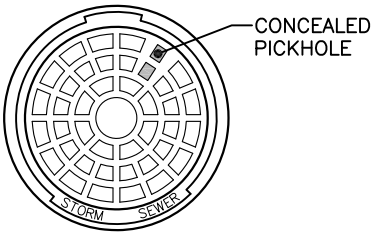


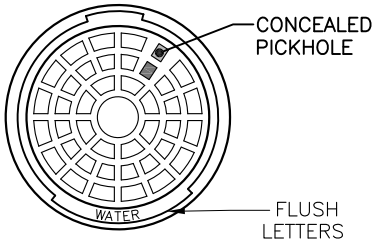
LID



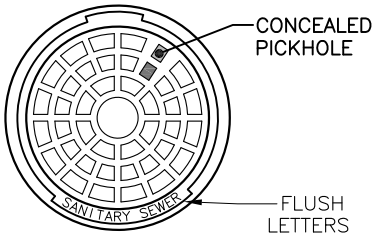
FRAME

STORM SEWER SOLID LID





WATER SOLID LID



SANITARY SOLID LID

NOTES:

MANHOLE FRAME AND LID TO BE INSTALLED TO 1/4"–1/2" BELOW FINISHED SURFACE OF PAVEMENT PRIOR TO PAVING.

LABEL "SANITARY", "WATER", OR "STORM" AS REQUIRED. ALL WATER, SANITARY SEWER AND STORM SEWER SOLID LIDS SHALL HAVE CONCEALED PICKHOLES.

SURFACE DRAIN STORM LIDS SHALL BE TYPE C RADIAL GRATES AT LOW POINTS OR AS DIRECTED BY THE ENGINEER.

FOR SURFACE INLET CASTINGS IN LOW MAINTENANCE AREAS SEE STANDARD PLATE 307. FOR CATCH BASIN CASTINGS WITHIN THE STREET SECTION SEE MAPLEWOOD STANDARD PLATE 302 & 306.

LOW PROFILE(4") CASTINGS USE SAME MODEL NUMBER WITH LOW PROFILE CALL OUT. AS APPROVED BY ENG.

	NEENAH FOUNDRY		DEETER FOUNDRY		EAST JORDAN FOUNDRY	
SANITARY SEWER SOLID LID	FRAME	LID	FRAME	LID	FRAME	LID
	R–1678–A	TYPE B SOLID	1255 TYPE C	SOLID	1775	SOLID
	A = 23 3/4"	B = 1"	A = 23 3/4"	B = 1"	A = 23 3/4"	B = 1"
	C = 21 3/4"	F = 7"	C = 22 1/8"	F = 6"	C = 21 13/16"	F = 7"
	E = 35"		E = 32"		E = 35'	
	LABEL "SANITARY SEWER"		LABEL "SANITARY SEWER"		LABEL "SANITARY SEWER"	
	w/CONCEALED PICK HOLE		w/CONCEALED PICK HOLE		w/CONCEALED PICK HOLE	
WATER SOLID LID	FRAME	LID	FRAME	LID	FRAME	LID
	R–1678–A	TYPE B SOLID	1255 TYPE C	SOLID	1775	SOLID
	A = 23 3/4"	B = 1"	A = 23 3/4"	B = 1"	A = 23 3/4"	B = 1"
	C = 21 3/4"	F = 7"	C = 22 1/8"	F = 6"	C = 21 13/16"	F = 7"
	E = 35"		E = 32"		E = 35"	
	LABEL "WATER"		LABEL "WATER"		LABEL "WATER"	
	w/CONCEALED PICK HOLE		w/CONCEALED PICK HOLE		w/CONCEALED PICK HOLE	
STORM SEWER SOLID LID	FRAME	LID	FRAME	LID	FRAME	LID
	R–1678–A	TYPE B SOLID	1255 TYPE C	SOLID	1775	SOLID
	A = 23 3/4"	B = 1"	A = 23 3/4"	B = 1"	A = 23 3/4"	B = 1"
	C = 21 3/4"	F = 7"	C = 22 1/8"	F = 6"	C = 21 13/16"	F = 7"
	E = 35"		E = 32"		E = 35'	
	LABEL "STORM SEWER"		LABEL "STORM SEWER"		LABEL "STORM SEWER"	
	w/CONCEALED PICK HOLE		w/CONCEALED PICK HOLE		w/CONCEALED PICK HOLE	
STORM SEWER RADIAL INLET GRATE	FRAME	LID	FRAME	LID	FRAME	LID
	R–1678–A	R–2422–A1	1932	FLAT INLET	1775	TYPE M1
		TYPE C GRATE	A = 23 7/8"	B = 1 1/2"		RADIAL FLAT GRATE
	A = 23 3/4"	B = 1"	C = 22 3/4"	F = 7 1/2"	A = 23 3/4"	B = 1"
	C = 21 3/4"	F = 7"	E = 35"	G = 2 1/4"	C = 21 3/4"	F = 7"
	E = 35"		NOTE: LID DOES NOT INTERCHANGE WITH FRAME #1255		E = 35"	

DESIGN: TMS	DATE: 3–95			
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REVISIONS	3/05	3/07	1/17	
4/21				

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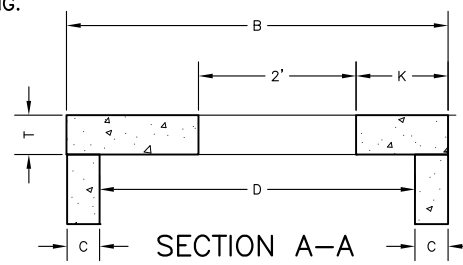
CITY OF MAPLEWOOD–ENGINEERING DEPT.

MANHOLE FRAME AND LID DETAIL

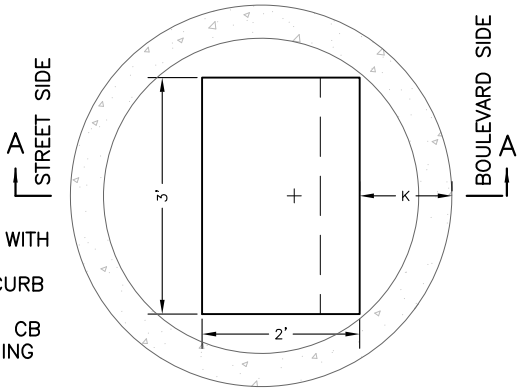
PLATE NO. 301

NOTE: HS–25 HIGHWAY LOADING(AASHTO HL93) MANHOLE TOP SLAB OF PRECAST REINFORCED CONCRETE WITH RECTANGULAR OPENING.



SECTION A–A

*–K DIMENSION VARIES WITH SUPPLIER AND SIZE OF STRUCTURE. BACK OF CURB SHOULD BE STAKED AS PART OF CONSTRUCTING CB & TOP SLAB FOR OPENING TO LINE WITH CURB.

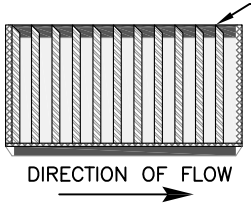


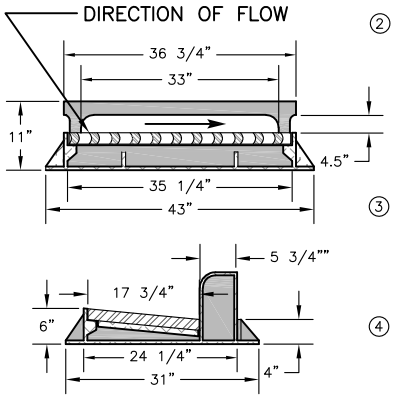
PLAN OF TOP SLAB

STRUCTURE REQUIREMENTS						
D	B	C	E	T	*K	A
48"	58"	5"	6"	6"	14"	64"
60"	72"	6"	8"	8"	15"	78"
72"	86"	7"	8"	8"	16"	92"
84"	101"	8.75"	8"	8"	17"	106"
96"	114"	9"	8"	8"	18"	120"
108"	128"	10"	12"	12"	19"	132"

PIPE & STRUCTURE SIZES TO BE DETERMINED BY THE ENGINEER.

FRAME & CASTING	NEENAH	DEETER	EAST JORDAN
CATCH BASIN	R–3067–V	2061–STYLE B VANE GRATE	7030–M4
CATCH BASIN IN DRIVEWAY	R–3290–A	2326–STYLE A	7030–M





NOTES:

① NO CORBELLING OR HORIZONTAL OFFSET OF RINGS IS ALLOWED. CONTRACTOR TO EXPOSE OPENING OF CATCH BASIN PRIOR TO PLACING CURB & GUTTER. RINGS TO MATCH OPENING OF STRUCTURE. SEE MAPLEWOOD STANDARD PLATE 300 FOR FRAME PLACEMENT, ADJUSTING RINGS & EXTERIOR FABRIC.

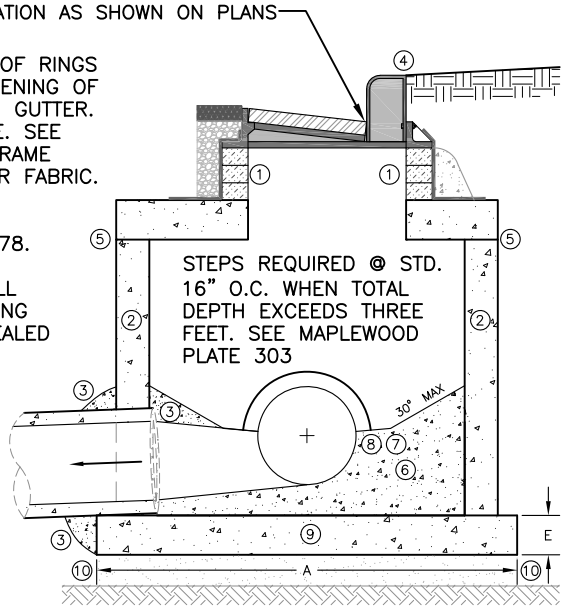
② PRECAST REINFORCED CONCRETE BARREL STRUCTURE AS CONFORMING TO ASTM C478.

JOINTS BETWEEN PRECAST SECTIONS SHALL USE O–RING RUBBER GASKETS CONFORMING TO ASTM C443. ALL JOINTS SHALL BE SEALED WITH 6" APPROVED WRAP AS DIRECTED.

③ GROUT AROUND INSIDE AND OUTSIDE OF ALL PIPE CONNECTIONS TO MH, MIN. 8" THICKNESS (DOGHOUSE AND EXTERIOR PIPE OPENING).

④ SEE MAPLEWOOD STANDARD PLATE 304 FOR CATCH BASIN CURB TRANSITION.

SEE MAPLEWOOD STANDARD PLATE 310 & 311 FOR DRAIN TILE CONNECTION.



SECTIONAL VIEW

NOTES:

⑤ TOP SLAB TO BE PLACED ON MASTIC (MnDOT 3728) BUTYL, RAM–NECK, OR APPROVED EQUAL PRODUCT. PLACE TO FULL THICKNESS OF STRUCTURE WALLS.

⑥ CONSTRUCT INVERT IN PLACE WITH MnDOT 2461 TYPE 3G52 CONCRETE OR CERTIFIED READY MIX AIR ENTRAINED MORTAR. (MW 2506.2B)

⑦ PRECAST INVERTS MAY BE CONSTRUCTED WHEN POSSIBLE. INVERTS MUST BE IN COMPLIANCE WITH REQUIREMENTS FOR SLOPE AND CLEANING. INVERT HEIGHT TO BE CONSTRUCTED TO SPRING LINE OF INLET AND OUTLET PIPES.

⑧ TAPER INVERT TO BE CENTERED UNDER MID–OPENING OF CASTING FOR CLEANING FROM ABOVE. CONSTRUCT SIDE SLOPE OF INVERT TO DRAIN. MAX. 30 DEGREES, MIN. 2 DEGREES.

NOTES:

STORM PIPE TO EXTEND INTO MH MIN. 2" – MAX. 6". SAW–CUTTING WILL BE REQUIRED FOR PARTIAL PIPE LENGTHS.

⑨ INSTALL PRECAST REINFORCED CONCRETE BASE. REBAR PER MANUFACTURER'S GUIDELINES ON THICKNESS AND DIAMETER OF BASE. PLACE MASTIC (MnDOT 3728), BUTYL, RAM–NECK OR APPROVED EQUAL BETWEEN FIRST BARREL SECTION AND BASE.

⑩ MECHANICALLY COMPACT 4" GRANULAR MATERIAL FOR LEVELING (MnDOT 3149.2F) (ORDINARY COMPACTION)

DESIGN: TMS	DATE: 3–95			
DRAWN: RKL	FILENAME:P:\WORKS\CAD\PLATES2021\P302			
REVISIONS	3–97	3–02	3–04	
3–06	3–07	2–08	1–17	4–21

Maplewood

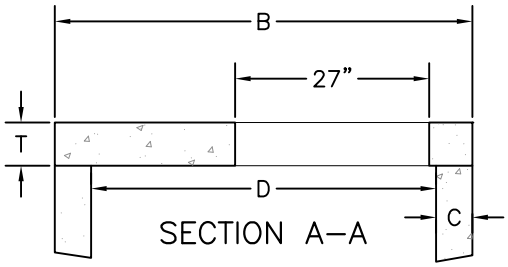
CITY OF MAPLEWOOD–ENGINEERING DEPT.

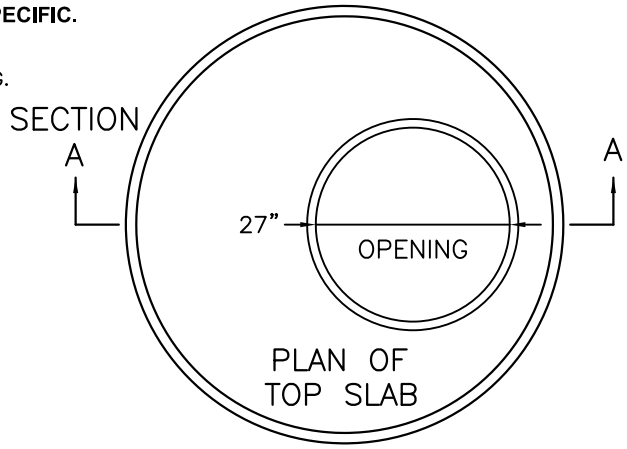
STORM SEWER CATCH BASIN

PLATE NO. 302

DRAWING NOT TO SCALE. STANDARD PLATES ARE NOT PROJECT SPECIFIC.

NOTE: HS–25 HIGHWAY LOADING(AASHTO HL93) MANHOLE TOP SLAB OF PRECAST REINFORCED CONCRETE WITH ROUND OPENING.

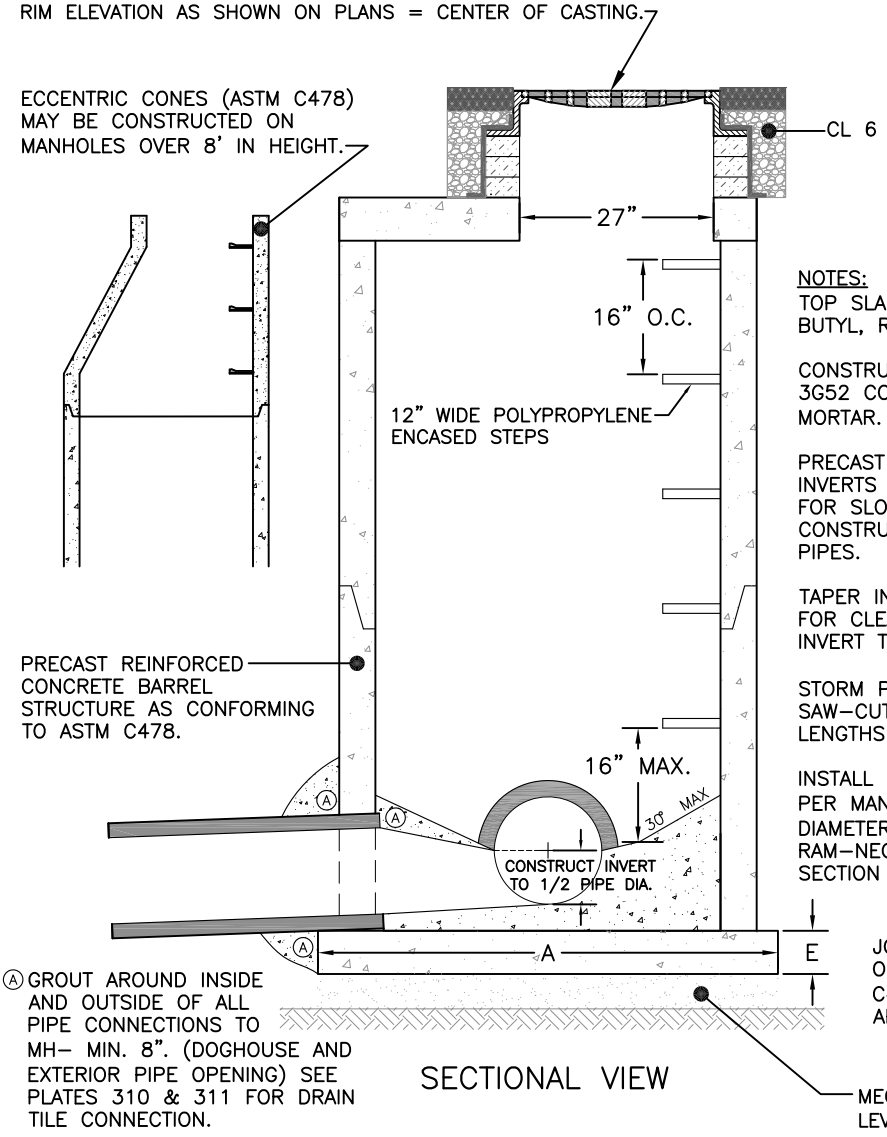




SET RIM 1/4" – 1/2" BELOW FINISHED SURFACE. SEE PLATE 300 & 300A FOR FRAME PLACEMENT, CASTING AND ADJUSTMENT RINGS.
RIM ELEVATION AS SHOWN ON PLANS = CENTER OF CASTING.

PIPE & STRUCTURE SIZES TO BE DETERMINED BY THE ENGINEER.

STRUCTURE REQUIREMENTS						
D	B	C	E	T	*K	A
48"	58"	5"	6"	6"	14"	64"
60"	72"	6"	8"	8"	15"	78"
72"	86"	7"	8"	8"	16"	92"
84"	101"	8.75"	8"	8"	17"	106"
96"	114"	9"	8"	8"	18"	120"
108"	128"	10"	12"	12"	19"	132"



NOTES:

TOP SLAB TO BE PLACED ON MASTIC (MnDOT 3728) BUTYL, RAM–NECK, OR APPROVED EQUAL PRODUCT.

CONSTRUCT INVERT IN PLACE WITH MnDOT 2461 TYPE 3G52 CONCRETE OR CERTIFIED READY MIX AIR ENTRAINED MORTAR. (MW 2506.2B)

PRECAST INVERTS MAY BE CONSTRUCTED WHEN POSSIBLE. INVERTS MUST BE IN COMPLIANCE WITH REQUIREMENTS FOR SLOPE AND CLEANING. INVERT HEIGHT TO BE CONSTRUCTED TO SPRING LINE OF INLET AND OUTLET PIPES.

TAPER INVERT TO BE CENTERED UNDER OPENING OF MH FOR CLEANING FROM ABOVE. CONSTRUCT SIDE SLOPE OF INVERT TO DRAIN. MAX. 30 DEGREES, MIN. 2 DEGREES.

STORM PIPE TO EXTEND INTO MH MIN. 2" – MAX. 6". SAW–CUTTING WILL BE REQUIRED FOR PARTIAL PIPE LENGTHS.

INSTALL PRECAST REINFORCED CONCRETE BASE. REBAR PER MANUFACTURER'S GUIDELINES ON THICKNESS AND DIAMETER OF BASE. PLACE MASTIC (MnDOT 3728), BUTYL, RAM–NECK OR APPROVED EQUAL BETWEEN FIRST BARREL SECTION AND BASE.

JOINTS BETWEEN PRECAST SECTIONS SHALL USE O–RING RUBBER GASKETS CONFORMING TO ASTM C443. ALL JOINTS SHALL BE SEALED WITH 6" APPROVED WRAP AS DIRECTED.

DESIGN: TMS	DATE: 3–95			
DRAWN: RKL	FILENAME:P:\WORKS\CAD\PLATES2021\P303			
REVISIONS	3–97	3–02	3–04	
3–06	2–08	3–16	1–17	4–21

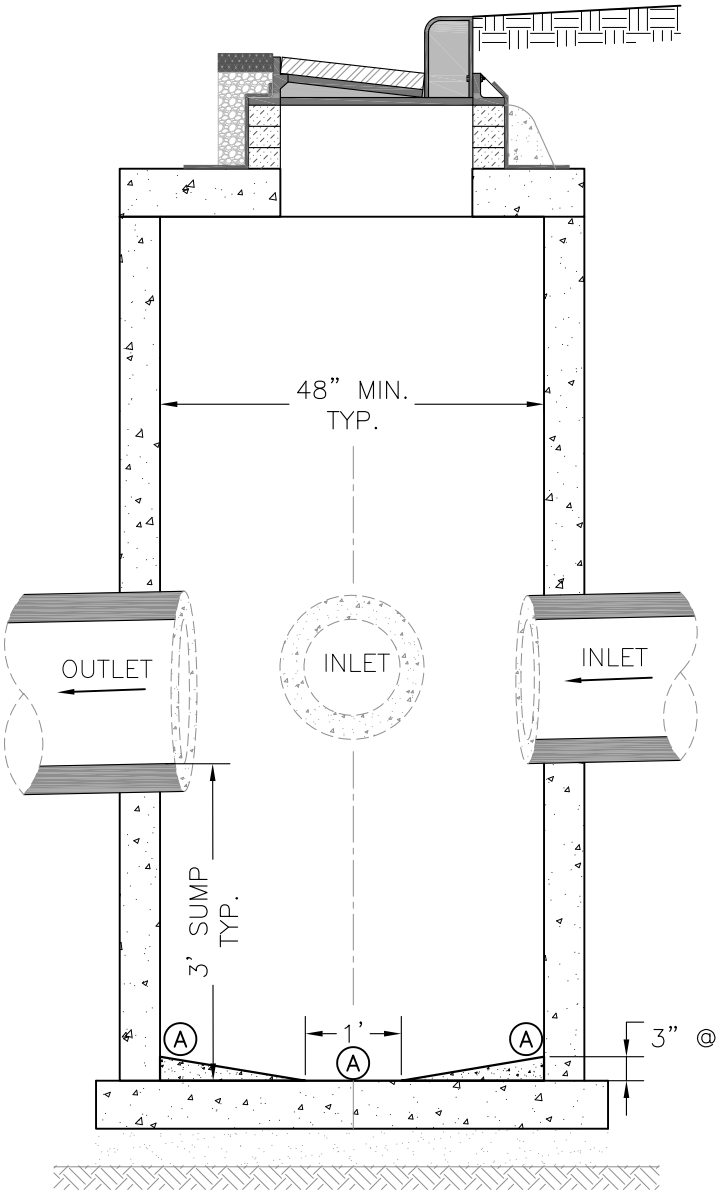
Maplewood

CITY OF MAPLEWOOD–ENGINEERING DEPT.

STORM SEWER MANHOLE

PLATE NO. 303

DRAWING NOT TO SCALE.
STANDARD PLATES ARE NOT PROJECT SPECIFIC.



NOTES:

SUMP STRUCTURE MAY BE MANHOLE OR CATCH BASIN.

DEPTH OF SUMP TYPICAL IS 3' OR AS DIRECTED BY THE ENGINEER.

CONTRACTOR SHALL POUR INVERT IMMEDIATELY AFTER INSTALLING STRUCTURE, WHENEVER FEASIBLE. THE STRUCTURE MUST BE CLEANED OUT FOR INSPECTION PRIOR TO COMPLETION OF PROJECT.

PRECAST INVERTS MAY BE CONSTRUCTED WHEN POSSIBLE. INVERTS MUST BE IN COMPLIANCE WITH REQUIREMENTS FOR SLOPE AND CLEANING.

PROVIDE VEHICLE ACCESS FOR STANDARD VAC TRUCK TO ALLOW FOR MAINTENANCE OF SUMP MANHOLE.

ALL NOTES FOR PLATES 300–303 APPLY FOR THIS DETAIL.

(A) TAPER INVERT TO BE CENTERED UNDER MID–OPENING OF CASTING FOR CLEANING FROM ABOVE. CONSTRUCT SIDE SLOPE OF INVERT TO DRAIN.

CB/MANHOLE DIAMETER	"X" HEIGHT OF CONCRETE AT EDGE OF MANHOLE	EST. GAL. WATER PER SUMP
48"	3"	282 GAL.
54"	3.5"	356 GAL.
60"	4"	440 GAL.
66"	4.5"	532 GAL.
72"	5"	634 GAL.

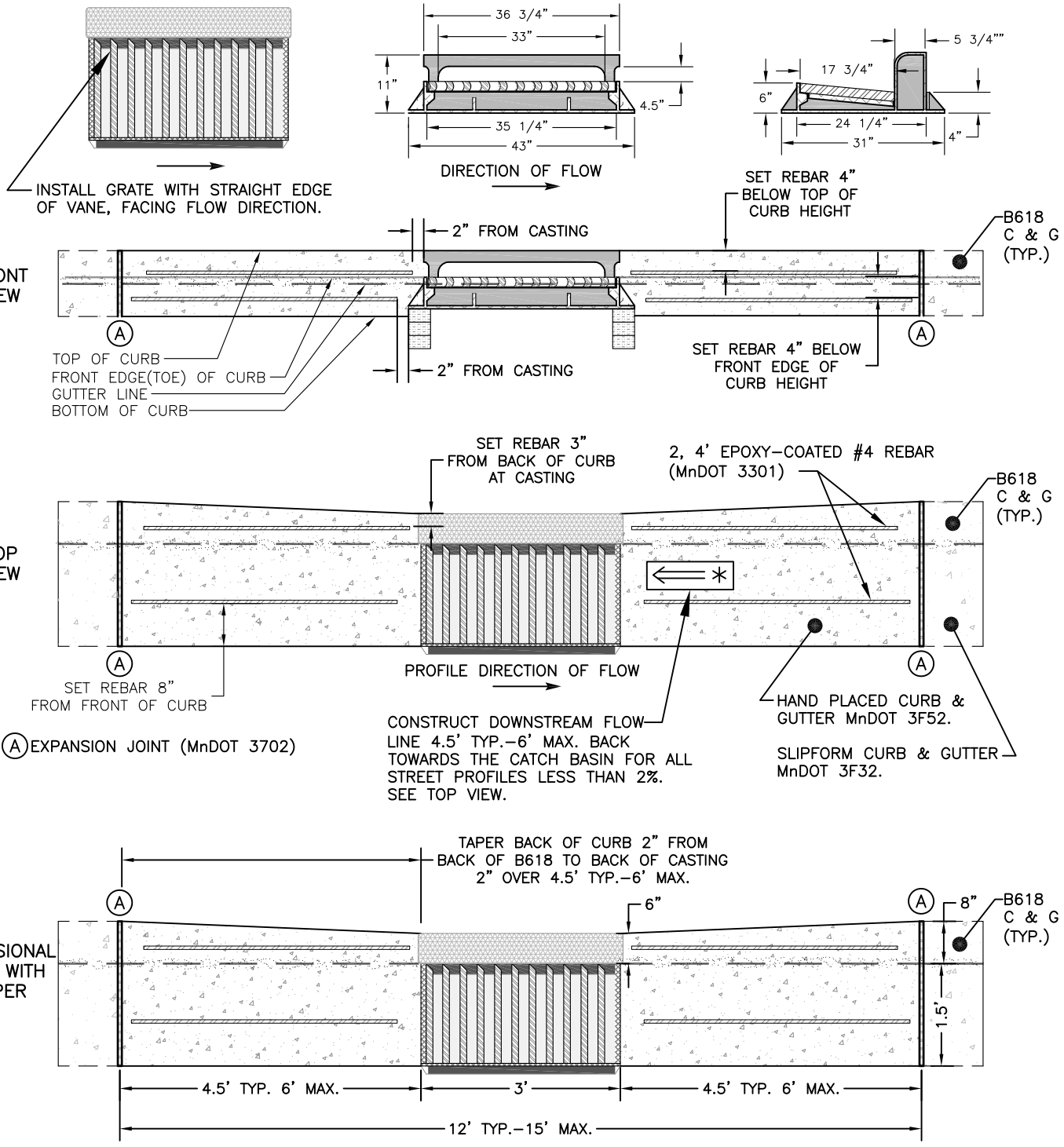
DESIGN: TMS		DATE: 3–95		
DRAWN: RKL		FILENAME:P:\WORKS\CAD\PLATES2021\P303B		
REVISIONS		3–97	3–02	3–04
3–06	2–08	1–17	4–21	

Maplewood

CITY OF MAPLEWOOD–ENGINEERING DEPT.

SUMP CATCH BASIN MANHOLE

PLATE NO. 303B



NOTES:

NO CORBELLING OR HORIZONTAL OFFSET OF RINGS IS ALLOWED. CONTRACTOR TO EXPOSE OPENING OF CATCH BASIN PRIOR TO PLACING CURB & GUTTER. RINGS TO MATCH OPENING OF STRUCTURE. SEE PLATE 300 FOR FRAME PLACEMENT AND ADJUSTING RINGS.

SUMP CASTING 0.10' AT ALL LOW POINTS.

SEE PLATE 300 FOR FRAME PLACEMENT DETAILS.

SEE PLATE 302 FOR FRAME & CASTING TYPE.

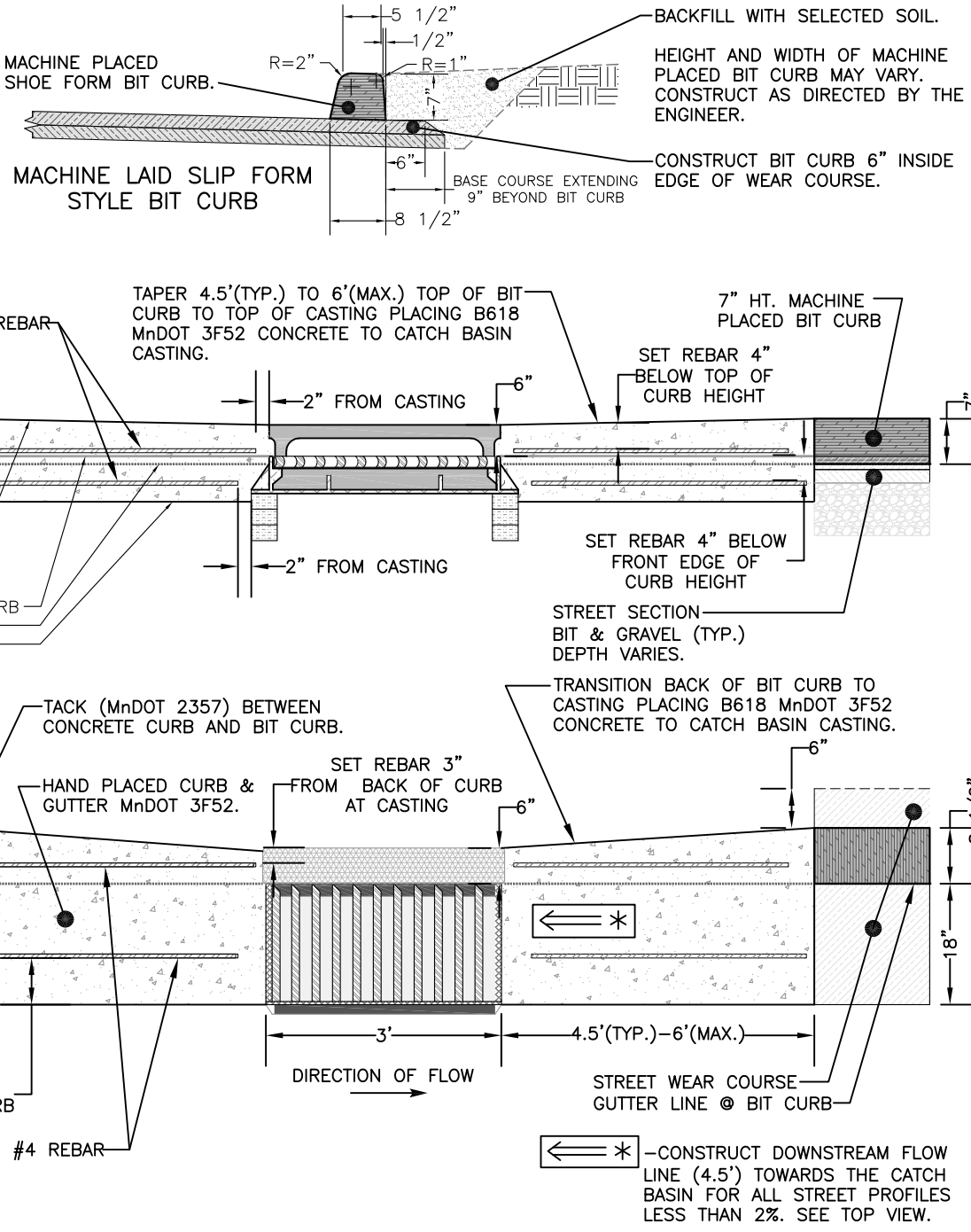
DESIGN: TMS		DATE: 3-95				
DRAWN: RKL		FILENAME:P:\WORKS\CAD\PLATES2021\P304				
REVISIONS		7-96	3-97	3-99	3-02	
3-04	3-06	1-07	2-08	1-17	6-21	

Maplewood

CITY OF MAPLEWOOD-ENGINEERING DEPT.

CATCH BASIN FRAME CURB TRANSITION, B618 C & G

PLATE NO. 304



NOTES:

NO CORBELLING OR HORIZONTAL OFFSET OF RINGS IS ALLOWED. CONTRACTOR TO EXPOSE OPENING OF CATCH BASIN PRIOR TO PLACING BIT CURB & CONCRETE COLLAR @ CATCH BASIN. RINGS TO MATCH OPENING OF STRUCTURE. SEE PLATE 300 FOR FRAME PLACEMENT AND ADJUSTING RINGS.

SUMP CASTING 0.10' AT ALL LOW POINTS.

SEE PLATE 300 FOR FRAME PLACEMENT DETAILS.

SEE PLATE 302 FOR FRAME & CASTING TYPE.

DESIGN: TMS		DATE: 3-95		
DRAWN: RKL		FILENAME:P:\WORKS\CAD\PLATES2021\P305		
REVISIONS		3-02	4-07	2-08
1-17	4-21			

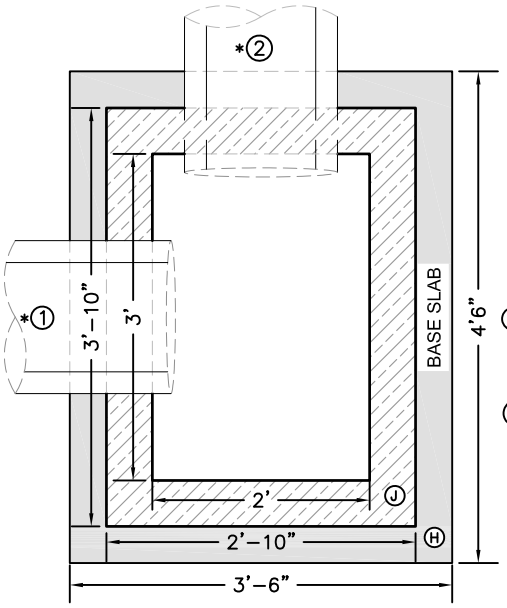
Maplewood

CITY OF MAPLEWOOD-ENGINEERING DEPT.

CATCH BASIN FRAME CURB TRANSITION, BIT CURB

PLATE NO. 305

FRAME & CASTING	NEENAH	DEETER	EAST JORDAN
CATCH BASIN	R–3067–V	2061–STYLE B VANE GRATE	7030–M4
CATCH BASIN IN DRIVEWAY	R–3290–A	2326–STYLE A	7030–M

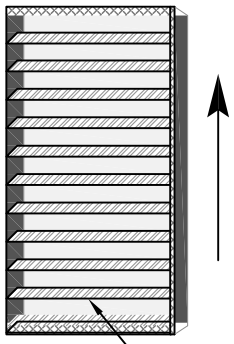


2' X 3' CATCH BASIN PLAN w/BASE SLAB

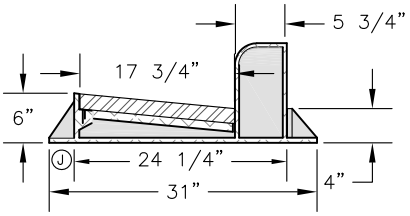
*ONLY ONE OUTLET STORM PIPE CONNECTION IS ALLOWED. PIPES SHOWN ARE FOR INFO ONLY.

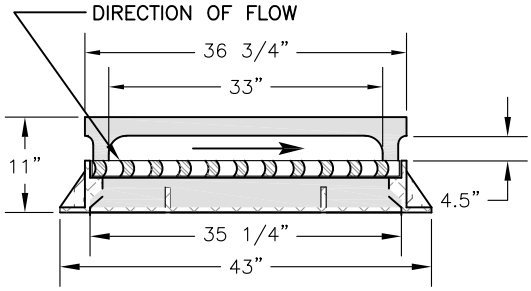
① *TYPICAL OUTLET CONNECTION (ONE ONLY), MAX PIPE SIZE 18"

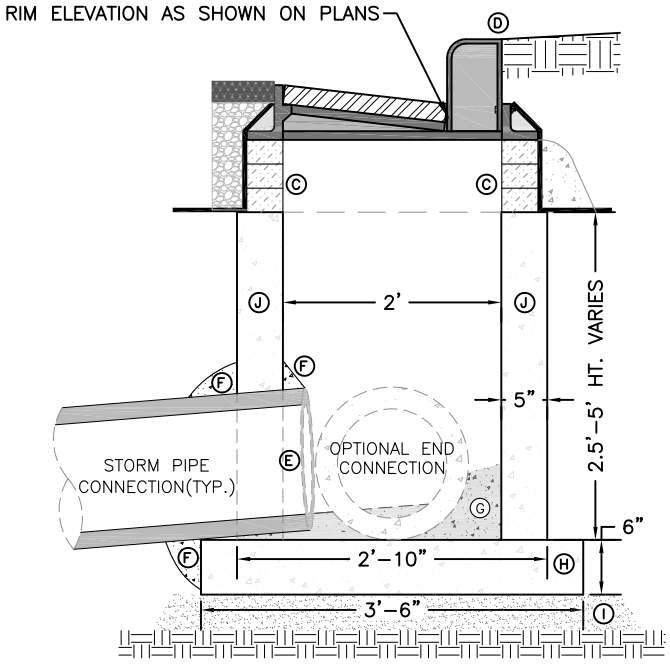
② *ALTERNATE OUTLET CONNECTION AS DETERMINED BY THE ENGINEER (ONE ONLY), MAX PIPE SIZE 15"



INSTALL GRATE WITH STRAIGHT EDGE OF VANE, FACING FLOW DIRECTION.







SECTIONAL VIEW

NOTES:

Ⓐ STEPS REQUIRED @ STD. 16" O.C. WHEN TOTAL DEPTH EXCEEDS THREE FEET.

Ⓑ SEE PLATES 310 & 311 FOR DRAIN TILE CONNECTION.

Ⓒ NO CORBELLING OR HORIZONTAL OFFSET OF RINGS IS ALLOWED. CONTRACTOR TO EXPOSE OPENING OF CATCH BASIN PRIOR TO PLACING CURB & GUTTER. RINGS TO MATCH OPENING OF STRUCTURE. SEE PLATE 300 FOR FRAME PLACEMENT, ADJUSTING RINGS & FABRIC WRAP, w/12" MAX. HT. OF ADJUSTMENT RINGS.

Ⓓ SEE PLATE 304 FOR CATCH BASIN CURB TRANSITION. JOINTS BETWEEN PRECAST SECTIONS SHALL USE O–RING RUBBER GASKETS CONFORMING TO ASTM C443. ALL JOINTS SHALL BE SEALED WITH 6" APPROVED WRAP AS DIRECTED.

Ⓔ STORM PIPE TO EXTEND INTO MH MIN. 2" – MAX. 6". SAW–CUTTING WILL BE REQUIRED FOR PARTIAL PIPE LENGTHS.

Ⓕ GROUT AROUND INSIDE AND OUTSIDE OF ALL PIPE CONNECTIONS TO MH –MIN. 8". (DOGHOUSE AND EXTERIOR PIPE OPENING)

Ⓖ CONSTRUCT INVERT IN PLACE WITH MnDOT 2461 TYPE 3G52 CONCRETE OR CERTIFIED READY MIX AIR ENTRAINED MORTAR.

Ⓗ INSTALL 6" PRECAST REINFORCED CONCRETE BASE. PLACE MASTIC (MnDOT 3728), BUTYL, RAM–NECK OR APPROVED EQUAL BETWEEN FIRST RECTANGULAR SECTION AND BASE.

Ⓘ MECHANICALLY COMPACT 4" GRANULAR MATERIAL FOR LEVELING (MnDOT 3149.2F) (ORDINARY COMPACTION)

Ⓙ PRECAST REINFORCED CONCRETE STRUCTURE AS CONFORMING TO ASTM C478.

DESIGN: TMS	DATE: 3–95			
DRAWN: RKL	FILENAME:P:/WORKS/CAD/PLATES2021/P306			
REVISIONS	3–02	3–06	2–08	
1–17	5–21			

Maplewood

CITY OF MAPLEWOOD–ENGINEERING DEPT.

CATCH BASIN 2'X3' BOX

PLATE NO. 306

NOTES:
SURFACE DRAINS TO BE CONSTRUCTED IN DITCHES, STORM BASINS, OVERFLOWS AND PONDING AREAS.

HDPE STRUCTURES MAY BE USED AT THE DISCRETION OF THE ENGINEER.

Ⓐ SURFACE DRAIN TO BE PRECAST REINFORCED CONCRETE BARREL STRUCTURE AS CONFORMING TO ASTM C478.

Ⓑ CONSTRUCT INVERT IN PLACE WITH MnDOT 2461 TYPE 3G52 CONCRETE OR CERTIFIED READY MIX AIR ENTRAINED MORTAR. PRECAST INVERTS MAY BE CONSTRUCTED WHEN POSSIBLE. INVERTS MUST BE IN COMPLIANCE WITH REQUIREMENTS FOR SLOPE AND CLEANING. INVERT HEIGHT TO BE CONSTRUCTED TO SPRING LINE OF INLET AND OUTLET PIPES. TAPER INVERT TO BE CENTERED UNDER MID-OPENING OF CASTING FOR CLEANING FROM ABOVE. CONSTRUCT SIDE SLOPE OF INVERT TO DRAIN. MAX. 30 DEGREES, MIN. 2 DEGREES.

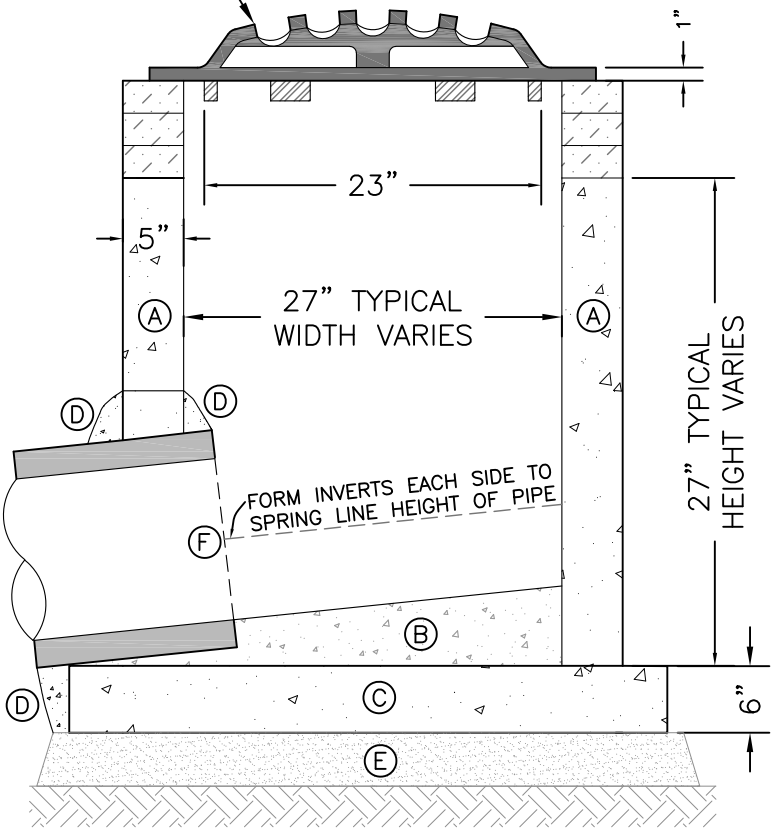
Ⓒ INSTALL PRECAST REINFORCED CONCRETE BASE. REBAR PER MANUFACTURER'S GUIDELINES ON THICKNESS AND DIAMETER OF BASE. PLACE MASTIC (MnDOT 3728), BUTYL, RAM-NECK OR APPROVED EQUAL BETWEEN FIRST BARREL SECTION AND BASE.

Ⓓ GROUT AROUND INSIDE AND OUTSIDE OF ALL PIPE CONNECTIONS TO MH, MIN. 8" THICKNESS (DOGHOUSE AND EXTERIOR PIPE OPENING)

Ⓔ MECHANICALLY COMPACT 4" GRANULAR MATERIAL FOR LEVELING (MnDOT 3149.2F) (ORDINARY COMPACTION)

Ⓕ STORM PIPE TO EXTEND INTO MH MIN. 2" – MAX. 6". SAW-CUTTING WILL BE REQUIRED FOR PARTIAL PIPE LENGTHS.

SEE STANDARD PLATE 307A FOR DIFFERENT SURFACE DRAIN CASTING OPTIONS.



DESIGN: CMC	DATE: 3-95			
DRAWN: RKL	FILENAME:P:\WORKS\CAD\PLATES2021\P307			
REVISIONS	3-02	1-17		

Maplewood

CITY OF MAPLEWOOD-ENGINEERING DEPT.

SURFACE DRAIN

PLATE NO. 307

	NEENAH FOUNDRY	DEETER FOUNDRY	EAST JORDAN FOUNDRY
STOOL INLET GRATE (HIGH FLOW)	R-4341-A		6488
STOOL INLET GRATE	R-4342	4500	6489
BEEHIVE INLET GRATE	*HEAVY DUTY: CASTING=R-2561 w/R-1733 *LIGHT DUTY: R-4353	HEAVY DUTY:1966 LIGHT DUTY: 4497 w/CASTING	1205 w/TYPE 02 LID
RADIAL INLET GRATE	R-1678-A w/R-2422-A1 LID	1932	1775 w/TYPE M1 LID

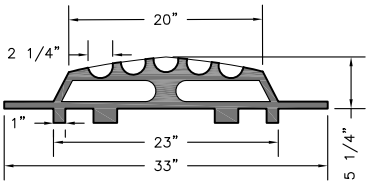
NOTES:
CASTING SIZES VARY BETWEEN MANUFACTURES. STOOL FRAMES AND BEEHIVE FRAMES WITHOUT CASTINGS MAY BE BOLTED TO STRUCTURE IF APPROVED BY ENGINEER.

SURFACE DRAINS TO BE CONSTRUCTED IN DITCHES, STORM BASINS, OVERFLOWS AND PONDING AREAS.

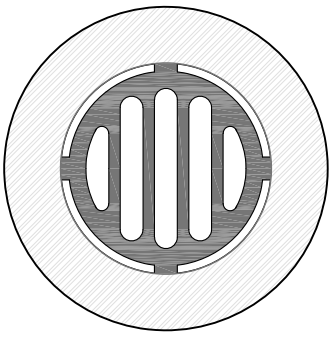
CASTING TYPE TO BE DIRECTED BY THE ENGINEER.

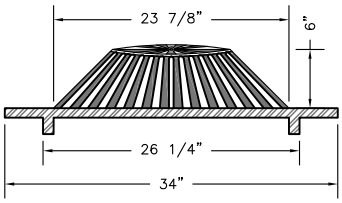
HDPE STRUCTURES MAY BE USED AT THE DISCRETION OF THE ENGINEER.

SEE PLATE 300 FOR FRAME PLACEMENT AND ADJUSTMENT RINGS.

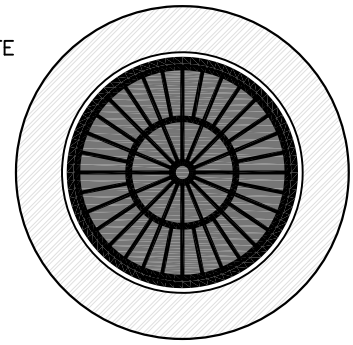


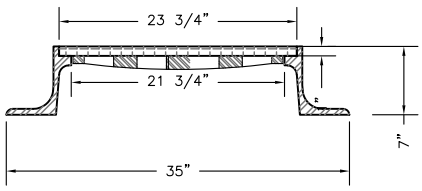
STOOL INLET GRATE



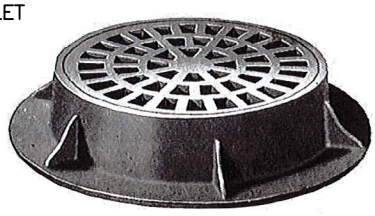


BEEHIVE INLET GRATE

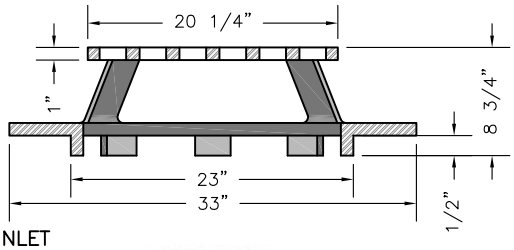




RADIAL INLET GRATE



Type C - Radial



STOOL INLET GRATE (HIGH FLOW)

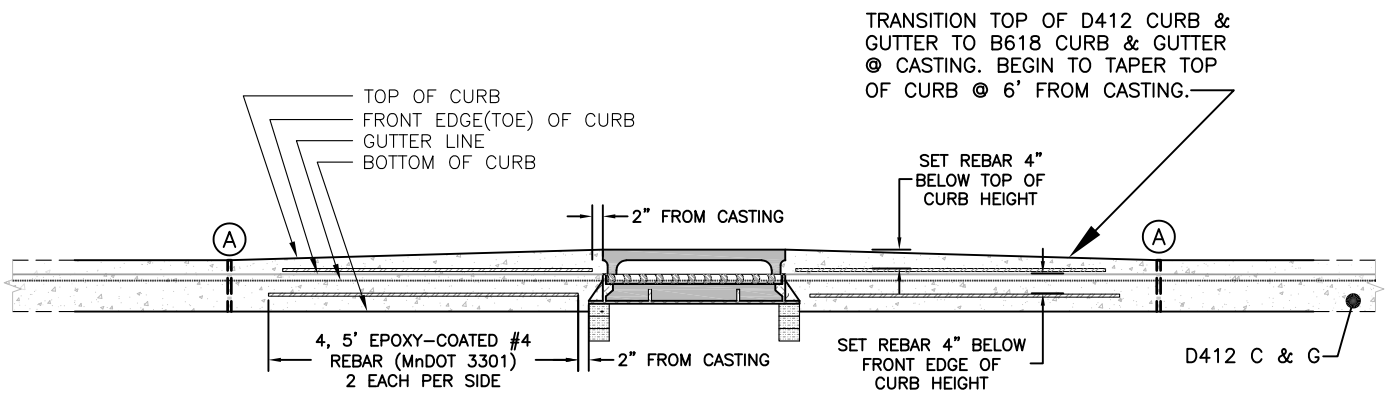
DESIGN: TMS	DATE: 3-95			
DRAWN: RKL	FILENAME:P:\WORKS\CAD\PLATES2021\P307A			
REVISIONS	3-02	1-17	5-21	

Maplewood

CITY OF MAPLEWOOD-ENGINEERING DEPT.

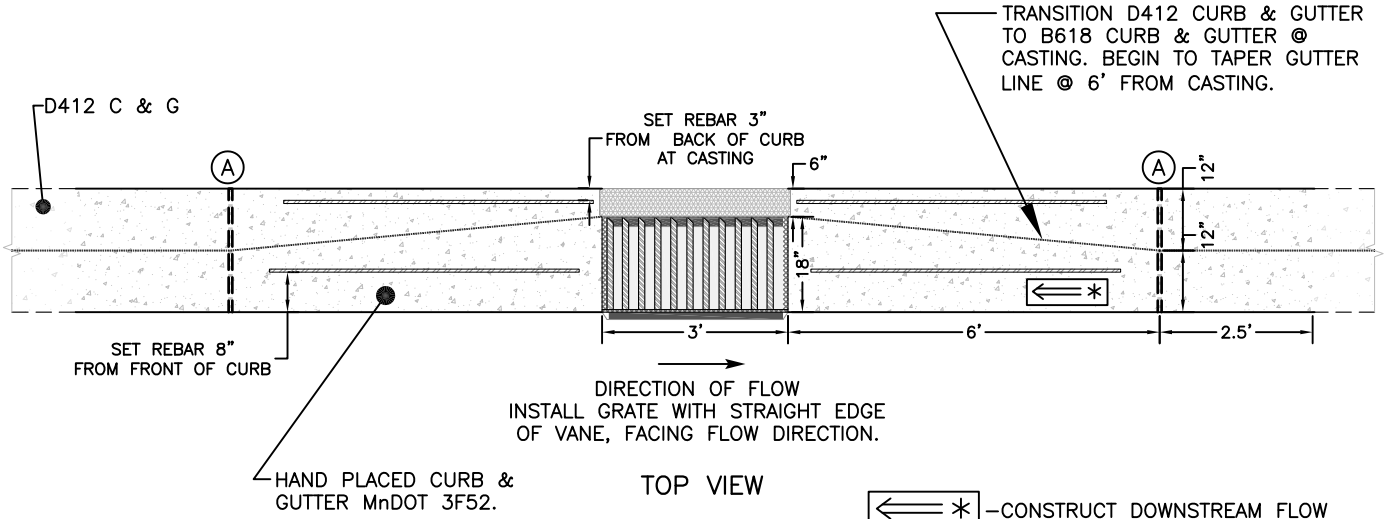
SURFACE DRAIN CASTINGS

PLATE NO. 307A



FRONT VIEW

(A) PLACE EXPANSION JOINT (MnDOT 3702) MATERIAL @ THE TRANSITION JOINT ON BOTH SIDES (TAPER BEGINS).



TOP VIEW

⟸* —CONSTRUCT DOWNSTREAM FLOW LINE (6') TOWARDS THE CATCH BASIN FOR ALL STREET PROFILES LESS THAN 2%. SEE TOP VIEW.

NO CORBELLING OR HORIZONTAL OFFSET OF RINGS IS ALLOWED. CONTRACTOR TO EXPOSE OPENING OF CATCH BASIN PRIOR TO PLACING CURB & GUTTER. RINGS TO MATCH OPENING OF STRUCTURE. SEE PLATE 300 FOR FRAME PLACEMENT AND ADJUSTING RINGS.

SUMP CASTING 0.10' AT ALL LOW POINTS.

SEE PLATE 300 FOR FRAME PLACEMENT DETAILS.

SEE PLATE 302 FOR FRAME & CASTING TYPE.

