### Division 1000: Erosion and Sediment Control

<table>
<thead>
<tr>
<th>No.</th>
<th>Title</th>
<th>Effective Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1020M</td>
<td>SHEET 1 OF 2 Silt Fence</td>
<td>January 2019</td>
</tr>
<tr>
<td>1020M</td>
<td>SHEET 2 OF 2 Silt Fence Notes</td>
<td>January 2019</td>
</tr>
<tr>
<td>1060M</td>
<td>SHEET 1 OF 2 Rock Check Dam</td>
<td>January 2019</td>
</tr>
<tr>
<td>1060M</td>
<td>SHEET 2 OF 2 Rock Check Dam Notes</td>
<td>January 2019</td>
</tr>
<tr>
<td>1070M</td>
<td>SHEET 1 OF 2 Stabilized Construction Access</td>
<td>January 2019</td>
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<td>SHEET 2 OF 2 Stabilized Construction Access Notes</td>
<td>January 2019</td>
</tr>
<tr>
<td>1090M</td>
<td>SHEET 1 OF 2 Excavated Stone Outlet Sediment Trap</td>
<td>January 2019</td>
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<tr>
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<td>SHEET 2 OF 2 Bermed Stone Outlet Sediment Trap</td>
<td>January 2019</td>
</tr>
<tr>
<td>1100M</td>
<td>SHEET 1 OF 3 Sediment Basin with Overflow Riser</td>
<td>January 2019</td>
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<tr>
<td>1100M</td>
<td>SHEET 2 OF 3 Sediment Basin Embankment Cross-Section with Riser</td>
<td>January 2019</td>
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<tr>
<td>1100M</td>
<td>SHEET 3 OF 3 Sediment Basin Surface Skimmer</td>
<td>January 2019</td>
</tr>
<tr>
<td>1120M</td>
<td>Drop Inlet or Grate Inlet Protection Organic Filter Tube</td>
<td>January 2019</td>
</tr>
<tr>
<td>1130M</td>
<td>Curb Inlet Protection—Rock Filter Tube</td>
<td>January 2019</td>
</tr>
<tr>
<td>1140M</td>
<td>Drop Inlet or Grate Inlet Protection Block and Gravel</td>
<td>January 2019</td>
</tr>
<tr>
<td>1150M</td>
<td>Drop Inlet or Grate Inlet Protection Excavated Impoundment</td>
<td>January 2019</td>
</tr>
<tr>
<td>1170M</td>
<td>Pipe Inlet Protection</td>
<td>January 2019</td>
</tr>
<tr>
<td>1180M</td>
<td>Tree Preservation &amp; Protection</td>
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### Division 2000: Pavement Systems

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<tbody>
<tr>
<td>2010M</td>
<td>P6D–M6D 6 Lane Divided Thoroughfare</td>
<td>January 2019</td>
</tr>
<tr>
<td>2020M</td>
<td>G4D–M4D 4 Lane Divided Thoroughfare</td>
<td>January 2019</td>
</tr>
<tr>
<td>2030M</td>
<td>SHEET 1 OF 2 M4U Undivided Thoroughfare</td>
<td>January 2019</td>
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2030M SHEET 2 OF 2  C2U–R2U Undivided Thoroughfare  January 2019
2040M SHEET 1 OF 2  Alleys  January 2019
2040M SHEET 2 OF 2  Alleys  January 2019
2050M  Joints  January 2019
2055M  Longitudinal Butt Joint  January 2019
2060M  Transverse Joint Spacing  January 2019
2070M  Street Headers  January 2019
2080M SHEET 1 OF 2  Median Nose Detail  January 2019
2080M SHEET 2 OF 2  Median Nose Detail  January 2019
2085M  Residential Mini Traffic Circle  January 2019
2095M SHEET 1 OF 2  Residential Speed Hump  January 2019
2095M SHEET 2 OF 2  Residential Speed Table  January 2019
2120M  Concrete Curb & Gutter  January 2019
2125M SHEET 1 OF 4  Directional Curb Ramp  January 2019
2125M SHEET 2 OF 4  Directional Curb Ramp  January 2019
2125M SHEET 3 OF 4  Directional Curb Ramp  January 2019
2125M SHEET 4 OF 4  Directional Curb Ramp  January 2019
2150M SHEET 1 OF 4  Residential Drive Approach  January 2019
2150M SHEET 2 OF 4  Residential Drive Approach  January 2019
2150M SHEET 3 OF 4  Flared Return on Alley Residential Drive Approach  January 2019
2150M SHEET 4 OF 4  Residential Drive Approach General Notes  January 2019
2170M SHEET 1 OF 3  Reinforced Concrete Sidewalks Joints & Spacing  January 2019
2170M SHEET 2 OF 3  Reinforced Concrete Sidewalks Joint Lug & Header  January 2019
<table>
<thead>
<tr>
<th>No.</th>
<th>Title</th>
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<tbody>
<tr>
<td>3020M</td>
<td>Class “B” Embedment for Storm Sewer Pipe</td>
<td>January 2019</td>
</tr>
<tr>
<td>3060M</td>
<td>Modified Class H Embedment for 4”, 6”, 8” and 12” Ductile Iron, HDPE and PVC Pipe</td>
<td>January 2019</td>
</tr>
<tr>
<td>3061M</td>
<td>Trench Dam</td>
<td>January 2019</td>
</tr>
<tr>
<td>3090M</td>
<td>Underground Conduit Steel Encased Road Bore</td>
<td>January 2019</td>
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**Division 4000: Water Distribution**

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<tr>
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<th>Title</th>
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<tbody>
<tr>
<td>4010M</td>
<td>SHEET 1 OF 3 Horizontal Thrust Block at Pipe Bend</td>
<td>January 2019</td>
</tr>
<tr>
<td>4010M</td>
<td>SHEET 2 OF 3 Horizontal Thrust Block at Pipe Bend</td>
<td>January 2019</td>
</tr>
<tr>
<td>4010M</td>
<td>SHEET 3 OF 3 Horizontal Thrust Block at Pipe Bend</td>
<td>January 2019</td>
</tr>
<tr>
<td>4020M</td>
<td>Horizontal Thrust Block at Tees and Plugs</td>
<td>January 2019</td>
</tr>
<tr>
<td>4030M</td>
<td>Vertical Thrust