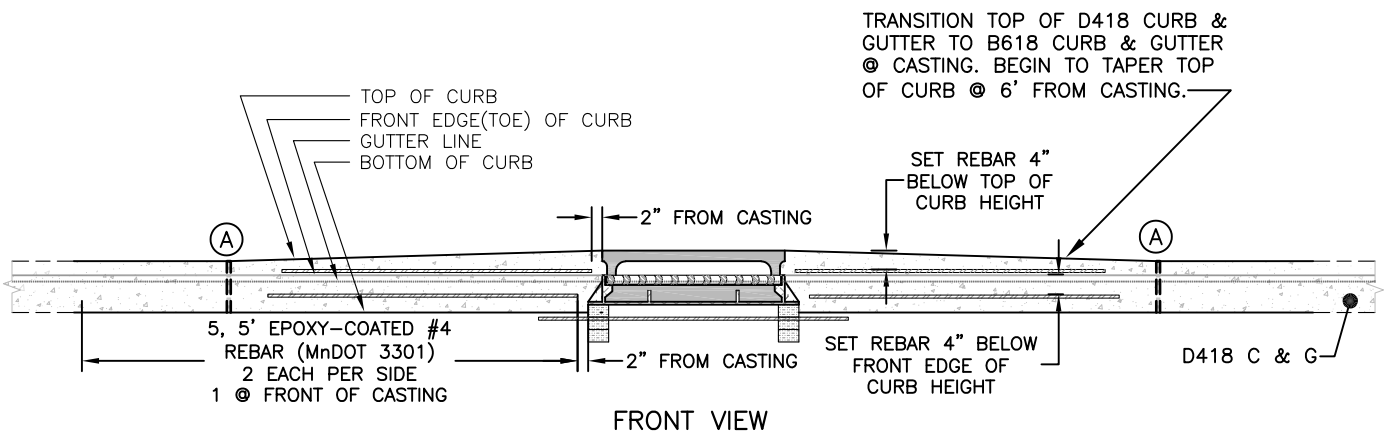
DESIGN: TMS	DATE: 3/14/97			
DRAWN: RKL	FILENAME:P:/WORKS/CAD/PLATES2021/P308			
REVISIONS	3-02	1-17	4-21	

Maplewood

CITY OF MAPLEWOOD—ENGINEERING DEPT.

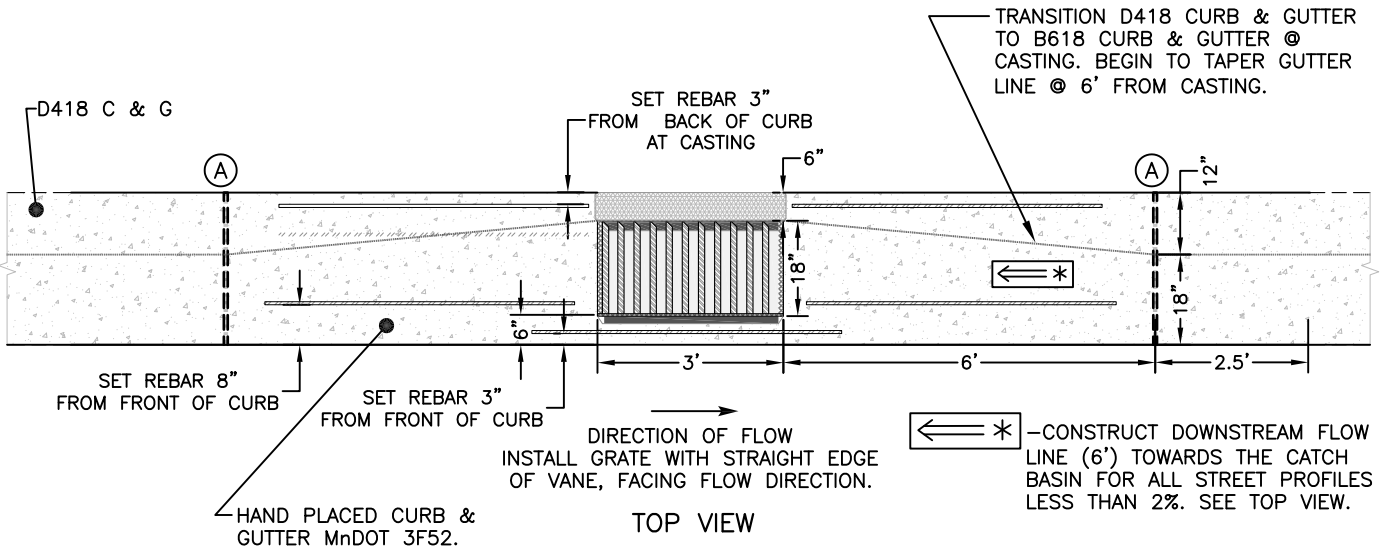
CATCH BASIN FRAME CURB TRANSITION, D412 C & G

PLATE NO. 308



FRONT VIEW

(A) PLACE EXPANSION JOINT (MnDOT 3702) MATERIAL @ THE TRANSITION JOINT ON BOTH SIDES (TAPER BEGINS).



TOP VIEW

NO CORBELLING OR HORIZONTAL OFFSET OF RINGS IS ALLOWED. CONTRACTOR TO EXPOSE OPENING OF CATCH BASIN PRIOR TO PLACING CURB & GUTTER. RINGS TO MATCH OPENING OF STRUCTURE. SEE PLATE 300 FOR FRAME PLACEMENT AND ADJUSTING RINGS.

SUMP CASTING 0.10' AT ALL LOW POINTS.

SEE PLATE 300 FOR FRAME PLACEMENT DETAILS.

SEE PLATE 302 FOR FRAME & CASTING TYPE.

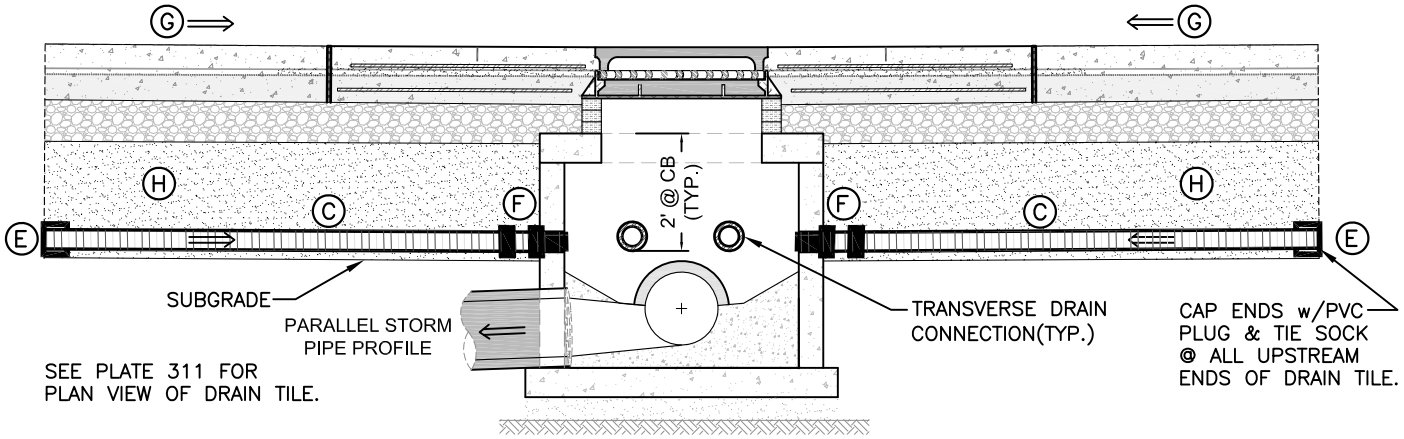
DESIGN: TMS		DATE: 3/14/95		
DRAWN: RKL		FILENAME:P:/WORKS/CAD/PLATES2021/P309		
REVISIONS	3-02	3-04	4-07	
1-17	4-21			

Maplewood

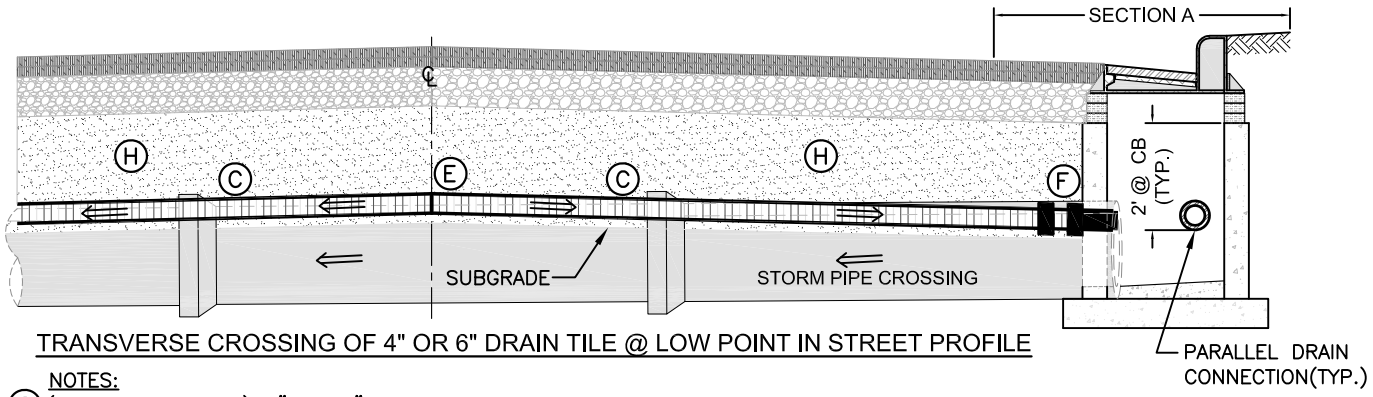
CITY OF MAPLEWOOD-ENGINEERING DEPT.

CATCH BASIN FRAME CURB TRANSITION, D418 C & G

PLATE NO. 309



4" OR 6" DRAIN TILE UNDER CURB & GUTTER @ LOW POINT IN STREET PROFILE



TRANSVERSE CROSSING OF 4" OR 6" DRAIN TILE @ LOW POINT IN STREET PROFILE

NOTES:

Ⓒ (MnDOT 2502.2 A2) 4" OR 6" DIA. HDPE PERFORATED CORRUGATED DRAINAGE PIPE MEETING MnDOT 3278 SPEC. WRAPPED WITH MnDOT 3733 TYPE 1 GEO–TEXTILE SOCK.

Ⓓ PLACE DRAIN TILE 2" ABOVE BOTTOM OF MnDOT 3149.2B SELECT GRANULAR MATERIAL.

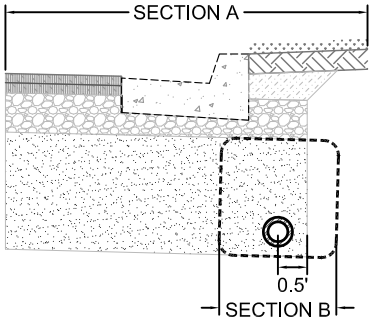
Ⓔ DRAIN TILE PLACED WITH TRANSVERSE CROSSING AT ALL LOW POINTS, DIRECT DRAIN TILE TO EACH SIDE @ CL CROWN. PLACE MINIMUM OF 50 LF EACH SIDE OF CATCH BASIN, PARALLEL WITH, AND BEHIND CURB AT ALL LOW POINTS. ALL OTHER LOCATIONS & LENGTH OF DRAIN TILE TO BE DETERMINED BY THE ENGINEER. SEE PLATE 311.

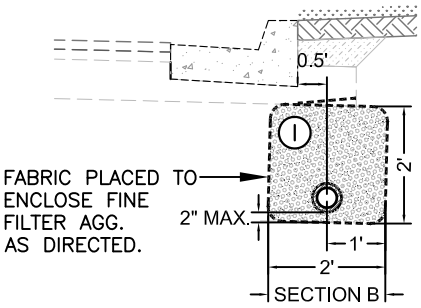
Ⓕ DRAIN TILE CONNECTIONS TO CATCH BASIN/MANHOLES TO BE w/KOR–N–TEE CONNECTOR w/PRE–FABRICATED OPENING OR CORE DRILLED. PULL SOCK THROUGH STRUCTURE. SEAL ALL OUTSIDE/INSIDE CONNECTIONS WITH GROUT OR AS APPROVED BY THE ENGINEER.

Ⓖ MATCH DRAIN TILE TO PROFILE GRADE. INSTALL DRAIN TILE WHILE PLACING SELECT GRANULAR BORROW.
CONTRACTOR MAY CONNECT DRAIN TILE TO CATCH BASIN AT TIME OF CONSTRUCTING CATCH BASIN. IF THIS OPTION IS USED CONTRACTOR TO LEAVE DRAIN TILE IN ROLLED COIL AND PROTECT UNTIL SELECT GRANULAR IS PLACED.

Ⓗ SELECT GRANULAR MATERIAL MnDOT 3149.2B

Ⓘ SOME CONDITIONS MAY REQUIRE WRAPPED 4" OR 6" SUBSURFACE DRAIN TO BE ENCASED WITH 2' X 2' FINE FILTER AGGREGATE (MnDOT 3149.2J) AS DIRECTED BY THE ENGINEER. DRAIN TILE TRENCH TO BE LINED & PROTECTED WITH MnDOT 3733 TYPE 1 GEO–TEXTILE FABRIC OR AS DIRECTED BY THE ENGINEER.
OVERLAP SEEM AT TOP OF THE TRENCH. (6" MINIMUM) THIS ENCLOSED AGGREGATE MAY ALSO BE USED IN CONDITIONS THAT DO NOT REQUIRE SELECT GRANULAR BORROW AND BE PLACED IN TRENCH BELOW AGGREGATE BASE.





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REVISIONS	3/02	3/06	1/17	
6/21				

Maplewood

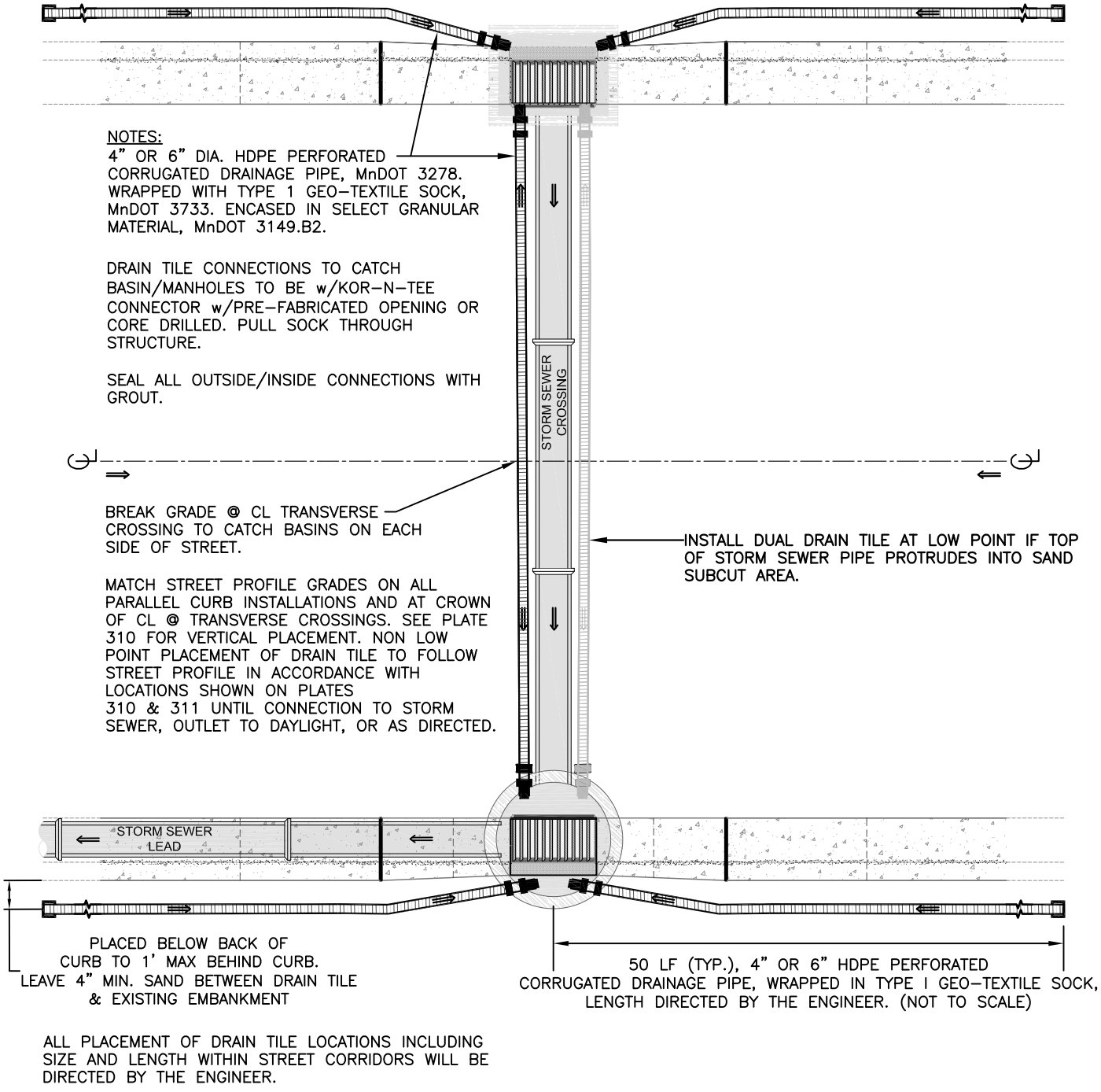
CITY OF MAPLEWOOD–ENGINEERING DEPT.

DRAIN TILE INSTALLATION PROFILE VIEW

PLATE NO. 310

DRAWING NOT TO SCALE.
STANDARD PLATES ARE NOT PROJECT SPECIFIC.

PLAN VIEW LOCATION OF 4" OR 6" DRAIN TILE @ LOW POINT IN STREET



ALL PLACEMENT OF DRAIN TILE LOCATIONS INCLUDING SIZE AND LENGTH WITHIN STREET CORRIDORS WILL BE DIRECTED BY THE ENGINEER.

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DRAWN: RKL	FILENAME:P:\WORKS\CAD\PLATES2021\P311			
REVISIONS	12-95	3-02	3-06	
2-08	1-17	4-21		

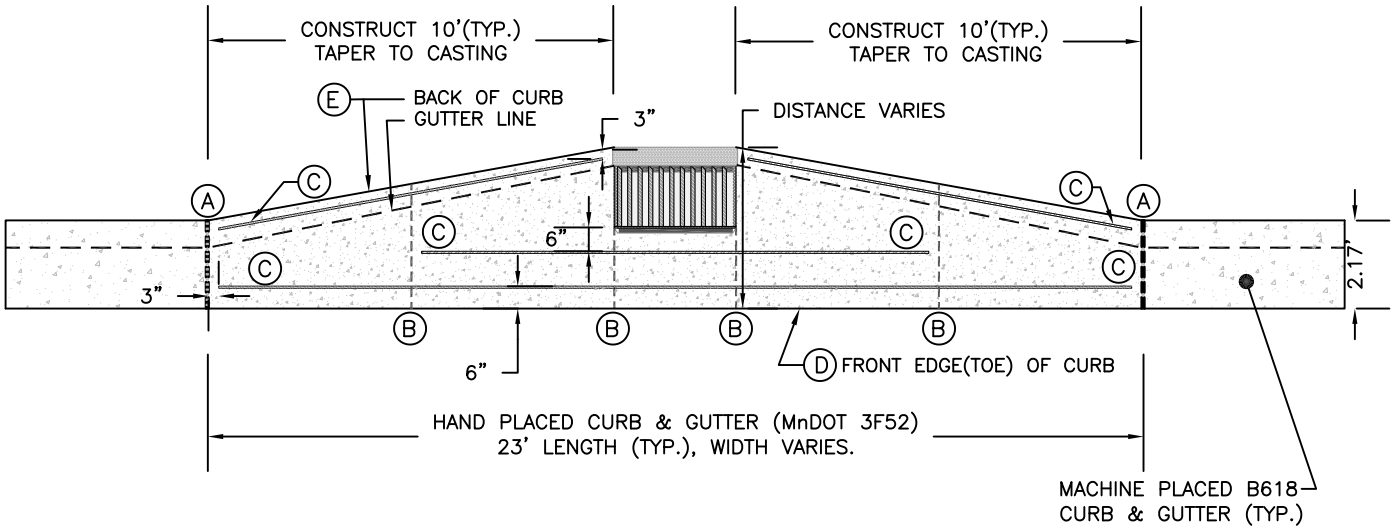
Maplewood

CITY OF MAPLEWOOD-ENGINEERING DEPT.

DRAIN TILE INSTALLATION PLAN VIEW

PLATE NO. 311

DRAWING NOT TO SCALE.
STANDARD PLATES ARE NOT PROJECT SPECIFIC.



(A) PLACE EXPANSION JOINT (MnDOT 3702) MATERIAL @ THE TRANSITION JOINT ON BOTH SIDES (TAPER BEGINS).

(B) CONTRACTION JOINT CUT TO DEPTH OF 2".

(C) PLACE EPOXY-COATED #4 REBAR AS DIRECTED BY THE ENGINEER. LOCATION AND LENGTH, WILL BE DETERMINED BY WIDTH OF CONCRETE. DETAIL IS FOR REPRESENTATION ONLY. SEE PLATE 304 FOR APPROXIMATE LOCATION OF REBAR.

(D) MAINTAIN STRAIGHT TOE OF CURB PARALLEL WITH STREET.

(E) TAPER BACK OF CURB & GUTTER LINE TO MATCH CASTING PLACEMENT IN 10' LENGTH-(TYP.)

**THIS PLATE IS FOR CASTING AND CURB PLACEMENT AT EXISTING CATCH BASINS WITH EXISTING STREET WIDTH NARROWING, OR CORRECTING CATCH BASINS THAT WERE NOT ALIGNED WITH GUTTER LINE.*

NOTES:
NO CORBELLING OR HORIZONTAL OFFSET OF RINGS IS ALLOWED. CONTRACTOR TO EXPOSE OPENING OF CATCH BASIN PRIOR TO PLACING CURB & GUTTER. RINGS TO MATCH OPENING OF STRUCTURE. SEE PLATE #300 FOR FRAME PLACEMENT AND ADJUSTING RINGS.

SUMP CASTING 0.10' AT ALL LOW POINTS.

SEE PLATE 300 FOR FRAME PLACEMENT DETAILS.

SEE PLATE 302 FOR FRAME & CASTING TYPE.

SEE PLATE 304 FOR APPROXIMATE REBAR PLACEMENT.

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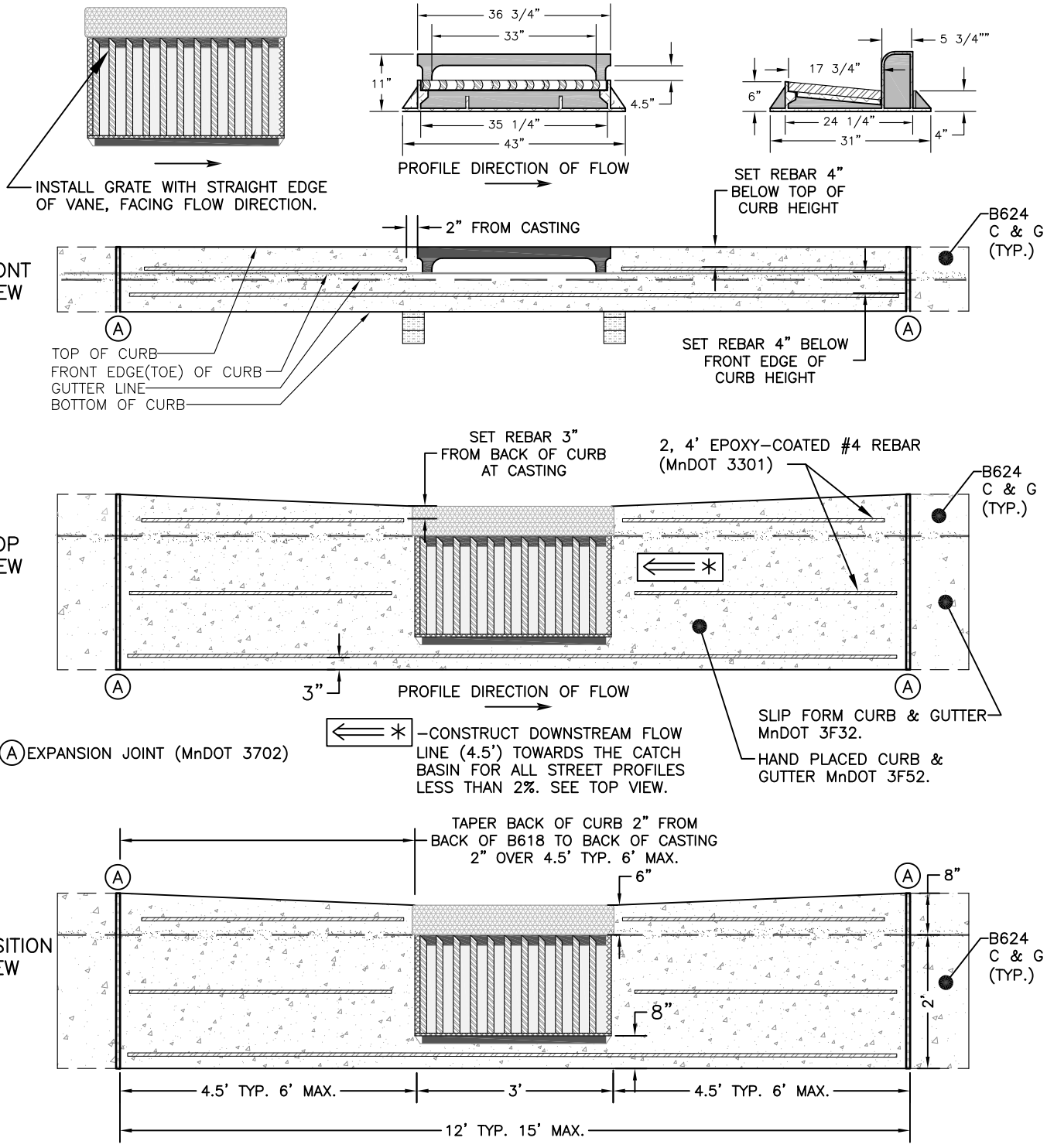
REVISIONS	1-17	4-21		

Maplewood

CITY OF MAPLEWOOD-ENGINEERING DEPT.

OFFSET CATCH BASIN FRAME, W/CURB TAPER

PLATE NO. 312



NOTES:

NO CORBELLING OR HORIZONTAL OFFSET OF RINGS IS ALLOWED. CONTRACTOR TO EXPOSE OPENING OF CATCH BASIN PRIOR TO PLACING CURB & GUTTER. RINGS TO MATCH OPENING OF STRUCTURE. SEE PLATE 300 FOR FRAME PLACEMENT AND ADJUSTING RINGS.

SUMP CASTING 0.10' AT ALL LOW POINTS.

SEE PLATE 300 FOR FRAME PLACEMENT DETAILS.

SEE PLATE 302 FOR FRAME & CASTING TYPE.

DESIGN: TMS	DATE: 3-95		
DRAWN: RKL	FILENAME:P:\WORKS\CAD\PLATES2021\P313		
REVISIONS	1-17	6-21	

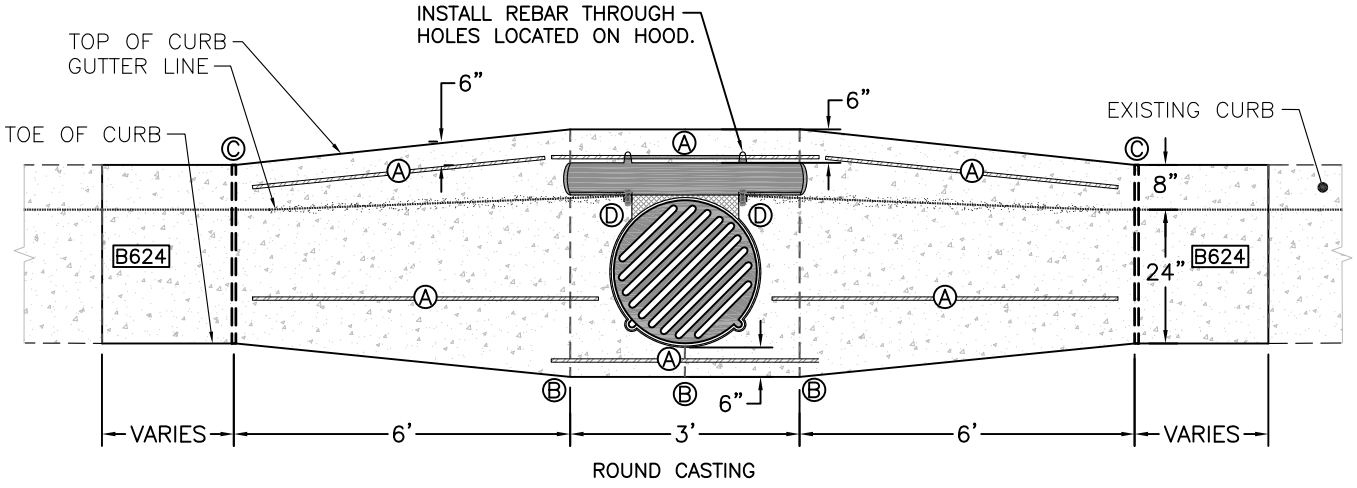
Maplewood

CITY OF MAPLEWOOD-ENGINEERING DEPT.

CATCH BASIN FRAME CURB TRANSITION, B624 C & G

PLATE NO. 313

THIS PLATE IS INTENDED FOR CURB PLACEMENT AND ADJUSTMENT OF EXISTING ROUND STYLE & RECTANGULAR CASTINGS THAT ARE BEING REUSED ON B624 STYLE CURB.



ROUND CASTING

Ⓐ PLACE EPOXY–COATED #4 REBAR (MnDOT 3301).

Ⓑ CONTRACTION JOINT CUT TO 1/4 DEPTH OF CURB THICKNESS.

Ⓒ PLACE EXPANSION JOINT MATERIAL (MnDOT 3702), BEGIN TAPER/TRANSITION AT THE EXPANSION JOINT.

Ⓓ INSTALL 2" X ¾" HEX HEAD BOLT. ALL BOLTS, NUTS AND WASHERS TO BE STAINLESS STEEL.

EXISTING ROUND CASTINGS ARE NEENAH R–3250–1 OR R–3250–A. IF NOT PRESENT, PLACE R–3250–1 CASTING @ ALL LOW POINTS

EXISTING RECTANGULAR CASTINGS ARE NEENAH R–3067–V.

RECONSTRUCTING CURB @ CASTINGS MAY REQUIRE REPLACEMENT OF REAR HOOD AS DIRECTED BY THE ENGINEER.

SUMP CASTINGS 0.10' AT ALL LOW POINTS & AS DIRECTED.

CORBELLING OR HORIZONTAL OFFSET OF RINGS IS NOT ALLOWED. CONTRACTOR TO EXPOSE OPENING OF CATCH BASIN PRIOR TO PLACING CURB & GUTTER.

SEE MAPLEWOOD STANDARD PLATE 300, 300A, 302 FOR DETAIL ON FRAME PLACEMENT

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DRAWN: RKL	FILENAME:P:/WORKS/CAD/PLATES2021/P314			
REVISIONS	1–17	4–21		

Maplewood

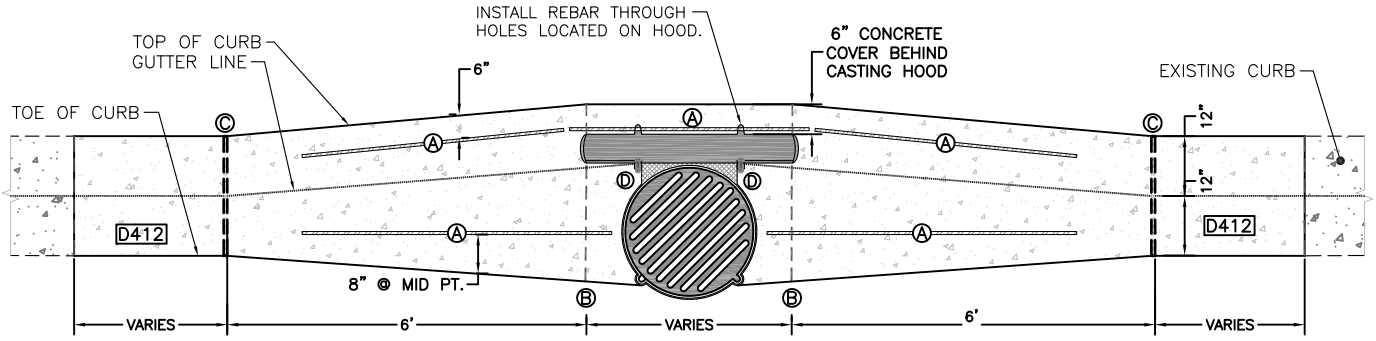
CITY OF MAPLEWOOD–ENGINEERING DEPT.

CATCH BASIN FRAME (ROUND CASTING)

CURB TRANSITION, B624 C & G

PLATE NO. 314

THIS PLATE IS INTENDED FOR CURB PLACEMENT AND ADJUSTMENT OF EXISTING ROUND STYLE & RECTANGULAR CASTINGS THAT ARE BEING REUSED ON D412 STYLE CURB.



ROUND CASTING

Ⓐ PLACE EPOXY–COATED #4 REBAR (MnDOT 3301).

Ⓑ CONTRACTION JOINT CUT TO 1/4 DEPTH OF CURB THICKNESS.

Ⓒ PLACE EXPANSION JOINT MATERIAL (MnDOT 3702), BEGIN TAPER/TRANSITION AT THE EXPANSION JOINT.

Ⓓ INSTALL 2" X ¾" HEX HEAD BOLT. ALL BOLTS, NUTS AND WASHERS TO BE STAINLESS STEEL.

EXISTING ROUND CASTINGS ARE NEENAH R–3250–1 OR R–3250–A. IF NOT PRESENT, PLACE R–3250–1 CASTING @ ALL LOW POINTS

EXISTING RECTANGULAR CASTINGS ARE NEENAH R–3067–V.

RECONSTRUCTING CURB @ CASTINGS MAY REQUIRE REPLACEMENT OF REAR HOOD AS DIRECTED BY THE ENGINEER.

SUMP CASTINGS 0.10' AT ALL LOW POINTS & AS DIRECTED.

CORBELLING OR HORIZONTAL OFFSET OF RINGS IS NOT ALLOWED. CONTRACTOR TO EXPOSE OPENING OF CATCH BASIN PRIOR TO PLACING CURB & GUTTER.

SEE MAPLEWOOD STANDARD PLATE #300, #300A, #302 FOR DETAIL ON FRAME PLACEMENT

DESIGN: TMS	DATE: 3/14/97			
DRAWN: RKL	FILENAME:P:/WORKS/CAD/PLATES2021/P315			
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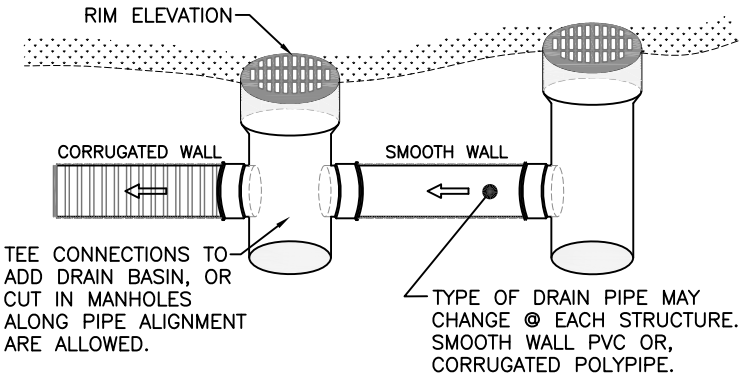
Maplewood

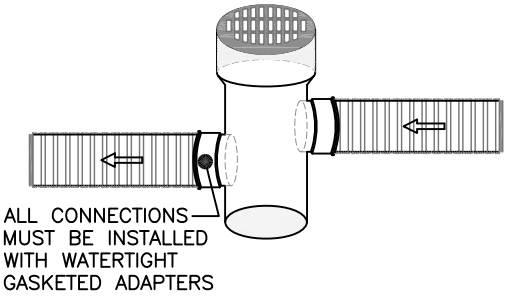
CITY OF MAPLEWOOD–ENGINEERING DEPT.

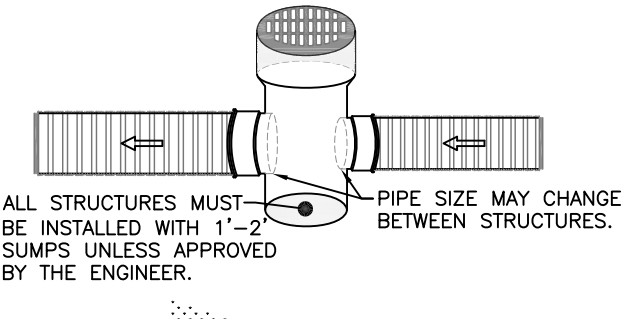
CATCH BASIN FRAME (ROUND CASTING) CURB TRANSITION, D412 C & G

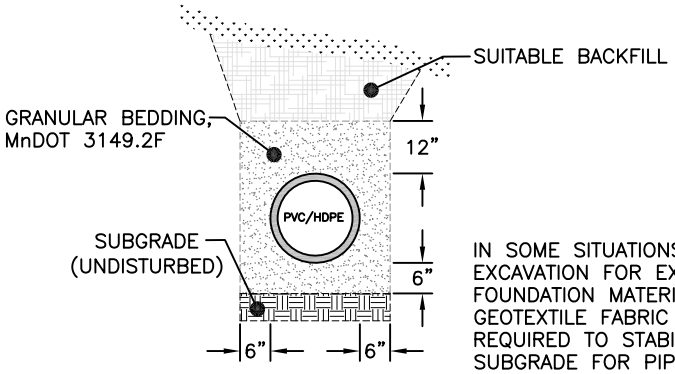
PLATE NO. 315

TYPICAL INSTALLATION OF HDPE OR PVC DRAIN BASINS & MANHOLES

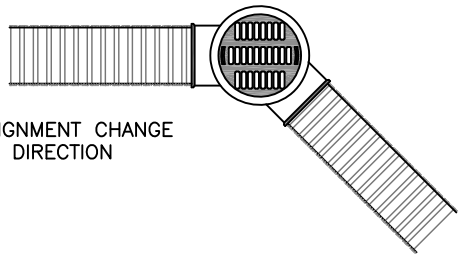


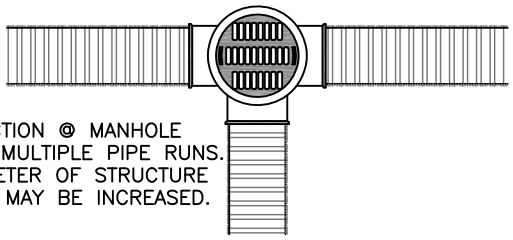


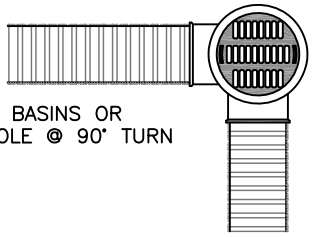


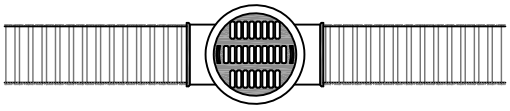


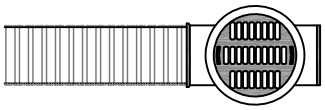
IN SOME SITUATIONS OVER EXCAVATION FOR EXTRA FOUNDATION MATERIAL AND GEOTEXTILE FABRIC MAY BE REQUIRED TO STABILIZE SUBGRADE FOR PIPE PLACEMENT, SEE MAPLEWOOD STANDARD PLATE 341.











* SURFACE DRAINS TO BE CONSTRUCTED IN MOWED AREAS, NON–MAINTAINED DITCHES, RAIN GARDENS, PONDING AND STORM BASIN SITES, OVERFLOWS, & MISC. SITES. CASTING TYPE AND SIZE TO BE DIRECTED OR APPROVED BY THE ENGINEER.
* WYE CONNECTIONS & BENDS ALONG PIPE ALIGNMENT ARE NOT PERMITTED. STRUCTURES MUST BE PLACED @ EACH CHANGE IN PIPE, ALIGNMENT, GRADE, OR SIZE.
* PIPE SIZES MAY BE 4" – 60" HDPE OR PVC, CORRUGATED OR SMOOTH WALL PVC
* CASTING SIZES MAY BE 12" – 30" DUCTILE IRON
* DRAIN BASINS MAY BE 8" – 30" MANHOLES MAY BE 30" – 48" HDPE OR PVC

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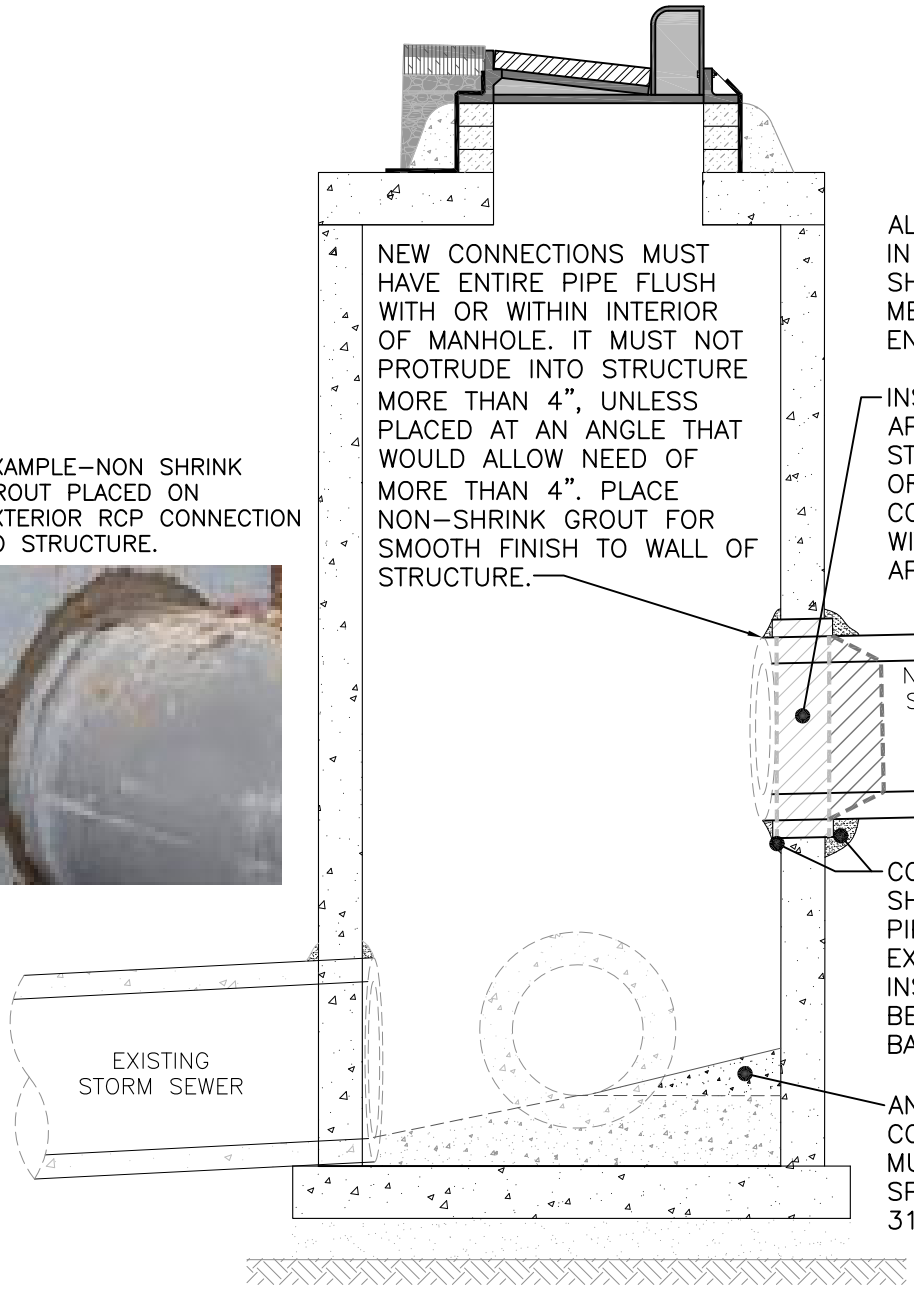
REVISIONS	9–04	3–06	1–17	
6–21				

Maplewood

CITY OF MAPLEWOOD–ENGINEERING DEPT.

SURFACE DRAIN HDPE/PVC SYSTEM

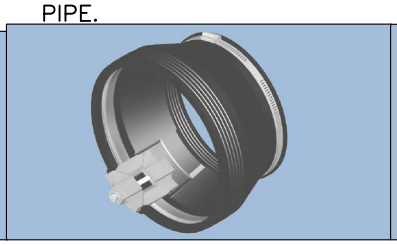
PLATE NO. 317



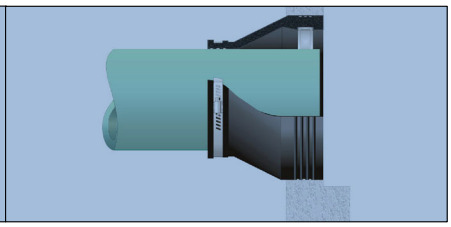
EXAMPLE-NON SHRINK GROUT PLACED ON EXTERIOR RCP CONNECTION TO STRUCTURE.

EXAMPLE-BOOT COMMONLY USED WITH RCP STORM PIPE.

EXAMPLE-BOOT COMMONLY USED WITH HDPE STORM PIPE.



EXAMPLE-BOOT COMMONLY USED WITH PVC STORM PIPE.



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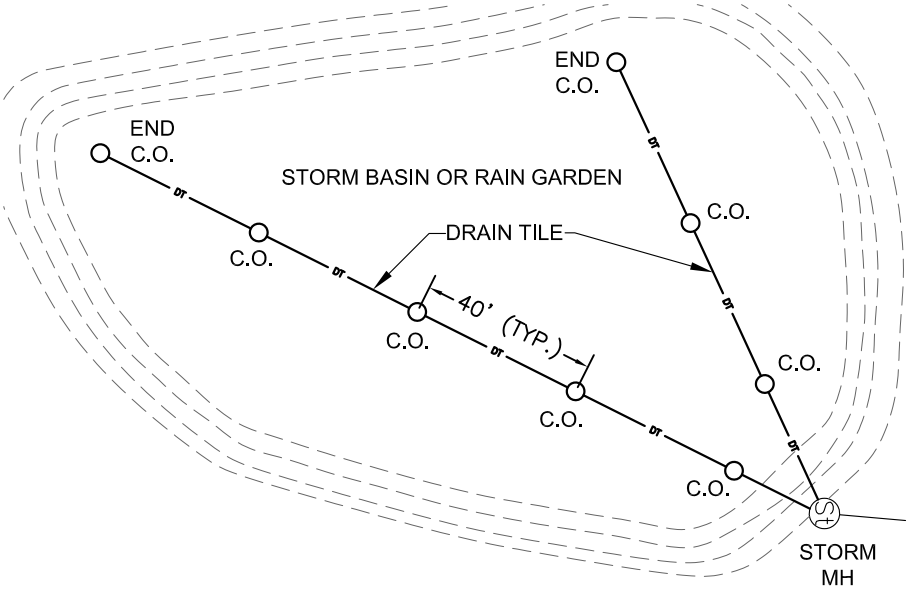
DRAWN: RKL	FILENAME:P:\WORKS\CAD\PLATES2021\P318		
REVISIONS	4-17	6-21	

Maplewood

CITY OF MAPLEWOOD-ENGINEERING DEPT.

CONNECT TO EXISTING CATCH BASIN OR STORM MANHOLE

PLATE NO. 318



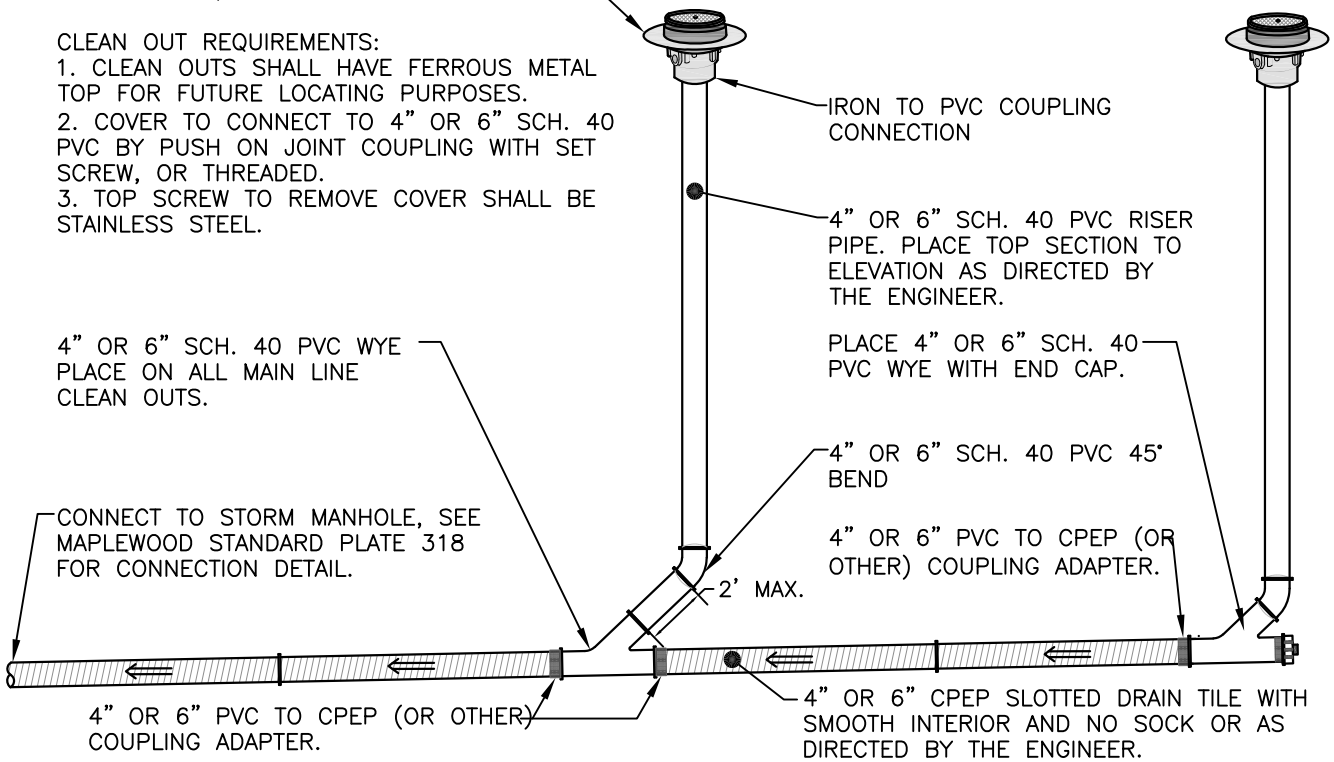
PLACE ONE CLEAN OUT(C.O.) EVERY 40' OR AS DIRECTED BY THE ENGINEER.

STORM SYSTEM AND STORM BASIN SHOWN AS EXAMPLE ONLY

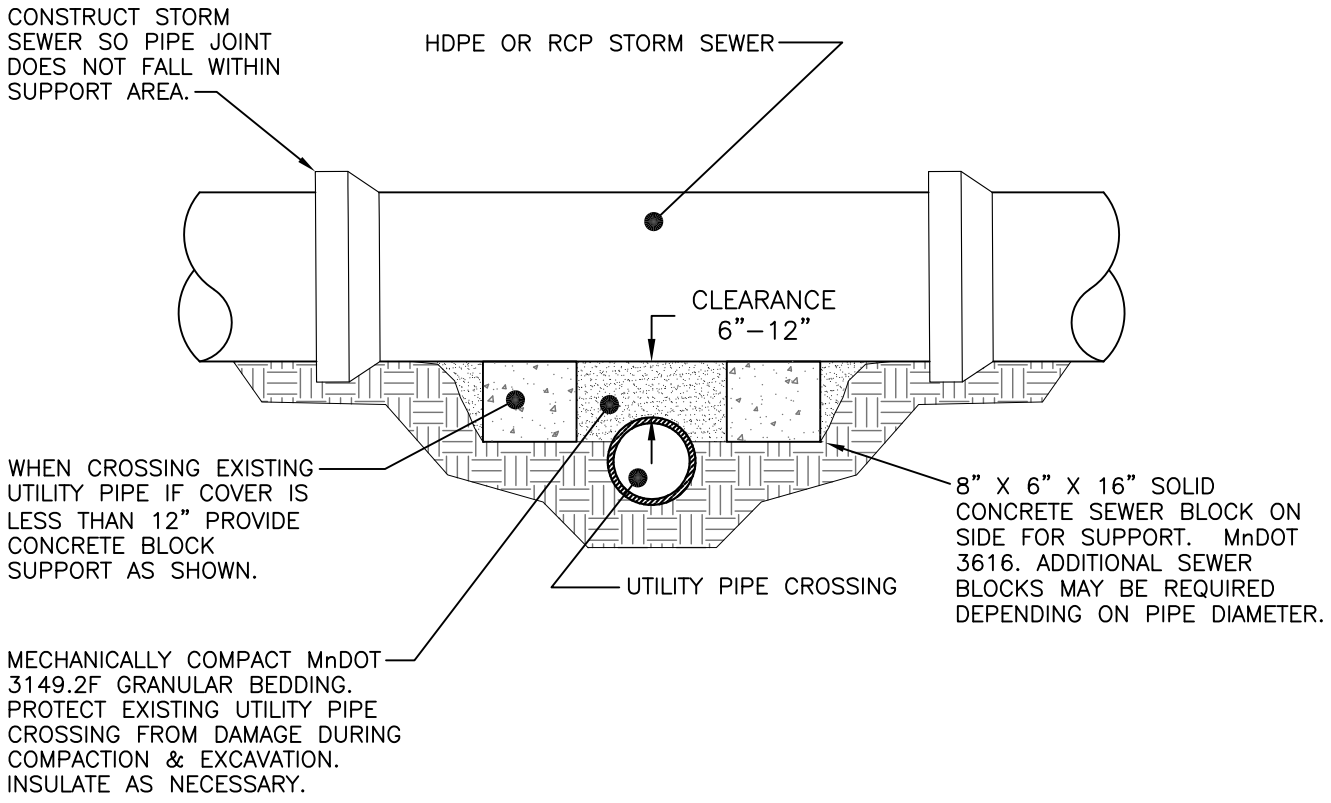
ALL STORM BASINS, RETENTION PONDS, LARGE RAIN GARDENS SHALL BE DESIGNED BY THE ENGINEER AND MAY BE UNIQUE PER EACH PROJECT. SIZES AND LOCATIONS OF DRAIN TILE AND CLEAN OUTS WILL BE DETERMINED BY THE ENGINEER. ALL DRAIN TILE AND CLEAN OUT LOCATIONS SHALL BE RECORDED BY RAMSEY COUNTY COORDINATES AND DOCUMENTED ON RECORD DRAWING.

SIOUX CHIEF CLEAN OUT (851 SERIES) OR APPROVED EQUAL.

CLEAN OUT REQUIREMENTS:
1. CLEAN OUTS SHALL HAVE FERROUS METAL TOP FOR FUTURE LOCATING PURPOSES.
2. COVER TO CONNECT TO 4" OR 6" SCH. 40 PVC BY PUSH ON JOINT COUPLING WITH SET SCREW, OR THREADED.
3. TOP SCREW TO REMOVE COVER SHALL BE STAINLESS STEEL.



DESIGN: TMS	DATE: 12-17	CITY OF MAPLEWOOD-ENGINEERING DEPT.	PLATE NO.
DRAWN: RKL	FILENAME:P:\WORKS\CAD\PLATES2021\P319	DRAIN TILE CLEAN OUTS @ STORM BASINS & LARGE RAIN GARDENS	319
REVISIONS	6-21		



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REVISIONS	1–02	3–06	6–21	

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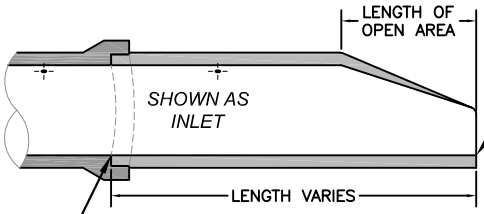
CITY OF MAPLEWOOD–ENGINEERING DEPT.

STORM SEWER SUPPORT AT UTILITY CROSSINGS (ALL TYPES)

PLATE NO. 320

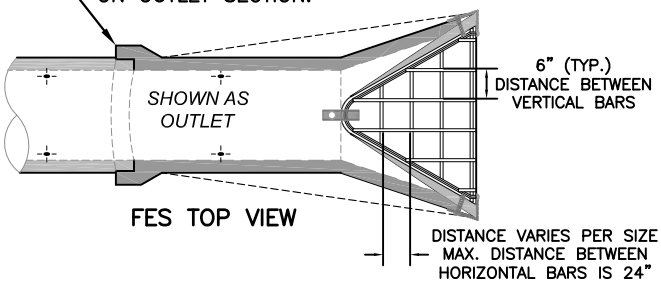


FES SIDE VIEW

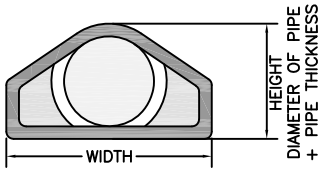
ELEVATION & LOCATION TO BE STAKED AS SHOWN ON PLAN.

CONSTRUCT TONGUE END ON INLET SECTION.

CONSTRUCT GROOVED END ON OUTLET SECTION.



FES TOP VIEW

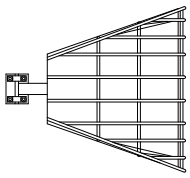


FES FRONT VIEW

RCP FLARED END SECTIONS VARY FOR WIDTH, HEIGHT, AND LENGTH PER DIAMETER OF RCP PIPE AND MANUFACTURER.

RCP FLARED END SECTION REINFORCEMENT & DESIGN SHALL CONFORM TO STANDARD REINFORCED CONCRETE PIPE CLASS II AT A MINIMUM. MANUFACTURED IN ACCORDANCE WITH ASTM C-76.

ALL TRASH GUARDS MUST HAVE HINGED TOP. BOLTS, TIES, BARS, FASTENERS TO BE GALVANIZED STEEL PER MANUFACTURERS SPECIFICATIONS.

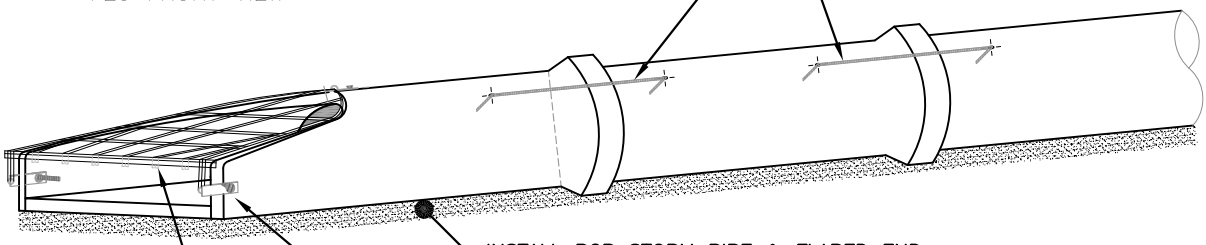


OPTIONAL STYLE TRASH GUARD
BOLTED ON TOP ONLY

* DO NOT INSTALL TRASH GUARDS FOR ANY FLARED END SECTION 18" DIAMETER OR SMALLER.

INSTALL TRASH GUARDS ON PIPE INLETS ONLY. INSTALL ON OUTLETS AS DIRECTED BY THE ENGINEER.

TIE LAST 3 PIPE JOINTS (TYP.) ON EACH SIDE OF THE PIPE, OR AS DIRECTED BY THE ENGINEER. USE 2 TIE BOLT FASTENERS PER JOINT INSTALLED @ 60° FROM TOP OR BOTTOM OF PIPE.

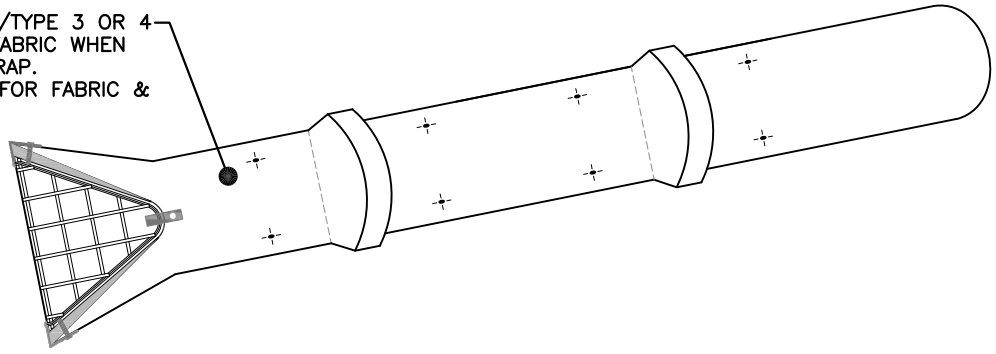


CUT OFF BOTTOM BARS ON ALL APRONS.

INSTALL RCP STORM PIPE & FLARED END SECTION w/SUITABLE ONSITE BEDDING MATERIAL OR IMPORTED MATERIAL AS DIRECTED BY THE ENGINEER THAT MEETS MnDOT 3149.2F

DO NOT FASTEN OR TIGHTEN BOLT. TRASH GUARD MUST BE ABLE TO LIFT UP.

WRAP FES SECTION W/TYPE 3 OR 4 GEO-TEXTILE FILTER FABRIC WHEN INSTALLING WITH RIP RAP. SEE STD. PLATE 332 FOR FABRIC & RIP RAP.



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REVISIONS	3-02	2-08	2-17	
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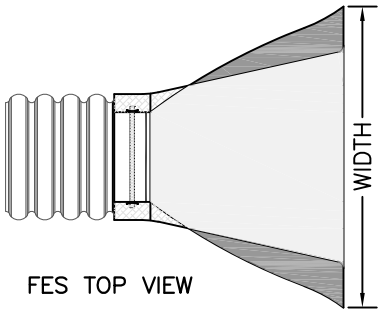
CITY OF MAPLEWOOD-ENGINEERING DEPT.

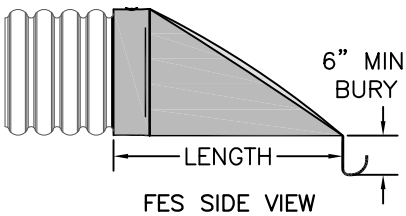
RCP FLARED END SECTION & TRASH GUARD

PLATE NO. 330

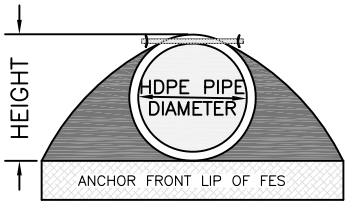
DRAWING NOT TO SCALE.
STANDARD PLATES ARE NOT PROJECT SPECIFIC.



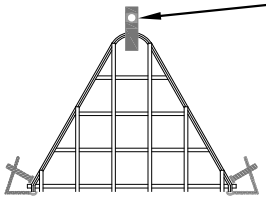
FES TOP VIEW



FES SIDE VIEW



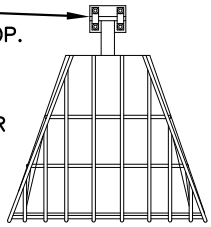
FES FRONT VIEW



TRASH GUARD (TYP.)

ALL TRASH GUARDS MUST HAVE HINGED TOP.

BOLTS, TIES, BARS, FASTENERS TO BE GALVANIZED STEEL PER MANUFACTURERS SPECIFICATIONS.



OPTIONAL STYLE TRASH GUARD
BOLTED ON TOP ONLY

HDPE FLARED END SECTIONS 12" MIN. TO 36" MAX. WIDTH, HEIGHT, AND LENGTH VARY PER DIAMETER OF HDPE PIPE AND MANUFACTURER.

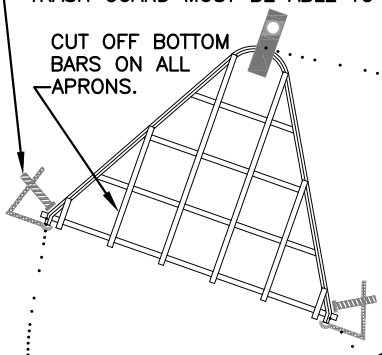
FLARED END SECTION SHALL BE HIGH DENSITY POLYETHYLENE MEETING ASTM D3350-00 WITH A MINIMUM CELL CLASSIFICATION OF 2133320C.

EACH END SECTION SHALL HAVE A CARBON BLACK ADDITIVE FOR UV PROTECTION.

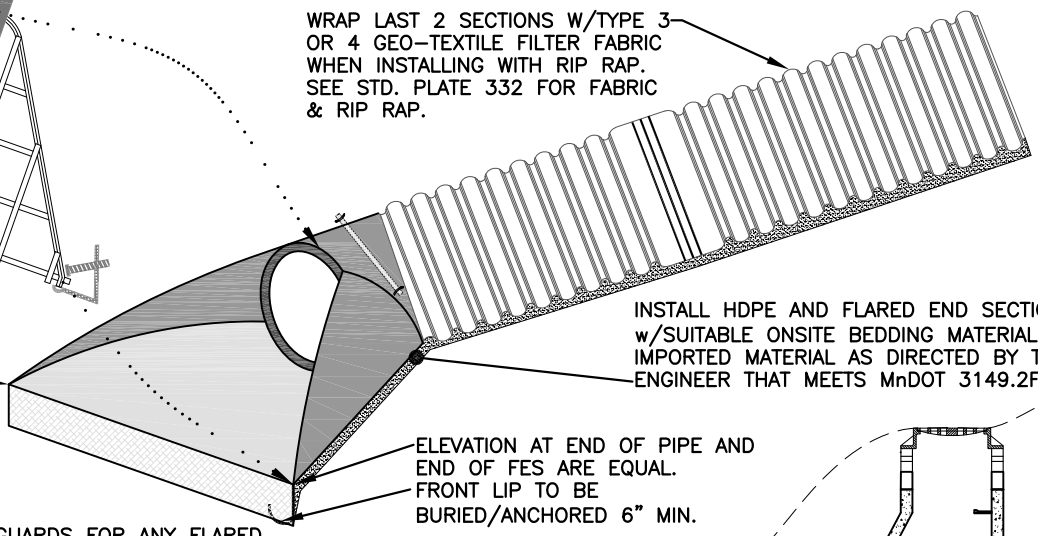
THE METAL THREADED FASTENING ROD SHALL BE STAINLESS STEEL.

DO NOT FASTEN OR TIGHTEN BOLT. TRASH GUARD MUST BE ABLE TO LIFT UP.

CUT OFF BOTTOM BARS ON ALL APRONS.



WRAP LAST 2 SECTIONS W/TYPE 3 OR 4 GEO-TEXTILE FILTER FABRIC WHEN INSTALLING WITH RIP RAP. SEE STD. PLATE 332 FOR FABRIC & RIP RAP.



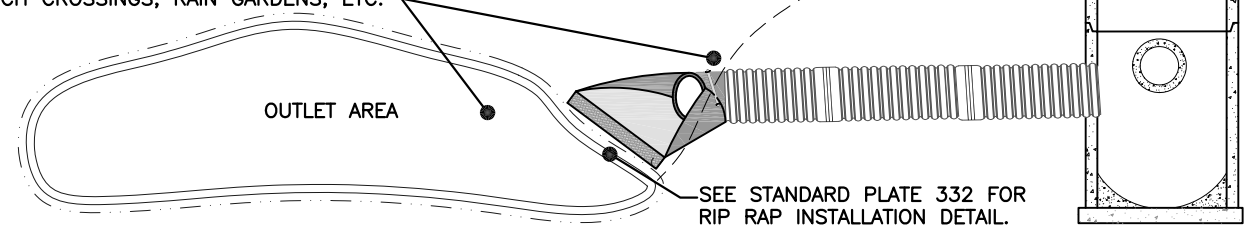
INSTALL HDPE AND FLARED END SECTION w/SUITABLE ONSITE BEDDING MATERIAL OR IMPORTED MATERIAL AS DIRECTED BY THE ENGINEER THAT MEETS MnDOT 3149.2F

ELEVATION AT END OF PIPE AND END OF FES ARE EQUAL. FRONT LIP TO BE BURIED/ANCHORED 6" MIN.

*DO NOT INSTALL TRASH GUARDS FOR ANY FLARED END SECTION 18" DIAMETER OR SMALLER. INSTALL TRASH GUARDS ON PIPE INLETS ONLY. INSTALL ON OUTLETS AS DIRECTED BY THE ENGINEER.

EXISTING GROUND

TYPICAL INSTALLATION FOR HDPE FLARED END SECTION OUTLET @ STEEP SLOPE. INSTALL SUMP STORM MH WITH MINIMUM GRADE FOR HDPE PIPE & FES. USE HDPE FLARED END SECTION FOR OUTLETS/INLETS @ PONDING SITES, WETLANDS, DITCH CROSSINGS, RAIN GARDENS, ETC.



OUTLET AREA

SEE STANDARD PLATE 332 FOR RIP RAP INSTALLATION DETAIL.

DESIGN: TMS	DATE: 2-15		
DRAWN: RKL	FILENAME:P:\WORKS\CAD\PLATES2021\P331		
REVISIONS	2-17	6-21	

Maplewood

CITY OF MAPLEWOOD-ENGINEERING DEPT.

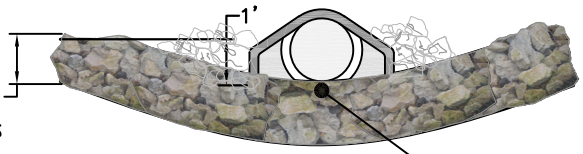
HDPE FLARED END SECTION & TRASH GUARD

PLATE NO. 331

DRAWING NOT TO SCALE.
STANDARD PLATES ARE NOT PROJECT SPECIFIC.

ALL REQUIREMENTS FOR GEO–TEXTILE FABRIC TYPE, RIPRAP, (SIZE/CLASS, DEPTH, EST. CY) WILL BE DESIGNATED IN THE PLANS. LARGE PIPE SIZES MAY HAVE SPECIAL DESIGN. SEE MnDOT STANDARD PLATES 3133D & 3134D, 3100 AND 3110. SEE MAPLEWOOD STANDARD PLATES 330 & 331.

FES & RIPRAP FRONT VIEW

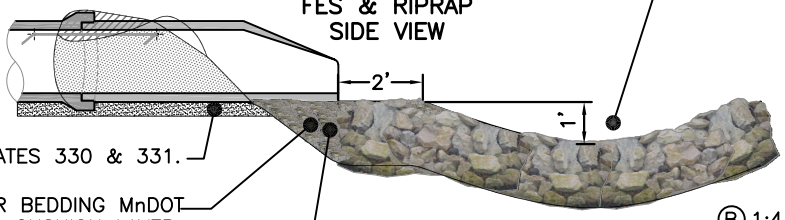


DEPTH OF RIPRAP VARIES PER CLASS OF RIPRAP AS DESIGNATED IN PLANS

CITY OF MAPLEWOOD ALSO ACCEPTS METHODS TO CONTROL RUNOFF VELOCITY WITHOUT RIPRAP. SCOUR STOPS, EROSION MATS, ETC. THIS TYPE OF DESIGN MUST BE APPROVED BY THE ENGINEER.

CONSTRUCT APPROXIMATE 1' "BOWL" FROM ENDS AND SIDES IN CENTER OF RIPRAP PLACED AREA.

FES & RIPRAP SIDE VIEW

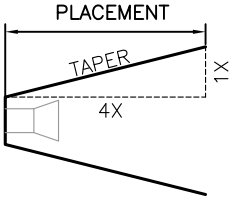


SEE MAPLEWOOD STANDARD PLATES 330 & 331.

IMPORTED OR ONSITE GRANULAR BEDDING MnDOT 3149.2F, SHALL BE USED AS A CUSHION LAYER TO AID IN GRADING AND PLACEMENT OF FABRIC. PLACE UNDER FLARED END SECTION BETWEEN GEO–TEXTILE FABRIC AND RIPRAP.

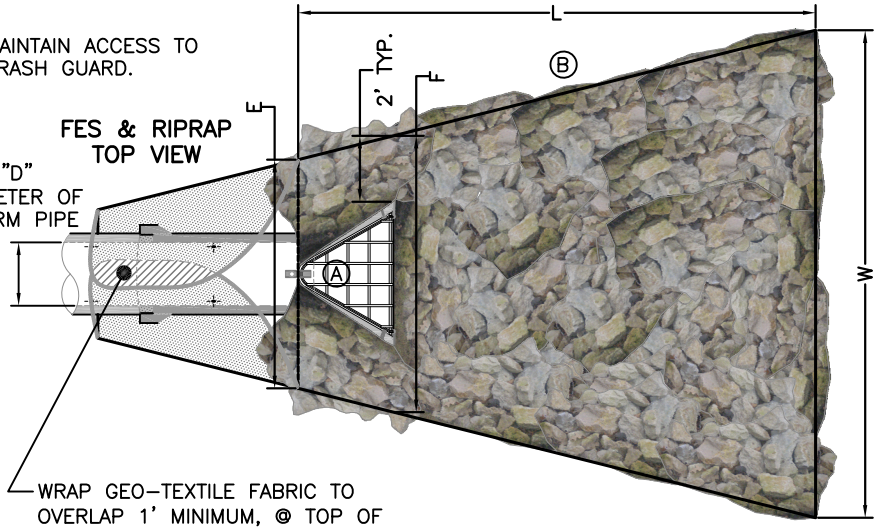
PLACE RIPRAP ACCORDING TO MnDOT 2511 & 3601

Ⓑ 1:4 TAPER FOR RIPRAP & FABRIC PLACEMENT



Ⓐ MAINTAIN ACCESS TO TRASH GUARD.

FES & RIPRAP TOP VIEW

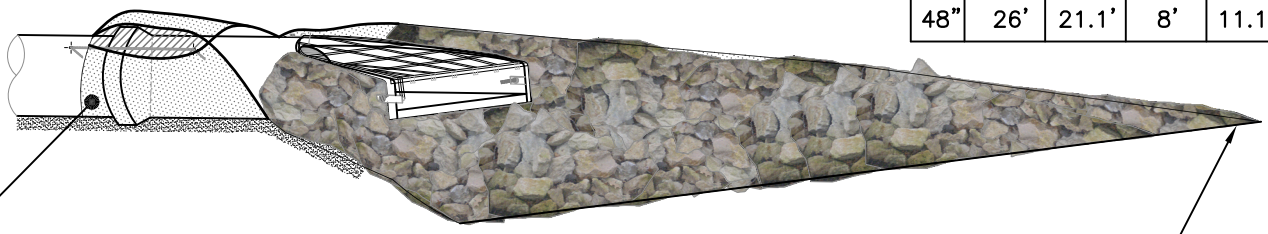


WRAP GEO–TEXTILE FABRIC TO OVERLAP 1' MINIMUM, @ TOP OF FLARED END SECTION @ LAST JOINT. SEE NOTE BELOW.

PIPE SIZE PER FLARED END SECTION VARIES AND WILL BE DESIGNATED IN THE PLAN. TABLE BELOW IS TYPICAL LAYOUT FOR PIPE SIZES LISTED.

TYPICAL RIPRAP LAYOUT AREA

D	L	W	E	F
12"	10'	10'	5'	6'
18"	12.25'	11.5'	5.5'	6.5'
24"	15.60'	14'	6.9'	8'
36"	21.25'	18'	7.5'	10'
48"	26'	21.1'	8'	11.1'



PLACE GEO–TEXTILE FILTER FABRIC (TYPE III OR IV NON–WOVEN) ACCORDING TO MnDOT 2511 & 3733, OR AS DIRECTED BY THE ENGINEER.

PLACE FABRIC UNDER ENTIRE FLARED END SECTION FROM LAST PIPE JOINT TO THE END OF THE RIPRAP AREA & ENTIRE WIDTH OF RIP RAP. CUT FABRIC AS NECESSARY. SEE NOTE ABOVE REGARDING WRAPPING FABRIC OVER PIPE END.

DESIGN: TMS	DATE: 3–95		
DRAWN: JPD	FILENAME:P:\WORKS\CAD\PLATES2021\P330		
REVISIONS	2–17	6–21	

Maplewood

CITY OF MAPLEWOOD–ENGINEERING DEPT.

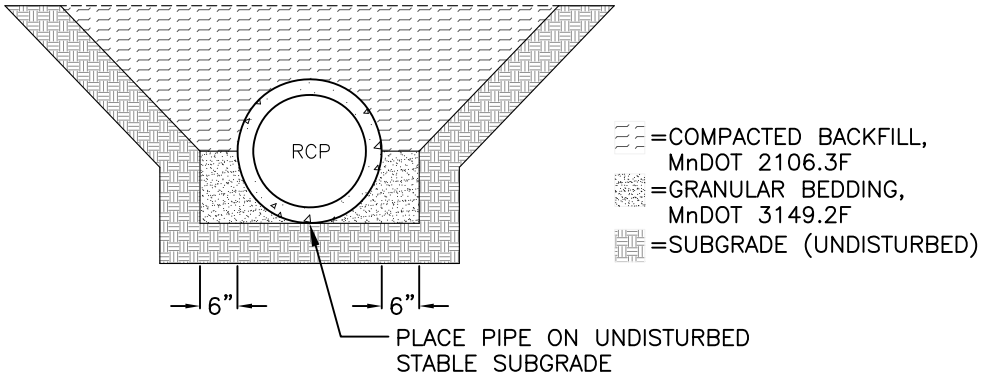
RIP RAP @ FLARED END SECTION

PLATE NO. 332

METHOD IN GOOD SOILS

GOOD SOIL CLASSIFICATION:
GRANULAR & STABLE IN NATURE; INCLUDES STONE FRAGMENTS, GRAVEL, SAND, FINE SAND, SILTY OR CLAYEY GRAVEL SAND

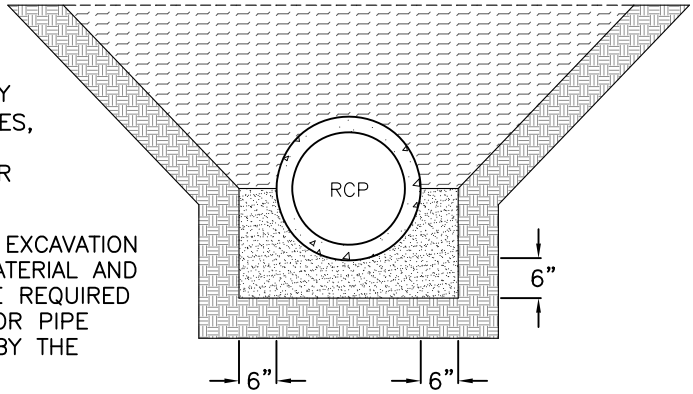
GREAT CARE SHALL BE TAKEN WHEN COMPACTING AROUND RIGID PIPE, ANY DAMAGED PIPE WILL REQUIRE REMOVAL AND REPLACEMENT.



METHOD IN POOR SOILS

POOR SOIL CLASSIFICATION:
COHESIVE & UNSTABLE IN NATURE; SILTY SOIL, CLAYEY SOIL. HIGH (20+%) OF FINES, OFTEN WET OR RETAINING MOISTURE. DEFLECTS UNDER NORMAL LOADING.

IN SOME SITUATIONS OVER EXCAVATION FOR EXTRA FOUNDATION MATERIAL AND GEOTEXTILE FABRIC MAY BE REQUIRED TO STABILIZE SUBGRADE FOR PIPE PLACEMENT. AS DIRECTED BY THE ENGINEER.



NOTES:

1. SOIL CLASSIFICATION TO BE DETERMINED BY GEOTECHNICAL ENGINEER.
2. GRANULAR BEDDING SHALL BE COMPACTED WITH MOTOR DRIVEN EQUIPMENT UNTIL THERE ARE NO VISIBLE SIGNS OF ADDITIONAL COMPACTION REQUIRED. ALL PIPE HAUNCHES MUST HAVE ZERO VOIDS.
3. ALL EXCAVATIONS & TRENCHES MUST COMPLY WITH THE REQUIREMENTS OF OSHA "EXCAVATIONS AND TRENCHES" SEE OSHA.GOV FOR DETAILS.
4. IN UNSTABLE SOILS, DEPTH AND OR BEDDING MATERIAL MAY BE CHANGED AS REQUIRED BY THE ENGINEER.
5. DIMENSIONS AND STANDARDS SHOWN ON THIS PLATE APPLY TO RCP ARCH PIPE.
6. ON-SITE GRANULAR MATERIAL MAY BE SALVAGED AND USED FOR PIPE BEDDING IF IT MEETS MnDOT 3149.2F.

DESIGN: TMS	DATE: 3-95			
DRAWN: RKL	FILENAME:P:\WORKS\CAD\PLATES2021\P340			
REVISIONS	3-97	3-02	3-17	
6-21				

Maplewood

CITY OF MAPLEWOOD-ENGINEERING DEPT.

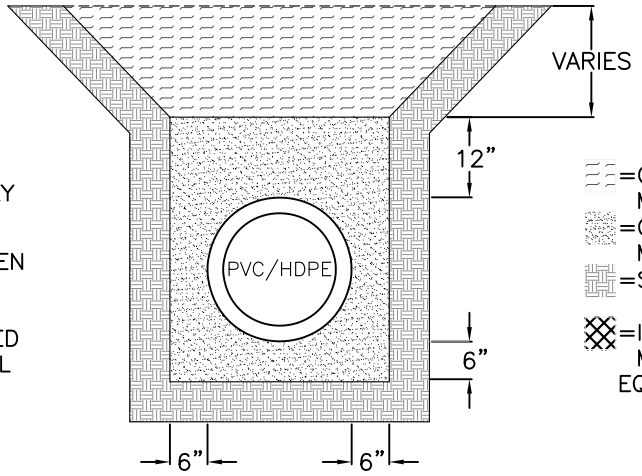
EMBEDMENT DETAILS FOR RCP STORM SEWER

PLATE NO. 340

METHOD IN GOOD SOILS

GOOD SOIL CLASSIFICATION:
GRANULAR & STABLE IN NATURE; INCLUDES STONE FRAGMENTS, GRAVEL, SAND, FINE SAND, SILTY OR CLAYEY GRAVEL SAND

GREAT CARE SHALL BE TAKEN BY THE CONTRACTOR WHEN COMPACTING AROUND FLEXIBLE PIPE, ANY DAMAGED PIPE WILL REQUIRE REMOVAL AND REPLACEMENT.

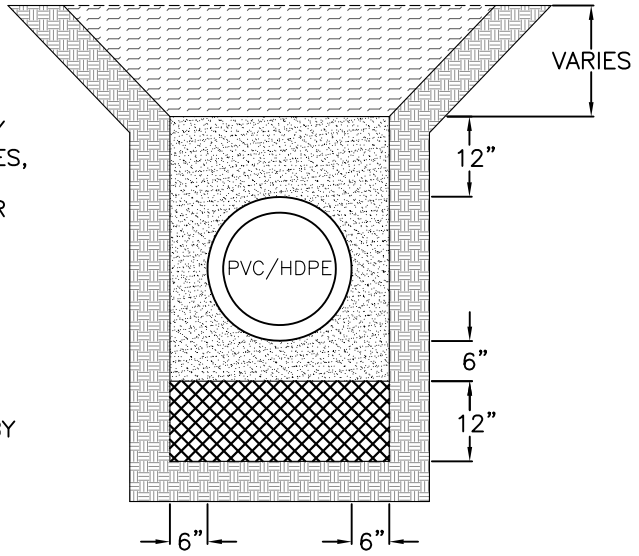


=COMPACTED BACKFILL, MnDOT 2106.3F
=GRANULAR BEDDING, MnDOT 3149.2F
=SUBGRADE (UNDISTURBED)
=IMPROVED PIPE FOUNDATION, MnDOT 3149.2H OR APPROVED EQUAL

METHOD IN POOR SOILS

POOR SOIL CLASSIFICATION:
COHESIVE & UNSTABLE IN NATURE; SILTY SOIL, CLAYEY SOIL. HIGH (20+%) OF FINES, OFTEN WET OR RETAINING MOISTURE. DEFLECTS UNDER NORMAL LOADING.

IN SOME SITUATIONS OVER EXCAVATION FOR EXTRA FOUNDATION MATERIAL AND GEOTEXTILE FABRIC MAY BE REQUIRED TO STABILIZE SUBGRADE FOR PIPE PLACEMENT. AS DIRECTED BY THE ENGINEER.



NOTES:
1. SOIL CLASSIFICATION TO BE DETERMINED BY GEOTECHNICAL ENGINEER.
2. GRANULAR BEDDING SHALL BE COMPACTED WITH MOTOR DRIVEN EQUIPMENT UNTIL THERE ARE NO VISIBLE SIGNS OF ADDITIONAL COMPACTION REQUIRED. ALL PIPE HAUNCHES MUST HAVE ZERO VOIDS.
3. ALL EXCAVATIONS & TRENCHES MUST COMPLY WITH THE REQUIREMENTS OF OSHA "EXCAVATIONS AND TRENCHES" SEE OSHA.GOV FOR DETAILS.
4. IN UNSTABLE SOILS, DEPTH AND OR BEDDING/FOUNDATION MATERIAL MAY BE CHANGED AS REQUIRED BY THE ENGINEER.
5. DIMENSIONS AND STANDARDS SHOWN ON THIS PLATE APPLY TO ALL FLEXIBLE STORM SEWER PIPE.
6. ON-SITE GRANULAR MATERIAL MAY BE SALVAGED AND USED FOR PIPE BEDDING IF IT MEETS MnDOT 3149.2F.

DESIGN: TMS	DATE: 3-95			
DRAWN: RKL	FILENAME:P:\WORKS\CAD\PLATES2021\P340			
REVISIONS	3-97	3-02	3-17	
6-21				

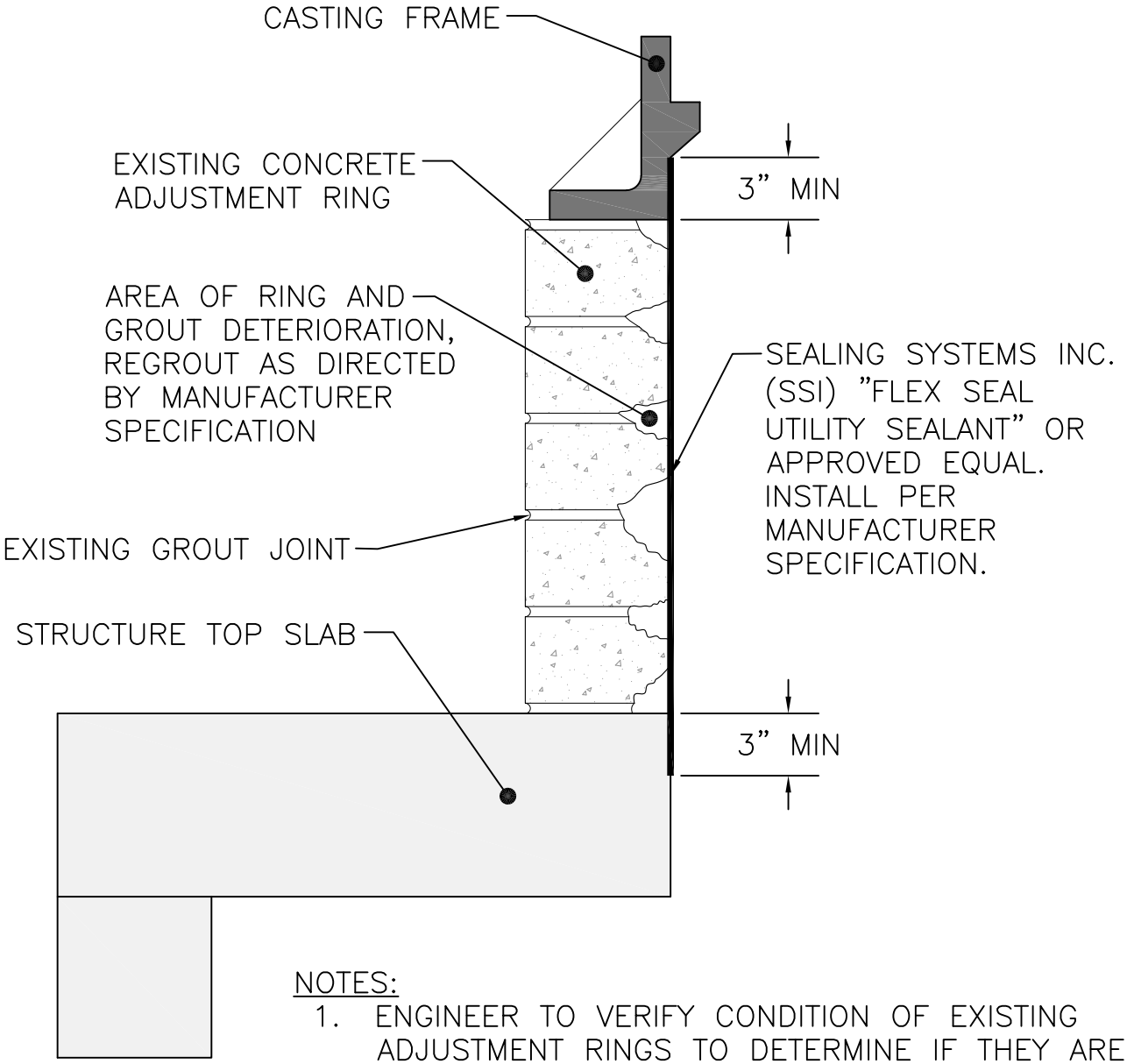
Maplewood

CITY OF MAPLEWOOD-ENGINEERING DEPT.

EMBEDMENT DETAILS FOR PVC & HDPE STORM SEWER

PLATE NO. 341

DRAWING NOT TO SCALE.
STANDARD PLATES ARE NOT PROJECT SPECIFIC.



NOTES:

1. ENGINEER TO VERIFY CONDITION OF EXISTING ADJUSTMENT RINGS TO DETERMINE IF THEY ARE A GOOD CANDIDATE FOR REHABILITATION.
2. ENSURE SUBSTRATE SURFACE IS DRY AND FREE OF RUST, LOOSE DEBRIS, SAND, DIRT, OIL, GREASE, PAINT, BITUMINOUS AND CONTAMINATION.
3. A BLOWER IS RECOMMENDED TO COMPLETELY DRY THE SURFACE PRIOR TO INSTALLATION.

DESIGN: TMS	DATE: 5-21				
DRAWN: AJE	FILENAME:P:\WORKS\CAD\PLATES2021\P350				
REVISIONS					

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CITY OF MAPLEWOOD—ENGINEERING DEPT.

REHABILITATE EXISTING CONCRETE ADJUSTMENT RINGS

PLATE NO. 350

DRAWING NOT TO SCALE.
STANDARD PLATES ARE NOT PROJECT SPECIFIC.

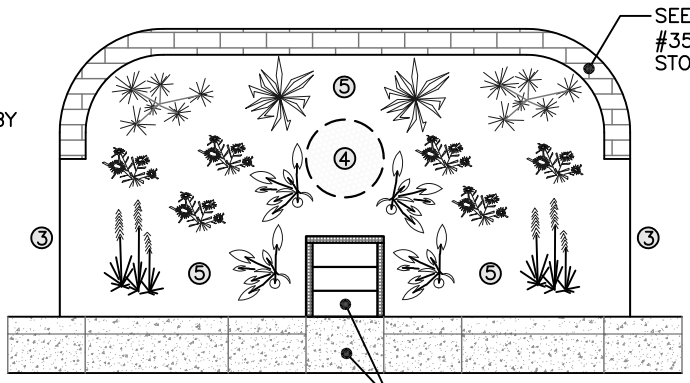
GARDEN SHALL NOT BE PLACED OVER UTILITIES EXISTING.

RAIN GARDEN SIZES VARY. GARDENS TO BE CUSTOMIZED BY DESIGNER TO MATCH EXISTING TERRAIN AND LANDSCAPE.

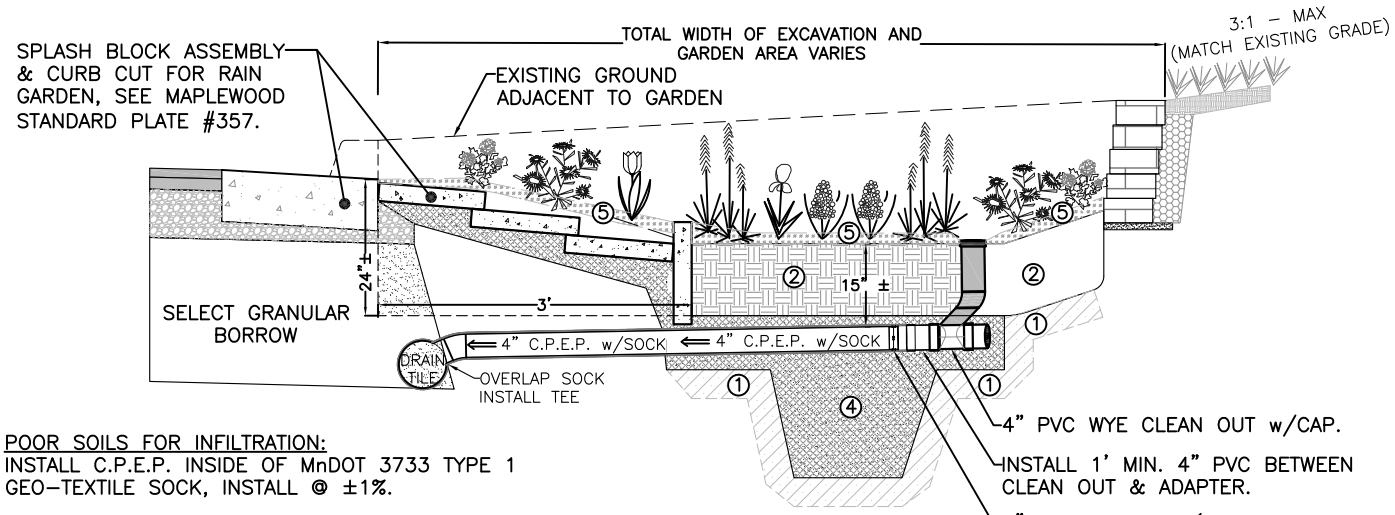
GRADE ADJACENT BOULEVARD TO DRAIN TO RAIN GARDEN

REPRESENTS A TYPICAL LAYOUT, DESIGNED LAYOUTS MAY VARY.

RAIN GARDEN PLAN VIEW



RAIN GARDEN PROFILE VIEW



POOR SOILS FOR INFILTRATION:
INSTALL C.P.E.P. INSIDE OF MnDOT 3733 TYPE 1 GEO–TEXTILE SOCK, INSTALL @ ±1%.

CONNECT TO DRAIN TILE IN STREET w/TEE. OVERLAP SOCK @ CONNECTION IN STREET & WYE IN GARDEN.

INSTALL PVC WYE w/CAP & 45° ELBOW BEND WITH 4" PVC CLEAN OUT WITH SIOUX CHIEF 851–24i COVER.

ALL PVC PIPE SHALL BE SCHEDULE 40, SDR 35, SDR 26, OR AN APPROVED EQUAL.

DEEP ROOTED NATIVE PLANTS PROVIDE BEST FUNCTION. CULTIVARS & SHRUBS ALSO WORK WELL. INFORMATION IS AVAILABLE AT MAPLEWOOD PUBLIC WORKS OR RAMSEY WASHINGTON METRO WATERSHED DISTRICT.

SOIL AND SITE CONDITIONS VARY THROUGHOUT CITY AND WITHIN INDIVIDUAL YARDS. SOIL TESTS FROM UNIVERSITY OF MN @ ST. PAUL. ADVICE FOR A SITE LOCATION OF RAIN GARDEN CAN BE ASSISTED BY CITY ENGINEERING STAFF.

NOTES:

① SCARIFY GROUND 12" PRIOR TO PLACING BEDDING MATERIAL.

② BEDDING MATERIAL, FILTER TOPSOIL BORROW, MnDOT 3877.2G. BEDDING MATERIAL SHALL BE A CERTIFIABLE PRE–MIXED PRODUCT.

③ 5" HEAVY DUTY PLASTIC EDGING

④ INFILTRATION SUMP, 50% PEA GRAVEL (MEETING MnDOT 3149.2H COARSE FILTER AGGREGATE) & 50% CLEAN COURSE SAND (MnDOT 3126.2F) FINE FILTER AGGREGATE. ROCK SUMP SIZE 3'X3'X3' (TYP.) MAY NEED TO BE INCREASED WITH POORLY DRAINING SOILS.

⑤ PLACE 2"–3" SHREDDED WOOD MULCH OVER ENTIRE PLANTED RAIN GARDEN. TYPICALLY FINISHED GRADE @ BOTTOM OF GARDEN IS 1' BELOW CURB CUT ELEVATION.

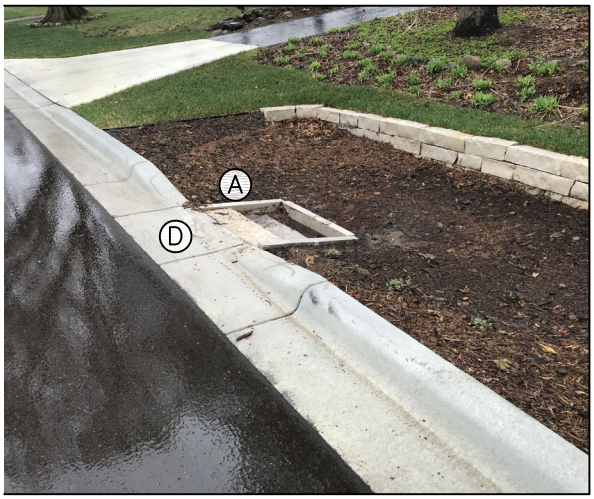
DESIGN: TMS		DATE: 2–15–02		
DRAWN: RKL		FILENAME:P:\WORKS\CAD\PLATES2021\P356		
REVISIONS	3–04	3–06	1–07	
2–08	3–15	1–17	4–20	4–21

Maplewood

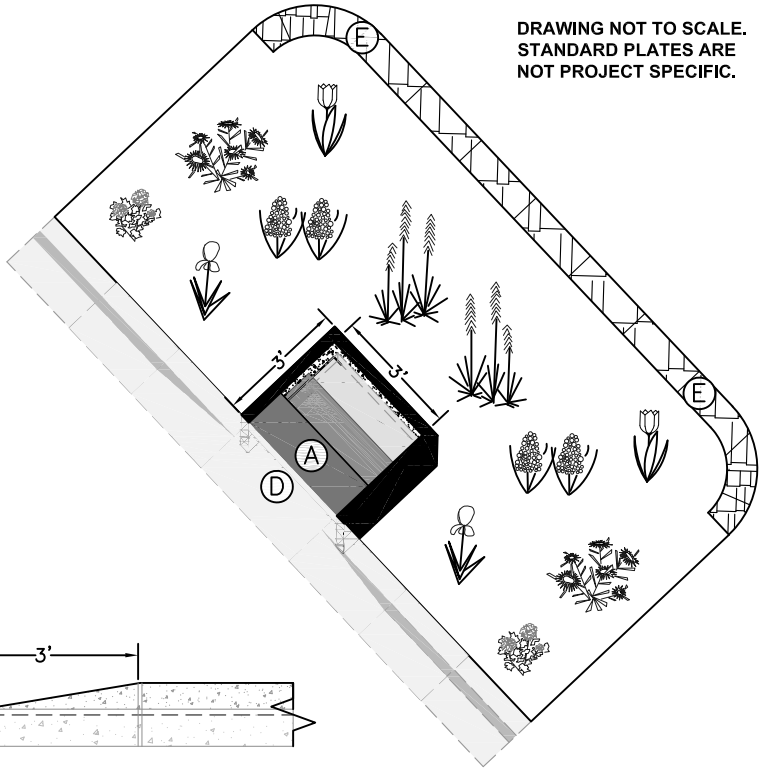
CITY OF MAPLEWOOD–ENGINEERING DEPT.

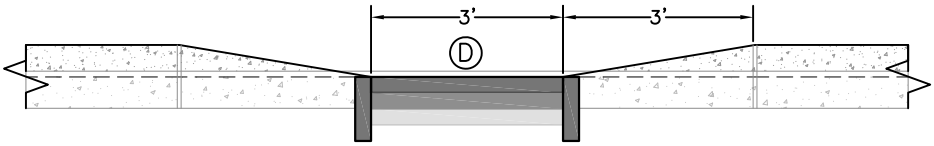
RAIN GARDEN

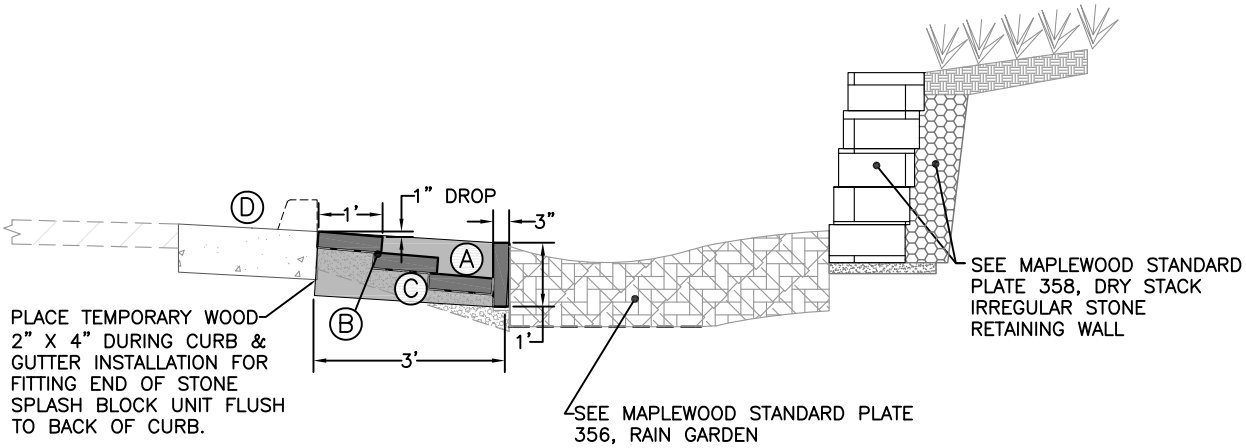
PLATE NO. 356



DRAWING NOT TO SCALE.
STANDARD PLATES ARE
NOT PROJECT SPECIFIC.







(A) SPLASH BLOCK ASSEMBLY:
SPLASH BLOCK ASSEMBLY STONE UNIT DIMENSIONS SHALL BE 1' X 3' X 3" AND SHALL BE MADE OF FON-DU-LAC STONE, CHILTON STONE, OR AN APPROVED EQUAL.

CONSTRUCT 3' X 1' X 3' COMPLETE SPLASH BLOCK ASSEMBLY AS ENCLOSED BOX TYPE STRUCTURE. GLUE JOINTS AS DIRECTED.

(B) PLACE IN STEPPED METHOD WITH 1" OVERLAP.
EACH STEP SHALL HAVE 1" VERTICAL DROP.

(C) PLACE 2"-4" OF PEA GRAVEL UNDER SPLASH BLOCK ASSEMBLY.

(D) CONSTRUCT 3' WIDE, DROP DOWN CURB CUT OPENING TO SLOPE TOWARDS RAIN GARDEN w/3' TRANSITION. CENTER SPLASH BLOCK ASSEMBLY @ CURB CUT.

DESIGN: TMS	DATE: 4-13-21			
DRAWN: RKL	FILENAME:P:\WORKS\CAD\PLATES2021\P117			
REVISIONS				

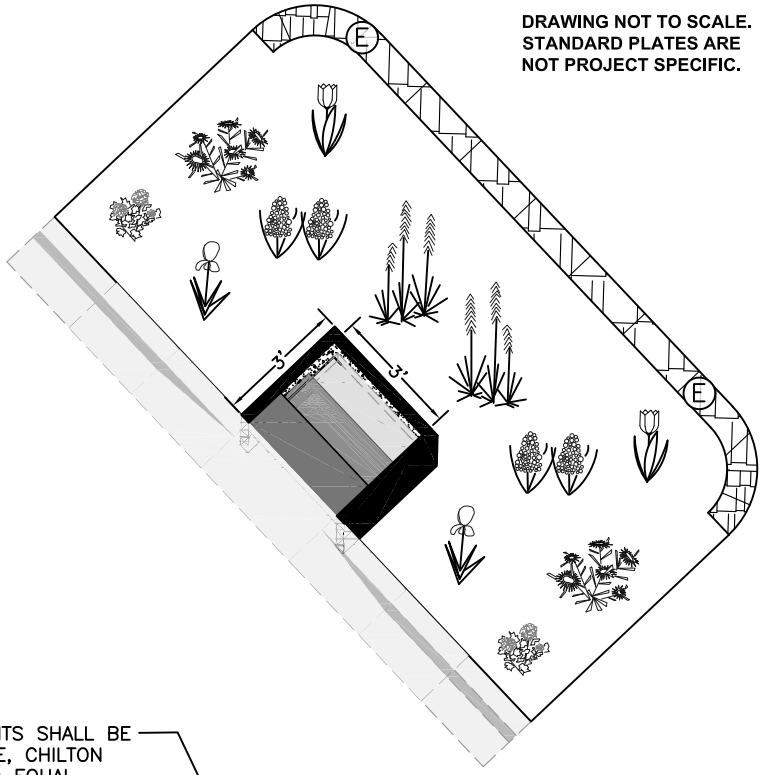
Maplewood

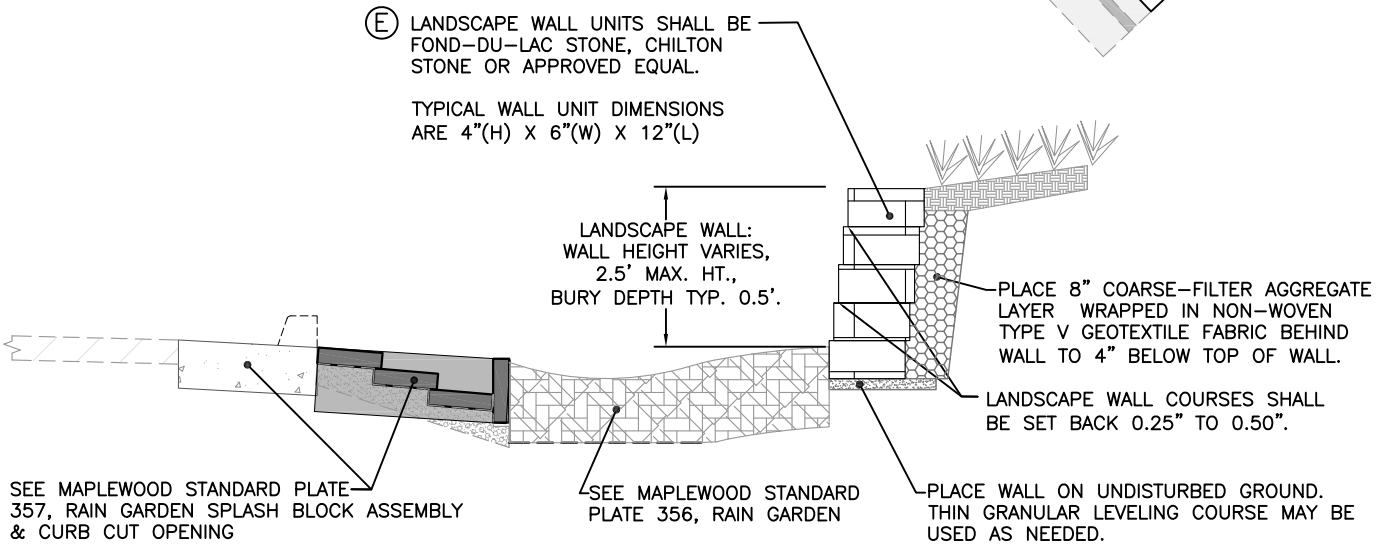
CITY OF MAPLEWOOD-ENGINEERING DEPT.

RAIN GARDEN SPLASH BLOCK ASSEMBLY & CURB CUT OPENING

PLATE NO. 357

DRAWING NOT TO SCALE.
STANDARD PLATES ARE
NOT PROJECT SPECIFIC.





DESIGN: TMS	DATE: 4-13-21		
DRAWN: RKL	FILENAME:P:\WORKS\CAD\PLATES2021\P117		
REVISIONS			

Maplewood

CITY OF MAPLEWOOD-ENGINEERING DEPT.

DRY-STACK IRREGULAR STONE RETAINING WALL

PLATE NO. 358

SEE MAPLEWOOD STANDARD PLATE 301 FOR MANHOLE CASTING.

SET RIM 1/4" – 1/2" BELOW FINISHED SURFACE

SEE MAPLEWOOD STANDARD PLATE 300 FOR FRAME & RING PLACEMENT DETAILS.

INSTALL EXTERNAL NON WOVEN FILTER FABRIC AS DIRECTED w/HDPE RINGS.

PRECAST REINFORCED ECCENTRIC CONE & RISER SECTIONS AS CONFORMING TO ASTM C478.

LIFTING HOLES TO BE FILLED WITH NON–SHRINK GROUT.

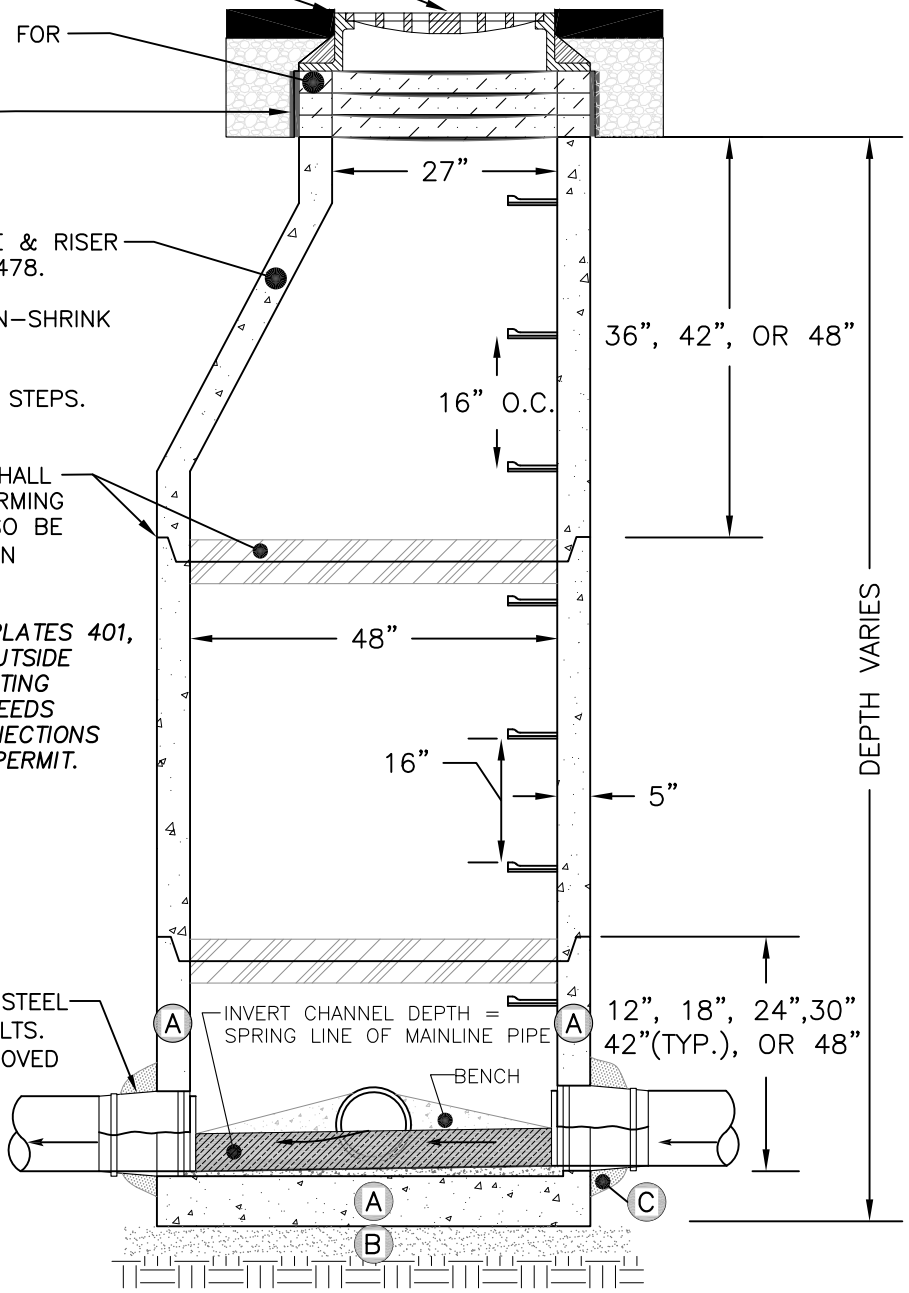
CONSTRUCT 12" WIDE POLYPROPYLENE STEPS.

JOINTS BETWEEN PRECAST SECTIONS SHALL USE O–RING RUBBER GASKETS CONFORMING TO ASTM C443. ALL JOINTS SHALL ALSO BE SEALED WITH 6" APPROVED INFILTRATION BARRIER WRAP AS DIRECTED.

SEE CITY OF MAPLEWOOD STANDARD PLATES 401, 402, 402A, & 404 FOR INSIDE AND OUTSIDE DROP CONNECTIONS TO NEW AND EXISTING MANHOLES. EACH DESIGN SITUATION NEEDS APPROVAL FROM CITY ENGINEER. CONNECTIONS TO EXISTING MANHOLES NEED A CITY PERMIT.

POSITIVE MECHANICAL SEAL STAINLESS STEEL EXTERNAL CLAMP W/DRAW NUTS & BOLTS. (KOR–N–SEAL BOOT BY NPC OR APPROVED EQUAL).

PRECAST CONCRETE UNITS TO MEET MnDOT 3621 & 3622



(A) SANITARY SEWER MANHOLE BASE SLAB, INVERT(S) AND FIRST STRUCTURE BARREL SECTION SHALL BE MANUFACTURED AT THE PRECAST PLANT AS A SINGULAR UNIT. FOLLOW MANUFACTURER GUIDELINES FOR SANITARY SEWER. BASE SLAB MIN. 6" THICK PER 48" DIA. AND UP TO 14' DEPTH. INCREASE 1" THICKNESS FOR EVERY 4' OF DEPTH GREATER THAN 14' DEPTH.

(B) MECHANICALLY COMPACT 4" GRANULAR MATERIAL FOR LEVELING (MnDOT 3149.2F) (ORDINARY COMPACTION)

(C) GROUT AROUND INSIDE AND OUTSIDE OF ALL PIPE CONNECTIONS TO MH– MIN. 8". (DOGHOUSE AND EXTERIOR PIPE OPENING)

DESIGN: TMS	DATE: 10/5/94			
DRAWN: RKL	FILENAME:P:\WORKS\CAD\PLATES2021\P400			
REVISIONS	10–94	3–97	3–02	
3–16	8–17	6–21		

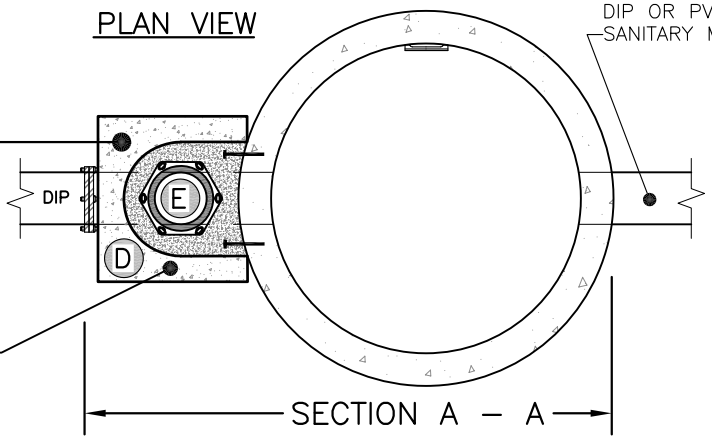
Maplewood

CITY OF MAPLEWOOD–ENGINEERING DEPT.

SANITARY SEWER MANHOLE

PLATE NO. 400

PLAN VIEW



SECTION A – A

(D) INSTALL PRECAST CONCRETE HORSESHOES TO ENCOMPASS DIP OUTSIDE DROP. GROUT BETWEEN HORSESHOES. STACK LEVEL AND FLUSH. PLACE OPEN END OF HORSESHOE TO OUTSIDE EDGE OF MH. CUT ENDS AT MH BASE IF NECESSARY.

SEE STANDARD PLATE 300 FOR FRAME PLACEMENT DETAILS.

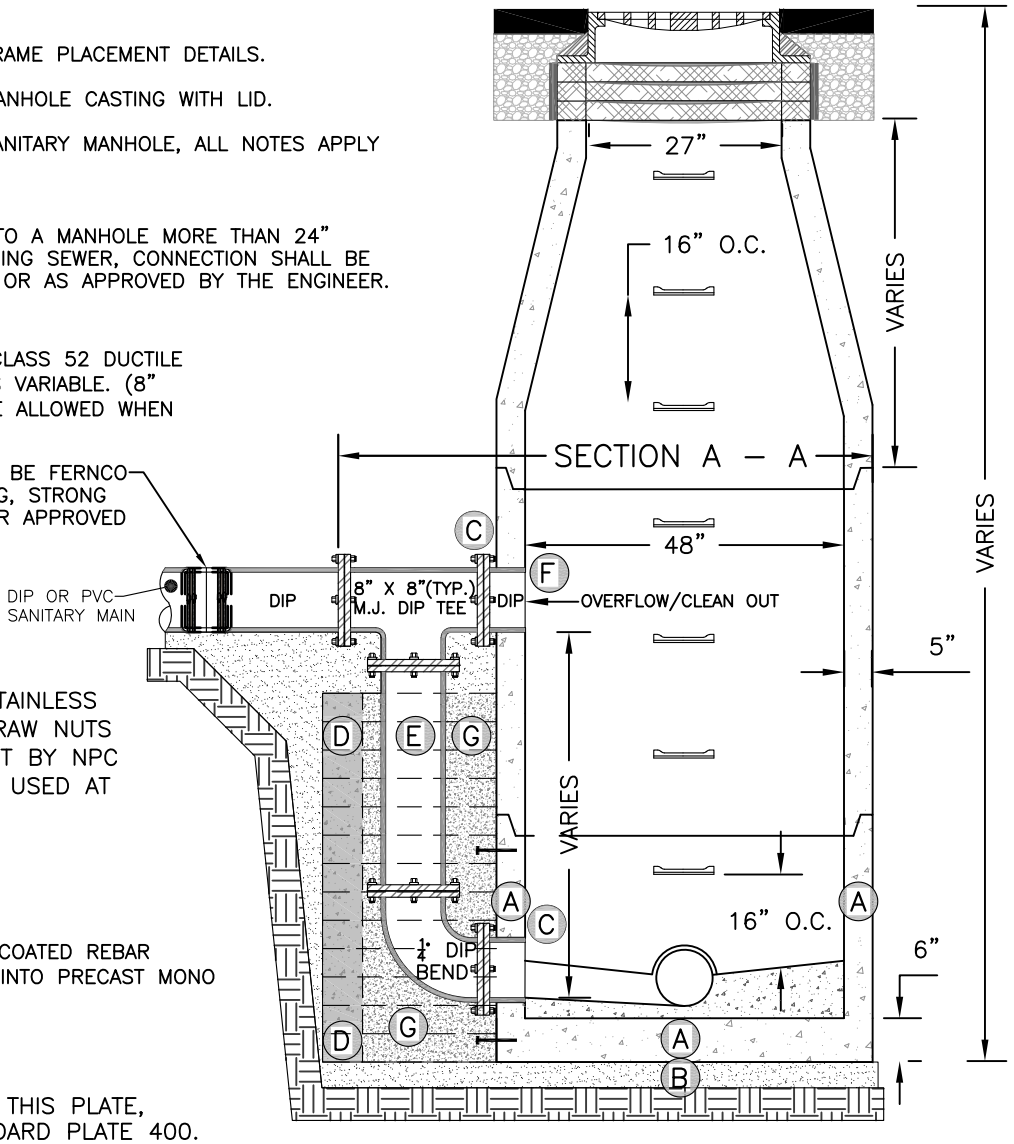
SEE STANDARD PLATE 301 FOR MANHOLE CASTING WITH LID.

SEE STANDARD PLATE 400 FOR SANITARY MANHOLE, ALL NOTES APPLY FOR THIS PLATE.

IF A SEWER MAIN IS CONNECTED TO A MANHOLE MORE THAN 24" ABOVE THE INVERT OF THE OUTGOING SEWER, CONNECTION SHALL BE BY MEANS OF AN OUTSIDE DROP, OR AS APPROVED BY THE ENGINEER.

(E) CONSTRUCT DROP SECTION WITH CLASS 52 DUCTILE IRON PIPE & MJ FITTINGS. SIZE IS VARIABLE. (8" TYP.). PVC OUTSIDE DROP MAY BE ALLOWED WHEN APPROVED BY THE ENGINEER.

ALL CONNECTING ADAPTERS SHALL BE FERNCO WITH STAINLESS STEEL SHEAR RING, STRONG BACK FERNCO RC 1000 SERIES OR APPROVED EQUAL.



(F) POSITIVE MECHANICAL SEAL STAINLESS STEEL EXTERNAL CLAMP W/DRAW NUTS & BOLTS. (KOR–N–SEAL BOOT BY NPC OR APPROVED EQUAL) TO BE USED AT ALL PIPE MH CONNECTIONS.

(G) FILL ALL VOIDS WITH WET CONCRETE MORTAR OR READY MIX CONCRETE

F & I MIN. 4 EA., 8" #4 EPOXY COATED REBAR DOWELS, EMBED DOWEL ENDS 3" INTO PRECAST MONO BASE, AS SHOWN IN DETAIL.

(A)
(B) FOR NOTES A–C SHOWN ON THIS PLATE, REFER TO MAPLEWOOD STANDARD PLATE 400.
(C)

DESIGN: TMS	DATE: 3/95			
DRAWN: RKL	FILENAME:P:\WORKS\CAD\PLATES2021\P401			
REVISIONS	10–94	3–97	1–02	
3–16	8–17	8–21		

Maplewood

CITY OF MAPLEWOOD–ENGINEERING DEPT.

SANITARY SEWER OUTSIDE DROP MANHOLE(NEW MH)

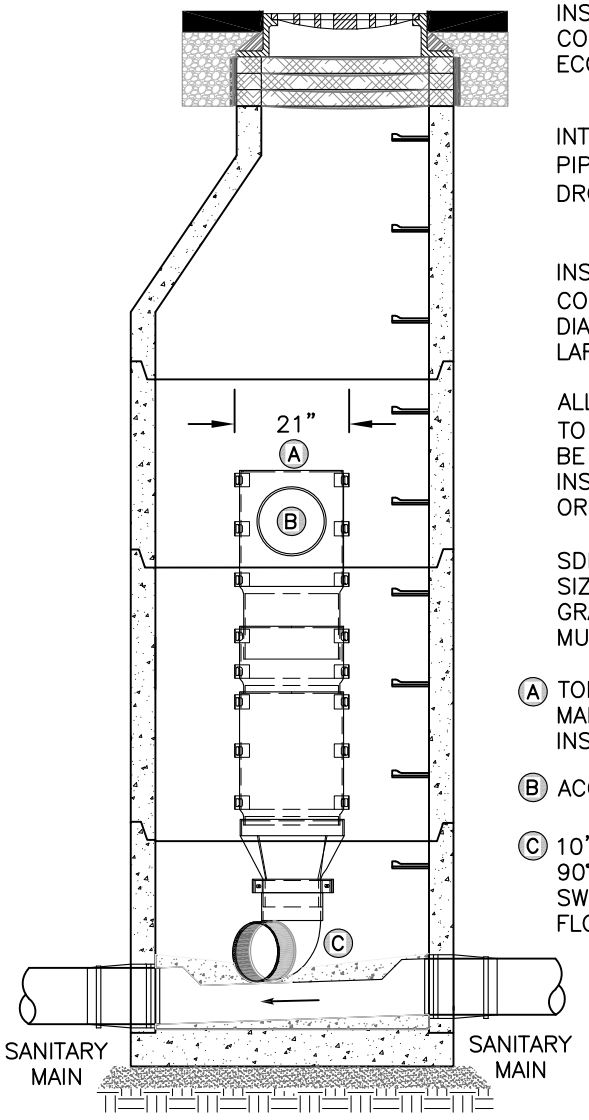
PLATE NO. 401

TOP INNER MH VIEW

INSIDE DROP SANITARY MANHOLE, NEW OR EXISTING

INSIDE DROP SYSTEM SHALL BE INSTALLED WITH FORTERRA INTRA FLOW LOW–PROFILE INSIDE DROP SYSTEM OR APPROVED EQUAL AS APPROVED BY THE ENGINEER. INSTALL PER MANUFACTERS GUIDELINES AND SPECIFICATIONS.

ALL NOTES LISTED ON STD. PLATE 400, APPLY TO THIS PLATE. REFER TO MAPLEWOOD STANDARD PLATES 300, 301, AND 400 FOR REFERENCE.



CENTER VIEW

INSIDE DROP CANNOT BE CONSTRUCTED WITHIN ECCENTRIC CONE SECTION.

INTRA FLOW DROP ACCOMMODATES PIPE SIZES FROM 4"–12". MINIMUM DROP DEPTH IS 4'.

INSIDE DROP CAN BE CONSTRUCTED WITH 48" DIAMETER MH TO ALL SIZES LARGER.

ALL INSIDE DROPS ADDED TO EXISTING MH'S SHALL BE CORE DRILLED & AND INSTALL WATERSTOP RING OR BOOT.

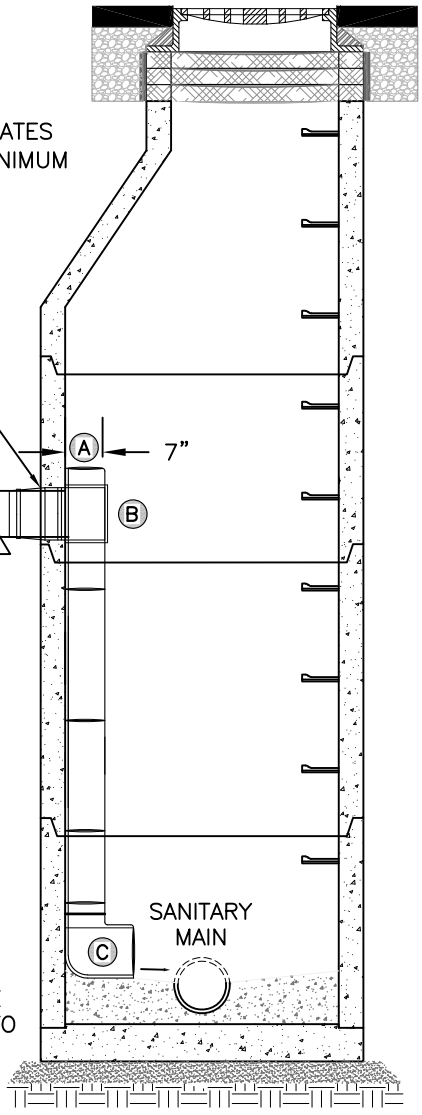
SDR 35 PVC SANITARY MAIN. SIZE AS DETERMINED. GRADES 5% OR GREATER MUST BE APPROVED.

(A) TOP SECTION FOR MAINTENANCE & INSPECTION

(B) ACCESS OPENING (12" MAX.)

(C) 10" ADJUSTABLE SWEEP 90° SECTION. DIRECT SWEEP TO DOWNWARD FLOW OF MH INVERT.

NEW CONNECTIONS TO EXISTING MH'S SHALL HAVE INVERTS RECONSTRUCTED TO DIRECTION OF FLOW AND APPROVED BENCH HEIGHT OF INSIDE DROP SECTION. SEE MAPLEWOOD STANDARD PLATE 405



SIDE VIEW

DESIGN: TMS	DATE: 8/18/17			
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REVISIONS	8–17	6–21		

Maplewood

CITY OF MAPLEWOOD–ENGINEERING DEPT.

SANITARY SEWER INSIDE DROP, NEW OR CONNECT TO EXISTING MANHOLE

PLATE NO. 402

INSIDE DROP CONSTRUCTED ON EXISTING MH ONLY

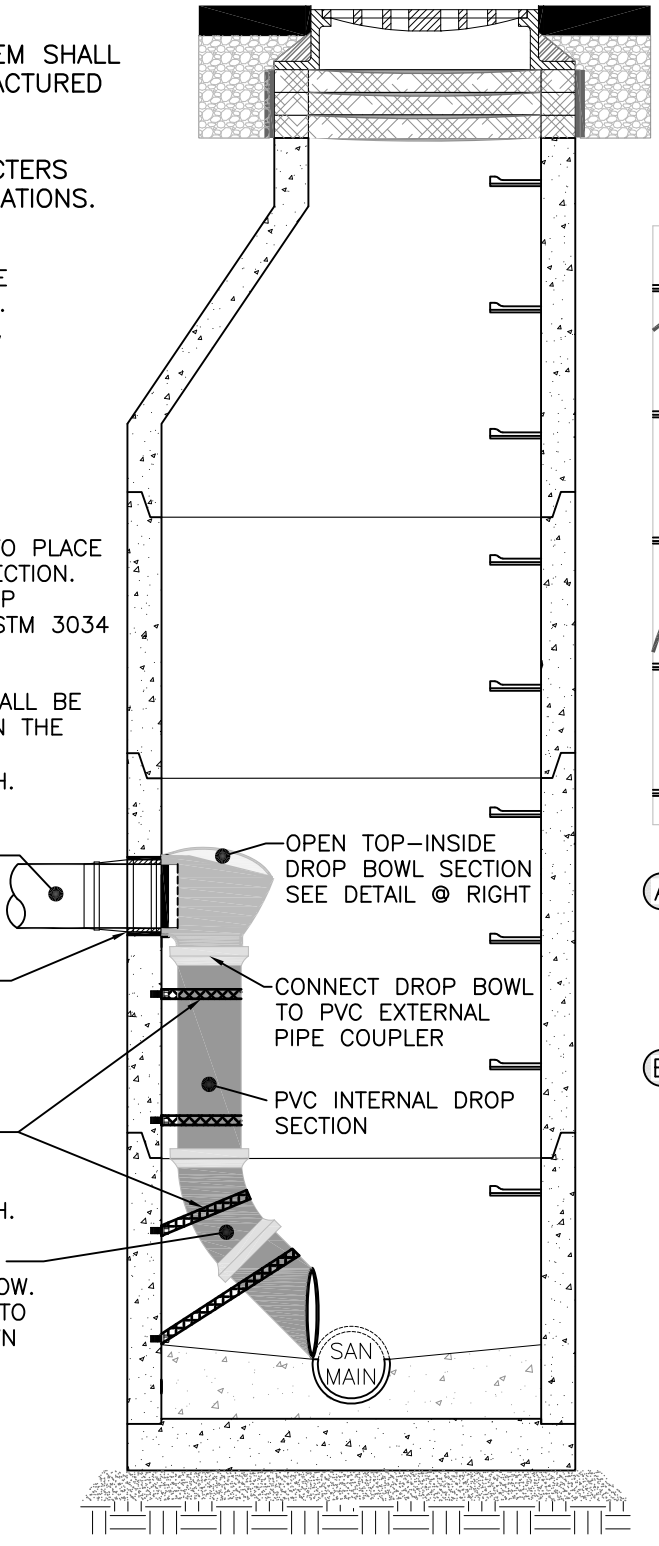
INSIDE DROP BOWL SYSTEM SHALL BE INSTALLED AS MANUFACTURED BY RELINER–DURAN INC. OR APPROVED EQUAL. INSTALL AS PER MANUFACTERS GUIDELINES AND SPECIFICATIONS.

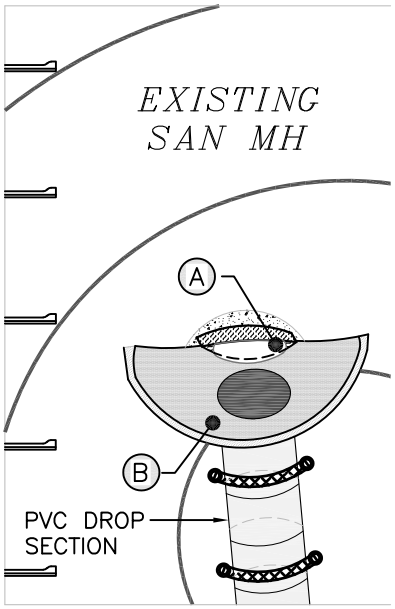
ALL NOTES LISTED ON MAPLEWOOD STANDARD PLATE 400, APPLY TO THIS PLATE. REFER TO PLATES 300, 301, AND 400 FOR REFERENCE.

INSIDE DROP CANNOT BE CONSTRUCTED WITHIN ECCENTRIC CONE SECTION.

INSIDE DROP SECTION SIZE HEIGHT = 3' MIN. – MAX. TO PLACE AS NEEDED BELOW CONE SECTION. PIPE AND FITTINGS FOR DROP ASSEMBLY SHALL BE PVC ASTM 3034 SDR 35.

DIAMETER OF DROP PIPE SHALL BE EQUAL TO OR GREATER THAN THE LINE PIPE SIZE DIAMETER. INSIDE DROP 2' MIN. LENGTH.





(A) FLOW IN PVC SANITARY MAIN OR SERVICE. PVC PROJECTS MIN. 2" OVERLAP OVER & INTO DROP BOWL

(B) INSIDE DROP BOWL SECTION

INSIDE DROP CAN BE CONSTRUCTED WITH 48" DIAMETER MH TO ALL SIZES LARGER. MORE THAN ONE DROP PER MANHOLE MUST BE APPROVED BY THE ENGINEER.

NEW CONNECTIONS TO EXISTING MH'S SHALL HAVE INVERTS RECONSTRUCTED TO DIRECTION OF FLOW AND APPROVED BENCH HEIGHT OF INSIDE DROP SECTION. SEE MAPLEWOOD STANDARD PLATE 405

DESIGN: TMS	DATE: 8/18/17			
DRAWN: RKL	FILENAME:P:\WORKS\CAD\PLATES2021\P402A			
REVISIONS	8–17	6–21		

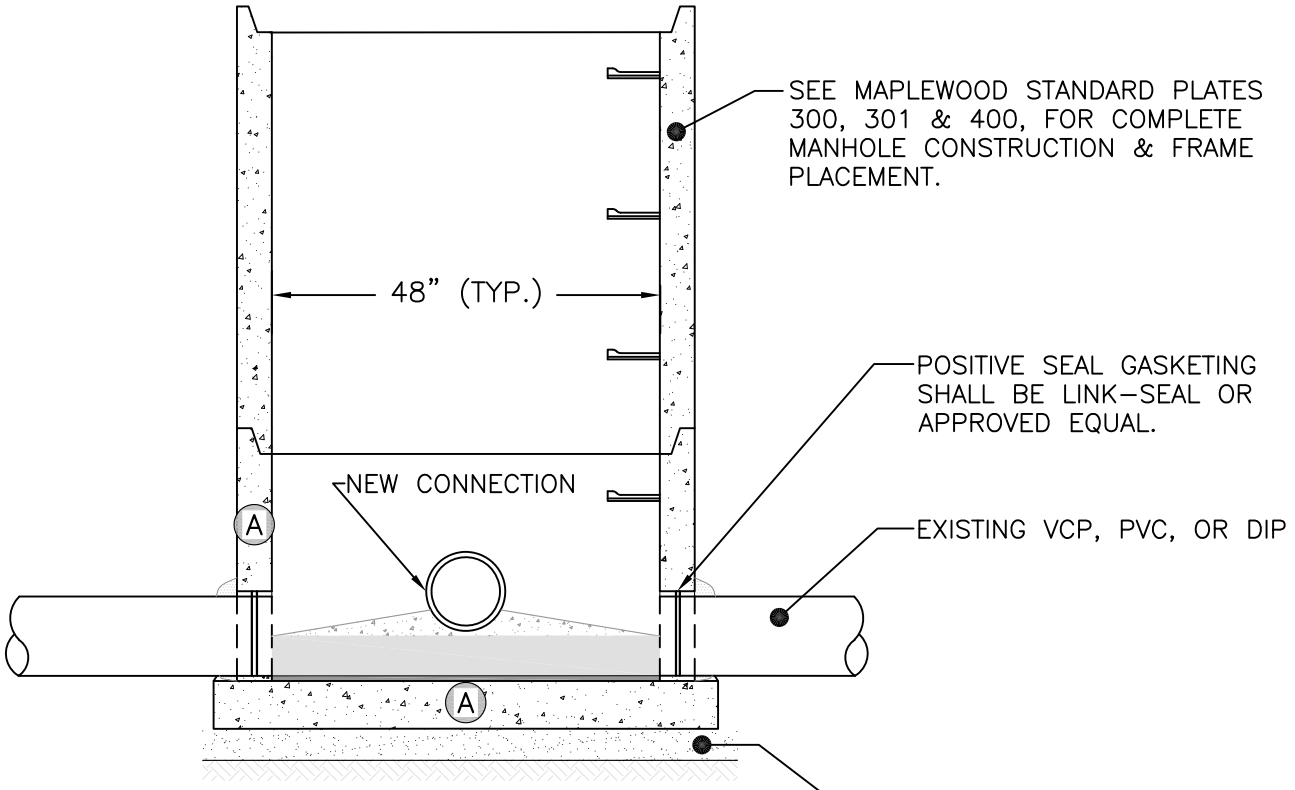
Maplewood

CITY OF MAPLEWOOD–ENGINEERING DEPT.

SANITARY SEWER INSIDE DROP, BOWL CONNECTION TO EXISTING MANHOLE

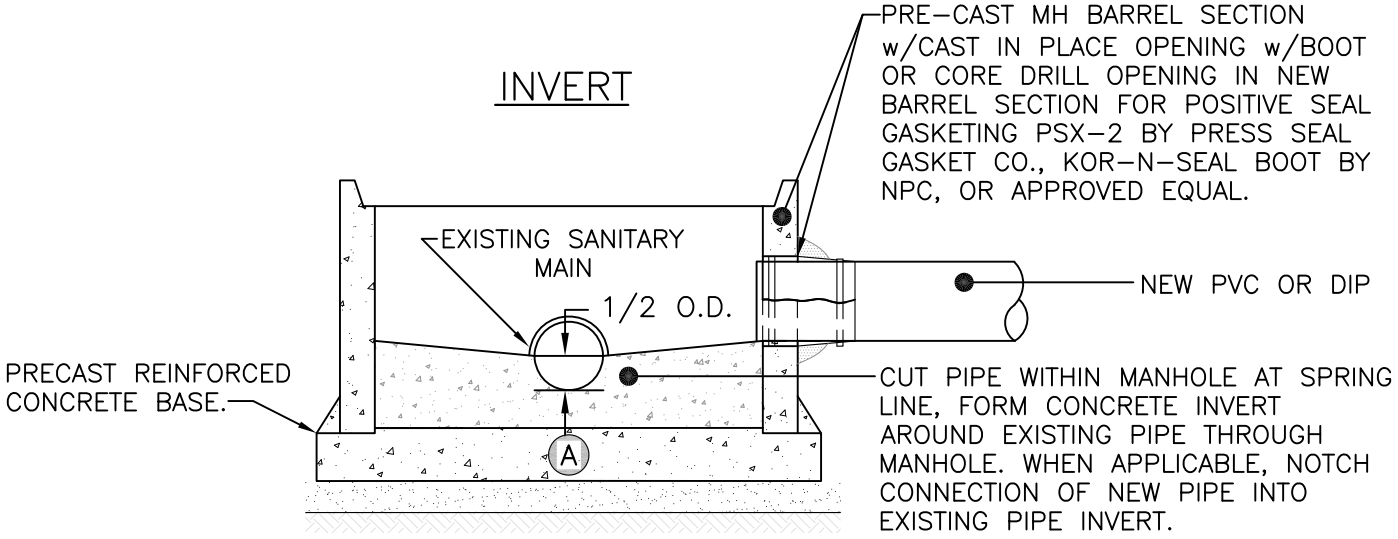
PLATE NO. 402A

SECTION



(A) SEPARATE INTEGRAL BASE & BOTTOM BARREL SECTION. CONSTRUCT INVERT IN PLACE WITH MnDOT 2461 TYPE 3G52 CONCRETE OR CERTIFIED READY-MIX AIR-ENTRAINED MORTAR. FOR BASE SLAB THICKNESS REFER TO TO PRECAST MANUFACTURER SPECIFICATIONS.

INVERT



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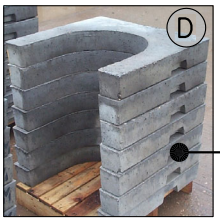
Maplewood

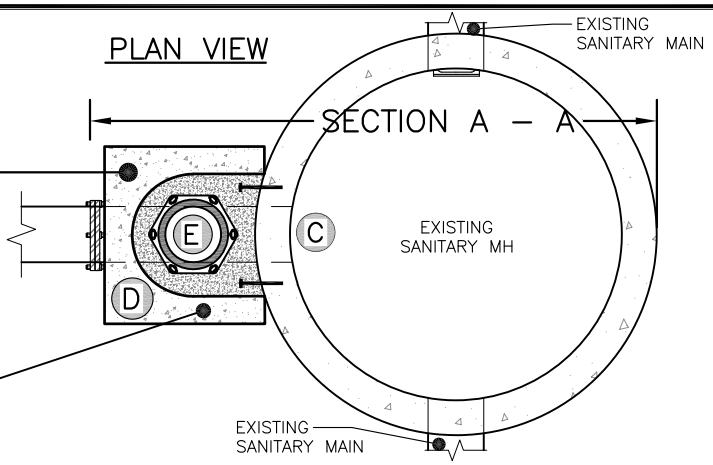
CITY OF MAPLEWOOD-ENGINEERING DEPT.

CONSTRUCT MANHOLE OVER EXISTING SANITARY SEWER MAIN

PLATE NO. 403



PLAN VIEW



(C) GROUT AROUND INSIDE AND OUTSIDE OF ALL PIPE CONNECTIONS TO MH– MIN. 8". (DOGHOUSE AND EXTERIOR PIPE OPENING)

(D) INSTALL PRECAST CONCRETE HORSESHOES TO ENCOMPASS DIP OUTSIDE DROP. GROUT BETWEEN HORSESHOES. STACK LEVEL AND FLUSH. PLACE OPEN END OF HORSESHOE TO OUTSIDE EDGE OF MH. CUT ENDS AT MH BASE IF NECESSARY.

SEE STANDARD PLATE 300 FOR FRAME PLACEMENT DETAILS.

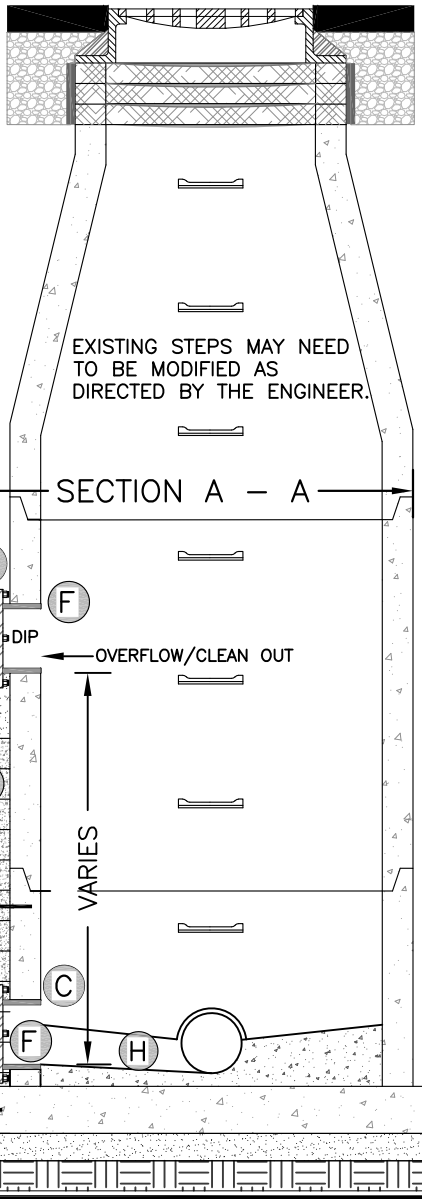
SEE STANDARD PLATE 301 FOR MANHOLE CASTING WITH LID.

SEE STANDARD PLATE 400 FOR SANITARY MH. ALL NOTES APPLY FOR THIS PLATE.

IF A SEWER MAIN IS CONNECTED TO A MANHOLE MORE THAN 24" ABOVE THE INVERT OF THE OUTGOING SEWER, CONNECTION SHALL BE BY MEANS OF AN OUTSIDE DROP, OR AS APPROVED BY THE ENGINEER. INSIDE DROP CONNECTIONS TO EXISTING MH MAY BE USED UPON APPROVAL BY THE ENGINEER. SEE STANDARD PLATE 402/402A.

(E) CONSTRUCT DROP SECTION WITH CLASS 52 DUCTILE IRON PIPE & MJ FITTINGS. SIZE IS VARIABLE. (8" TYP.). PVC OUTSIDE DROP WILL BE ALLOWED WHEN APPROVED BY THE ENGINEER.

ALL CONNECTING ADAPTERS SHALL BE FERNCO WITH STAINLESS STEEL SHEAR RING, STRONG BACK RC 1000 SERIES OR APPROVED EQUAL.



(F) NEW CONNECTIONS TO MH SHALL BE CORE DRILLED. INSTALL WATERSTOP RING OR (KOR–N–SEAL BOOT BY NPC OR APPROVED EQUAL) WITH POSITIVE MECHANICAL SEAL STAINLESS STEEL EXTERNAL CLAMP W/DRAW NUTS & BOLTS. TO BE USED AT ALL PIPE MH CONNECTIONS.

(G) FILL ALL VOIDS WITH WET CONCRETE MORTAR

F & I MIN. 4 EA., 8" #4 EPOXY COATED REBAR DOWELS, EMBED DOWEL ENDS 3" INTO PRECAST MONO BASE, AS SHOWN IN DETAIL.

(H) NEW CONNECTIONS TO EXISTING MH'S SHALL HAVE INVERTS RECONSTRUCTED TO DIRECTION OF FLOW AND APPROVED BENCH HEIGHT OF DROP SECTION. SEE MAPLEWOOD STADARD PLATE 405 FOR MORE INFO.

DESIGN: TMS	DATE: 3–95			
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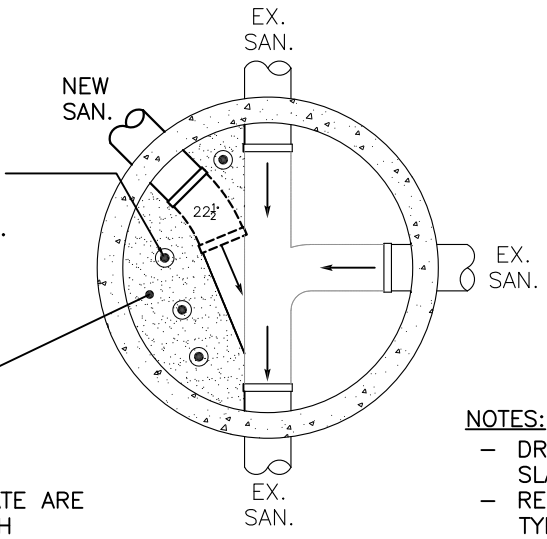
Maplewood

CITY OF MAPLEWOOD–ENGINEERING DEPT.

SANITARY SEWER OUTSIDE DROP, CONNECTION TO EXISTING MANHOLE

PLATE NO. 404

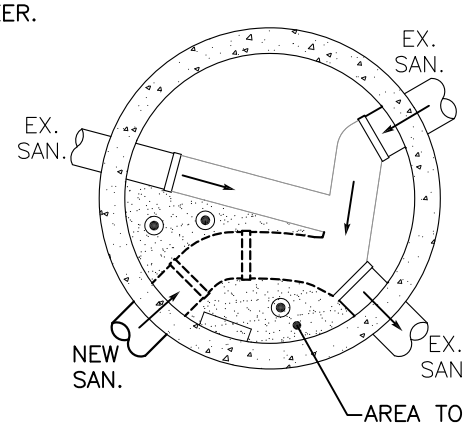
CONNECTING TO EXISTING MH AT BASE LEVEL & RECONSTRUCTING EXISTING INVERT

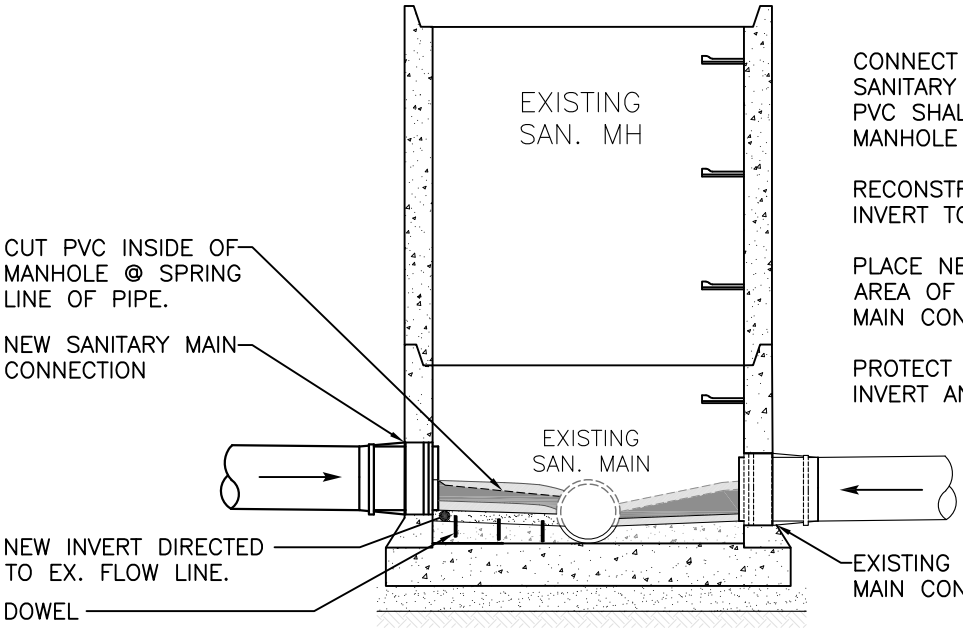


MH'S SHOWN ON THIS PLATE ARE ONLY FOR EXAMPLES. EACH SITUATION IS UNIQUE AND TO BE APPROVED BY THE ENGINEER.

NOTES:

- DRILL 5" L X ½ DIA." REBAR INTO EX. INVERT SLAB.
- RECONSTRUCT INVERT WITH MnDOT 2461 TYPE 3G52 CONCRETE OR CERTIFIED READY MIX AIR ENTRAINED MORTAR
- NEW 8" PVC TO BE CUT @ SPRING LINE. PLACE ON SLAB ABOVE EXISTING FLOW LINE.
- DIRECT NEW PVC FLOW TORWARD THE EXISTING OUTLET, CUT PVC PIPE AND BENDS @ SPRING LINE WHEN INSIDE THE MANHOLE.
- PLACE CONCRETE TO SUPPORT CUT PVC INVERT AND NEW CONNECTION.
- 11 1/4" AND OR 22 ½° BEND MAY BE REQUIRED.





CONNECT NEW PVC TO EXISTING SANITARY MANHOLE, INVERT OF NEW PVC SHALL BE ABOVE EXISTING MANHOLE OUTLET.

RECONSTRUCT EXISTING SANITARY INVERT TO SUPPORT NEW CONNECTION.

PLACE NEW CONCRETE IN AFFECTED AREA OF INVERT TO SUPPORT NEW MAIN CONNECTION.

PROTECT EXISTING FLOW LINE OF INVERT AND OUTLET.

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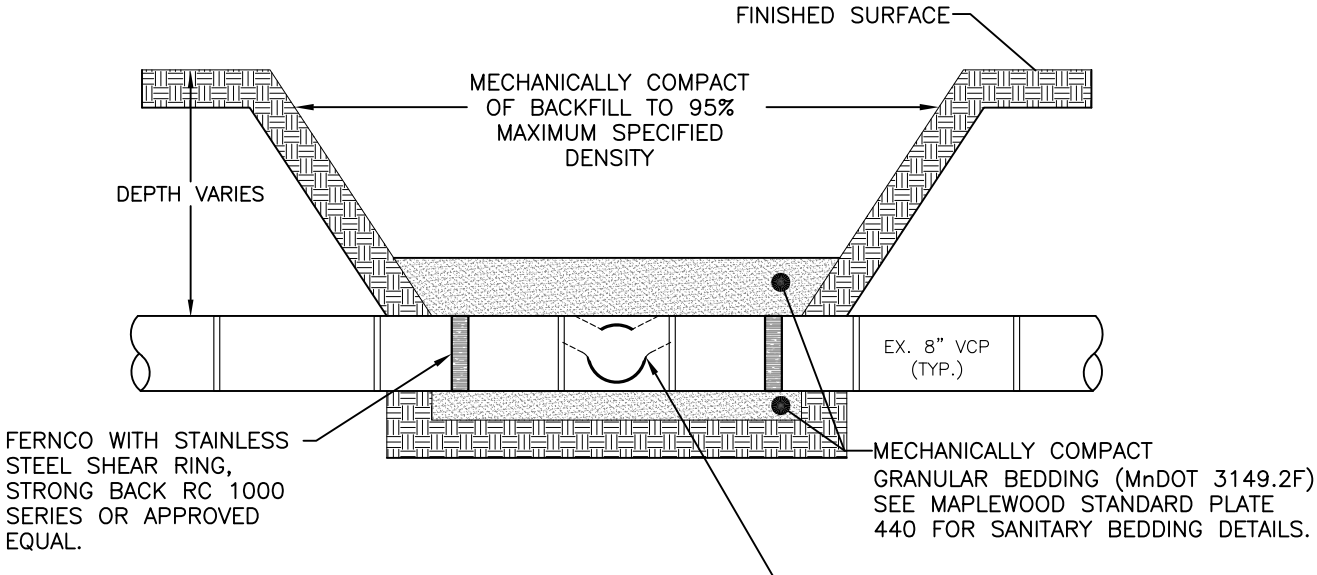
DRAWN: RKL	FILENAME:P:\WORKS\CAD2021\PLATES\P405			
REVISIONS	8–21			

Maplewood

CITY OF MAPLEWOOD–ENGINEERING DEPT.

CONNECT TO EXISTING SANITARY MANHOLE & RECONSTRUCT INVERT

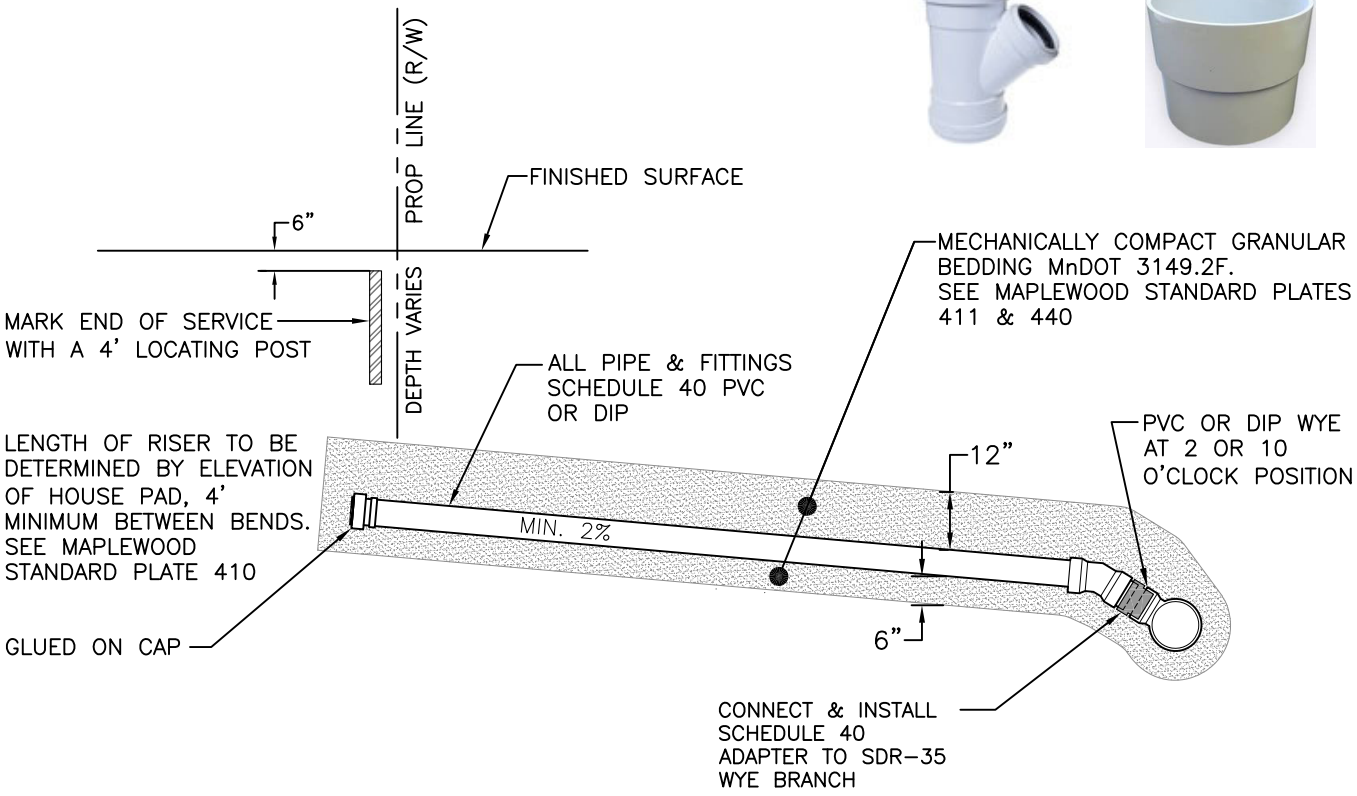
PLATE NO. 405



INSTALL & MATCH SIZE OF EXISTING MAIN WITH NEW PVC MAIN REPLACEMENT. WYE BRANCH TO BE 6" UNLESS DIRECTED BY THE ENGINEER. 8" X 6" SDR-35 PVC WYE IS TYPICAL. INSTALL SCHEDULE 40 ADAPTER ON SDR-35 WYE BRANCH. (ASTM-D3034) CONNECT w/6" SCH 40 PVC SERVICE. INSTALL SERVICE TO R/W PROP LINE AS DIRECTED.

SDR 35 PVC WYE (8" X 6")TYP.

SCHEDULE 40 TO SDR 35 ADAPTER



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REVISIONS	8-17	7-21		

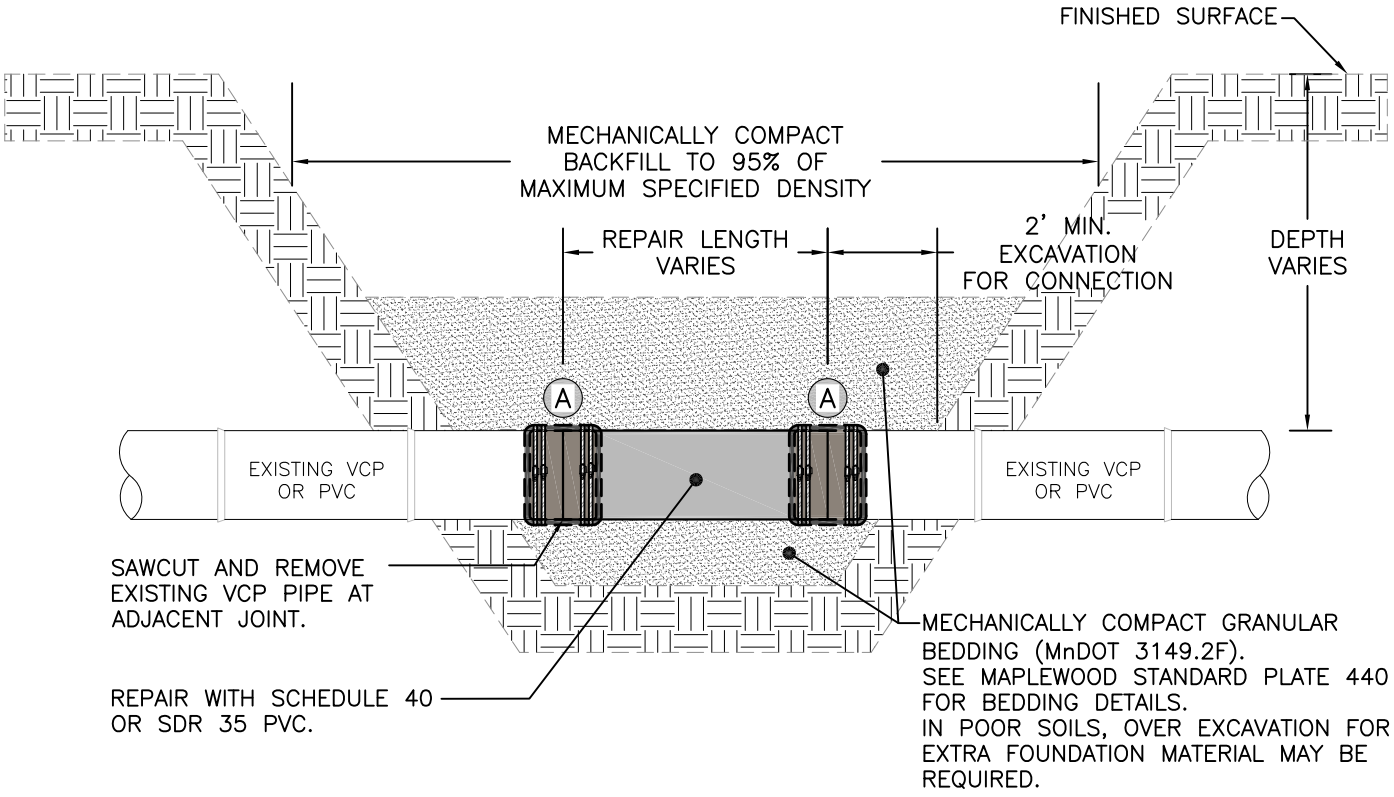
Maplewood

CITY OF MAPLEWOOD-ENGINEERING DEPT.

SANITARY SEWER SERVICE RECONSTRUCT (MAIN TO R/W)

PLATE NO. 408

DRAWING NOT TO SCALE.
STANDARD PLATES ARE NOT PROJECT SPECIFIC.

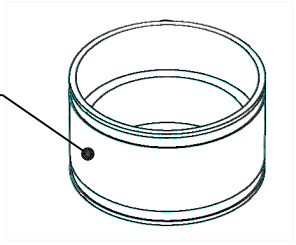


(A) ALL CONNECTING ADAPTERS SHALL BE FERNCO WITH STAINLESS STEEL SHEAR RING, STRONG BACK RC 1000 SERIES OR APPROVED EQUAL.

IF EXISTING VCP MAIN, INSTALL VCP x PVC FERNCO ADAPTER.

IF EXISTING PVC MAIN, INSTALL PVC X PVC FERNCO ADAPTER.

OBTAIN EQUAL OUTSIDE & INSIDE DIAMETERS PRIOR TO FERNCO INSTALLATION TO AVOID OFFSET JOINTS.



IF CONNECTION TO A VCP BELL END, PLACE BUSHING ON THE PVC END TO SECURE PVC TO VCP CONNECTION. REFER TO MANUFACTURERS GUIDELINES FOR SIZE & INSTALLATION.

DESIGN: TMS	DATE: 3-95			
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REVISIONS	3-97	3-02	3-06	
7-21				

Maplewood

CITY OF MAPLEWOOD—ENGINEERING DEPT.

SANITARY SEWER MAIN REPAIR

PLATE NO. 409

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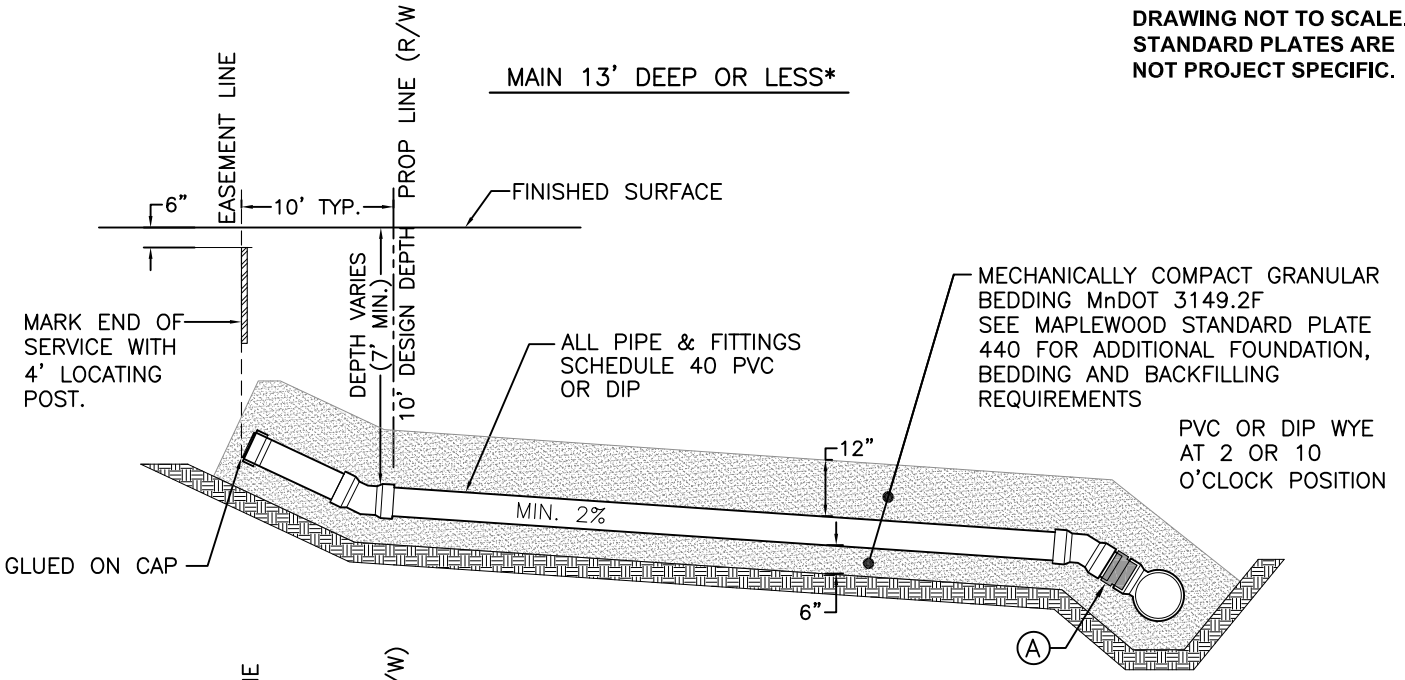
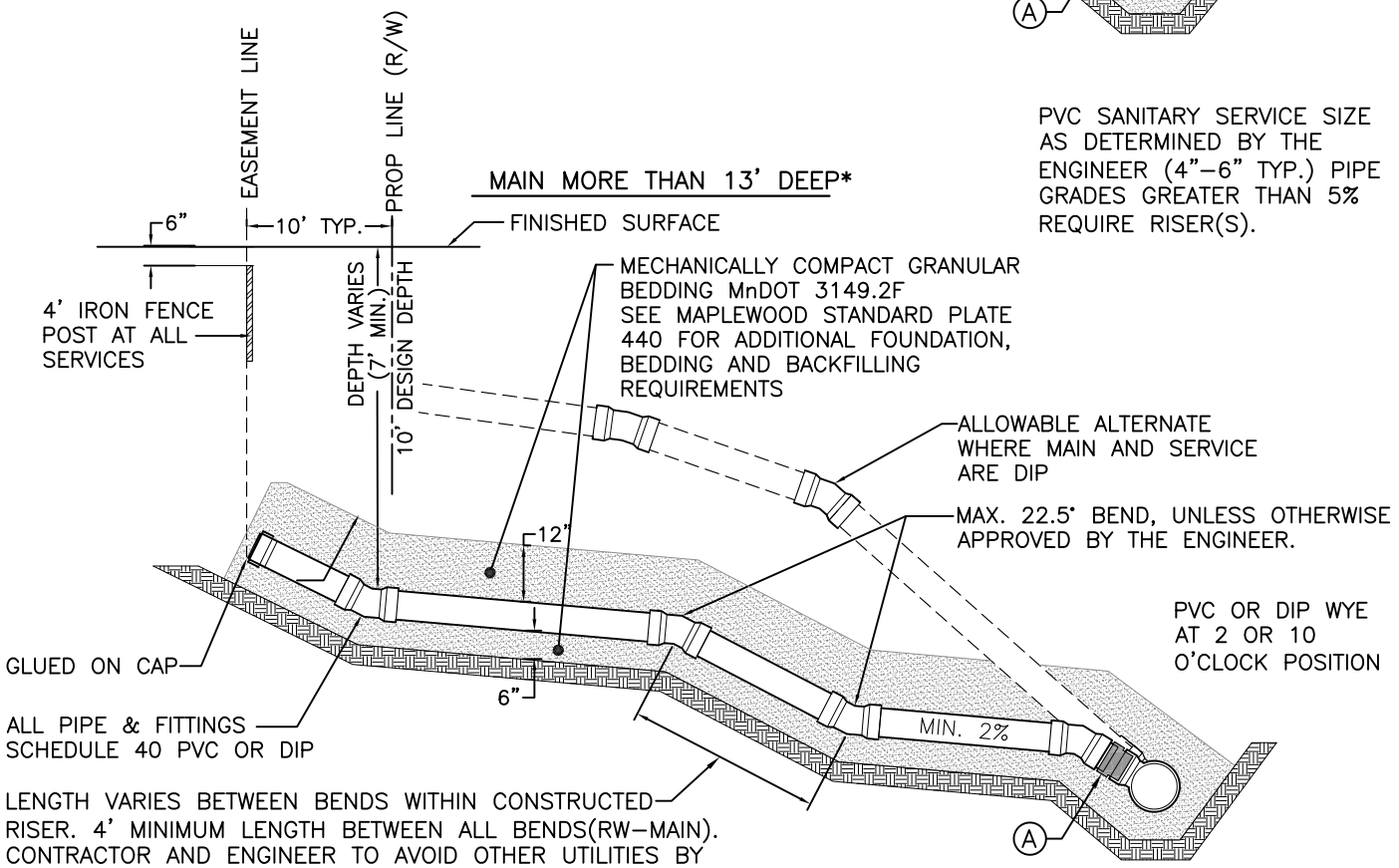
DRAWING NOT TO SCALE. STANDARD PLATES ARE NOT PROJECT SPECIFIC.

MAIN 13' DEEP OR LESS*



MAIN MORE THAN 13' DEEP*



PVC SANITARY SERVICE SIZE AS DETERMINED BY THE ENGINEER (4"–6" TYP.) PIPE GRADES GREATER THAN 5% REQUIRE RISER(S).

LENGTH VARIES BETWEEN BENDS WITHIN CONSTRUCTED RISER. 4' MINIMUM LENGTH BETWEEN ALL BENDS(RW–MAIN). CONTRACTOR AND ENGINEER TO AVOID OTHER UTILITIES BY GOING OVER OR UNDER (MIN. 18" VERTICAL CLEARANCE), SUPPORT UTILITY PIPES AS DIRECTED BY ENGINEER.

DESIGN ALSO APPLIES TO AREAS OF HIGH GROUND WATER * DEPTH OF COVER AT R/W TO BE 10' UNLESS NOTED (7' MIN.)

(A)–INSTALL SCHEDULE 40 ADAPTER ON SDR–35 WYE BRANCH

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Maplewood

CITY OF MAPLEWOOD–ENGINEERING DEPT.

SANITARY SEWER SERVICE NEW CONSTRUCTION

PLATE NO. 410

DRAWING NOT TO SCALE.
STANDARD PLATES ARE NOT PROJECT SPECIFIC.

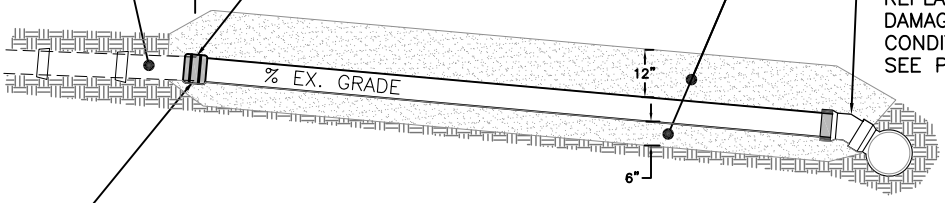
MOST COMMON EXISTING PIPE MATERIALS INCLUDE VCP, CAST IRON, DIP & PVC. IF VCP IS ENCOUNTERED AT THE R/W CONNECTION, VERIFY SERVICE MATERIAL & CONDITION BEYOND PROPOSED CONNECTION POINT. ADDITIONAL PIPE REPLACEMENT MAY BE REQUIRED AS DETERMINED BY THE ENGINEER.

PROP LINE (R/W)

SAWCUT

SEE PLATE 440 FOR ADDITIONAL FOUNDATION, BEDDING AND BACKFILLING REQUIREMENTS.

REPLACE VCP WYE IF DAMAGED OR IN POOR CONDITION, AS DIRECTED. SEE PLATE 408



CONNECT TO EXISTING SEWER SERVICE @ R/W LINE (TYP.)
IF 4" CAST USE 4"x6" OR 4"X4" (CAST TO PVC) FERNCO ADAPTER w/STAINLESS STEEL SHEAR RING
IF 6" CLAY USE 6"x6" (CLAY TO PVC) FERNCO ADAPTER w/STAINLESS STEEL SHEAR RING

PROP LINE (R/W)

BELL END

ALL REPLACED PIPE & FITTINGS TO BE SCHEDULE 40 PVC. SEWER SERVICE TO BE REPLACED MUST BE EQUAL OR GREATER IN DIAMETER TO EXISTING SERVICE @ R/W. CONTRACTOR MAY EXTEND ONTO PRIVATE PROPERTY TO GAIN POSITIVE GRADE ON SERVICE PIPE.

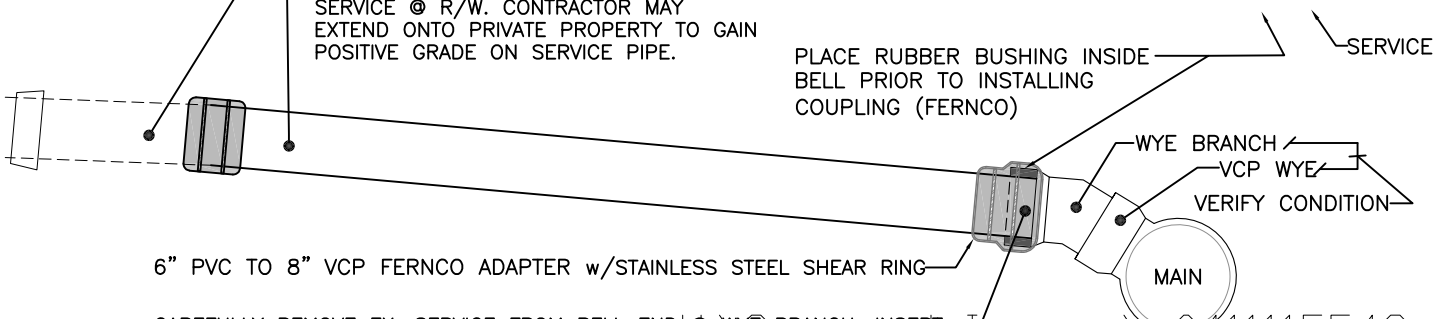
PLACE RUBBER BUSHING INSIDE BELL PRIOR TO INSTALLING COUPLING (FERNCO)

SERVICE

WYE BRANCH

VCP WYE

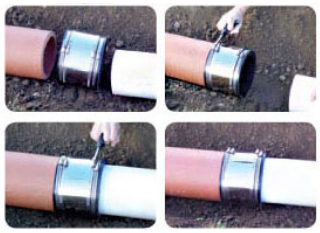
VERIFY CONDITION



6" PVC TO 8" VCP FERNCO ADAPTER w/STAINLESS STEEL SHEAR RING

CAREFULLY REMOVE EX. SERVICE FROM BELL END @ WYE BRANCH. INSERT SCH. 40 PVC WITH RUBBER BUSHING SECURED OVER OUTSIDE AND FLUSH WITH END OF PVC. INSERT INTO ENTIRE BELL END OF EX. WYE BRANCH. INSTALL AND SECURE 8" VCP to 6" PVC FERNCO.

ALL CONNECTING ADAPTERS SHALL BE FERNCO WITH STAINLESS STEEL SHEAR RING, STRONG BACK RC 1000 SERIES OR APPROVED EQUAL.



EXAMPLE 6"X6" FERNCO

EXAMPLE 6"X6" FERNCO

EXAMPLE 4"X6" FERNCO

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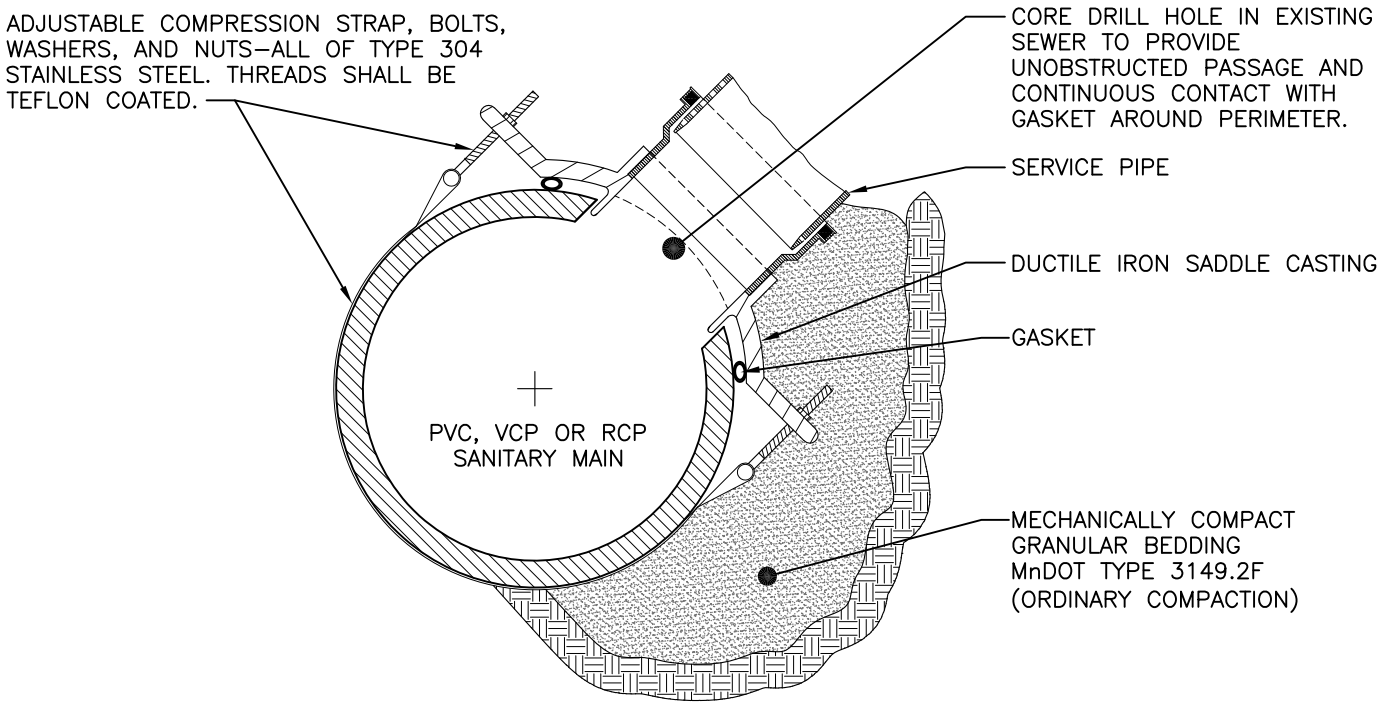
REVISIONS	3-06	3-07	12-17	
7-21				

Maplewood

CITY OF MAPLEWOOD—ENGINEERING DEPT.

SANITARY SEWER SERVICE RECONSTRUCT (WYE TO R/W)

PLATE NO. 410A



SIZE OF SADDLE TAP TO BE 4" OR 6" AS DIRECTED BY THE ENGINEER.

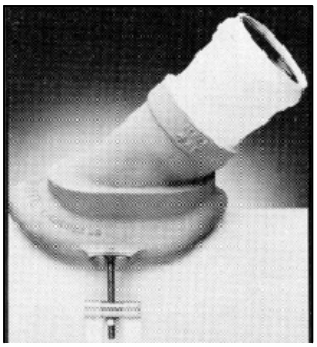
SEE STANDARD PLATE 410 SERIES FOR SEWER SERVICE CONSTRUCTION.

ALL SADDLE TAPS TO BE PLACED AT 2 OR 10 O'CLOCK POSITION AS SHOWN IN ABOVE DRAFT.

ROMAC


FERNCO

SEWER SADDLE TO BE ROMAC OR APPROVED EQUAL.
WYE OR TEE STYLE.
ALL TO BE APPROVED BY THE ENGINEER PRIOR TO INSTALLING.


GENECO


GAMUT(GRAINGER)

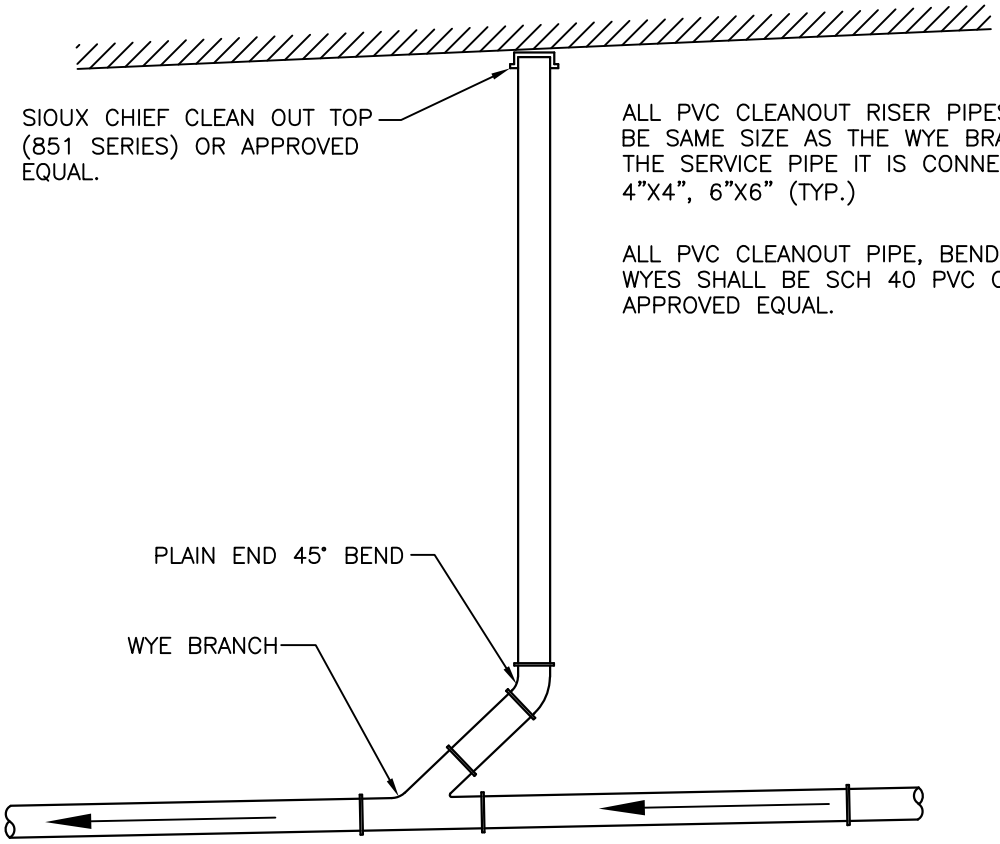
DESIGN: TMS	DATE: 3–95			
DRAWN: RKL	FILENAME:P:\WORKS\CAD\PLATES2021\P412			
REVISIONS	3–97	3–02	3–06	
12–17 8–2				

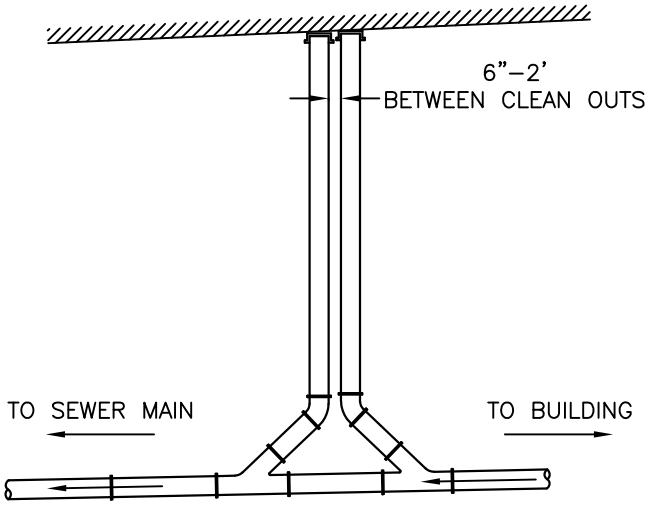
Maplewood

CITY OF MAPLEWOOD–ENGINEERING DEPT.

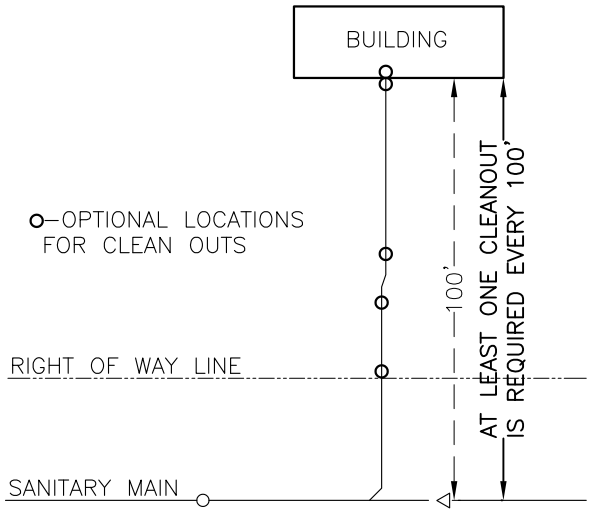
SADDLE TAP WYE TO EXISTING SANITARY SEWER MAIN

PLATE NO. 412





OPTIONAL CLEANOUT METHOD IS TO CONSTRUCT 2 CLEAN OUTS ADJACENT TO EACH OTHER WITH WYE DIRECTION POINTING BOTH UPSTREAM AND DOWNSTREAM.



SERVICES MORE THAN 100' FROM THE MAIN TO THE BUILDING REQUIRE A CLEANOUT NEAR THE RIGHT OF WAY LINE. ADDITIONAL CLEANOUT(S) MAY BE REQUIRED AS DIRECTED BY THE ENGINEER.

DESIGN: TMS	DATE: 3/23/06			
DRAWN: RKL	FILENAME:P:\WORKS\CAD\PLATES2021\P414			
REVISIONS	3/06	2/08	12/17	
7/21				

Maplewood

CITY OF MAPLEWOOD–ENGINEERING DEPT.

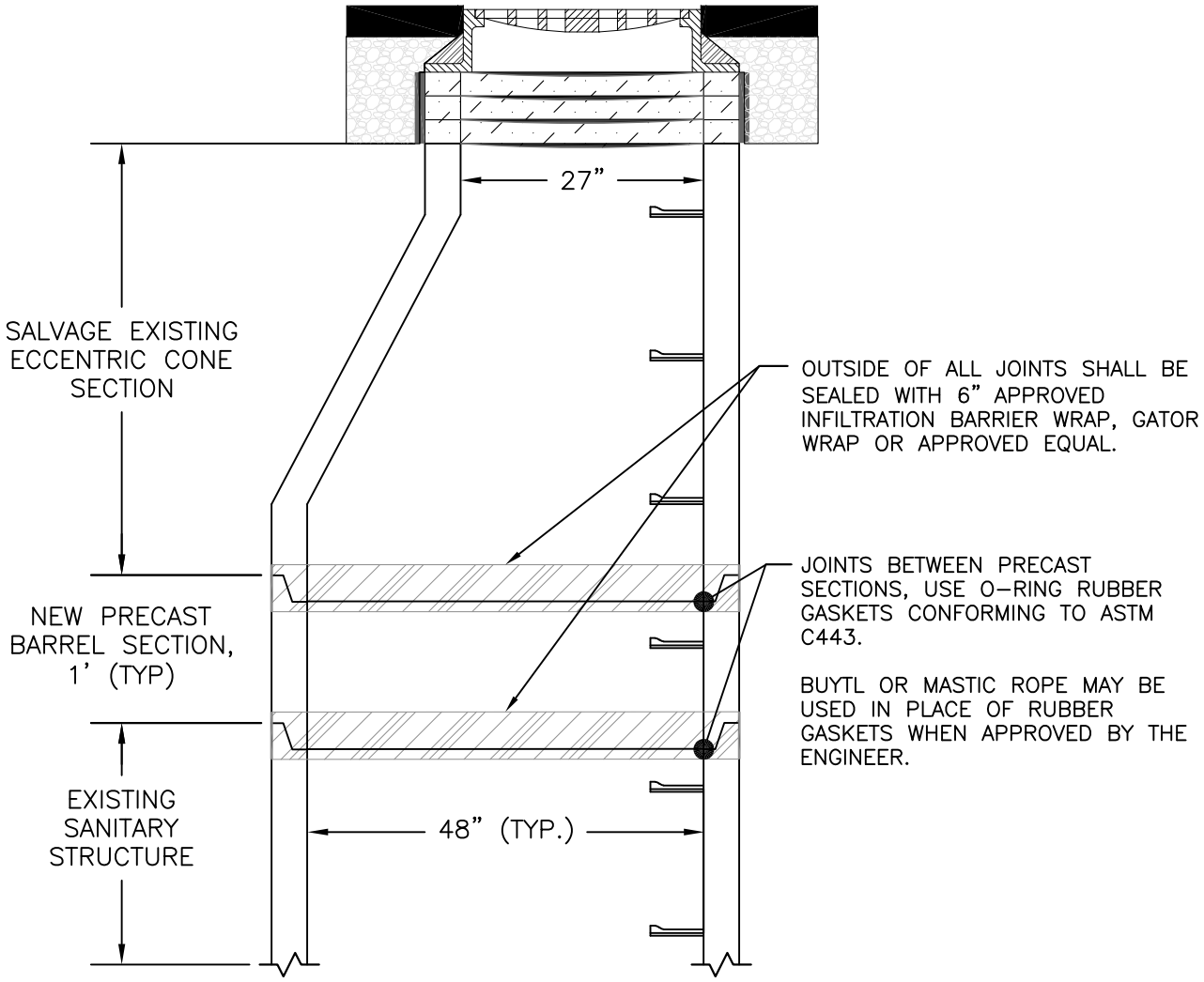
TYPICAL SANITARY SEWER SERVICE CLEANOUT

PLATE NO. 414

INSTALLATION PROCEDURE:

1. SALVAGE EXISTING ECCENTRIC CONE SECTION.
2. FURNISH & INSTALL SPECIFIED PRECAST BARREL SECTION WITH TWO WATERTIGHT GASKETS & INFILTRATION WRAP.
3. INSTALL SALVAGED ECCENTRIC CONE SECTION
4. ADJUST CASTING TO FINISHED GRADE.

THIS PLATE IS INTENDED FOR RECONSTRUCTING SANITARY MANHOLES WHICH HAVE OVER 15" OF RINGS. THIS METHOD OF CONSTRUCTION IS TYPICALLY ONLY USED ON FULL RECONSTRUCTION PROJECTS. SEE MAPLEWOOD PLATE 300B FOR SPECIAL ADJUSTMENT PROCEDURE ON PAVEMENT REHABILITATION FOCUSED PROJECTS.



LIFTING HOLES TO BE FILLED WITH NON-SHRINK GROUT.

PRECAST CONCRETE UNITS TO MEET MnDOT 3621 & 3622

SEE MAPLEWOOD STANDARD PLATE 300 FOR FRAME & ADJUSTMENT RING PLACEMENT DETAILS.

ADDITIONAL MASTIC, BUTYL SEALANT, NON-SHRINK GROUT MAY BE REQUIRED TO ACHIEVE AN IMPERVIOUS JOINT BETWEEN THE EXISTING MANHOLE SECTION AND THE NEW BARREL SECTION INTERFACE.

DIFFERENT SIZE AND HEIGHT BARREL SECTIONS MAY BE USED AS DIRECTED BY THE ENGINEER, VERIFY WITH PRECAST MANUFACTURER ON AVAILABILITY.

DESIGN: TMS	DATE: 10/5/94			
DRAWN: RKL	FILENAME:P:\WORKS\CAD\PLATES2021\P422			
REVISIONS	10-94	3-97	3-02	
3-16	8-17	6-21		

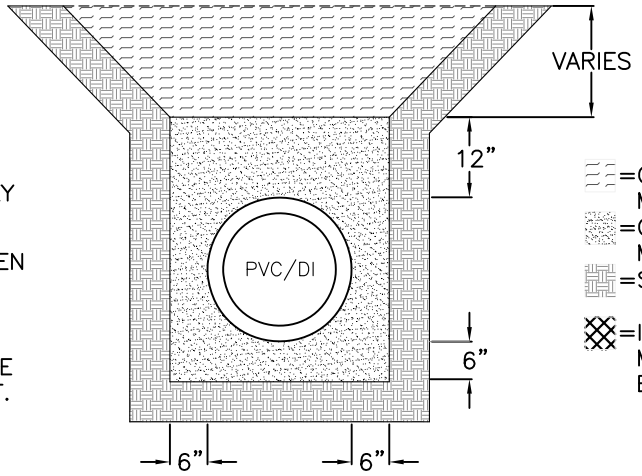
Maplewood

CITY OF MAPLEWOOD-ENGINEERING DEPT.

SANITARY SEWER MANHOLE RECONSTRUCT

PLATE NO. 422

METHOD IN GOOD SOILS

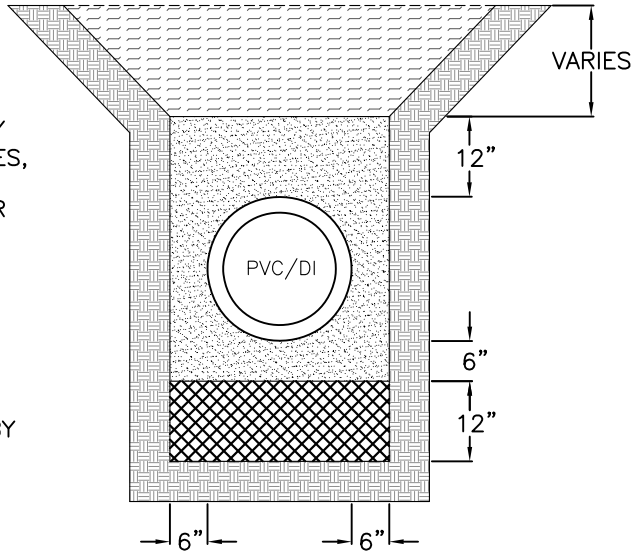


=COMPACTED BACKFILL, MnDOT 2106.3F
=GRANULAR BEDDING, MnDOT 3149.2F
=SUBGRADE (UNDISTURBED)
=IMPROVED PIPE FOUNDATION, MnDOT 3149.2H OR APPROVED EQUAL

GOOD SOIL CLASSIFICATION:
GRANULAR & STABLE IN NATURE; INCLUDES STONE FRAGMENTS, GRAVEL, SAND, FINE SAND, SILTY OR CLAYEY GRAVEL SAND

GREAT CARE SHALL BE TAKEN BY THE CONTRACTOR WHEN COMPACTING AROUND FLEXIBLE/RIGID PIPE, ANY DAMAGED PIPE WILL REQUIRE REMOVAL AND REPLACEMENT.

METHOD IN POOR SOILS



POOR SOIL CLASSIFICATION:
COHESIVE & UNSTABLE IN NATURE; SILTY SOIL, CLAYEY SOIL. HIGH (20+%) OF FINES, OFTEN WET OR RETAINING MOISTURE. DEFLECTS UNDER NORMAL LOADING.

IN SOME SITUATIONS OVER EXCAVATION FOR EXTRA FOUNDATION MATERIAL AND GEOTEXTILE FABRIC MAY BE REQUIRED TO STABILIZE SUBGRADE FOR PIPE PLACEMENT. AS DIRECTED BY THE ENGINEER.

NOTES:

1. SOIL CLASSIFICATION TO BE DETERMINED BY GEOTECHNICAL ENGINEER.
2. GRANULAR BEDDING SHALL BE COMPACTED WITH MOTOR DRIVEN EQUIPMENT UNTIL THERE ARE NO VISIBLE SIGNS OF ADDITIONAL COMPACTION REQUIRED. ALL PIPE HAUNCHES MUST HAVE ZERO VOIDS.
3. ALL EXCAVATIONS & TRENCHES MUST COMPLY WITH THE REQUIREMENTS OF OSHA "EXCAVATIONS AND TRENCHES" SEE OSHA.GOV FOR DETAILS.
4. IN UNSTABLE SOILS, DEPTH AND OR BEDDING/FOUNDATION MATERIAL MAY BE CHANGED AS REQUIRED BY THE ENGINEER.
5. DIMENSIONS AND STANDARDS SHOWN ON THIS PLATE APPLY TO ALL SANITARY SEWER PIPE.
6. ON-SITE GRANULAR MATERIAL MAY BE SALVAGED AND USED FOR PIPE BEDDING IF IT MEETS MnDOT 3149.2F.

DESIGN: TMS	DATE: 3-95			
DRAWN: RKL	FILENAME:P:\WORKS\CAD\PLATES2021\P440			
REVISIONS	3-97	3-02	3-17	
6-21				

Maplewood

CITY OF MAPLEWOOD-ENGINEERING DEPT.

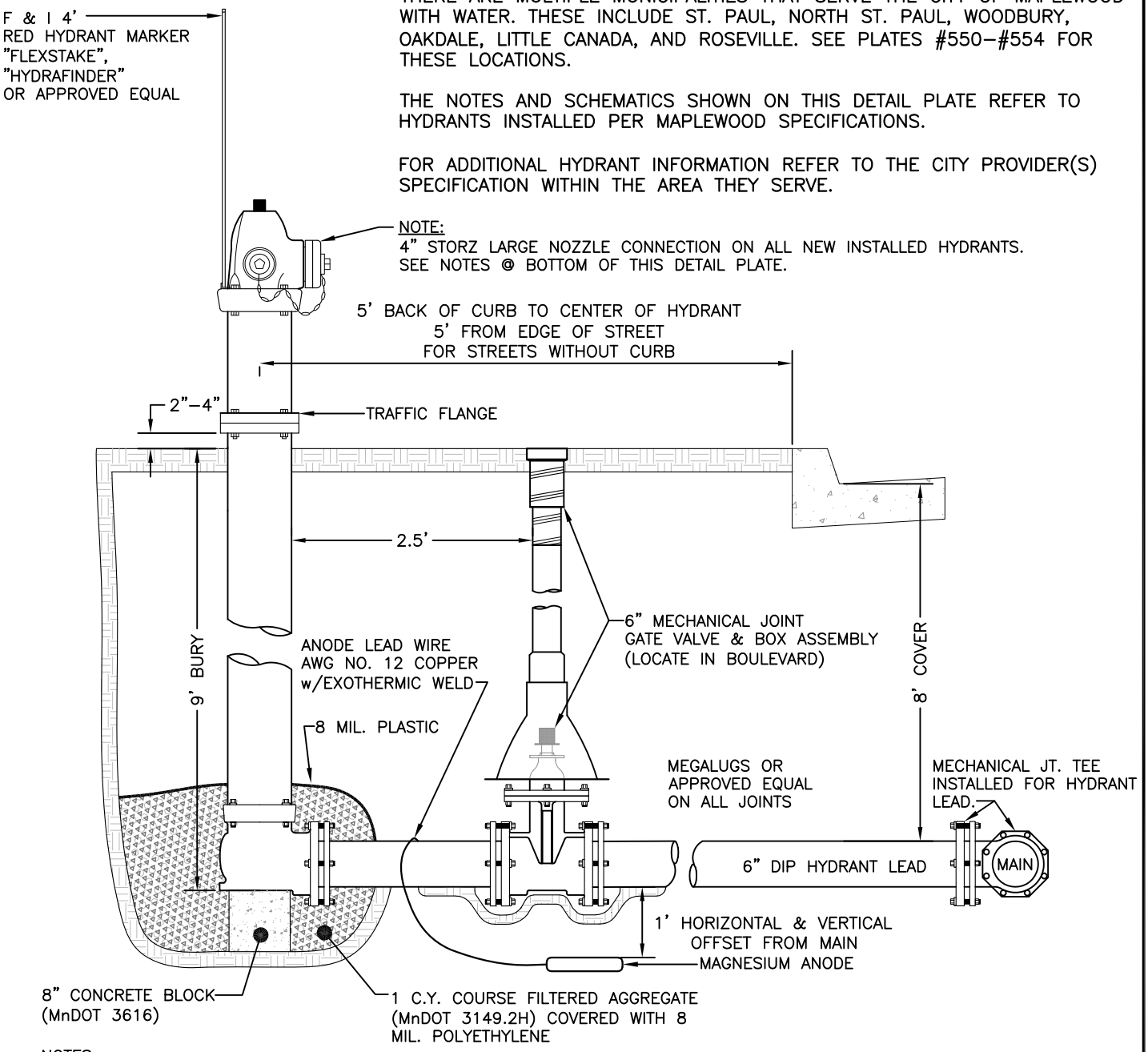
EMBEDMENT DETAIL FOR PVC & DI SANITARY SEWER PIPE

PLATE NO. 440

THERE ARE MULTIPLE MUNICIPALITIES THAT SERVE THE CITY OF MAPLEWOOD WITH WATER. THESE INCLUDE ST. PAUL, NORTH ST. PAUL, WOODBURY, OAKDALE, LITTLE CANADA, AND ROSEVILLE. SEE PLATES #550–#554 FOR THESE LOCATIONS.

THE NOTES AND SCHEMATICS SHOWN ON THIS DETAIL PLATE REFER TO HYDRANTS INSTALLED PER MAPLEWOOD SPECIFICATIONS.

FOR ADDITIONAL HYDRANT INFORMATION REFER TO THE CITY PROVIDER(S) SPECIFICATION WITHIN THE AREA THEY SERVE.



NOTES:

1. HYDRANT SHALL BE MECHANICAL JOINT WATEROUS PACER WB–67 w/16" BARREL AND SHALL OPEN RIGHT (CLOCKWISE) FOR SPRWS SYSTEM HYDRANTS AND SHALL OPEN LEFT (COUNTER–CLOCKWISE) FOR NORTH ST. PAUL, LITTLE CANADA, ROSEVILLE, AND WOODBURY WATER SYSTEM HYDRANTS.
2. STEAMER & HOSE CONNECTION CAPS TO BE SECURED WITH CHAINS.
3. HYDRANTS TO BE PAINTED NATIONAL SAFETY YELLOW (AS SUPPLIED BY WATEROUS). IF DAMAGED DURING INSTALLATION, CONSTRUCTION PHASE, OR IF DELIVERED FROM FACTORY WITH ANOTHER COLOR, APPLY NEW FIELD COAT AFTER FINAL TURF ESTABLISHMENT.
4. HYDRANT ASSEMBLY TO BE EQUIPPED WITH A FLEXIBLE 4' HYDRANT MARKER. SEE DETAIL ABOVE.
5. VALVE BOX TO BE 4 PIECE TYLER SERIES #6860, ITEM G, OR EQUAL.
6. HYDRANT HOSE & STEAMER CONNECTIONS SHALL BE NATIONAL STANDARD THREADS.
7. PROVIDE MARKER ON HYDRANT WHEN WEEPHOLE IS PLUGGED.
8. ENCASE HYDRANT BARREL IN POLYETHYLENE.

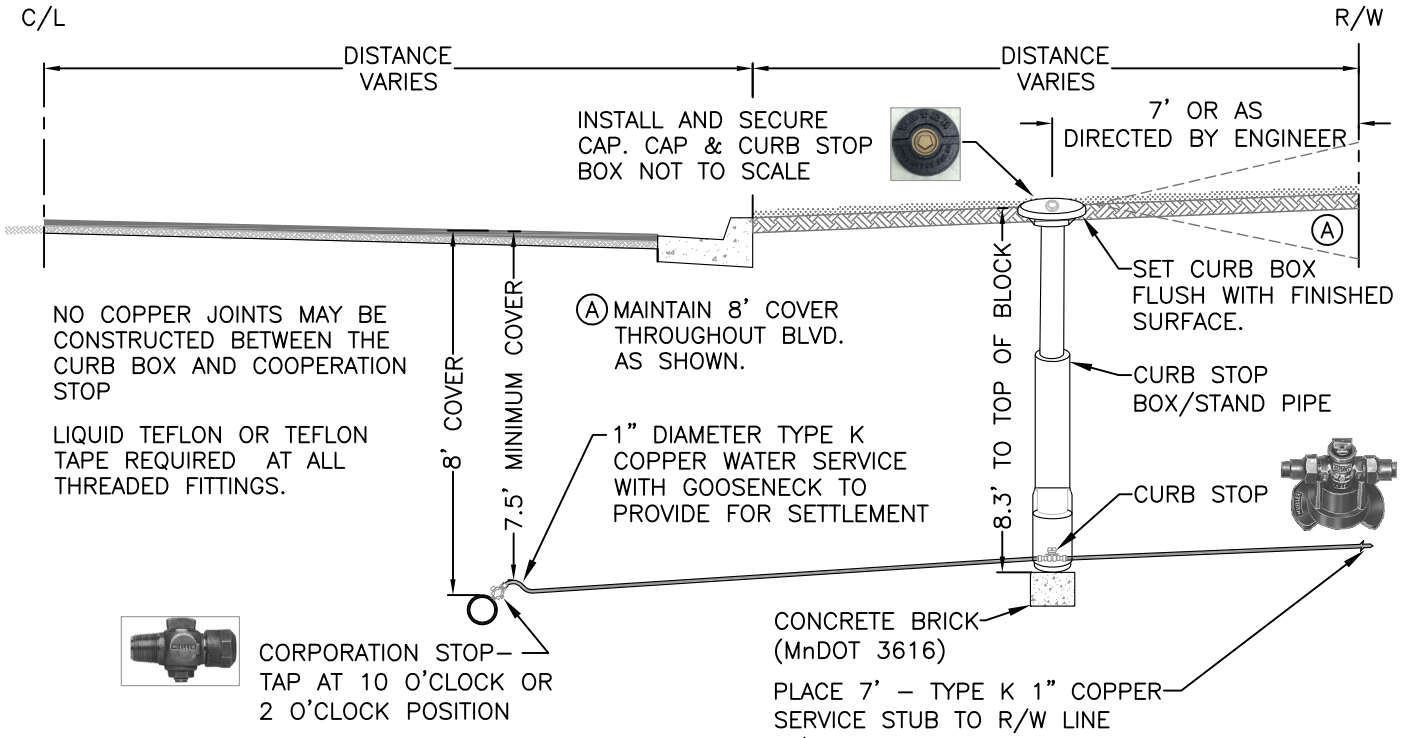
DESIGN: TMS	DATE: 3–95			
DRAWN: RKL	FILENAME:P:\WORKS\CAD\PLATES2021\P500			
REVISIONS	3–97	3–02	3–06	
4–17	8–21			

Maplewood

CITY OF MAPLEWOOD–ENGINEERING DEPT.

HYDRANT INSTALLATION

PLATE NO. 500



NO COPPER JOINTS MAY BE CONSTRUCTED BETWEEN THE CURB BOX AND COOPERATION STOP

LIQUID TEFLON OR TEFLON TAPE REQUIRED AT ALL THREADED FITTINGS.

FOR SPECIFICATIONS–REFER TO ST. PAUL REGIONAL WATER SERVICES, NORTH ST. PAUL, LITTLE CANADA, ROSEVILLE, OAKDALE, AND WOODBURY.
FOR AREAS WITH WATER PROVIDED BY THESE ADJACENT CITIES, WITHIN CITY OF MAPLEWOOD SEE STANDARD PLATES #550–#554.

PRIOR TO SETTING LOCATION OF CURB STOP BOX, DISCUSS FOR ANY POTENTIAL FUTURE SIDEWALKS, BIKE TRAILS, STREET SIGNS, FUTURE STREET LIGHTS, WALLS ETC. TO ELIMINATE ANY FUTURE CONFLICTS.
CURB BOXES SET IN DRIVEWAYS SHOULD BE AVOIDED IF POSSIBLE.

	2" AND SMALLER
CORPORATION STOPS/VALVES	MUELLER 300 BALL TYPE B–25000 (SPRWS ONLY)
	FORD BALL CORP. FB600
	McDONALD CORP 74701B
CURB STOP VALVES	
	MUELLER MARK II H–15154, MINNEAPOLIS THREAD
	FORD B22 MINNEAPOLIS THREAD
	A. Y. McDONALD 6104 WITH FORD
	MINNEAPOLIS PATTERN EMZ–75–76 (NORTH ST. PAUL ONLY)
CURB STOP BOXES	
	MUELLER CO. H–10316 OR H–10336 (SPRWS ONLY) OR
	A. Y. McDONALD MFG. CO. 5628, 5628B, 5630, 5631, 5631B, OR APPROVED EQUAL (SPRWS ONLY)
	A. Y. McDONALD 5614 WITHOUT STATIONARY RODS (NSP ONLY)

DESIGN: TMS	DATE: 3–95			
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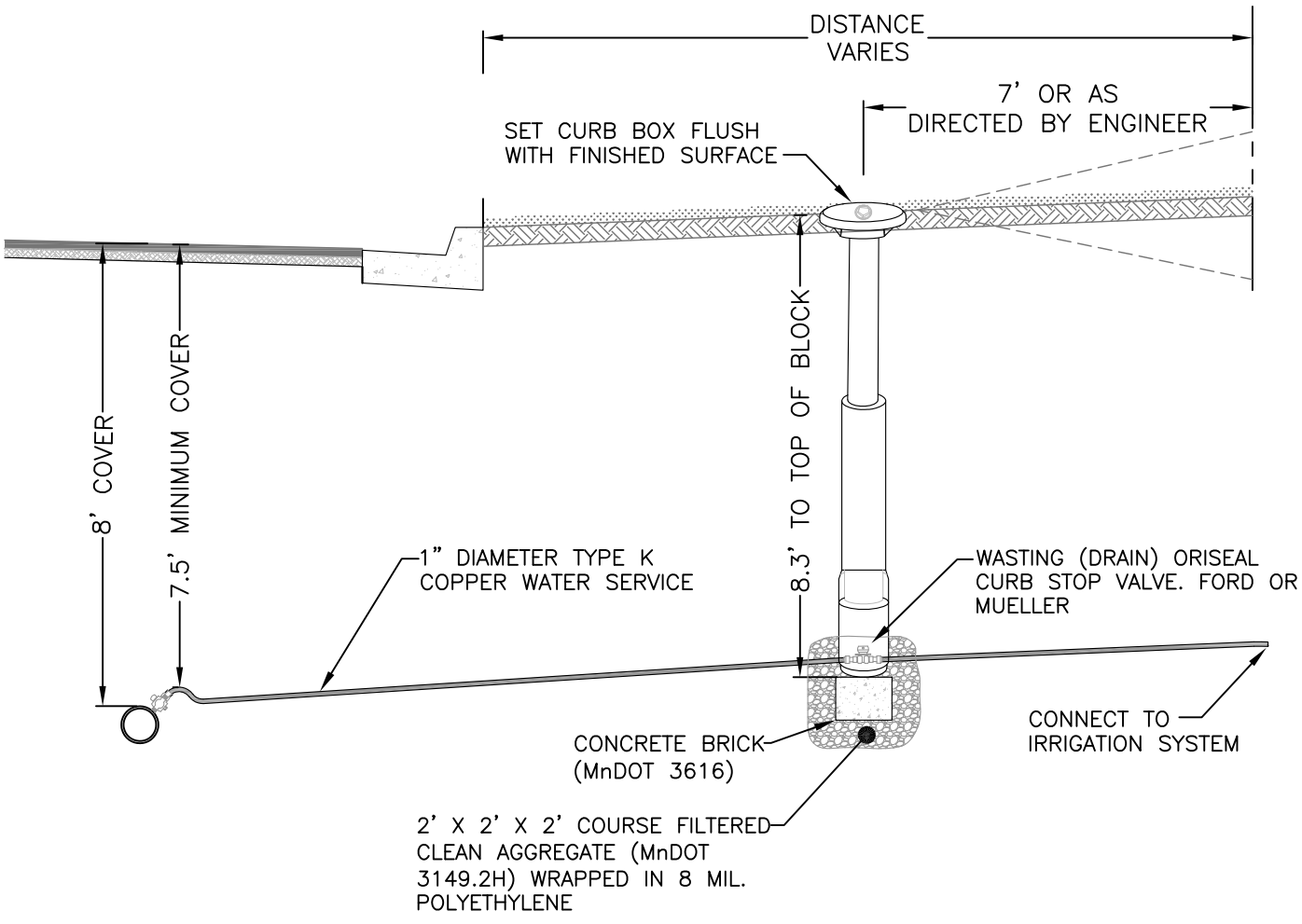
REVISIONS	12–95	3–97	11–97	
1–02	3–06	4–17	8–21	

Maplewood

CITY OF MAPLEWOOD–ENGINEERING DEPT.

WATER SERVICE INSTALLATION

PLATE NO. 501



LIQUID TEFLON OR TEFLON TAPE REQUIRED AT ALL THREADED FITTINGS.

FOR SPECIFICATIONS–REFER TO ST. PAUL REGIONAL WATER SERVICES, NORTH ST. PAUL, LITTLE CANADA, ROSEVILLE, OAKDALE, AND WOODBURY.

FOR AREAS WITH WATER PROVIDED BY THESE ADJACENT CITIES, WITHIN CITY OF MAPLEWOOD SEE STANDARD PLATES #550–#554.

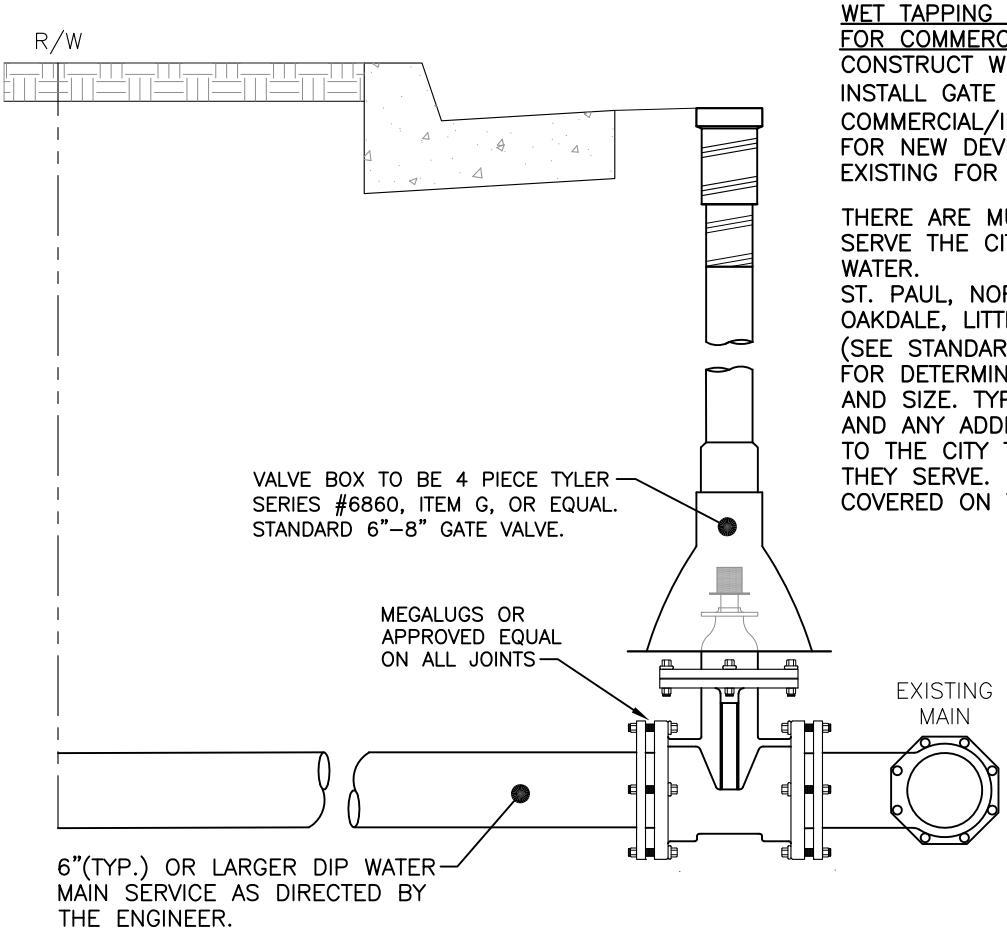
DESIGN: TMS	DATE: 8–07			
DRAWN: RKL	FILENAME:P:\WORKS\CAD\PLATES2021\P501			
REVISIONS	4–17	8–21		

Maplewood

CITY OF MAPLEWOOD–ENGINEERING DEPT.

WATER SERVICE INSTALLATION (WASTING VALVE)

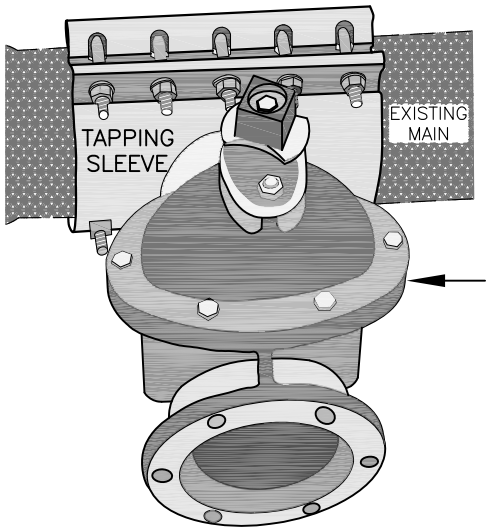
PLATE NO. 501B



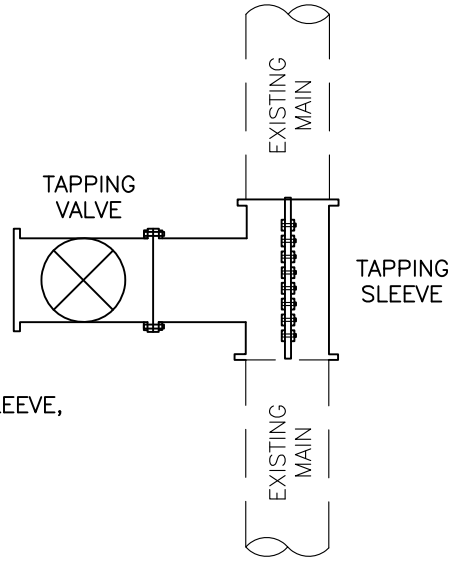
WET TAPPING GATE VALVE AND SLEEVE FOR COMMERCIAL WATER SERVICE:

CONSTRUCT WET TAP @ EXISTING MAIN TO INSTALL GATE VALVE FOR NEW 6"–8" COMMERCIAL/INDUSTRIAL WATER SERVICE FOR NEW DEVELOPMENT OR UPGRADE EXISTING FOR BUSINESS PROPERTY.

THERE ARE MULTIPLE MUNICIPALITIES THAT SERVE THE CITY OF MAPLEWOOD WITH WATER.
ST. PAUL, NORTH ST. PAUL, WOODBURY, OAKDALE, LITTLE CANADA, AND ROSEVILLE. (SEE STANDARD PLATES #550–#554).
FOR DETERMINATION OF PRESSURE, FLOW AND SIZE. TYPE OF VALVE AND WET TAP, AND ANY ADDITIONAL INFORMATION, REFER TO THE CITY THAT SUPPLIES THE AREAS THEY SERVE. MOST INFORMATION IS NOT COVERED ON THIS DETAIL PLATE.



WET TAPPING VALVE & SLEEVE, TAPPED @ EXISTING MAIN.



DESIGN: TMS	DATE: 4–17			
DRAWN: RKL	FILENAME:P:\WORKS\CAD\PLATES2021\P501C			
REVISIONS	8–21			

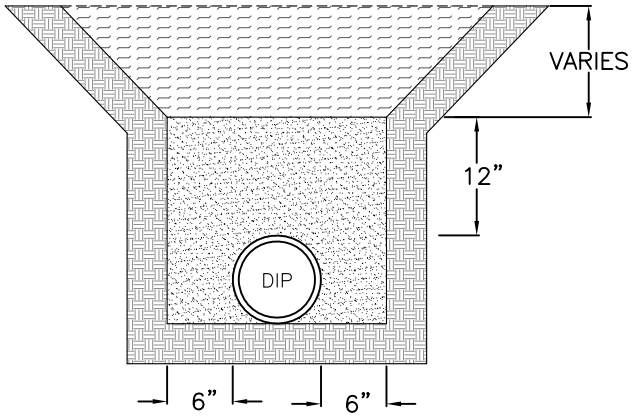
Maplewood

CITY OF MAPLEWOOD–ENGINEERING DEPT.

COMMERCIAL WET TAPPING GATE VALVE & SLEEVE WATER SERVICE

PLATE NO. 501C

STANDARD TRENCH

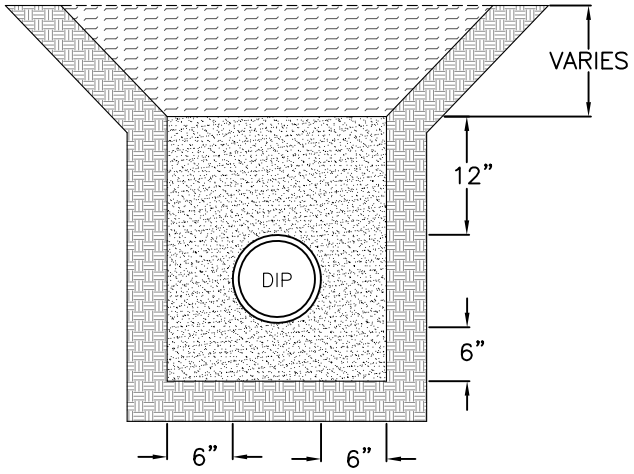


=COMPACTED BACKFILL, MnDOT 2105.3F.1
=GRANULAR BEDDING, MnDOT 3149.2F
=SUBGRADE (UNDISTURBED)

TRENCH WIDTHS & DEPTHS:
VARY DEPENDING ON EXCAVATION METHOD. METHOD MUST BE APPROVED BY THE ENGINEER PRIOR TO WORK BEGINNING.

- 8' MAX TRENCH WIDTH FOR PIPE 12" AND SMALLER
- 10' MAX TRENCH WIDTH FOR PIPE LARGER THAN 12"

SITUATIONAL TRENCH



SITUATIONAL TRENCH IMPLEMENTATION:
1. BASE MATERIAL CONTAINS ROCKS
2. WET CONDITIONS
3. FLEXIBLE PIPE (HDPE, PVC ETC.)
4. UNSUITABLE OR UNSTABLE SOILS

IN SOME SITUATIONS OVER EXCAVATION FOR EXTRA FOUNDATION MATERIAL AND GEOTEXTILE FABRIC MAY BE REQUIRED TO STABILIZE SUBGRADE FOR PIPE PLACEMENT. AS DIRECTED BY THE ENGINEER.

CITY OF MAPLEWOOD TO MAKE DETERMINATION OF TRENCH TYPE AND USE OF IMPORTED BEDDING AND BACKFILL MATERIAL

NOTES:
1. GRANULAR BEDDING SHALL BE COMPACTED WITH MOTOR DRIVEN EQUIPMENT UNTIL THERE ARE NO VISIBLE SIGNS OF ADDITIONAL COMPACTION REQUIRED. ALL PIPE HAUNCHES MUST HAVE ZERO VOIDS.
2. ALL EXCAVATIONS & TRENCHES MUST COMPLY WITH THE REQUIREMENTS OF OSHA "EXCAVATIONS AND TRENCHES" SEE OSHA.GOV FOR DETAILS.
3. IN UNSTABLE SOILS, DEPTH AND OR BEDDING/FOUNDATION MATERIAL MAY BE CHANGED AS REQUIRED BY THE ENGINEER.
4. DIMENSIONS AND STANDARDS SHOWN ON THIS PLATE APPLY TO ALL SANITARY SEWER PIPE.
5. ON-SITE GRANULAR MATERIAL MAY BE SALVAGED AND USED FOR PIPE BEDDING IF IT MEETS MnDOT 3149.2F.
6. GREAT CARE SHALL BE TAKEN BY THE CONTRACTOR WHEN COMPACTING AROUND WATER MAIN PIPE, ANY DAMAGED PIPE WILL REQUIRE REMOVAL AND REPLACEMENT.

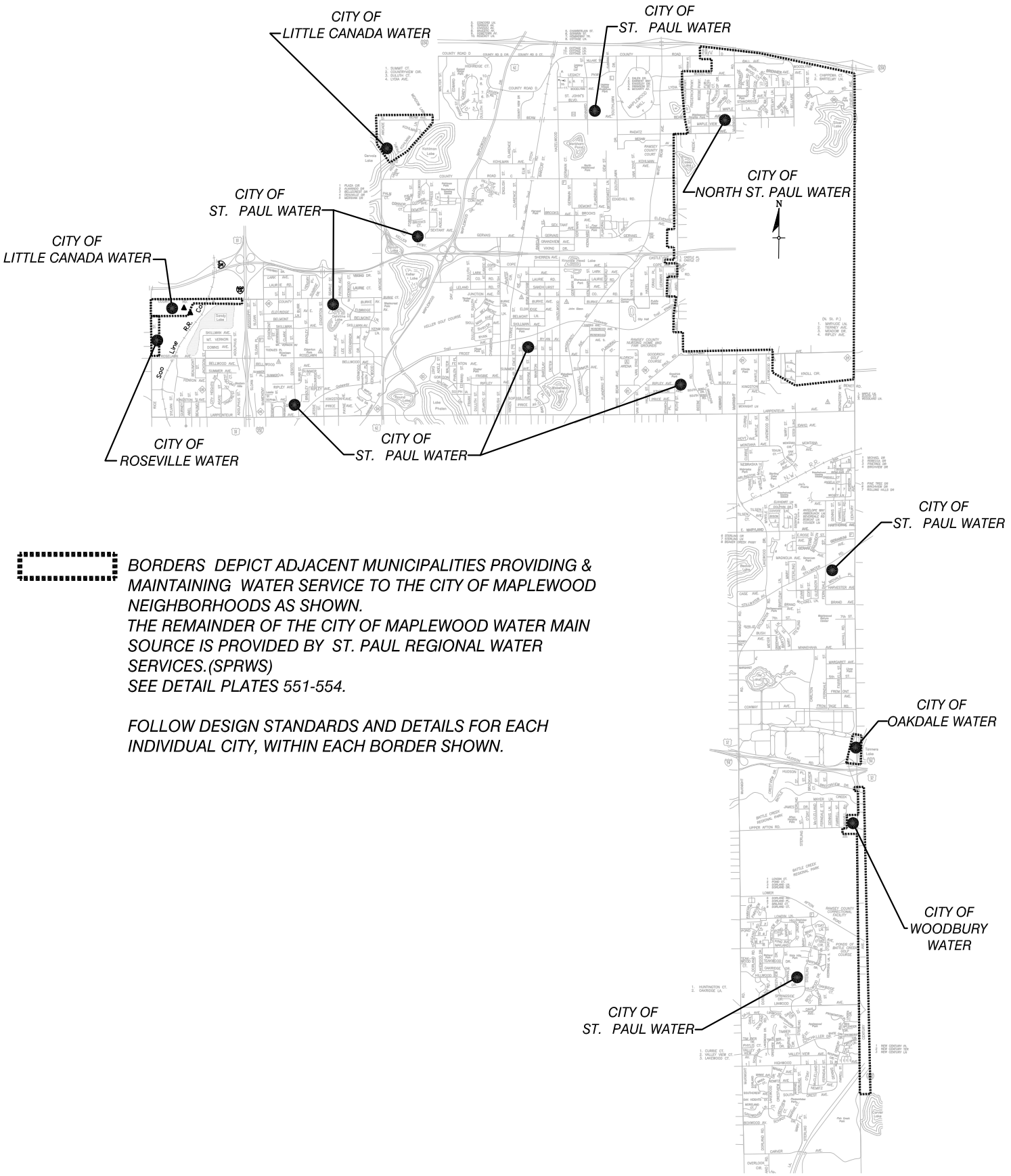
DESIGN: TMS	DATE: 3-95			
DRAWN: RKL	FILENAME:P:\WORKS\CAD\PLATES2021\P540			
REVISIONS	3-97	3-02	3-17	
6-21				

Maplewood

CITY OF MAPLEWOOD-ENGINEERING DEPT.

EMBEDMENT DETAIL FOR WATER MAIN

PLATE NO. 540

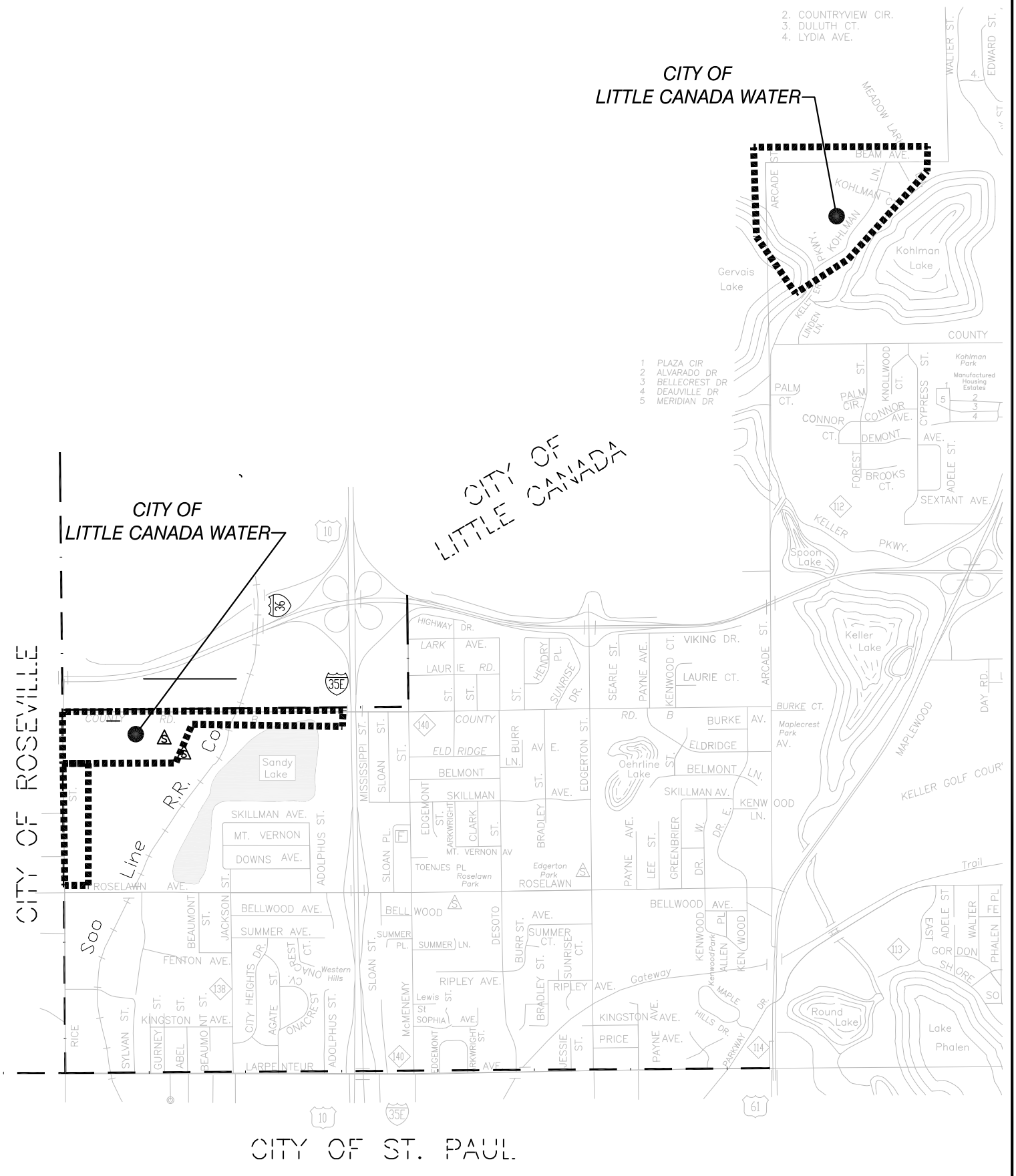


BORDERS DEPICT ADJACENT MUNICIPALITIES PROVIDING & MAINTAINING WATER SERVICE TO THE CITY OF MAPLEWOOD NEIGHBORHOODS AS SHOWN.
THE REMAINDER OF THE CITY OF MAPLEWOOD WATER MAIN SOURCE IS PROVIDED BY ST. PAUL REGIONAL WATER SERVICES.(SPRWS)
SEE DETAIL PLATES 551-554.

FOLLOW DESIGN STANDARDS AND DETAILS FOR EACH INDIVIDUAL CITY, WITHIN EACH BORDER SHOWN.

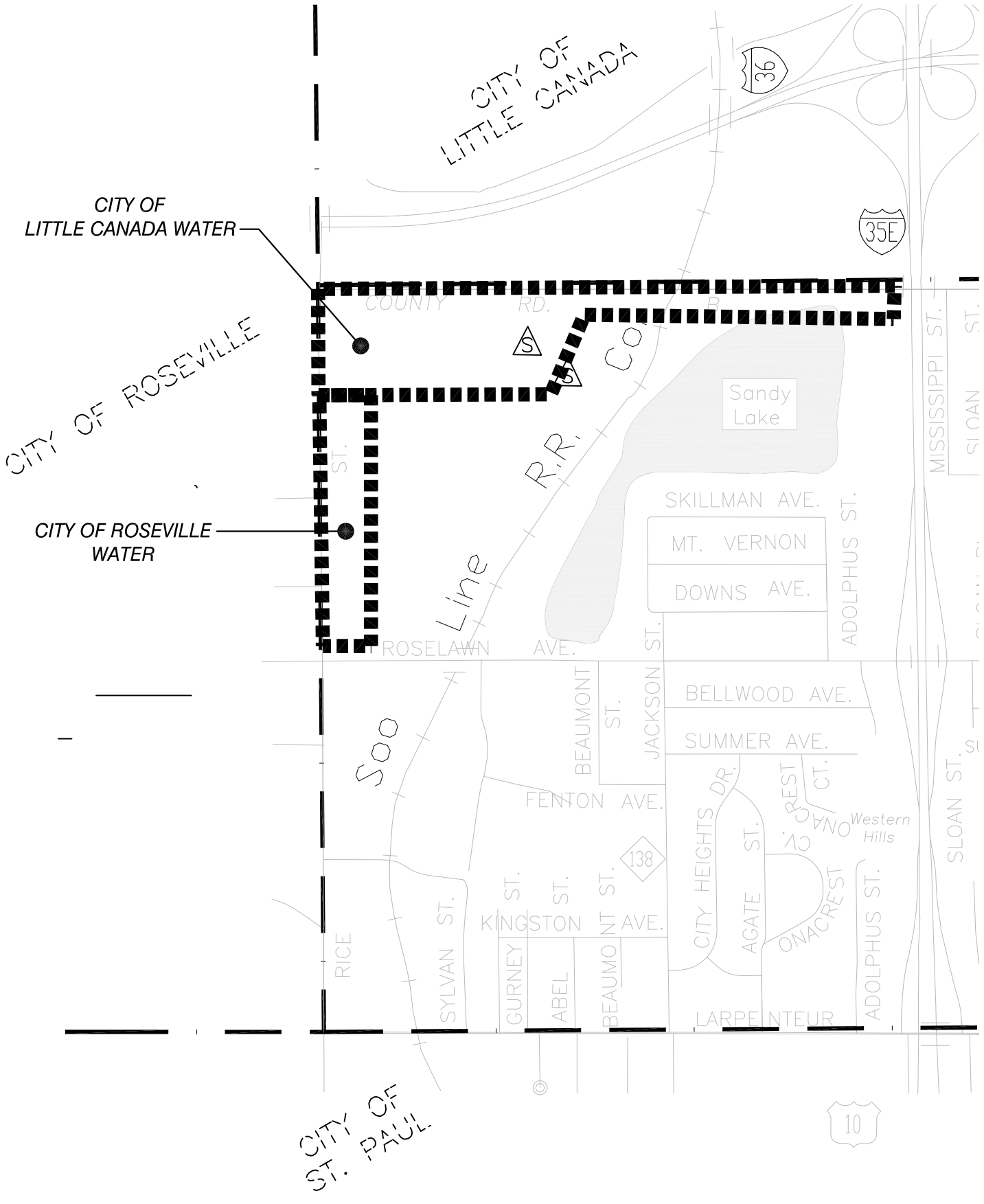
DESIGN: RKL	DATE: 4–17	CITY OF MAPLEWOOD–ENGINEERING DEPT.	PLATE NO.
DRAWN: RKL	GIS INFO	AREA OF MAPLEWOOD SERVED BY ST. PAUL (SPRWS)	550
FILENAME:P:\WORKS\CAD\PLATES2021\P550			
REVISIONS			

Maplewood

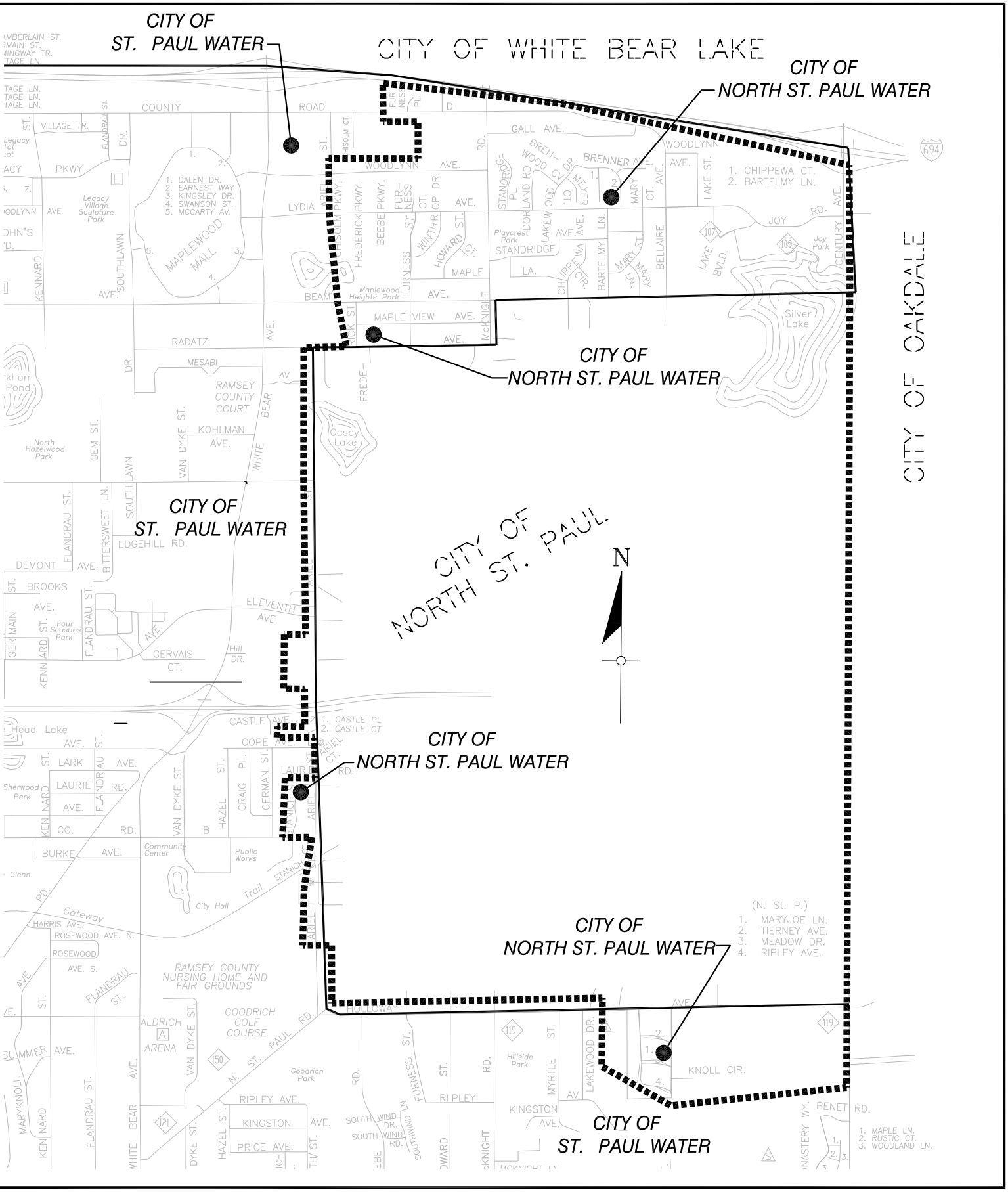


DESIGN: RKL	DATE: 4–17	CITY OF MAPLEWOOD—ENGINEERING DEPT.	PLATE NO.
DRAWN: RKL	GIS INFO	AREA OF MAPLEWOOD SERVED BY LITTLE CANADA	551
FILENAME:P:\WORKS\CAD\PLATES2021\P551			
REVISIONS			

Maplewood

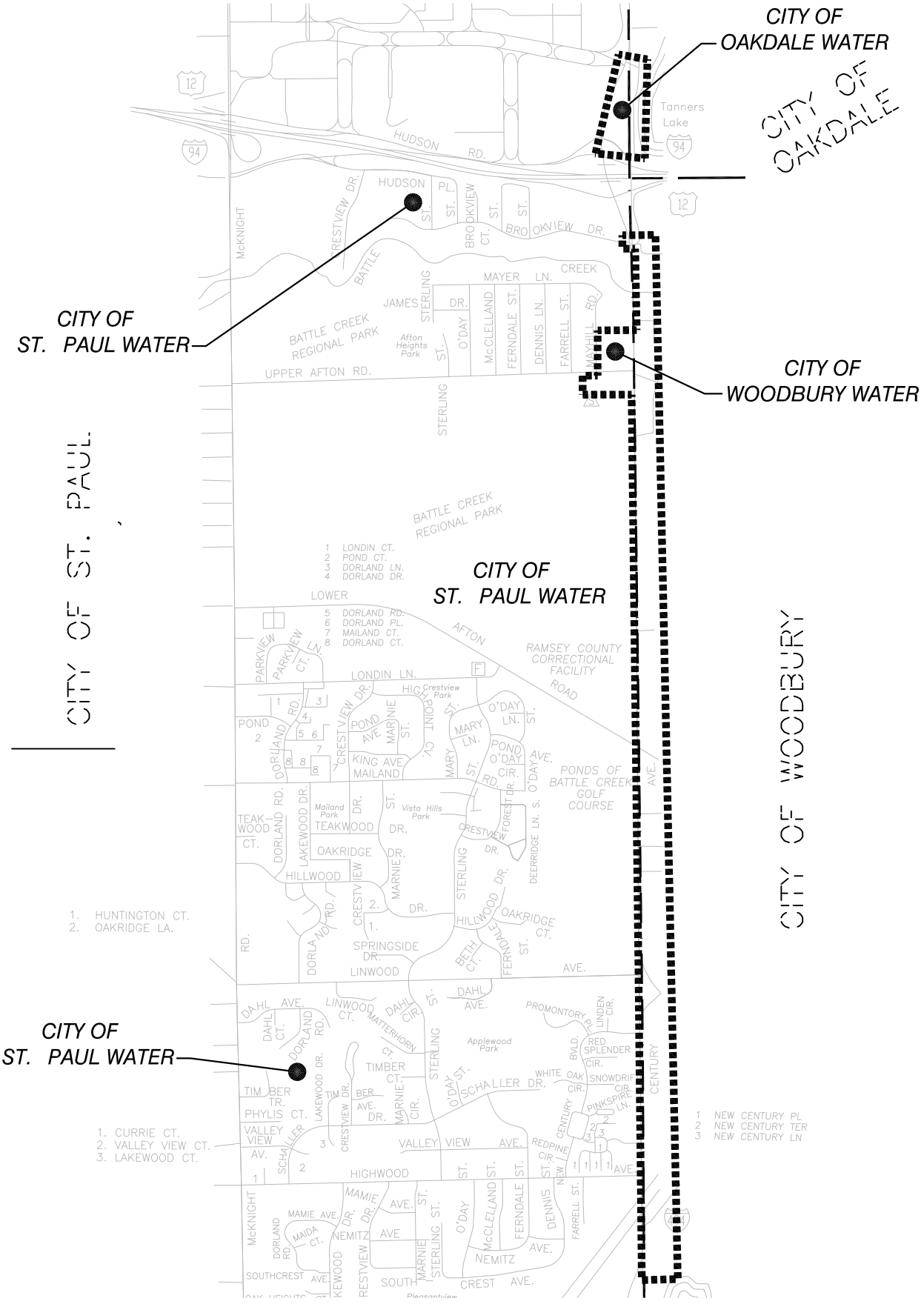


DESIGN: RKL	DATE: 4–17	Maplewood	CITY OF MAPLEWOOD—ENGINEERING DEPT.
DRAWN: RKL	GIS INFO		AREA OF MAPLEWOOD SERVED BY ROSEVILLE
FILENAME:P:\WORKS\CAD\PLATES2015\DWG\MUNICIPALWATERBYCITY			PLATE NO. 552
REVISIONS			



DESIGN: RKL	DATE: 4–17	CITY OF MAPLEWOOD—ENGINEERING DEPT.	PLATE NO.
DRAWN: RKL	GIS INFO	AREA OF MAPLEWOOD SERVED BY NORTH ST. PAUL	553
FILENAME:P:\WORKS\CAD\PLATES2021\P553			
REVISIONS			

Maplewood



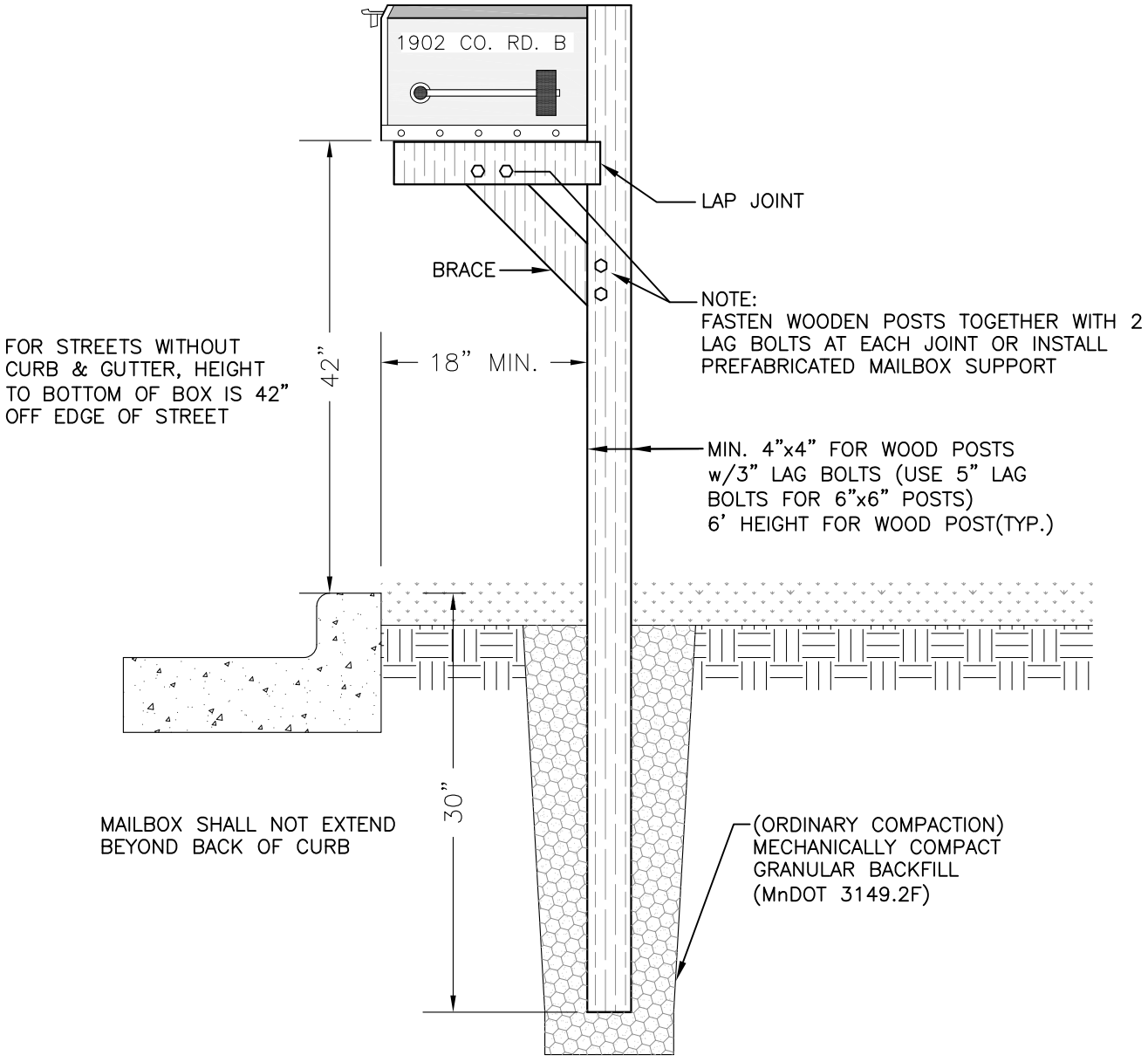
DESIGN: RKL	DATE: 4-17	CITY OF MAPLEWOOD—ENGINEERING DEPT.	PLATE NO.
DRAWN: RKL	GIS INFO	AREA OF MAPLEWOOD SERVED BY WOODBURY & OAKDALE	554
FILENAME:P:\WORKS\CAD\PLATES2021\P554			
REVISIONS			

Maplewood

HAVE BOX EXTEND AS FAR IN FRONT OF SUPPORT POST AS POSSIBLE. (THIS PREVENTS POSSIBLE SNOW PLOW DAMAGE.)

ADDRESS MUST BE ON SIDE OF BOX FROM WHICH CARRIER APPROACHES IN ONE INCH LETTERS (MIN. HEIGHT) (OR ON FRONT WHERE BOXES ARE GROUPED.)

BOX MUST BE LOCATED SO CARRIER CAN SERVE WITHOUT LEAVING VEHICLE.



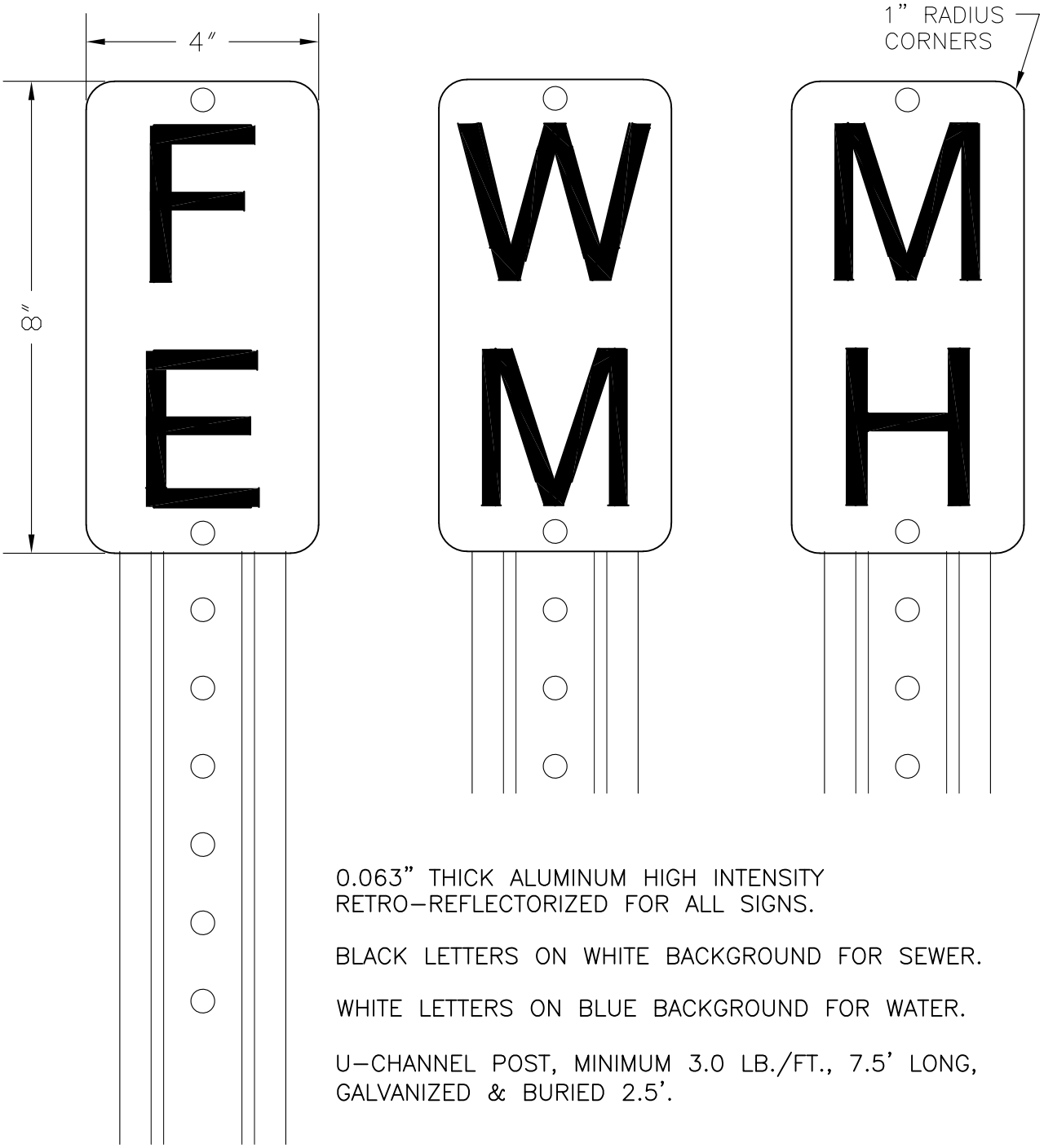
DESIGN: TMS	DATE: 3–95			
DRAWN: RKL	FILENAME:P:\WORKS\CAD\PLATES2021\P600			
REVISIONS	3–97	3–99	3–02	
3–06	7–21			

Maplewood

CITY OF MAPLEWOOD—ENGINEERING DEPT.

MAILBOX INSTALLATION

PLATE NO. 600



0.063" THICK ALUMINUM HIGH INTENSITY RETRO–REFLECTORIZED FOR ALL SIGNS.

BLACK LETTERS ON WHITE BACKGROUND FOR SEWER.

WHITE LETTERS ON BLUE BACKGROUND FOR WATER.

U–CHANNEL POST, MINIMUM 3.0 LB./FT., 7.5' LONG, GALVANIZED & BURIED 2.5'.

MARKERS, AS INSTALLED BY MAPLEWOOD STREET DEPT. PERSONNEL, ARE REQUIRED AT ALL OFF ROAD STRUCTURES EXCEPT AS DIRECTED BY THE ENGINEER.

DESIGN: TMS	DATE: 3–95			
DRAWN: RKL	FILENAME:P:\WORKS\CAD\PLATES2021\P601			
REVISIONS	3–06	5–17	7–21	

Maplewood

CITY OF MAPLEWOOD–ENGINEERING DEPT.

OFF ROAD STRUCTURE MARKERS

PLATE NO. 601

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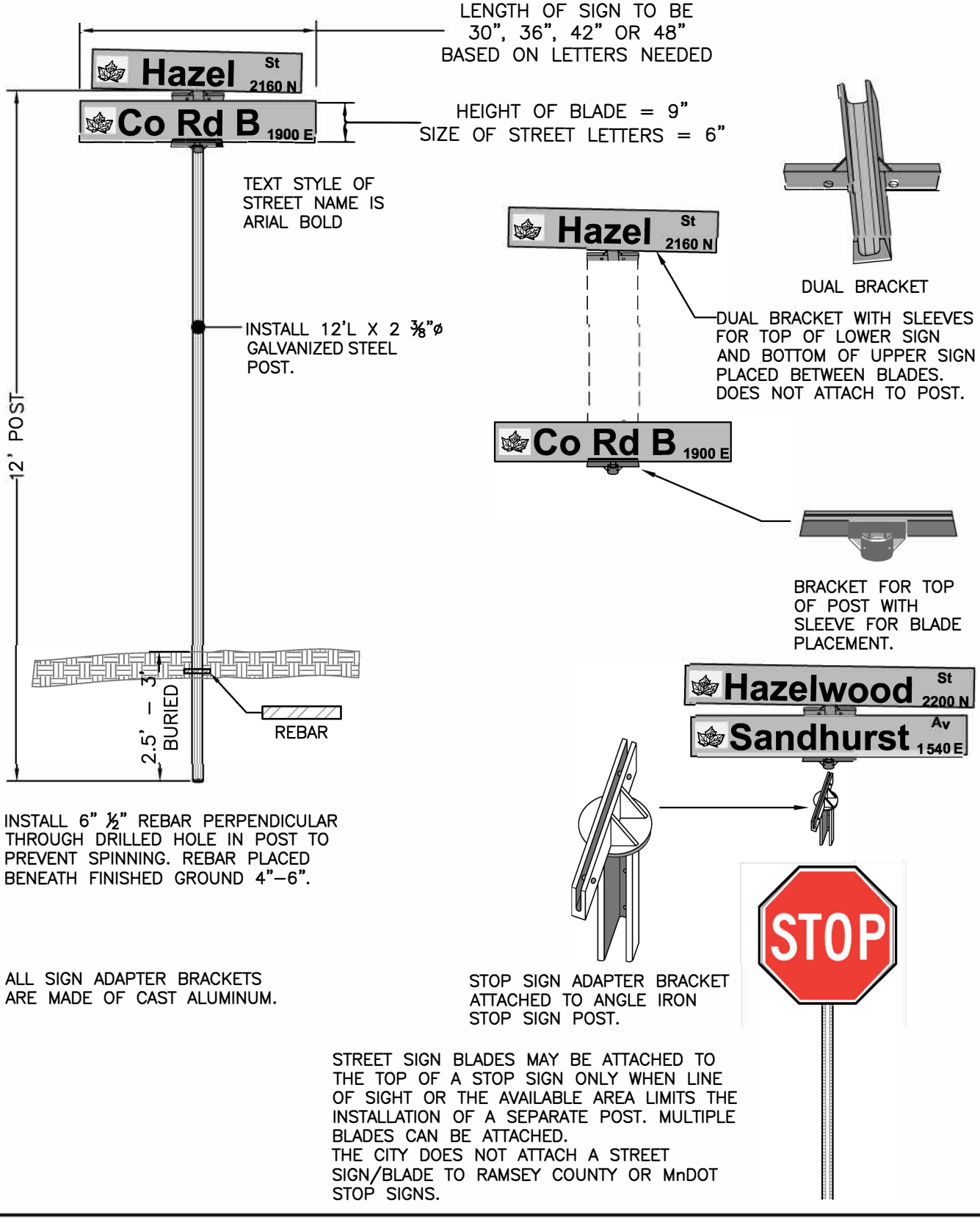

DESIGN: TMS	DATE: 12–17	Maplewood	CITY OF MAPLEWOOD–ENGINEERING DEPT.
DRAWN: RKL	FILENAME:P:\WORKS\CAD\PLATES2021\P602		MAPLEWOOD STANDARD STREET SIGN/BLADE
REVISIONS	7–21		PLATE NO. 602

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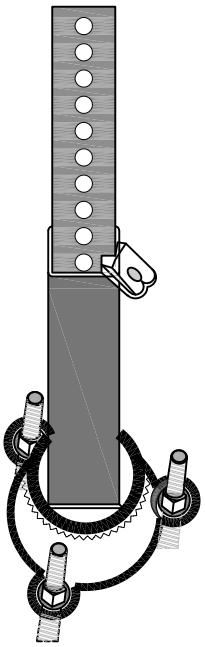
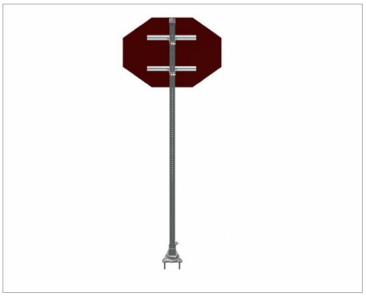
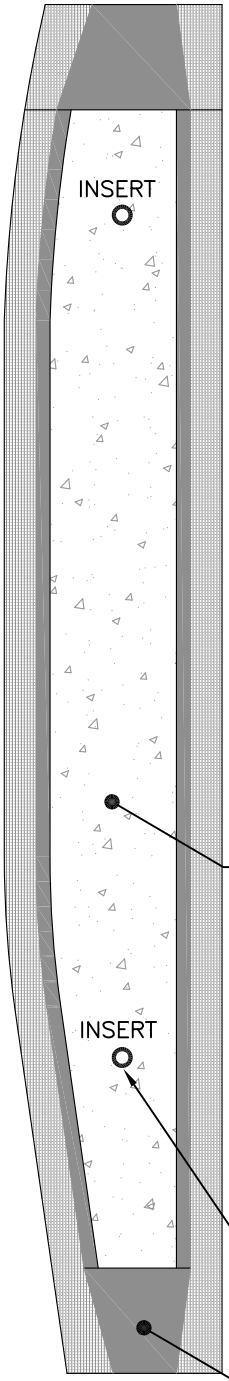
KLEEN BREAK MODEL 425

USE XCESSORIES SQUARED MANUFACTURED PRODUCT KLEEN BREAK MODEL 425.
SIGN BASE INSERTS ARE TO BE USED WHERE SIGNS ARE INSTALLED FOR SURFACE MOUNT CONCRETE INSTALLATIONS.
SIZED TO RECIEVE ALL 2" SQUARE POSTS.
FOLLOW MANUFACTURES GUIDELINES.

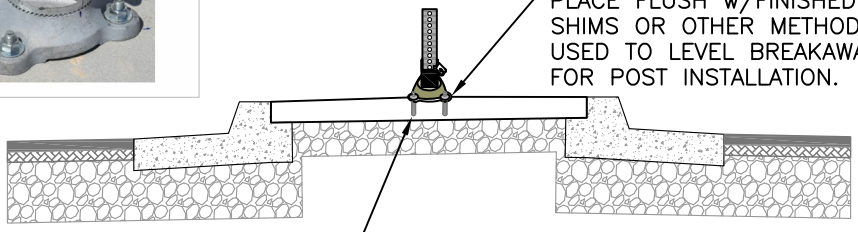




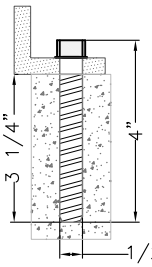
SET WITHIN MEDIANS
FOR SIGN PLACEMENT



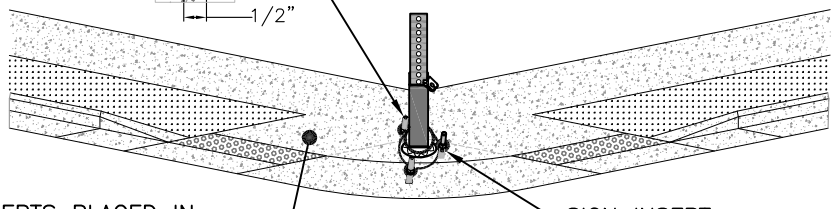
TYPICAL CONCRETE
MEDIAN DIVIDE



PLACE FLUSH w/FINISHED CONCRETE. SHIMS OR OTHER METHODS MAY BE USED TO LEVEL BREAKAWAY SYSTEMS FOR POST INSTALLATION.



BREAKAWAY SIGN INSERTS SHALL BE ANCHORED WITH TITEN HEAVY DUTY (½" X 4") SCREW ANCHORS OR APPROVED EQUAL.
INSTALL BY HAMMER DRILLING PILOT HOLES.
INSTALL BOLTS w/IMPACT GUN/WRENCH INTO FINISHED CONCRETE w/SURFACE MOUNT.
FOLLOW AND USE APPROVED MANUFACTURERS RECOMMENDATION FOR INSTALLATION.



SIGN INSERTS PLACED IN MEDIANS OR WALKS(TYP.) TO BE MARKED BY THE ENGINEER.

SEE MnDOT STANDARD PLATE #7109–MEDIAN NOSE & ISLAND, SECTION C–C

SIGN INSERT

SOME SPECIFIC INTERSECTIONS WITH CROSSING SIDEWALKS & ADA PEDESTRIAN RAMPS MAY REQUIRE KLEEN BREAK SIGN INSERTS. THESE AREAS WOULD INCLUDE LARGE AREAS OF CONCRETE AND LACK OF GREEN SPACE. PLACE INSERTS FOR SIGNS TO HAVE NO CONFLICT WITH ADA PED RAMP AREAS.

DESIGN: TMS	DATE: 12–17			
DRAWN: RKL	FILENAME:P:\WORKS\CAD\PLATES2021\P603			
REVISIONS	7–21	6–22		

Maplewood

CITY OF MAPLEWOOD–ENGINEERING DEPT.

SIGN BASE INSERT

PLATE NO. 603

P:\WORKS\CAD\PLATES\dwg\P601.DWG 3/9/2009 9:39:04 AM CDT

COST:
SIGN = $35.00 (POSTS NOT INCLUDED)

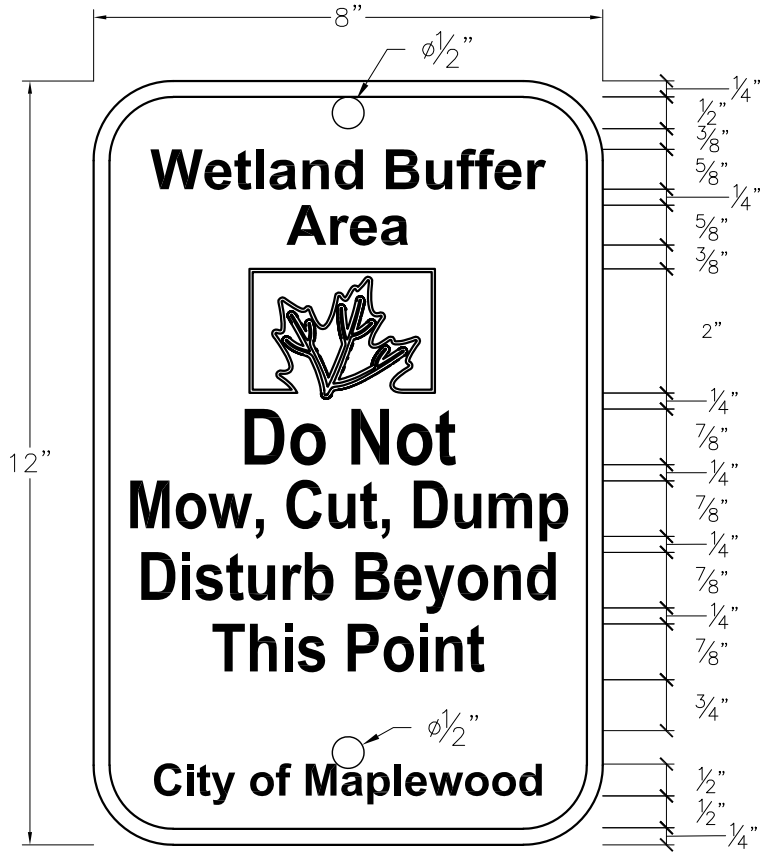
CODE FOR PAYMENT:
101–502–4220

MOUNTING:
7' STEEL ANGLE POSTS DRIVEN 3' INTO GROUND WITH AIR COMPRESSOR. INSTALL SIGNS WITH STAINLESS STEEL FASTENERS.

LOCATION:
FOLLOW APPROVED CITY OF MAPLEWOOD WETLAND BUFFER SIGN PLAN.

SIGN DETAIL:
FONT: ARIAL BOLD
FONT COLOR: WHITE
LEAF OUTLINE & BORDER: WHITE
LEAF INTERIOR: RED
SIGN BACKGROUND: BROWN
OUTER BORDER: WHITE

CORNER RADIUS: 1 ¼"
INNER LEAF: 2" (TALL) X 3" (WIDE)
INNER BORDER: H=11 ½" W=7 ½"
HOLES: ½" DIAMETER
BORDER: ¼"



DESIGN: TMS	DATE: 3–95			
DRAWN: RKL	FILENAME:P:\WORKS\CAD\PLATES2021\P604			
REVISIONS	3–06	5–17	7–21	

Maplewood

CITY OF MAPLEWOOD–ENGINEERING DEPT.

WETLAND BUFFER SIGN

PLATE NO. 604

BASIS FOR ESTIMATED QUANTITIES

STREET

2211 AGGREGATE BASE PLACED.....140 LB/CF
2221 AGGREGATE SHOULDERING PLACED.....140 LB/CF
2360 BITUMINOUS WEAR COURSE MIXTURE .....115 LB/SY/IN
2360 BITUMINOUS NON-WEARING COURSE MIXTURE.....115 LB/SY/IN
2360 BITUMINOUS DRIVEWAY COURSE MIXTURE.....115 LB/SY/IN
2123 STREET SWEEPER W/PICKUP BROOM.....4 HR/CURB MILE/MONTH
2357 BITUMINOUS MATERIAL FOR TACK COAT.....0.10 GAL/SY PER LIFT
2357 BITUMINOUS MATERIAL FOR FOG SEAL.....0.10 GAL/SY PER LIFT
2130 WATER FOR DUST CONTROL.....2.75(MGAL)/500' STREET/MONTH
2331 BITUMINOUS JOINT SAW & SEAL.....(ROAD L x ROAD W)/35'

RESTORATION

2575 TURF ESTABLISHMENT, RESIDENTIAL SEED, 25-131.....120 LB/ACRE
2575 TURF ESTABLISHMENT, COMMERCIAL SEED, 25-151.....220 LB/ACRE
2575 TURF ESTABLISHMENT, ROADSIDE, SEED 25-141.....140 LB/ACRE
2575 COMMERCIAL FERTILIZER, 10-10-10 .....300 LB/ACRE
2575 MULCH MATERIAL, TYPE 6 MODIFIED.....2" DEPTH
2511 RANDOM RIPRAP, CLASS V.....1.35 TONS/CY

DESIGN: TMS	DATE: 3-95			
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REVISIONS	3-06	2-08	8-21	

Maplewood

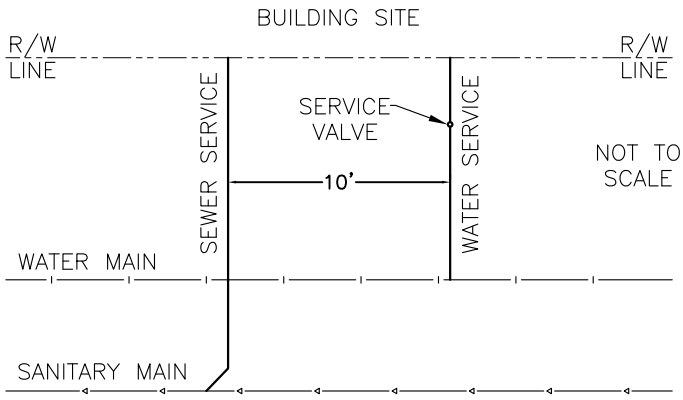
CITY OF MAPLEWOOD-ENGINEERING DEPT.

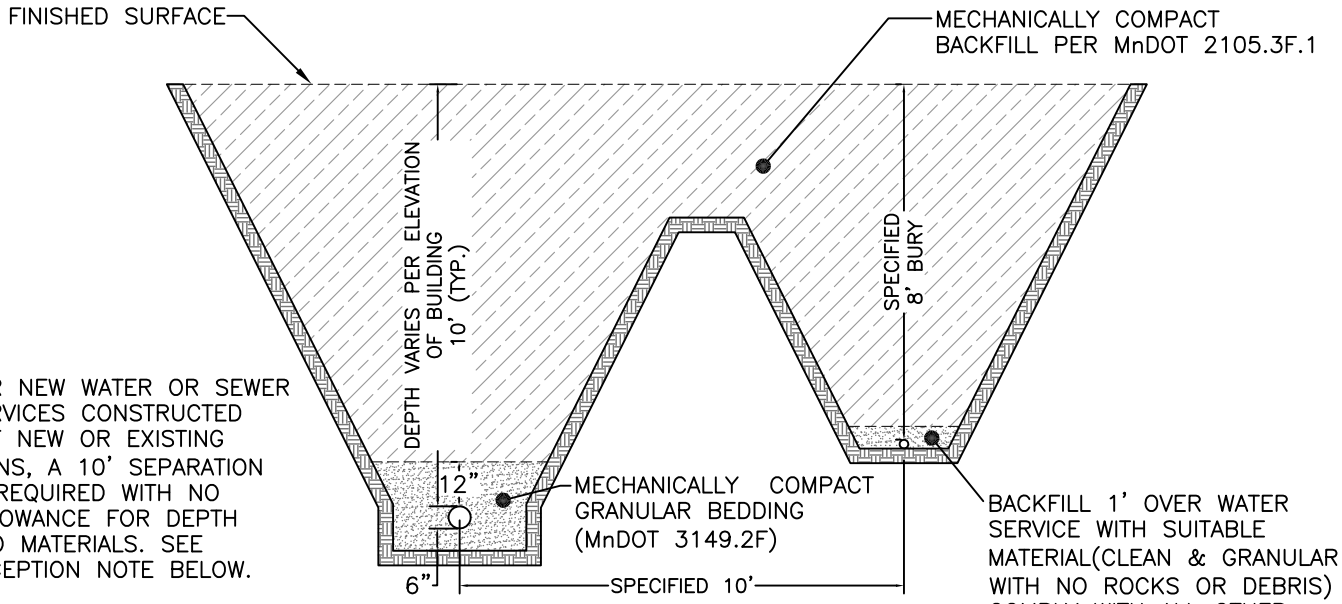
BASIS FOR ESTIMATED QUANTITIES

PLATE NO. 605

SEE PLATE 410 FOR NEW SANITARY SEWER SERVICE INSTALLATION.

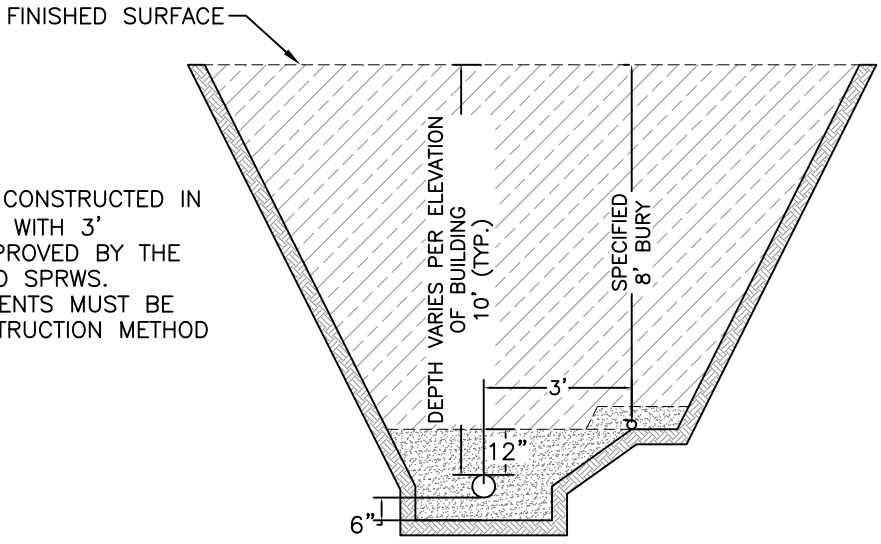
SEE PLATE 501 FOR NEW COPPER WATER SERVICE INSTALLATION. NO JOINTS ALLOWED BETWEEN THE CORPORATION STOP AND THE CURB STOP VALVE.





FOR NEW WATER OR SEWER SERVICES CONSTRUCTED OFF NEW OR EXISTING MAINS, A 10' SEPARATION IS REQUIRED WITH NO ALLOWANCE FOR DEPTH AND MATERIALS. SEE EXCEPTION NOTE BELOW.

BACKFILL 1' OVER WATER SERVICE WITH SUITABLE MATERIAL(CLEAN & GRANULAR WITH NO ROCKS OR DEBRIS) COMPLY WITH ALL OTHER BACKFILLING NOTES.



EXCEPTION NOTE:
SERVICES MAY BE CONSTRUCTED IN THE SAME TRENCH WITH 3' SEPARATION IF APPROVED BY THE CITY ENGINEER AND SPRWS. CERTAIN REQUIREMENTS MUST BE MET IF THIS CONSTRUCTION METHOD IS APPROVED.

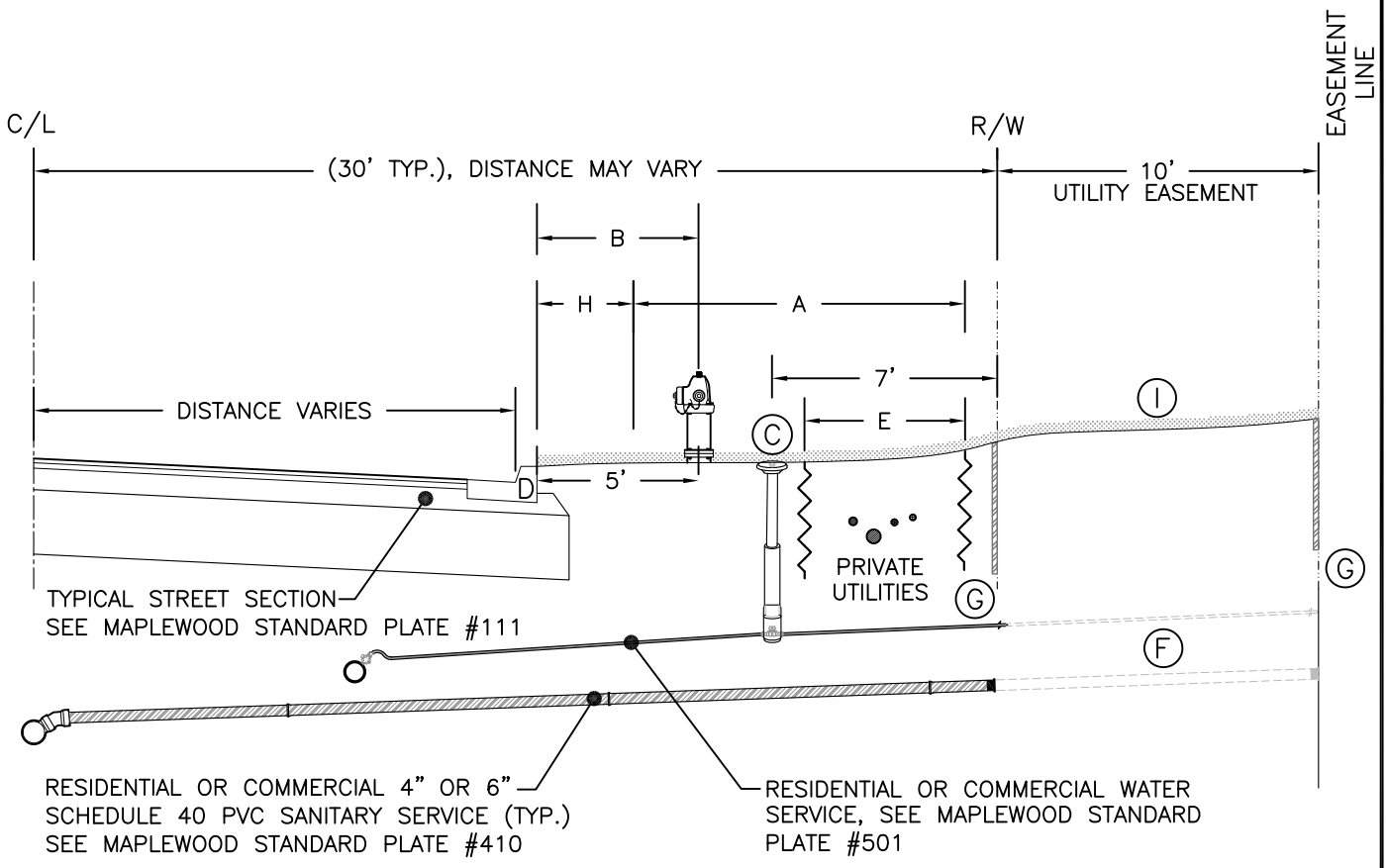
DESIGN: TMS	DATE: 3-95			
DRAWN: RKL	FILENAME:P:\WORKS\CAD\PLATES2021\P611			
REVISIONS	3-97	3-02	3-06	
12-17 8-21				

Maplewood

CITY OF MAPLEWOOD—ENGINEERING DEPT.

SERVICES IN COMMON TRENCH

PLATE NO. 611



A— FROM 3' BEHIND CURB TO 1' WITHIN R/W, POWER POLES, SIDEWALKS, OR TRAILS MAY BE CONSTRUCTED. PLAN TO AVOID CONFLICTS WITH POWER POLES, PRIVATE UTILITIES, AND WALKS OR TRAILS AS MUCH AS POSSIBLE.

B— 5'–STREET SIGNS & FUTURE STREET LIGHTS

C— CURB STOP BOX
SEE MAPLEWOOD STANDARD PLATE #501

D— CONCRETE CURB & GUTTER

E— 5' COMMON UTILITY TRENCH
GAS, ELECTRIC, TELEPHONE, CABLE, FIBER OPTIC, ETC.

F— IF UTILITY EASEMENT IS DEDICATED AND/OR RECORDED, EXTEND SEWER AND WATER SERVICES TO EASEMENT LINE.

G— MARK SANITARY & WATER SERVICE WITH BURIED METAL POST

H— 3' CLEAR ZONE

I— MANDATORY TURF ESTABLISHMENT WITHIN 7 DAYS UPON COMPLETION OF GRADING

ALL UTILITIES (PUBLIC & PRIVATE) SHALL BE INSTALLED PRIOR TO FINISHED STREET WORK

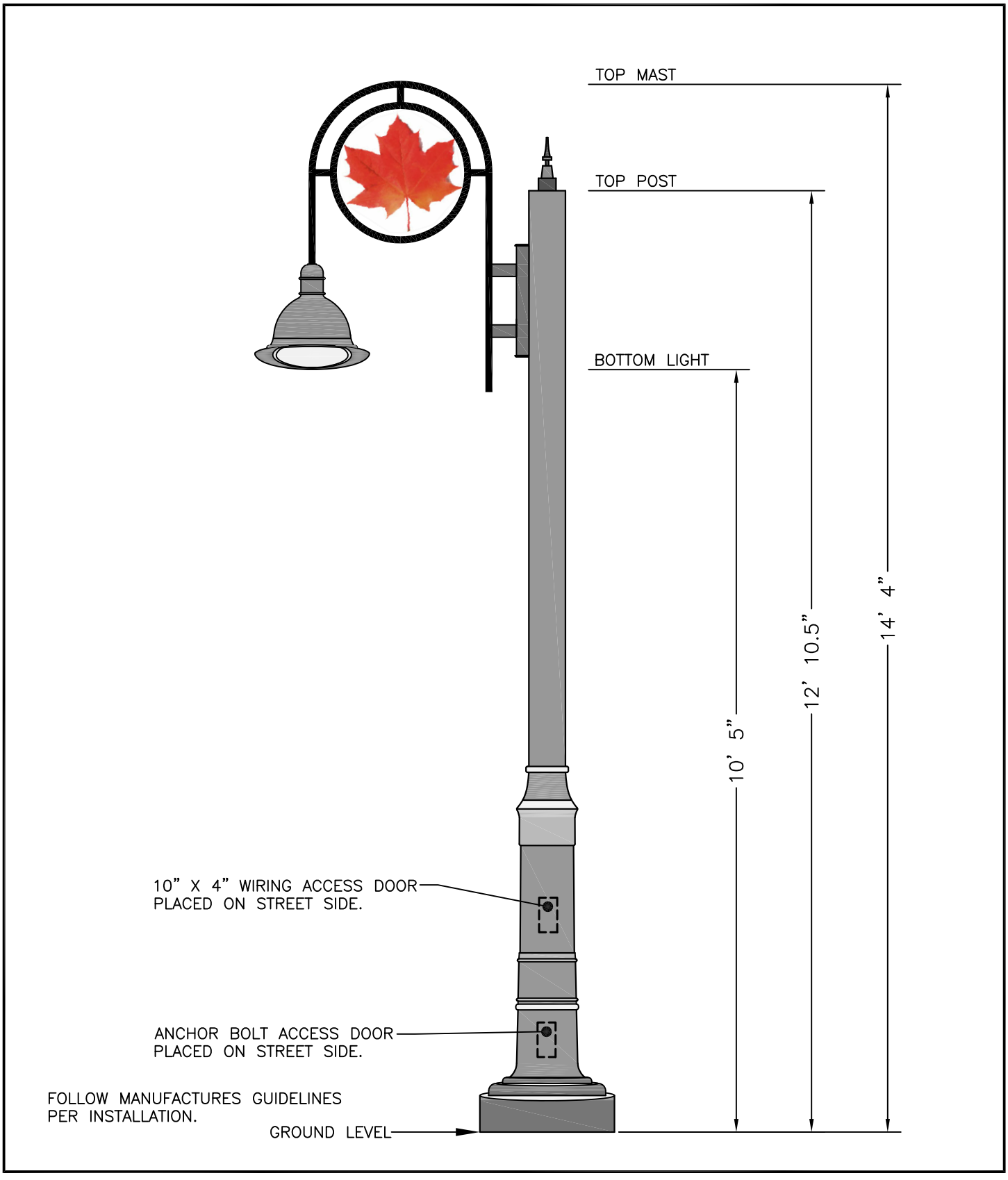
DESIGN: TMS	DATE: 3–95			
DRAWN: RKL	FILENAME:P:\WORKS\CAD\PLATES2021\P620			
REVISIONS	3–97	1–02	3–06	
5–17 7/21				

Maplewood

CITY OF MAPLEWOOD—ENGINEERING DEPT.

TYPICAL BOULEVARD UTILITY LOCATIONS

PLATE NO. 620



DESIGN: SEH	DATE: 5-2-17		
DRAWN: RKL	FILENAME:P:\WORKS\CAD\PLATES2021\P630		
REVISIONS			

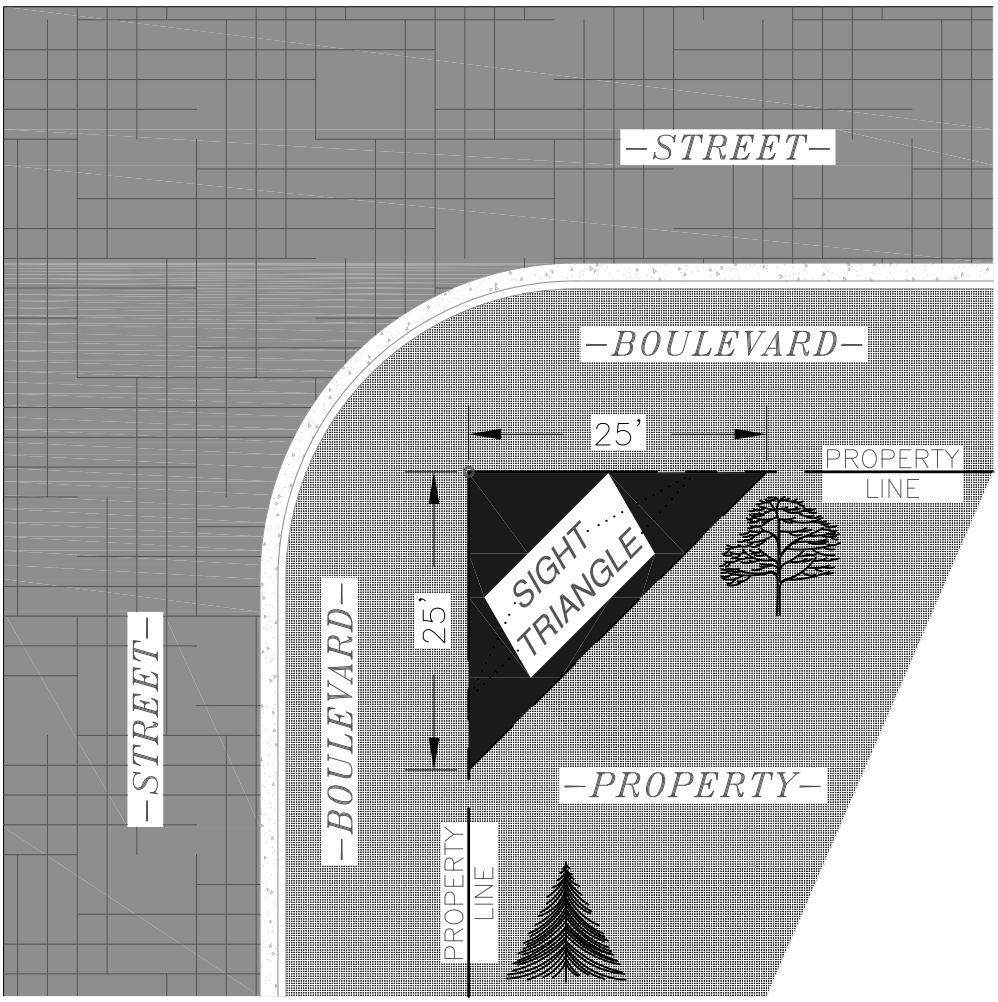
Maplewood

CITY OF MAPLEWOOD—ENGINEERING DEPT.

DECORATIVE LIGHTING UNIT

PLATE NO. 630

SIGHT TRIANGLE
STANDARD LOT CORNER



DESIGN: SWL	DATE: 11–9–16			
DRAWN: RKL	FILENAME:P:\WORKS\CAD\PLATES2021\P640			
REVISIONS	1–17			

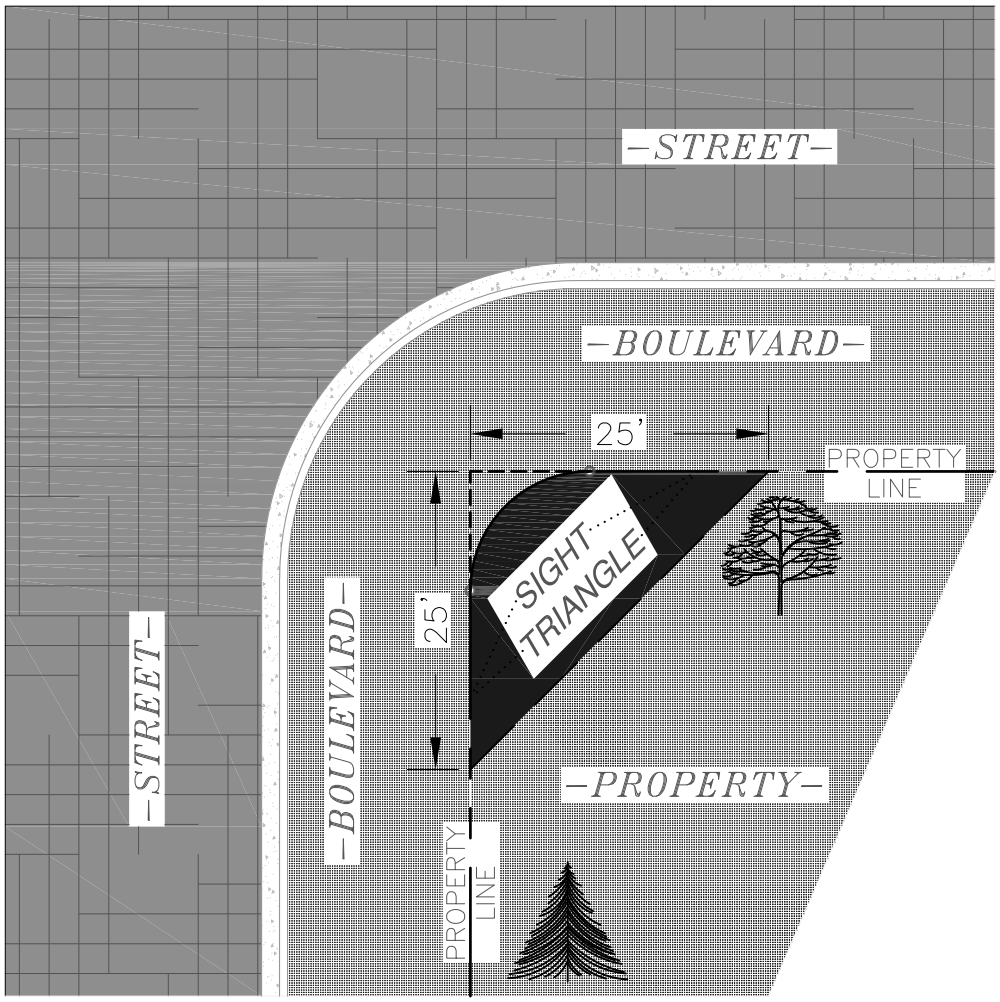
Maplewood

CITY OF MAPLEWOOD–ENGINEERING DEPT.

SIGHT TRIANGLE
STANDARD LOT CORNER

PLATE NO.
640

SIGHT TRIANGLE
CURVED LOT CORNER



DESIGN: SWL	DATE: 11–9–16			
DRAWN: RKL	FILENAME:P:\WORKS\CAD\PLATES2021\P241			
REVISIONS	1–17			

Maplewood

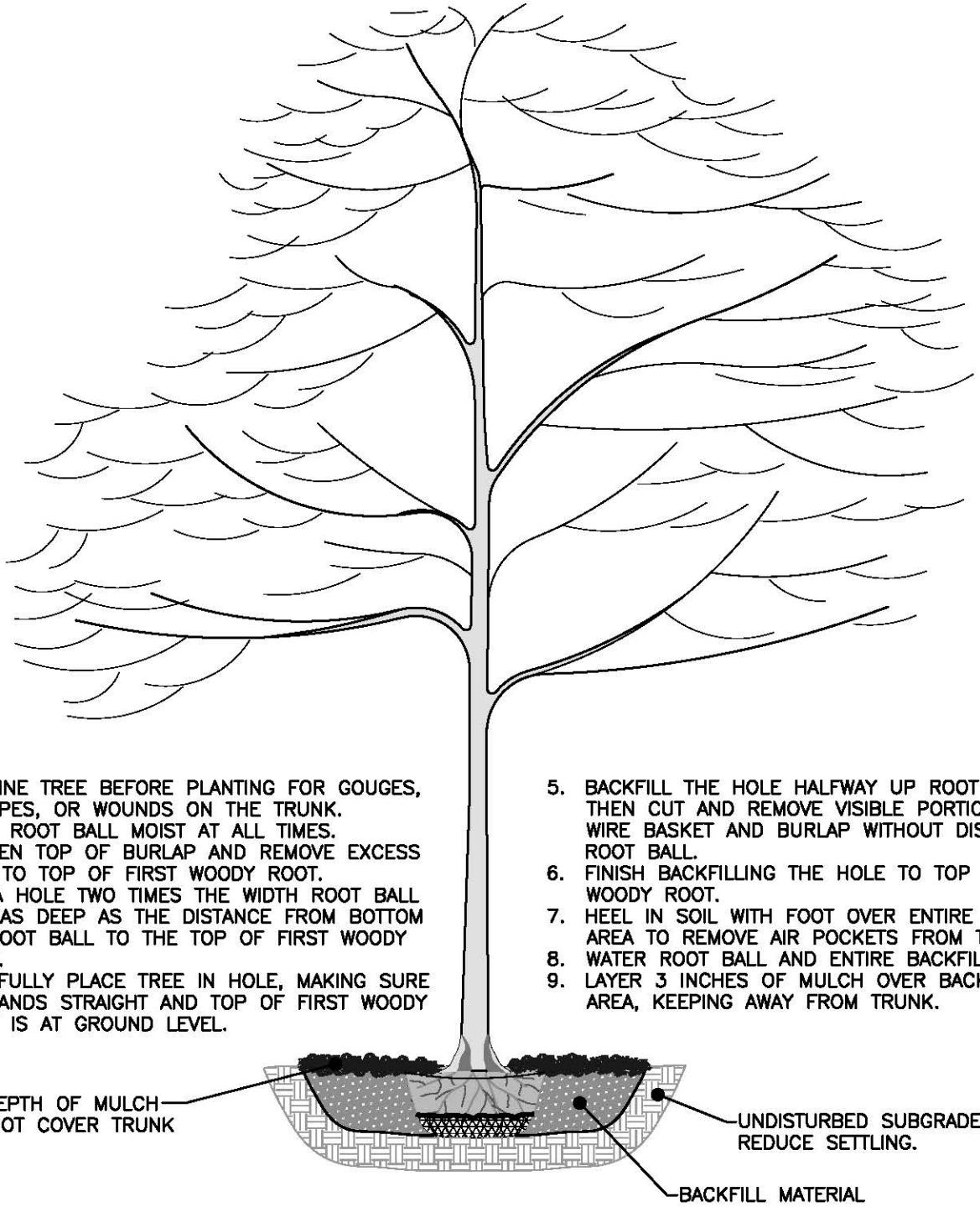
CITY OF MAPLEWOOD–ENGINEERING DEPT.

SIGHT TRIANGLE
CURVED LOT CORNER

PLATE NO.
641

STAKING IS NOT RECOMMENDED UNLESS THE TRUNK EASILY WAIVERS 3"–5". IF NEEDED, USE FIBERGLASS STAKES AS MANUFACTURED BY PLANTRA OR APPROVED EQUAL.

DO NOT CUT MAIN LEADER.
SET TREE PLUMB.
PRUNE DEAD OR BROKEN BRANCHES.
REMOVE ALL TAGS AT SUBSTANTIAL COMPLETION.



NOTES:

1. EXAMINE TREE BEFORE PLANTING FOR GOUGES, SCRAPES, OR WOUNDS ON THE TRUNK.
2. KEEP ROOT BALL MOIST AT ALL TIMES.
3. LOOSEN TOP OF BURLAP AND REMOVE EXCESS SOIL TO TOP OF FIRST WOODY ROOT.
4. DIG A HOLE TWO TIMES THE WIDTH ROOT BALL AND AS DEEP AS THE DISTANCE FROM BOTTOM OF ROOT BALL TO THE TOP OF FIRST WOODY ROOT.
5. CAREFULLY PLACE TREE IN HOLE, MAKING SURE IT STANDS STRAIGHT AND TOP OF FIRST WOODY ROOT IS AT GROUND LEVEL.
5. BACKFILL THE HOLE HALFWAY UP ROOT BALL, THEN CUT AND REMOVE VISIBLE PORTIONS OF WIRE BASKET AND BURLAP WITHOUT DISTURBING ROOT BALL.
6. FINISH BACKFILLING THE HOLE TO TOP OF FIRST WOODY ROOT.
7. HEEL IN SOIL WITH FOOT OVER ENTIRE BACKFILL AREA TO REMOVE AIR POCKETS FROM THE SOIL.
8. WATER ROOT BALL AND ENTIRE BACKFILL AREA.
9. LAYER 3 INCHES OF MULCH OVER BACKFILLED AREA, KEEPING AWAY FROM TRUNK.

DESIGN: TMS	DATE: 3–95			
DRAWN: RKL	FILENAME:P:\WORKS\CAD\PLATES2021\P650			
REVISIONS	3–97	3–01	2–08	
5–17	7–21			

Maplewood

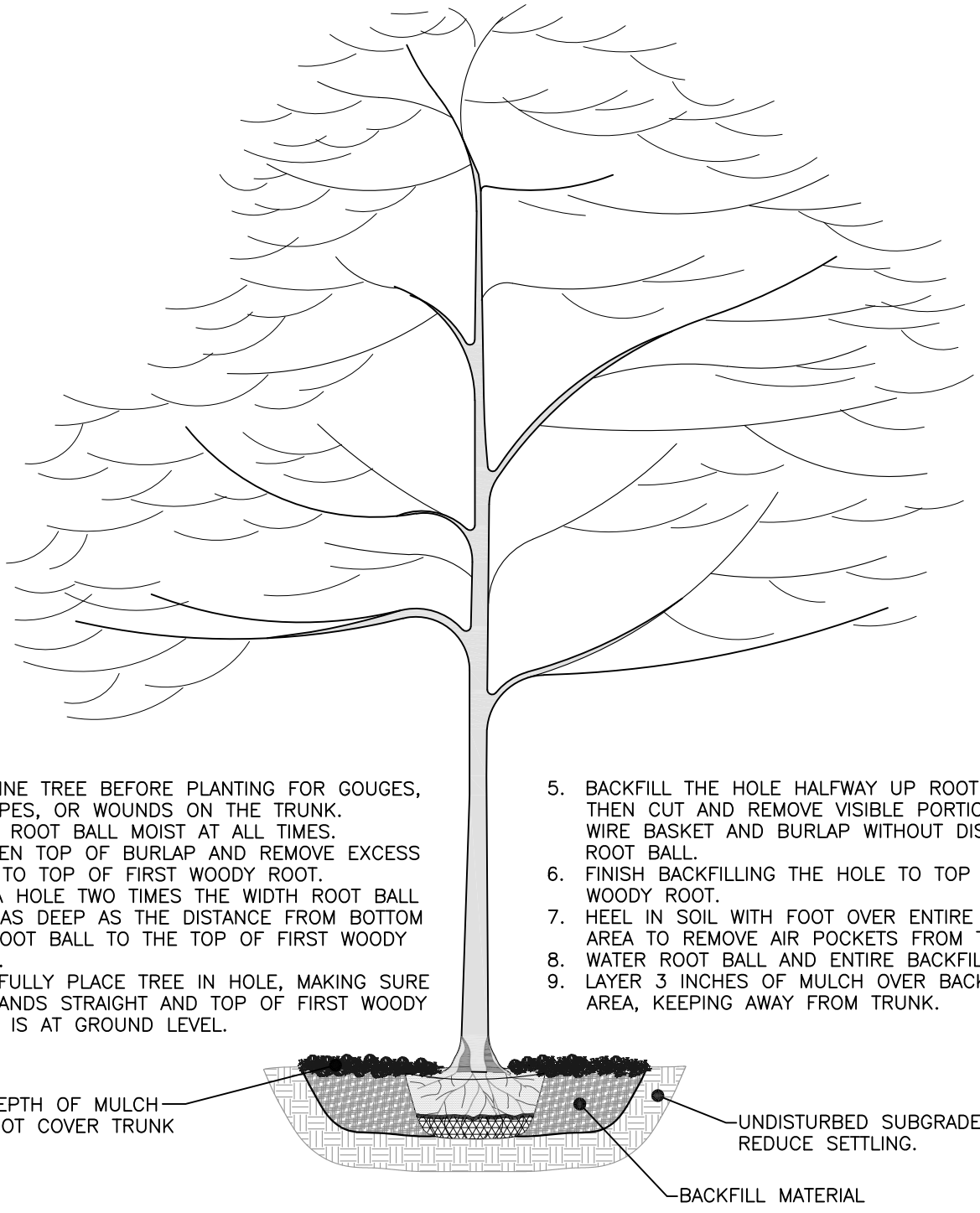
CITY OF MAPLEWOOD–ENGINEERING DEPT.

TREE PLANTING BALLED & BURLAPPED DETAIL

PLATE NO. 650

STAKING IS NOT RECOMMENDED UNLESS THE TRUNK EASILY WAIVERS 3"–5". IF NEEDED, USE FIBERGLASS STAKES AS MANUFACTURED BY PLANTRA OR APPROVED EQUAL.

DO NOT CUT MAIN LEADER.
SET TREE PLUMB.
PRUNE DEAD OR BROKEN BRANCHES.
REMOVE ALL TAGS AT SUBSTANTIAL COMPLETION.



NOTES:

1. EXAMINE TREE BEFORE PLANTING FOR GOUGES, SCRAPES, OR WOUNDS ON THE TRUNK.
2. KEEP ROOT BALL MOIST AT ALL TIMES.
3. LOOSEN TOP OF BURLAP AND REMOVE EXCESS SOIL TO TOP OF FIRST WOODY ROOT.
4. DIG A HOLE TWO TIMES THE WIDTH ROOT BALL AND AS DEEP AS THE DISTANCE FROM BOTTOM OF ROOT BALL TO THE TOP OF FIRST WOODY ROOT.
5. CAREFULLY PLACE TREE IN HOLE, MAKING SURE IT STANDS STRAIGHT AND TOP OF FIRST WOODY ROOT IS AT GROUND LEVEL.
5. BACKFILL THE HOLE HALFWAY UP ROOT BALL, THEN CUT AND REMOVE VISIBLE PORTIONS OF WIRE BASKET AND BURLAP WITHOUT DISTURBING ROOT BALL.
6. FINISH BACKFILLING THE HOLE TO TOP OF FIRST WOODY ROOT.
7. HEEL IN SOIL WITH FOOT OVER ENTIRE BACKFILL AREA TO REMOVE AIR POCKETS FROM THE SOIL.
8. WATER ROOT BALL AND ENTIRE BACKFILL AREA.
9. LAYER 3 INCHES OF MULCH OVER BACKFILLED AREA, KEEPING AWAY FROM TRUNK.

DESIGN: TMS	DATE: 3–95			
DRAWN: RKL	FILENAME:P:\WORKS\CAD\PLATES2021\P650			
REVISIONS	3–97	3–01	2–08	
5–17	7–21			

Maplewood

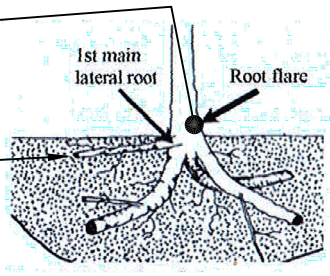
CITY OF MAPLEWOOD–ENGINEERING DEPT.

TREE PLANTING BALLED & BURLAPPED DETAIL

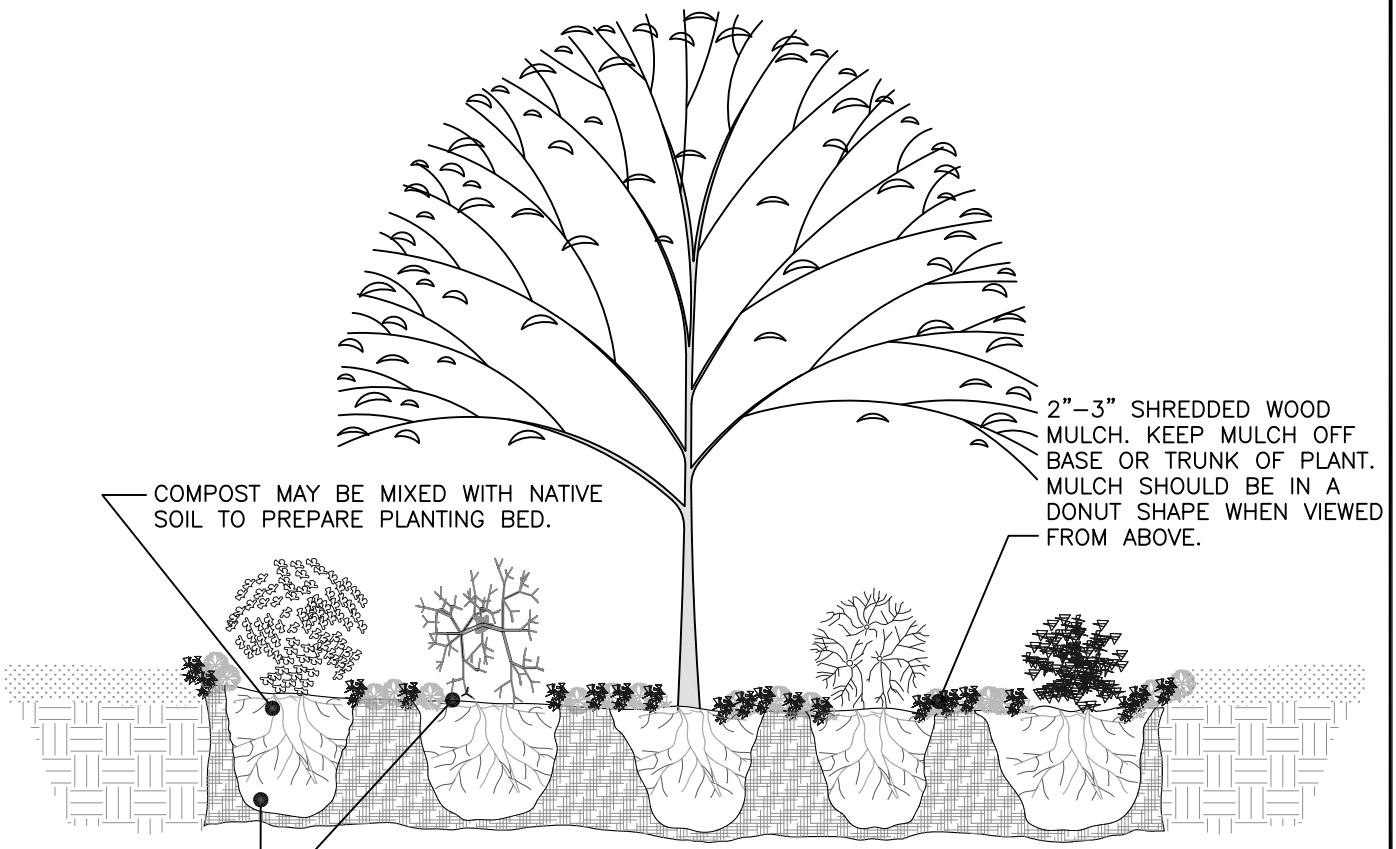
PLATE NO. 650

REMOVE EXCESS SOIL IN TOP OF POT SO THAT TOP OF FIRST MAJOR ROOT IS EXPOSED. WHEN BACKFILLING SOILS OR IMPORTED PLANTING SOIL, BE SURE THERE IS NOT EXCESS SOIL OVER MAIN LATERAL ROOTS.

DIG PLANTING HOLE DEEP ENOUGH TO ENSURE THAT THE TOP OF THE FIRST MAIN LATERAL ROOT IS VISIBLE. BE CAREFUL TO NOT DIG PLANTING HOLE TOO DEEP, ADD SOIL TO BOTTOM OF THE HOLE AS NECESSARY.



CAREFULLY REMOVE CONTAINER ON ALL POTTED PLANTS. DO NOT LIFT TREES OR SHRUBS OUT OF THE POT BY THE STEM/TRUNK. LAY POT ON SIDE, ROTATE POT WHILE PRESSING DOWN TO LOOSEN THE ROOTS FROM THE POT. SLIDE POT OFF OR CUT AWAY CONTAINER IF NECESSARY TO REMOVE PLANT. IF PLANT STOCK IS ROOT BOUND OR HAS ENCIRCLING ROOTS, BOX CUT WITH A PRUNING SAW. SEE ATTACHED INFORMATION. MAKE VERTICAL CUTS ON SIDES OF ROOT BALL TO CUT THE NET OF ROOTS.



DIG A HOLE THAT IS 2.5 TIMES THE DIAMETER OF THE SOIL ROOT BALL. THE HOLE SHOULD BE DEEP ENOUGH TO EXPOSE TOP OF FIRST MAIN ROOT, DO NOT PLANT TOO DEEP. MIX ANY IMPORTED SOIL WITH NATIVE SOILS. DIG HOLE DEEP ENOUGH SO THAT THE TOP OF THE FIRST MAIN LATERAL ROOT IS EVEN WITH SURROUNDING SOIL.

PICK PLANTS SUITABLE TO TYPE OF SOIL, SUN/SHADE EXPOSURE, MOISTURE CONDITIONS. SPACE PLANTS ACCORDING TO MATURE SIZE.

DESIGN: TMS	DATE: 5/1/96			
DRAWN: RKL	FILENAME:P:\WORKS\CAD\PLATES2021\P651			
REVISIONS	2–08	8–21		

Maplewood

CITY OF MAPLEWOOD–ENGINEERING DEPT.

SHRUB/SMALL TREE IN CONTAINER PLANTING DETAIL

PLATE NO. 651

SQUEEZE POT ON ALL SIDES, PUSH ON BOTTOM. TIP CONTAINER UPSIDE DOWN AND TAP CAREFULLY TO REMOVE THE PLANT.DO NOT PULL ON THE TOP OF THE PLANT TO REMOVE FROM POT. IF PLANT DOES NOT RELEASE FROM THE POT, POT MAY BE CUT TO REMOVE THE PLANT.

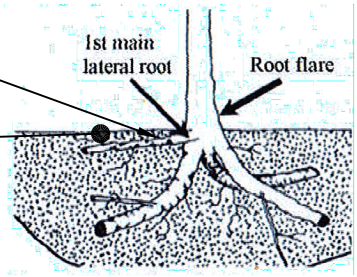
PICK PLANTS SUITABLE TO TYPE OF SOIL, SUN EXPOSURE AND MOISTURE CONDITIONS. SPACE PLANTS ACCORDING TO MATURE SIZE.

IF PLANT IS ROOTBOUND OR HAS ENCIRCLING ROOTS, SEPARATE ROOTS BY HAND OR MAKE VERTICAL CUTS THROUGH THE NET ON THE SIDE OF THE ROOT BALL. PULL THE BOTTOM ROOTS DOWNWARD TO LENGTHEN. REMOVE EXCESS SOIL IN TOP OF POT.

IN EXISTING BEDS/GARDENS, RAKE WOOD MULCH ASIDE, LOOSEN SOIL AND PLANT IN PREPARED TOPSOIL. REPLACE WOOD MULCH BEING CAREFUL NOT TO COVER PLANTS.

DIG PLANTING HOLE DEEP ENOUGH TO ACCOMMODATE LENGTH OF PULLED BOTTOM ROOTS.

PLANT POT SOIL AT GRADE OF EXISTING SOIL, DO NOT PLANT TOO DEEP OR ALLOW POT SOIL TO PROTRUDE ABOVE EXISTING GRADE.



COMPOST MAY BE MIXED WITH NATIVE SOIL TO PREPARE PLANTING BED.

2"–3" SHREDDED WOOD MULCH KEEP MULCH AWAY FROM BASE OF PLANT.

DIG A HOLE THAT IS 2.5 TIMES THE DIAMETER OF THE SOIL ROOT BALL. DEPTH TO MATCH ROOTS OF PLANT, OR LOOSEN NATIVE SOIL BENEATH ROOTS. MIX ANY IMPORTED COMPOST OR PLANTING SOIL WITH NATIVE SOILS. BOTTOM OF THE HOLE SHOULD BE AS WIDE AS THE TOP. PLANTING DEPTH SHOULD BE PLANTED AT SLIGHTLY HIGHER THAN OR AT THE DEPTH THAT WAS GROWN AT THE NURSERY.

DESIGN: TMS	DATE: 5/1/96			
DRAWN: RKL	FILENAME:P:\WORKS\CAD\PLATES2021\P652			
REVISIONS	2–08	5–17	8–21	

Maplewood

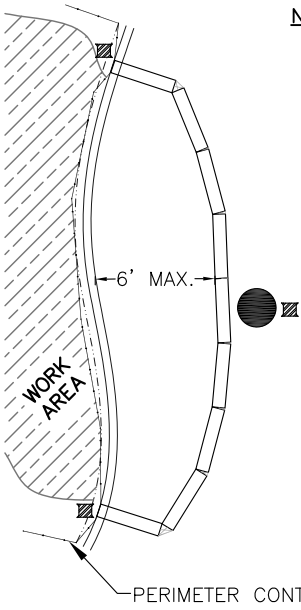
CITY OF MAPLEWOOD–ENGINEERING DEPT.

FLOWER & GROUND COVER PLANTING DETAIL

PLATE NO. 652

DRAWING NOT TO SCALE.
STANDARD PLATES ARE NOT PROJECT SPECIFIC.

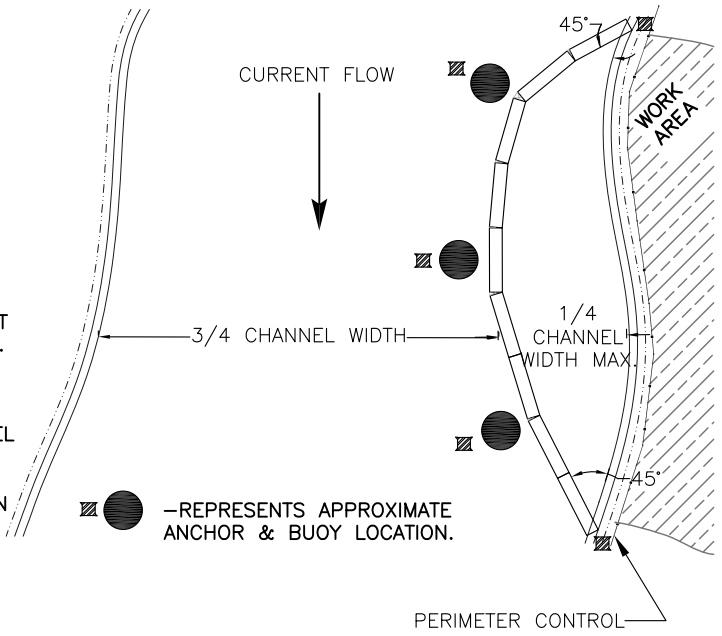
FLOTATION SILT CURTAIN
INSTALLED IN STILL WATER



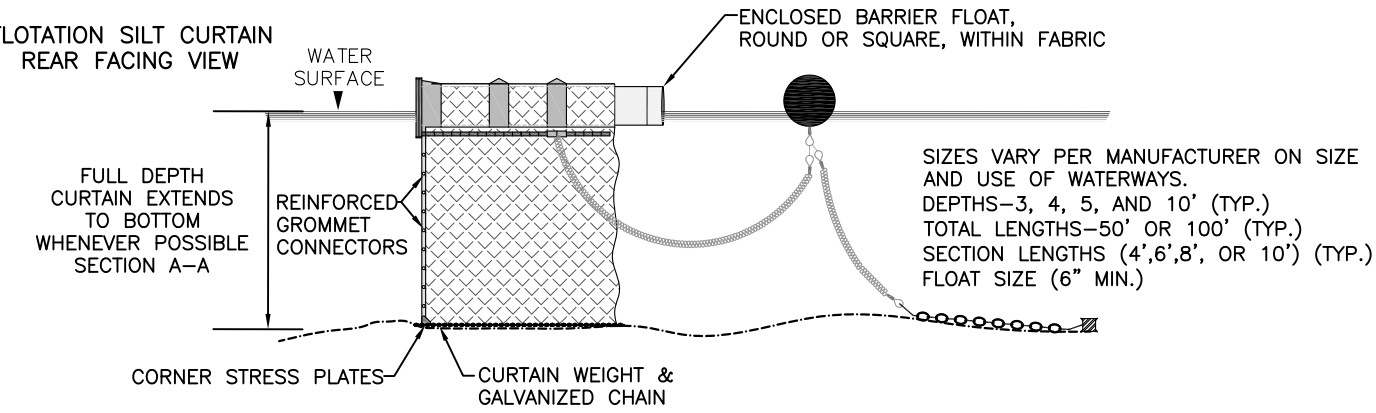
NOTES:

1. INSTALL CURTAIN AS CLOSE TO WORK AREA ON SHORE AS POSSIBLE.
2. SEDIMENTATION BEHIND THE CURTAIN SHOULD BE CLEANED OUT FREQUENTLY AND BEFORE PERMANENT REMOVAL.
3. DO NOT REMOVE UNTIL THE SHORELINE IS FULLY STABILIZED.
4. CURTAINS IN STILL WATER MUST BE ANCHORED WITH MIN. 40 LB. ANCHORS ON SHORE AT EACH END, AND MIN. 100' INTERVALS.
5. CURTAINS IN MOVING WATER MUST BE ANCHORED WITH MIN. 300 LB. ANCHORS AND MIN. 50 FT. INTERVALS.
6. CURTAINS IN MOVING WATER MAY NOT EXTEND INTO WATER CHANNEL MORE THAN 1/4 OF THE WIDTH OF THE WATERWAY.
7. MARKERS, FLOATS, AND FLOTATION CURTAIN MUST BE FLUORESCENT IN NAVIGATIONAL WATERS.

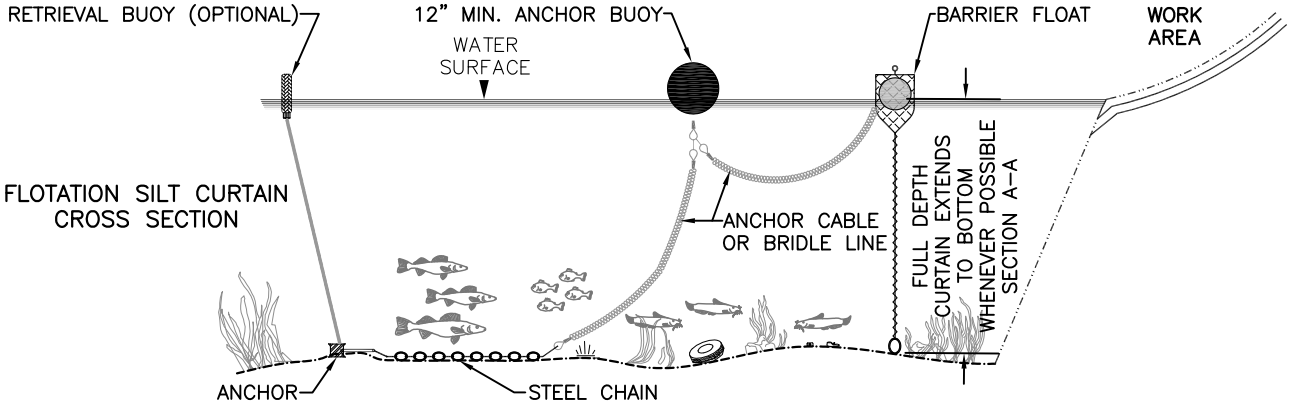
FLOTATION SILT CURTAIN
INSTALLED IN MOVING WATER



FLOTATION SILT CURTAIN
REAR FACING VIEW



FLOTATION SILT CURTAIN
CROSS SECTION



DESIGN: TMS	DATE: 3–95			
DRAWN: RKL	FILENAME:P:WORKS\CAD\PLATES2021\P349			
REVISIONS	10–94	1–02	3–17	
6–21				

Maplewood

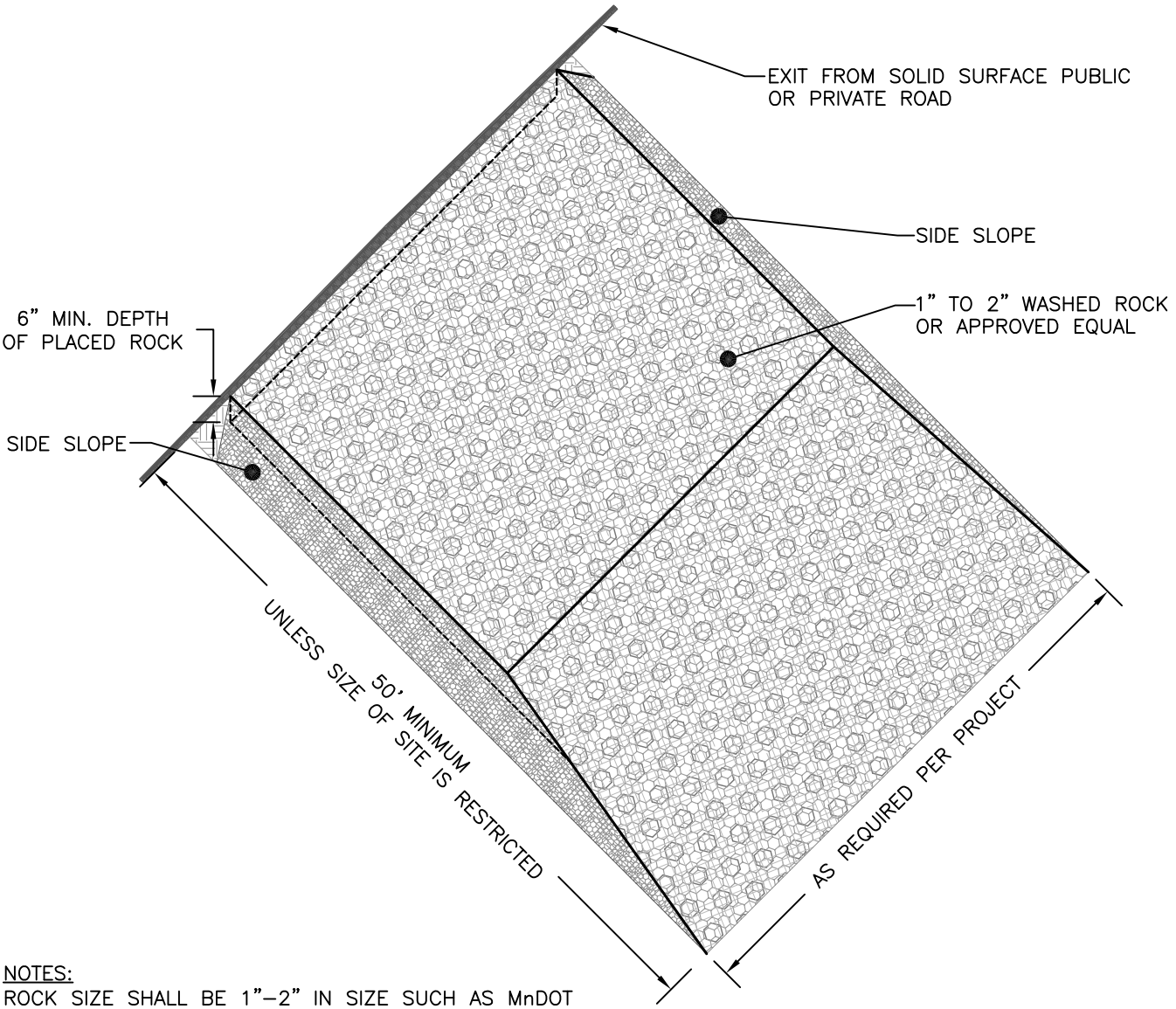
CITY OF MAPLEWOOD–ENGINEERING DEPT.

TEMPORARY SEDIMENT CONTROL
FLOTATION SILT CURTAIN

PLATE NO. 749

DRAWING NOT TO SCALE.
STANDARD PLATES ARE NOT PROJECT SPECIFIC.

CONSTRUCTION EXITS FOR SEDIMENT CONTROL ARE REQUIRED ON PROJECTS THAT HAVE THE POTENTIAL FOR TRACKING TO OCCUR. PRE-MANUFACTURED TRACK-OUT CONTROL MAY BE USED IN PLACE OF TYPICAL ROCK CONSTRUCTION EXIT.



NOTES:
ROCK SIZE SHALL BE 1"–2" IN SIZE SUCH AS MnDOT CA–1 OR CA–2 WASHED COURSE AGGREGATE, OR MATERIAL AS APPROVED BY THE ENGINEER.

GEO–TEXTILE FABRIC MUST BE PLACED UNDER THE ROCK TO PREVENT CONTAMINATION OF UNDERLYING SOIL.
THE CONSTRUCTION EXIT FOR SEDIMENT CONTROL MAY BE REMOVED AFTER THE AGGREGATE BASE MATERIAL IS INSTALLED.

DESIGN: TMS	DATE: 12–17				
DRAWN: RKL	FILENAME:P:\WORKS\CAD\PLATES2021\P350				
REVISIONS	6–21				

Maplewood

CITY OF MAPLEWOOD–ENGINEERING DEPT.

TEMPORARY SEDIMENT CONTROL, CONSTRUCTION EXIT

PLATE NO. 750

EROSION CONTROL & SEDIMENT CONTROL GUIDELINES

THE CITY OF MAPLEWOOD UTILIZES MINNESOTA DEPARTMENT OF TRANSPORTATION (MnDOT) SEDIMENT CONTROL STANDARD PLAN SET (8 SHEETS) & PERMANENT EROSION CONTROL (3 SHEETS). SEE MAPLEWOOD STANDARD PLATES #752–#763.

THERE ARE 4 WATERSHED DISTRICTS WITHIN MAPLEWOOD. ALL PLANS MUST BE APPROVED PER RESPECTIVE DISTRICT.

1. RAMSEY–WASHINGTON WATERSHED DISTRICT
2. CAPITAL REGION WATERSHED
3. VALLEY BRANCH WATERSHED
4. SOUTH WASHINGTON COUNTY WATERSHED

THE CITY OF MAPLEWOOD APPLIES BEST MANAGEMENT PRACTICES FOR SEDIMENTATION AND EROSION CONTROL. ALL DEVELOPMENT PLANS MUST BE APPROVED BY THE ENGINEER. THESE MAY INCLUDE FROM THE LIST BELOW.

THE CITY OF MAPLEWOOD REQUIRES A NPDES PERMIT FOR ANY CONSTRUCTION ACTIVITY WHERE OVER A HALF ACRE IS DISTURBED. ALL CONSTRUCTION SITES REQUIRE A SWPPP.

SEDIMENTATION CONTROL:

1. BUFFERS (EXISTING VEGETATION LEFT IN PERIMETER OR KEY LOCATIONS)
2. HEAVY DUTY SILT FENCE AND SILT FENCE (MACHINE AND HAND PLACED)
3. BALE BARRIERS (STAKED AND PARTIALLY BURIED) AREAS WHERE SILT FENCE CANNOT BE PLACED. MUST CONFORM TO TYPE 1 MULCH.
4. SANDBAGS FOR WATER DIVERSION OR SLOWING RUNOFF. ASSIST WITH INLET PROTECTION
5. STORM DRAIN INLET PROTECTION (MULTIPLE METHODS) MUST BE APPROVED
6. CULVERT PROTECTION (MULTIPLE METHODS) MUST BE APPROVED
7. SEDIMENTATION TRAPS & TEMPORARY PONDING
8. FLOTATION SILT CURTAIN (SEE MAPLEWOOD STANDARD PLATE 349)
9. SEDIMENTATION CONTROL LOGS, STRAW, COIR, OR WOOD FIBER BIO–ROLLS, ROCK, COMPOST LOG, OR WOOD CHIP LOGS.
10. FLOCCULANTS–MnDOT SPEC. 3898 & 2573
11. TEMPORARY HYDRO–SEEDING OR DRILL SEEDING

EROSION CONTROL:

1. TEMPORARY GRADING (MnDOT 2574)
2. SOIL TRACKING (DOZER VERTICALLY GRADING SLOPES)
3. FILTER BERMS, CAN INCLUDE COMPOST, SLASH MULCH, ROCK WEEPER(RIPRAP & CRUSHED QUARRY ROCK), SALVAGED TOPSOIL, ROCK CHECKS
4. RIPRAP
5. MULCH (TYPE 1, TYPES 3–9)
6. EROSION CONTROL BLANKETS AND MATS (MUST BE APPROVED BY THE ENGINEER. MATS MUST BE BIO–DEGRADABLE AND NOT CONTAIN CONSTRUCTED MATERIALS THAT WILL TRAP ANIMALS)
7. HYDRAULIC EROSION CONTROL PRODUCTS (HYDRO–SEEDING)
8. TEMPORARY SLOPE DRAINS
9. COMPOST
10. PERMANENT VEGETATION (SOD AND SEEDING)

DESIGN: TMS	DATE: 3/14/17			
DRAWN: RKL	FILE P:/WORKS/CAD /PLATES2021/P751.DWG			
REVISIONS	3–17	6–21		

Maplewood

CITY OF MAPLEWOOD–ENGINEERING DEPT.

EROSION CONTROL & SEDIMENT CONTROL GUIDELINES

PLATE NO. 751

DESIGN: MnDOT	DATE: 3-17			
DRAWN: MnDOT	FILENAME:P:\WORKS\CAD\PLATES2021\P352			
REVISIONS	3-17	4-21		

Maplewood

CITY OF MAPLEWOOD—ENGINEERING DEPT.

TEMPORARY EROSION CONTROL
MnDOT 1 of 8

PLATE NO. 752

DESIGN: MnDOT | DATE: 3-17

DRAWN: MnDOT | FILENAME:P:\WORKS\CAD\PLATES2021\P353

REVISIONS 3-17 6-21

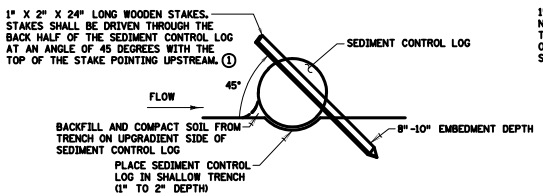
Maplewood

CITY OF MAPLEWOOD—ENGINEERING DEPT.

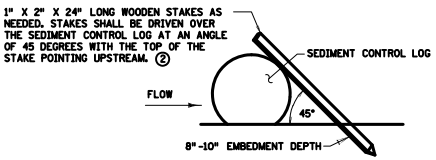
TEMPORARY EROSION CONTROL

MnDOT 2 of 8

PLATE NO. 753

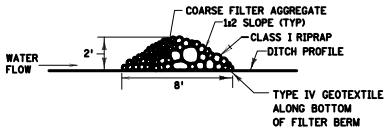


TYPES: STRAW, WOOD FIBER, OR COIR

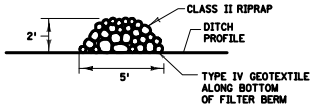


TYPES: WOOD CHIP, COMPOST, OR ROCK

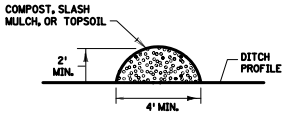
SEDIMENT CONTROL LOGS



TYPE 3 (ROCK WEEPER)

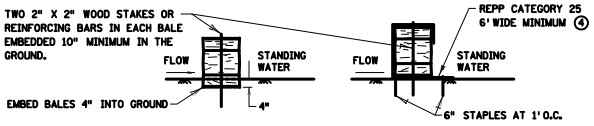


TYPE 5 (ROCK)



TYPE 1 (COMPOST), TYPE 2 (SLASH MULCH), OR TYPE 4 (TOPSOIL)

FILTER BERMS



EMBEDMENT METHOD

REPP (BLANKET) METHOD (ALTERNATE)

BALE BARRIERS③

NOTES:

REPP = ROLLED EROSION PREVENTION PRODUCT.

SEE SPECS. 2573, 3149, 3874, 3882, 3885, 3886, AND 3897.

① SPACE BETWEEN STAKES SHALL BE A MAXIMUM OF 1' FOR DITCH CHECKS OR 2' FOR OTHER APPLICATIONS.

② PLACE STAKES AS NEEDED TO PREVENT MOVEMENT OF SEDIMENT CONTROL LOGS PLACED ON SLOPES OR AS NEEDED DUE TO OTHER FACTORS. STAKES SHALL BE INCIDENTAL.

③ TO BE USED FOR CRITICAL PERIMETER CONTROL AREAS WHERE STANDING WATER OCCURS (6" MAXIMUM DEPTH). BALES SHALL CONSIST OF TYPE 1 MULCH OF APPROXIMATELY 14" X 18" X 36" LONG. BALES SHALL BE PLACED ON EDGE AND BUTTED TIGHT TO ADJACENT BALES.

④ INSTEAD OF TRENCHING, PLACE BALE ON THE REPP (BLANKET) AND WRAP BLANKET AROUND THE BALE. PLACE STAKE THROUGH BALE AND BLANKET.

REVISIONS

APPROVED: JANUARY 8, 2020

MARNI KARNOWSKI
CHIEF ENVIRONMENTAL OFFICER

DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.405 | 2 OF 8

APPROVED: 1-8-2020
REVISED:

THOMAS TYBURCKI
STATE DESIGN ENGINEER

TEMPORARY SEDIMENT CONTROL

FILTER BERMS, SEDIMENT CONTROL LOGS, AND BALE BARRIERS

STATE PROJ. NO. | (T.H.) | SHEET NO. OF SHEETS

DESIGN: MnDOT | DATE: 3-17

DRAWN: MnDOT | FILENAME:P:\WORKS\CAD\PLATES2021\P754

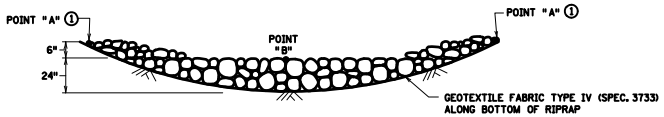
REVISIONS 3-17 6-21

Maplewood

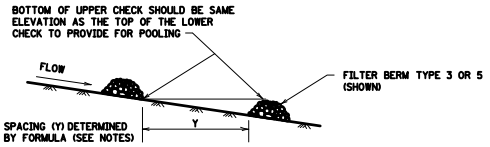
CITY OF MAPLEWOOD—ENGINEERING DEPT.

TEMPORARY EROSION CONTROL
MnDOT 3 of 8

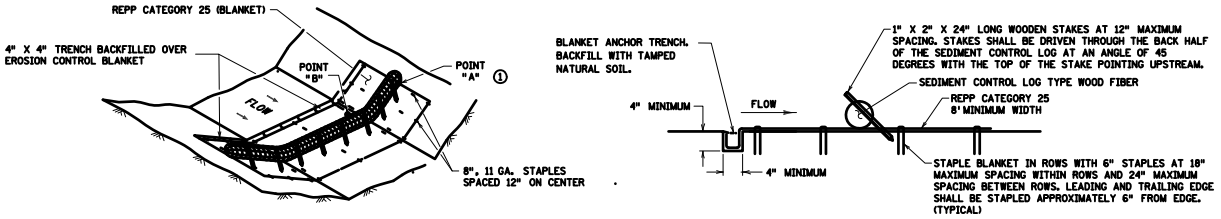
PLATE NO. 754



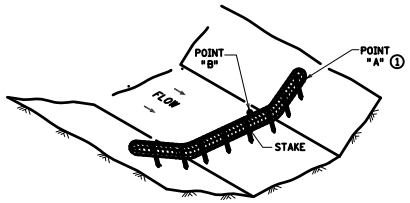
ROCK DITCH CHECKS
FILTER BERMS TYPE 3 (ROCK WEEPER) OR FILTER TYPE 5 (ROCK) ③
FOR USE ON ROUGH-GRADED AREAS
ONLY FOR USE OUTSIDE CLEAR ZONE ②



DITCH CHECK SPACING
FOR ALL FILTER BERM TYPES



SEDIMENT CONTROL LOG TYPE REPP (BLANKET) SYSTEM ④



SEDIMENT CONTROL LOG TYPE WOOD FIBER, OR TYPE COMPOST ⑤
FOR USE ON ROUGH GRADED AREAS

NOTES:

REPP = ROLLED EROSION PREVENTION PRODUCT.

SEE SPECS. 2573, 3601, 3733, 3885, 3886 & 3889.

FOR DITCH CHECKS, PLACE SEDIMENT CONTROL LOG PERPENDICULAR TO FLOW AND IN A CRESCENT SHAPE WITH THE ENDS FACING UPSTREAM.

APPROXIMATE SPACING BETWEEN EACH DITCH CHECK SHOULD BE DETERMINED FROM THE FOLLOWING SPACING FORMULA:

$$\text{APPROXIMATE SPACING OF DITCH CHECKS (FT.)} = Y = \frac{\text{DITCH CHECK HEIGHT (FT.)}}{\text{\% CHANNEL SLOPE}} \times 100$$

① POINT "A" MUST BE A MINIMUM OF 6" HIGHER THAN POINT "B" TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.

② ROCK DITCH CHECKS PLACED WITHIN THE CLEAR ZONE ARE TO BE 18" OR LESS IN HEIGHT. A 1:6 APPROACH AND DEPARTURE SLOPE SHALL BE PROVIDED.

③ DITCH GRADE 3% - 8%, MAX. FLOW VELOCITY 12 FT./SEC.

④ DITCH GRADE 1.5% - 3%, MAX. FLOW VELOCITY 4.5 FT./SEC.

⑤ DITCH GRADE 1.5% - 3%, MAX. FLOW VELOCITY 1.5 FT./SEC.

REVISION:

APPROVED: JANUARY 8, 2020
MARNE KARNOWSKI
CHIEF ENVIRONMENTAL OFFICER

DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.405 | 3 OF 8

APPROVED: 1-8-2020
REVISED:

THOMAS TYMINSKI
STATE DESIGN ENGINEER

TEMPORARY SEDIMENT CONTROL
DITCH CHECK

STATE PROJ. NO. | (T.H.) | SHEET NO. OF SHEETS

DESIGN: Mn/DOT | DATE: 3-17

DRAWN: Mn/DOT | FILENAME:P:\WORKS\CAD\PLATES2021\P755

REVISIONS 2-17 6-21

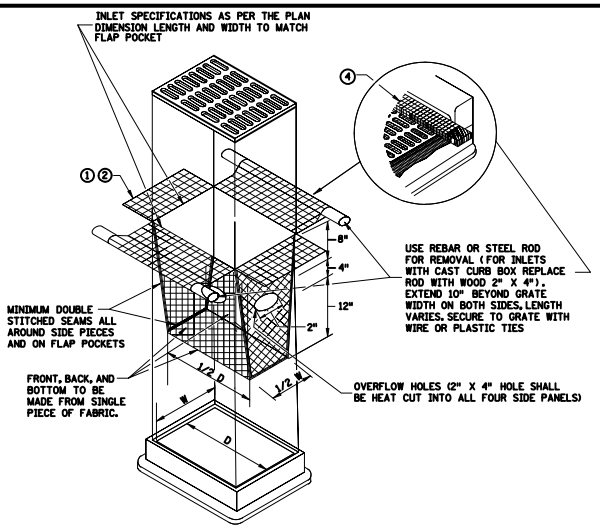
Maplewood

CITY OF MAPLEWOOD—ENGINEERING DEPT.

TEMPORARY EROSION CONTROL

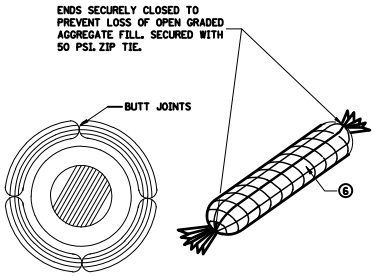
MnDOT 4 of 8

PLATE NO. 755

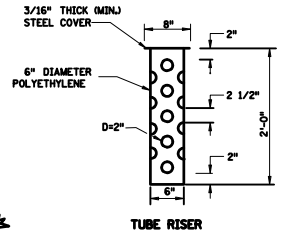


FILTER BAG INSERT ③

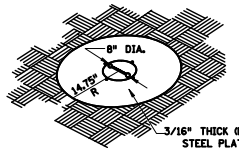
(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX)



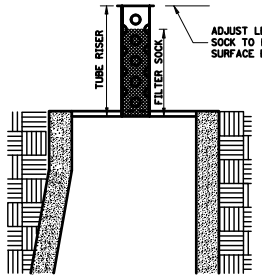
ROCK LOG/COMPOST LOG



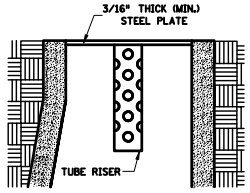
TUBE RISER



PERSPECTIVE VIEW

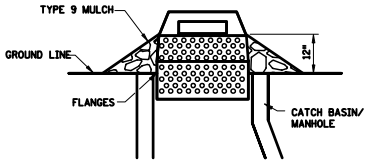


SECTION (UP POSITION)



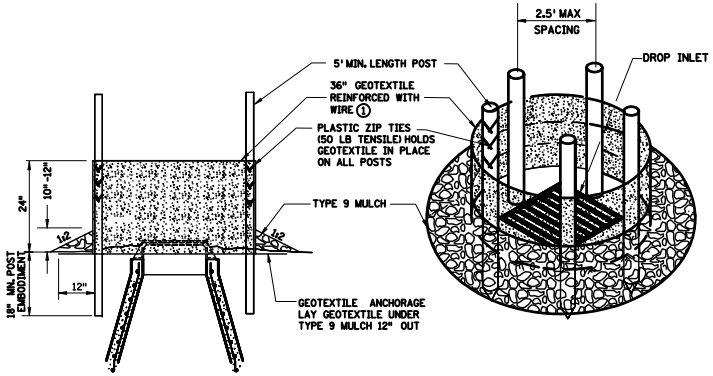
SECTION (DOWN POSITION)

POP-UP HEAD



SEDIMENT CONTROL INLET HAT

NOTE:
THE SEDIMENT CONTROL BARRIER SHALL BE A METAL OR PLASTIC/POLYETHYLENE RISER SIZED TO FIT INSIDE THE CATCH BASIN/MANHOLE; HAVE PERFORATIONS TO ALLOW FOR WATER INFILTRATION; HAVE AN OVERFLOW OPENING, FLANGES AND A LID/COVER.



SILT FENCE RING AND ROCK FILTER BERM

USE WHERE INLET DRAINS IN AN AREA WITH SLOPES AT 1:3 or LESS

NOTES:

SEE SPECS. 2573, 3137, & 3886.

DEVICES MUST BE ADJUSTED ACCORDINGLY AS TO NOT CAUSE FLOODING ON ROADWAY THAT WOULD IMPEED TRAFFIC FLOW.

① ALL GEOTEXTILE USED FOR INLET PROTECTION SHALL BE MONOFILAMENT IN BOTH DIRECTIONS, MEETING SPEC. 3886.

② FINISHED SIZE, INCLUDING POCKETS WHERE REQUIRED SHALL EXTEND A MINIMUM OF 10 INCHES AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.

③ INSTALLATION NOTES:
DO NOT PLACE FILTER BAG INSERT IN INLETS SHALLOWER THAN 30 INCHES, MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE. THE PLACED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE OF 3 INCHES BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES. WHERE NECESSARY THE CONTRACTOR SHALL CLINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3 INCH SIDE CLEARANCE.

④ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2 INCH X 4 INCH OR USE A ROCK SOCK OR SAND BAGS IN PLACE OF THE FLAP POCKETS.

⑤ SOCK HEIGHT MUST NOT BE SO HIGH AS TO SLOW DOWN WATER FILTRATION TO CAUSE FLOODING OF THE ROADWAY.

⑥ GEOTEXTILE SOCK BETWEEN 4-10 FEET LONG AND 4-6 INCH DIAMETER. SEAM TO BE JOINED BY TWO ROWS OF STITCHING WITH A PLASTIC MESH BACKING OR PROVIDE A HEAT BONDED SEAM (OR APPROVED EQUIVALENT). FILL ROCK LOG WITH OPEN GRADED AGGREGATE CONSISTING OF SOUND DURABLE PARTICLES OF COARSE AGGREGATE CONFORMING TO SPEC. 3137 TABLE 3137-1; CA-3 GRADATION.

REVISION:

APPROVED: 2-28-2017
CHIEF ENVIRONMENTAL OFFICER

DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.405 | 4 OF 8

APPROVED: 2-28-2017
REVISED:

STATE DESIGN ENGINEER

STATE PROJ. NO.

TEMPORARY SEDIMENT CONTROL

STORM DRAIN INLET PROTECTION

(T.H.) SHEET NO. OF SHEETS

DESIGN: Mn/DOT | DATE: 3-17

DRAWN: Mn/DOT | FILENAME:P:\WORKS\CAD\PLATES2021\P756

REVISIONS 3-17 6-21

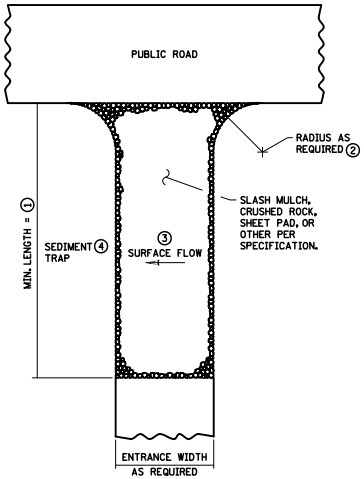
Maplewood

CITY OF MAPLEWOOD—ENGINEERING DEPT.

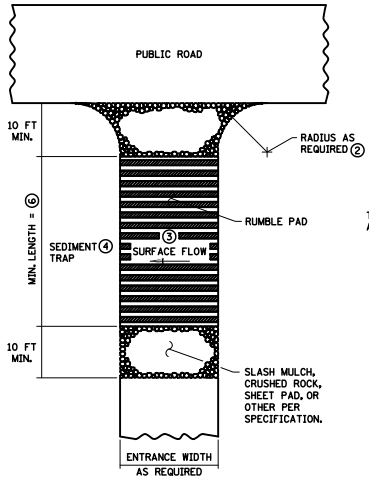
TEMPORARY EROSION CONTROL

MnDOT 5 of 8

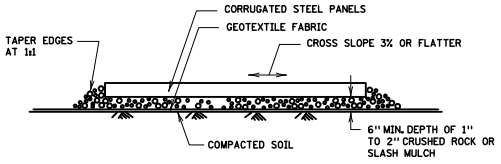
PLATE NO. 756



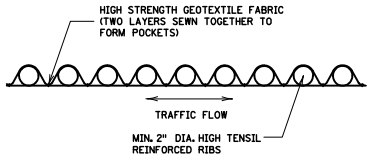
SLASH MULCH, CRUSHED ROCK, OR SHEET PAD CONSTRUCTION EXIT ⑤⑦



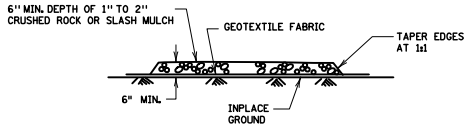
RUMBLE PAD CONSTRUCTION EXIT ⑤⑦



RUMBLE PAD



SHEET PAD



SLASH MULCH OR CRUSHED ROCK

NOTES:

SEE SPECS. 2573 & 3882.

① MINIMUM LENGTH SHALL BE THE GREATER OF 50 FEET OR A LENGTH SUFFICIENT TO ALLOW A MINIMUM OF 5 TIRE ROTATIONS ON THE PROVIDED PAD. MINIMUM LENGTH SHALL BE CALCULATED USING THE LARGEST TIRE WHICH WILL BE USED IN TYPICAL OPERATIONS.

② PROVIDE RADIUS OR WIDEN PAD SUFFICIENTLY TO PREVENT VEHICLE TIRES FROM TRACKING OFF OF PAD WHEN LEAVING SITE.

③ IF RUNOFF FROM DISTURBED AREAS FLOWS TOWARD CONSTRUCTION EXITS, PREVENT RUNOFF FROM DRAINING DIRECTLY TO PUBLIC ROAD OVER CONSTRUCTION EXIT BY CROWNING THE EXIT OR SLOPING TO ONE SIDE. IF SURFACE GRADING IS INSUFFICIENT, PROVIDE OTHER MEANS OF INTERCEPTING RUNOFF.

④ IF RUNOFF FROM CONSTRUCTION EXITS WILL DRAIN OFF OF PROJECT SITE, PROVIDE SEDIMENT TRAP WITH STABILIZED OVERFLOW.

⑤ IF A TIRE WASH OFF IS REQUIRED THE CONSTRUCTION EXITS SHALL BE GRADED TO DRAIN THE WASH WATER TO A SEDIMENT TRAP.

⑥ MINIMUM LENGTH OF RUMBLE PAD SHALL BE 20 FEET, OR AS REQUIRED TO REMOVE SEDIMENT FROM TIRES. IF SIGNIFICANT SEDIMENT IS TRACKED FROM THE SITE, THE RUMBLE PAD SHALL BE LENGTHENED OR THE DESIGN MODIFIED TO PROVIDE ADDITIONAL VIBRATION. WASH-OFF LENGTH SHALL BE AS REQUIRED TO EFFECTIVELY REMOVE CONSTRUCTION SEDIMENT FROM VEHICLE TIRES.

⑦ MAINTENANCE OF CONSTRUCTION EXITS SHALL OCCUR WHEN THE EFFECTIVENESS OF SEDIMENT REMOVAL HAS BEEN REDUCED. MAINTENANCE SHALL CONSIST OF REMOVING SEDIMENT AND CLEANING THE MATERIALS OR PLACING ADDITIONAL MATERIAL (SLASH MULCH OR CRUSHED ROCK) OVER SEDIMENT FILLED MATERIAL TO RESTORE EFFECTIVENESS.

REVISIONS

APPROVED: 2-28-2017
CHIEF ENVIRONMENTAL OFFICER

DEPARTMENT OF TRANSPORTATION

STATE DESIGN ENGINEER

APPROVED: 2-28-2017
REVISED:

STANDARD PLAN 5-297.405	5 OF 8
STATE PROJ. NO.	(T.H.) SHEET NO. OF SHEETS

TEMPORARY SEDIMENT CONTROL

STABILIZED CONSTRUCTION EXIT

DESIGN: Mn/DOT DATE: 3-17

DRAWN: Mn/DOT FILENAME:P:\WORKS\CAD\PLATES2021\P757

REVISIONS 3-17 6-21

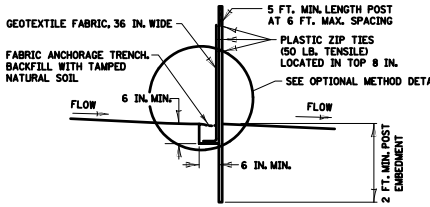
Maplewood

CITY OF MAPLEWOOD—ENGINEERING DEPT.

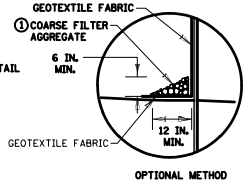
TEMPORARY EROSION CONTROL

MnDOT 6 of 8

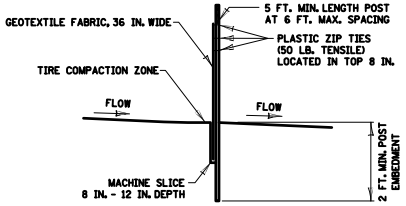
PLATE NO. 757



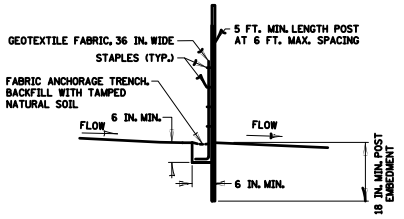
SILT FENCE TYPE HI ②
(HAND INSTALLED)



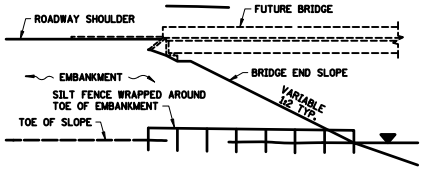
OPTIONAL METHOD



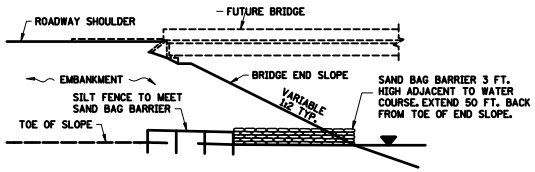
SILT FENCE TYPE MS ②
(MACHINE SLICED)



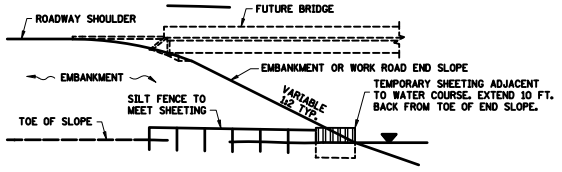
SILT FENCE TYPE PA ③
(PREASSEMBLED)



SILT FENCE ONLY ④

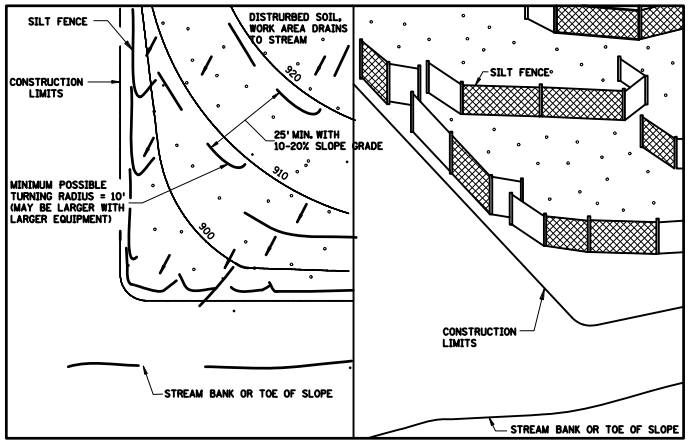


SILT FENCE WITH SAND BAGS ⑤



SILT FENCE WITH SHEETING ⑥

INSTALLATION AT BRIDGE EMBANKMENT ADJACENT TO WATER



PLAN VIEW PERSPECTIVE VIEW

J-HOOK INSTALLATION

LOCATION AT TOE OF ROADWAY EMBANKMENT

NOTES:

SEE SPECS. 2573, 3149 & 3886.

① COARSE FILTER AGGREGATE (SPEC. 3149) SHALL BE INCIDENTAL.

② TO PROTECT AREAS FROM SHEET FLOW. MAXIMUM CONTRIBUTING AREA: 1 ACRE.

③ TO PROTECT AREAS FROM SHEET FLOW. MAXIMUM CONTRIBUTING AREA: 0.25 ACRE.

④ WATER COURSE FLOW VELOCITY: STANDING. CONTRIBUTING SLOPE AREA: 1./2 ACRE.

⑤ WATER COURSE FLOW VELOCITY: 1 TO 7 FT./SEC. CONTRIBUTING SLOPE AREA: 1. ACRE.

⑥ WATER COURSE FLOW VELOCITY: 8 TO 15 FT./SEC. CONTRIBUTING SLOPE AREA: 3 ACRES.

REVISION:

APPROVED: 2-28-2017

CHIEF ENVIRONMENTAL OFFICER

DEPARTMENT OF TRANSPORTATION

STATE DESIGN ENGINEER

APPROVED: 2-28-2017

REVISED:

STANDARD PLAN 5-297.405	6 OF 8
STATE PROJ. NO.	

TEMPORARY SEDIMENT CONTROL

SILT FENCE

(T.H.) SHEET NO. OF SHEETS

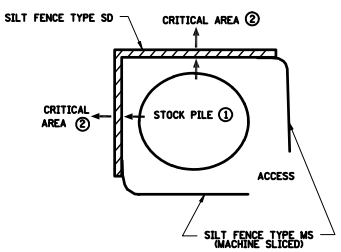
DESIGN: Mn/DOT | DATE: 3-17
DRAWN: Mn/DOT | FILENAME:P:\WORKS\CAD\PLATES2021\P758
REVISIONS | 3-17 | 6-21

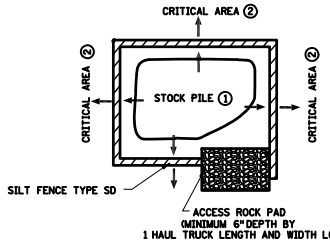
Maplewood

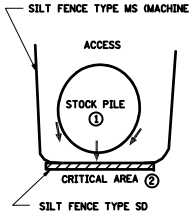
CITY OF MAPLEWOOD—ENGINEERING DEPT.

TEMPORARY EROSION CONTROL
MnDOT 7 of 8

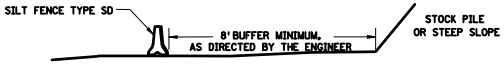
PLATE NO. 758



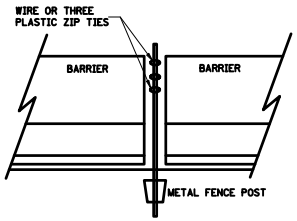




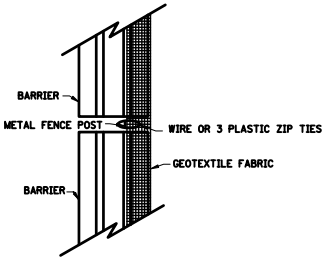
STOCK PILE CONTAINMENT



STOCKPILE SEDIMENT CONTROL

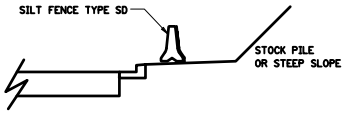


PROFILE VIEW

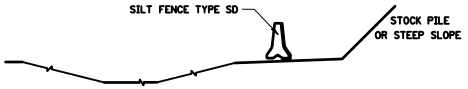


TOP VIEW

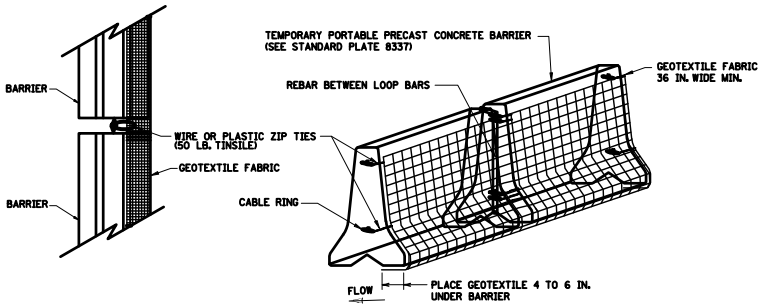
SILT FENCE TYPE SD (SUPER DUTY)
BARRIER WITHOUT LOOP BARS



CURB AND GUTTER PROTECTION SYSTEM



DITCH PROTECTION SYSTEM



TOP VIEW **PERSPECTIVE VIEW**

SILT FENCE TYPE SD (SUPER DUTY)
BARRIER WITH LOOP BARS

NOTES:

SEE SPECS. 2533, 2573 & 3886.

SILT FENCE TYPE SD USED TO PROTECT CRITICAL AREAS FROM SHEET FLOW, AND AREAS WHERE OTHER SILT FENCES CANNOT BE PLACED. MAXIMUM CONTRIBUTING AREA: 1 ACRE.

PLACE SILT FENCE TYPE SD ALONG A CONSTANT ELEVATION.

SILT FENCE TYPE SD CAN UTILIZE EITHER A CONCRETE, OR WATER FILLED, TEMPORARY MEDIAN BARRIER.

(1) PLACING STOCK PILES NEXT TO AN ENVIRONMENTALLY SENSITIVE AREA IS NOT RECOMMENDED. WHEN THERE ARE NO FEASIBLE ALTERNATIVES, PLACE SILT FENCE SD AS SHOWN OR AS DIRECTED BY THE ENGINEER.

(2) CRITICAL AREAS INCLUDE WETLANDS, JUDICIAL DITCHES, STREAMS, WATER BODIES, AND OTHER AREAS REQUIRING PROTECTION.

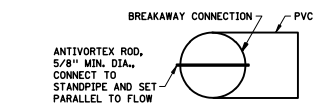
REVISION:
APPROVED: 2-28-2017
CHIEF ENVIRONMENTAL OFFICER

DEPARTMENT OF TRANSPORTATION

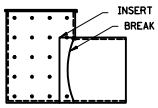
STANDARD PLAN 5-297.405 | 7 OF 8
APPROVED: 2-28-2017
REVISED:
STATE DESIGN ENGINEER

TEMPORARY SEDIMENT CONTROL
SUPER DUTY SILT FENCE

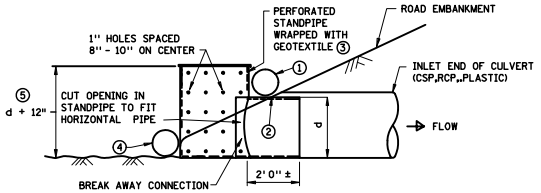
STATE PROJ. NO. | (T.H.) | SHEET NO. | OF | SHEETS



PLAN VIEW



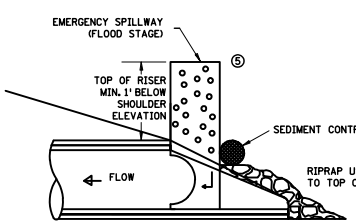
CULVERT STANDPIPE



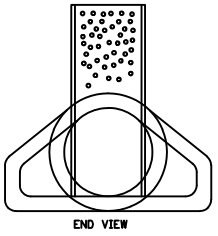
ELEVATION VIEW OF CULVERT INSTALLATION

CULVERT STANDPIPE INSERT (D-RISER)

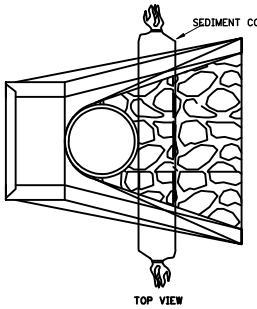
d= CULVERT SIZE: 12" - 36"



LONGITUDINAL SECTION

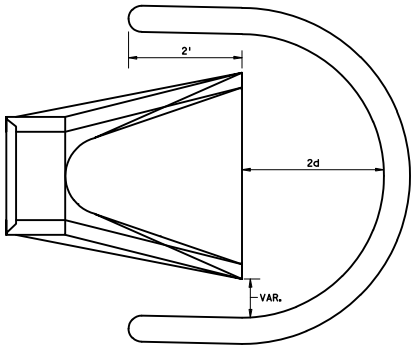


END VIEW



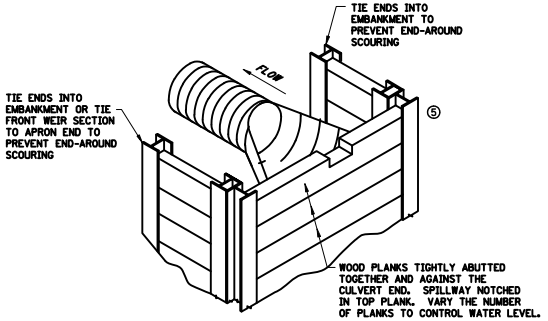
TOP VIEW

CULVERT STANDPIPE INSERT (D-RISER)



SEDIMENT CONTROL LOG WEIR (COMPOST, WOOD CHIP, OR ROCK)

d = CULVERT SIZE: 12"-36"



WOOD PLANK WEIR

NOTES:

SEE SPECS. 2573, 3891 & 3893.

FOR USE WHEN TEMPORARY PONDING IS NEEDED IN DITCH SECTIONS FOR SEDIMENT CONTROL.

MANUFACTURED ALTERNATIVES LISTED ON MnDOT'S APPROVED PRODUCTS LIST MAY BE SUBSTITUTED AT NO ADDITIONAL COST.

① ROCK LOG OR SANDBAG TO HOLD STANDPIPE AND ACT AS A SEAL BETWEEN RISER PIPE AND CULVERT.

② PLACE CULVERT APRON AND SLIDE TEMPORARY STANDPIPE INTO CSP OR RCP CULVERT.

③ ALL GEOTEXTILE USED FOR CULVERT PROTECTION SHALL BE MONOFILAMENT IN BOTH DIRECTIONS, MEETING SPEC. 3886 FOR MACHINE SLICED.

④ ROCK LOG OR RIP RAP TO HOLD STANDPIPE AND ACT AS A FILTER BETWEEN RISER PIPE AND CULVERT.

⑤ HEIGHT OVERFLOW NOT TO CAUSE FLOODING OF ROAD OR ADJACENT PROPERTIES.

REVISION:

APPROVED: 2-28-2017
CHIEF ENVIRONMENTAL OFFICER

DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.405 | 8 OF 8

APPROVED: 2-28-2017
REVISED:

STATE DESIGN ENGINEER

STATE PROJ. NO.

TEMPORARY SEDIMENT CONTROL

CULVERT END CONTROLS

(T.H.) SHEET NO. OF SHEETS

DESIGN: Mn/DOT DATE: 6-21

DRAWN: Mn/DOT FILENAME:P:\WORKS\CAD\PLATES2021\P759

REVISIONS 6-21

Maplewood

CITY OF MAPLEWOOD—ENGINEERING DEPT.

TEMPORARY EROSION CONTROL

MnDOT 8 of 8

PLATE NO. 759

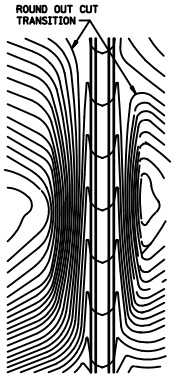
DESIGN: Mn/DOT | DATE: 6-21
DRAWN: Mn/DOT | FILENAME:P:\WORKS\CAD\PLATES2021\P760
REVISIONS 6-21

Maplewood

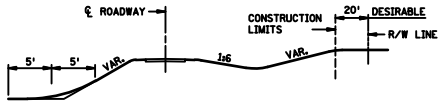
CITY OF MAPLEWOOD—ENGINEERING DEPT.

PERMANENT EROSION CONTROL
MnDOT 1 of 3

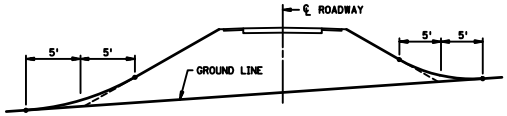
PLATE NO. 760



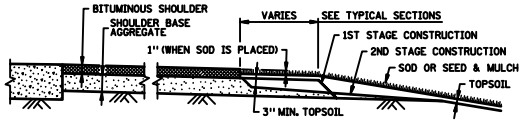
CONTOURING ROAD CUTS



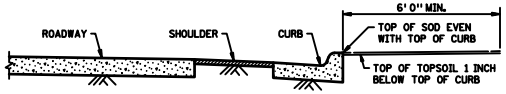
ROUNDING SHOULDERS AND BACKSLOPES



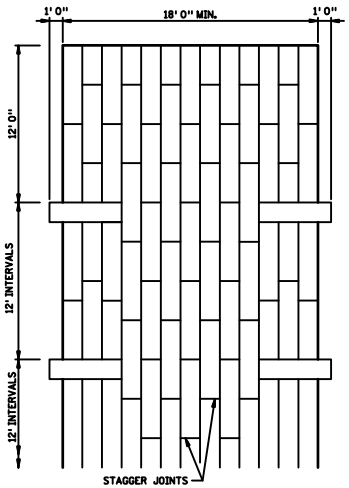
SHAPING FOR DRAINAGE ALONG THE TOE OF FILL SLOPES



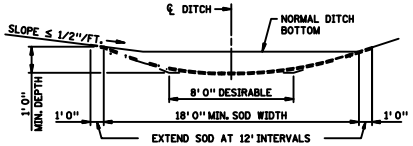
SHAPING AND TOPSOILING INSLOPES



SHAPING ADJACENT TO CURBS WHEN SOD IS PLACED

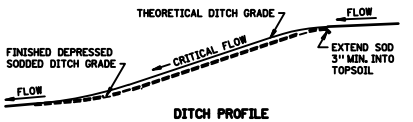


PLAN VIEW



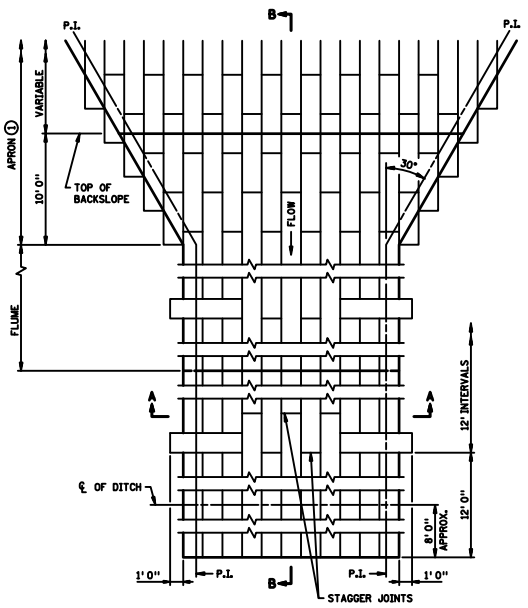
SODDED DITCH CROSS SECTION

WHERE FRONT OR BACK SLOPE IS FLAT (LESS THAN 1/2"/FT.), FIRST NOTCH DITCH AND THEN PROVIDE ROUNDING.

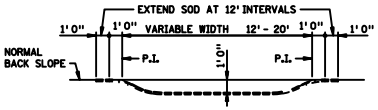


DITCH PROFILE

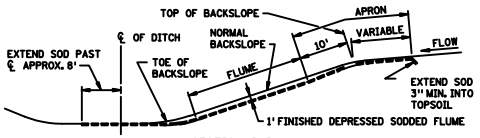
SODDED DITCH DETAILS



PLAN VIEW



SECTION A-A



SECTION B-B

SODDED FLUME DETAILS

NOTES:
SEE SPEC. 2575.3 FOR ADDITIONAL INFORMATION.
① CONSTRUCT TAPER AS DIRECTED BY THE ENGINEER.

REVISION:
APPROVED: 2-28-2017
CHIEF ENVIRONMENTAL OFFICER

DEPARTMENT OF TRANSPORTATION
STATE DESIGN ENGINEER

STANDARD PLAN 5-297.404 | 1 OF 3
APPROVED: 2-28-2017
REVISED:
STATE PROJ. NO.

PERMANENT EROSION CONTROL
ALONG ROADWAYS, DITCHES AND FLUMES
(T.H.) SHEET NO. OF SHEETS

DESIGN: Mn/DOT | DATE: 6-21

DRAWN: Mn/DOT | FILENAME:P:\WORKS\CAD\PLATES2021\P761

REVISIONS 6-21

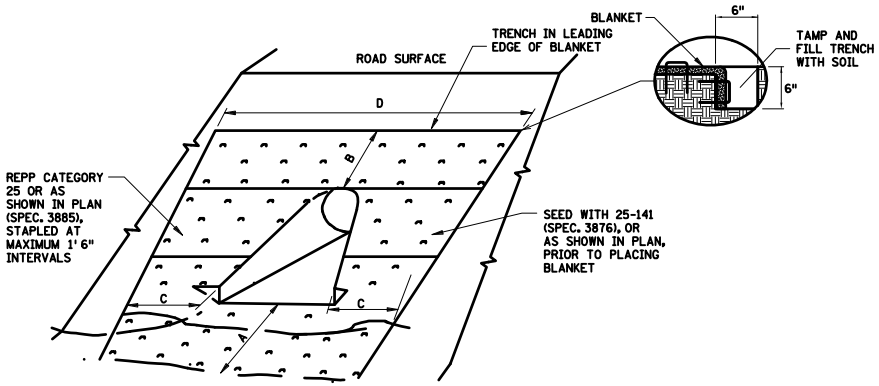
Maplewood

CITY OF MAPLEWOOD—ENGINEERING DEPT.

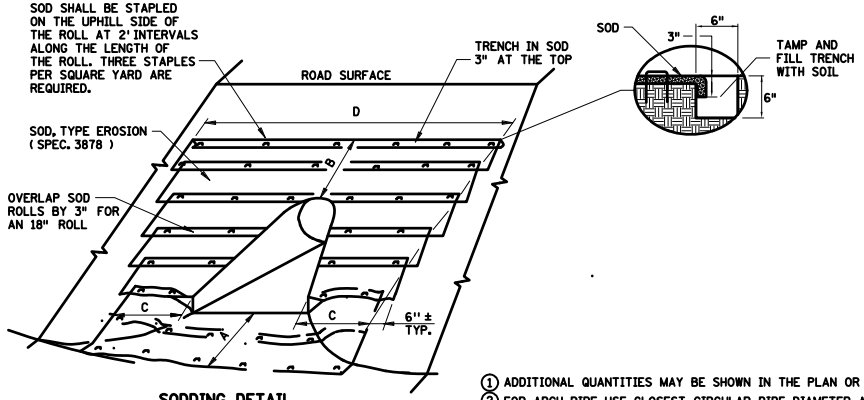
PERMANENT EROSION CONTROL

MnDOT 2 of 3

PLATE NO. 761



ROLLED EROSION PREVENTION PRODUCT (BLANKET) & SEED DETAIL



SODDING DETAIL

CULVERT INLET APRON ①

CULVERT DIAMETER ②	SOD OR REPP (SQ. YDS.)						"A"	"B"	"C"	"D"
	CIRCULAR AND ARCH PIPE METAL APRON (PLATE 3123, PLATE 3122)	CIRCULAR AND ARCH PIPE CONCRETE APRON (PLATE 3100, PLATE 3110)	CIRCULAR AND ARCH PIPE METAL SAFETY APRON 1:4 SLOPE (PLATE 3148)	CIRCULAR AND ARCH PIPE METAL SAFETY APRON 1:6 SLOPE (PLATE 3148)	CIRCULAR CORRUGATED METAL PIPE SAFETY APRON 1:6 SLOPE (PLATE 3128)	CIRCULAR CORRUGATED METAL PIPE SAFETY APRON 1:4 SLOPE (PLATE 3128)				
15"	9	9	8	8	N/A	N/A	3'	1.5'	3'	13'
18"	13	12	12	14	16	N/A	3'	3'	3'	16'
21"	14	14	14	16	18	14	3'	3'	3'	17'
24"	16	15	16	19	21	17	3'	3'	3'	18'
27"	N/A	20	N/A	N/A	N/A	N/A	3'	4.5'	3'	20'
30"	23	22	25	30	32	N/A	3'	4.5'	3'	22'
36"	34	34	39	48	51	37	4.5'	4.5'	4.5'	27'
42"	43	40	51	64	N/A	N/A	4.5'	6'	4.5'	30'
48"	54	50	66	82	N/A	N/A	4.5'	7.5'	4.5'	34'
54"	65	58	81	102	N/A	N/A	4.5'	9'	4.5'	37'
60"	69	59	91	115	N/A	N/A	4.5'	9'	4.5'	39'
66"	69	63	N/A	N/A	N/A	N/A	4.5'	9'	4.5'	39'
72"	78	72	99	122	N/A	N/A	4.5'	10.5'	4.5'	41'

CULVERT OUTLET APRON ①

CULVERT DIAMETER ②	SOD OR REPP (SQ. YDS.)						"A"	"B"	"C"	"D"
	CIRCULAR AND ARCH PIPE METAL APRON (PLATE 3123, PLATE 3122)	CIRCULAR AND ARCH PIPE CONCRETE APRON (PLATE 3100, PLATE 3110)	CIRCULAR AND ARCH PIPE METAL SAFETY APRON 1:4 SLOPE (PLATE 3148)	CIRCULAR AND ARCH PIPE METAL SAFETY APRON 1:6 SLOPE (PLATE 3148)	CIRCULAR CORRUGATED METAL PIPE SAFETY APRON 1:6 SLOPE (PLATE 3128)	CIRCULAR CORRUGATED METAL PIPE SAFETY APRON 1:4 SLOPE (PLATE 3128)				
15"	10	10	9	10	N/A	N/A	4.5'	1.5'	3'	13'
18"	13	13	12	14	15	N/A	6'	1.5'	3'	14'
21"	16	14	16	18	19	15	6'	1.5'	3'	15'
24"	18	18	18	21	22	18	7.5'	1.5'	3'	16'
27"	N/A	19	N/A	N/A	N/A	N/A	7.5'	1.5'	3'	17'
30"	23	23	24	28	29	N/A	9'	1.5'	3'	18'
36"	36	35	38	47	48	37	10.5'	1.5'	4.5'	23'
42"	43	40	47	58	N/A	N/A	12'	1.5'	4.5'	25'
48"	50	46	57	70	N/A	N/A	13.5'	1.5'	4.5'	27'
54"	57	50	67	84	N/A	N/A	15'	1.5'	4.5'	29'
60"	74	63	90	115	N/A	N/A	16.5'	1.5'	6'	33'
66"	75	67	N/A	N/A	N/A	N/A	16.5'	1.5'	6'	33'
72"	77	70	92	114	N/A	N/A	16.5'	1.5'	6'	34'

NOTES:

REPP = ROLLED EROSION PREVENTION PRODUCT.

AREA SHOWN IN SQUARE YARDS IS FOR ONE CULVERT END.

QUANTITIES ARE CALCULATED TO INCLUDE SOD REQUIRED TO PROVIDE A 3" OVERLAP ON ALL 18" WIDE ROLLS. THIS ALLOWS FOR SHRINKAGE OF THE SOD.

FOR PIPE ARCHES USE EQUIVALENT PIPE DIAMETER TO APPROXIMATE AREA.

FOR CORRUGATED POLYETHYLENE PIPE METAL APRON (PLATE 3129), USE THE METAL APRON COLUMN (PLATE 3123).

AREAS AND DIMENSIONS ARE APPROXIMATE AND ARE BASED ON APRON SIDE SLOPES OF NO STEEPER THAN 1:2, UNLESS INDICATED AS FOR SAFETY APRONS.

CARE SHOULD BE TAKEN IN SELECTING SOD TO STABILIZE THE APRON. RIP-RAP SHOULD BE USED FOR FLOW VELOCITIES GREATER THAN 6 FPS.

① ADDITIONAL QUANTITIES MAY BE SHOWN IN THE PLAN OR REQUIRED BY THE ENGINEER.
② FOR ARCH PIPE USE CLOSEST CIRCULAR PIPE DIAMETER AND APRON SLOPE. DIAMETERS LARGER THAN 72" REQUIRE SPECIAL DESIGNS.

REVISION:

APPROVED: JANUARY 8, 2020
MARNE KARMOWSKI
CHIEF ENVIRONMENTAL OFFICER

DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.404 | 2 OF 3

APPROVED: 1-8-2020
REVISED:

THOMAS TYRINCKI
STATE DESIGN ENGINEER

PERMANENT EROSION CONTROL
TURF ESTABLISHMENT DETAIL AT CULVERT ENDS

STATE PROJ. NO. | (T.H.) | SHEET NO. | OF | SHEETS

DESIGN: Mn/DOT | DATE: 6-21

DRAWN: Mn/DOT | FILENAME:P:\WORKS\CAD\PLATES2021\P762

REVISIONS 6-21

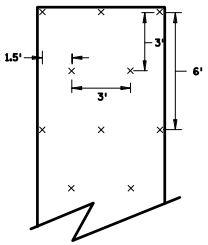
Maplewood

CITY OF MAPLEWOOD—ENGINEERING DEPT.

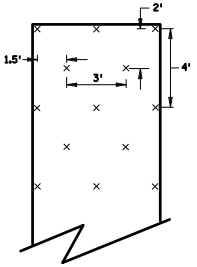
PERMANENT EROSION CONTROL

MnDOT 3 of 3

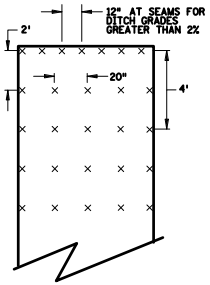
PLATE NO. 762



SLOPES FLATTER THAN 1x2
120 STAPLES PER 100 SQ YD

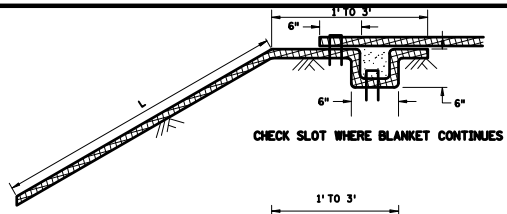


SLOPES 1x2 TO 1x1
170 STAPLES PER 100 SQ YD

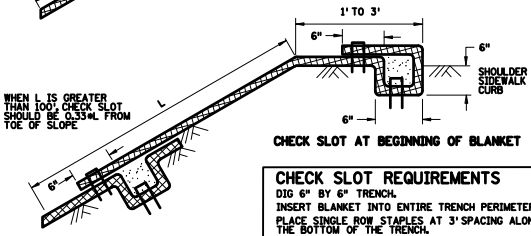


CHANNEL AND DITCH APPLICATIONS
350 STAPLES PER 100 SQ YD

BLANKET STAPLE PATTERN



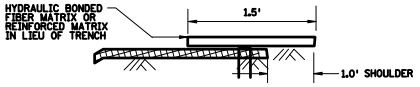
CHECK SLOT WHERE BLANKET CONTINUES



CHECK SLOT AT BEGINNING OF BLANKET

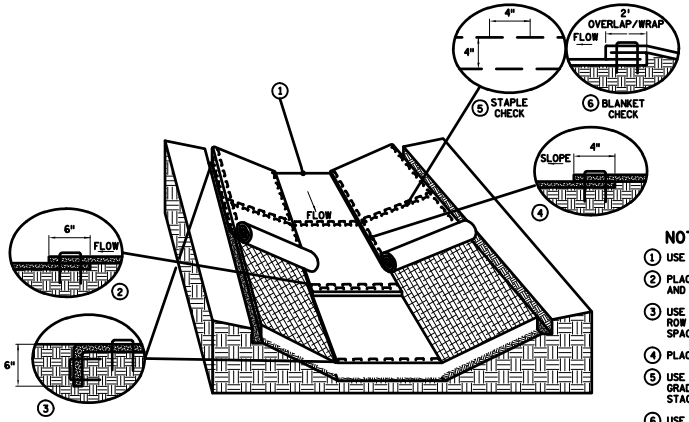
CHECK SLOT REQUIREMENTS

DIG 6" BY 6" TRENCH.
INSERT BLANKET INTO ENTIRE TRENCH PERIMETER.
PLACE SINGLE ROW STAPLES AT 3' SPACING ALONG THE BOTTOM OF THE TRENCH.
BACKFILL TRENCH WITH SOIL AND TAMP.
PLACE SINGLE ROW STAPLES AT 3' SPACING ON OVERLAP.

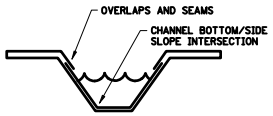


CHECK SLOT ALTERNATIVE
PLACE SINGLE ROW STAPLES AT 12" SPACING

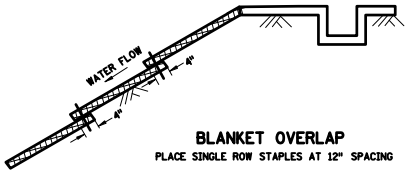
CHECK SLOT DETAILS



DITCH BLANKET STAPLE DETAIL



DITCH BLANKET CRITICAL POINTS ⑦



BLANKET OVERLAP
PLACE SINGLE ROW STAPLES AT 12" SPACING

NOTES:

① USE CHECK SLOT DETAIL (NO ALTERNATES).
② PLACE DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER.
③ USE 6" X 6" TRENCH TO PLACE BLANKET. PLACE SINGLE ROW OF STAPLES ON TOP AND TRENCH SIDES AT 12" SPACING. BACKFILL TRENCH WITH SOIL AND TAMP.
④ PLACE SINGLE ROW OF STAPLES AT 12" SPACING.
⑤ USE STAPLE CHECK FOR CHANNEL SLOPES LESS THAN 2.5% GRADE AT 100' INTERVALS. PLACE DOUBLE ROW OF STAPLES STAGGERED 4" APART AND AT 4" SPACING.
⑥ USE BLANKET CHECKS FOR THE FOLLOWING SLOPES:
2.5%-3% 100' INTERVALS
3%-5% 50' INTERVALS
5%-7% 25' INTERVALS
⑦ CRITICAL POINTS SHALL BE SECURED WITH PROPER STAPLE PATTERNS.

GENERAL BLANKET INSTALLATION REQUIREMENTS

REPP = ROLLED EROSION PREVENTION PRODUCT.
PREPARE SOIL AS PER SPECIFICATION 2574.
LAY PARALLEL OR PERPENDICULAR TO THE DIRECTION OF WATER FLOW.
OVERLAP ADJACENT STRIP EDGES A MINIMUM OF 4".
OVERLAP BLANKET 6" (MINIMUM) AT EACH END. OVERLAP BOTTOM END OF UPPER BLANKET OVER TOP END OF LOWER BLANKET. STAPLE ALONG OVERLAP EVERY 15'.
THE UPPERMOST BLANKET OF ALL SLOPE APPLICATIONS MUST START IN A CHECK SLOT. IF SLOPE LENGTH (L) IS 100' OR GREATER, INSERT BLANKET INTO A CHECK SLOT ⅓ FROM THE BOTTOM OF THE SLOPE.

REVISION:

APPROVED: JANUARY 8, 2020
MARNE KAMINSKI
CHIEF ENVIRONMENTAL OFFICER

DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.404 | 3 OF 3

APPROVED: 1-8-2020
REVISED:

THOMAS M. TYBRICKI
STATE DESIGN ENGINEER

PERMANENT EROSION CONTROL
REPP (BLANKET) STAPLE PATTERN FOR SLOPES

STATE PROJ. NO. | (T.H.) | SHEET NO. | OF | SHEETS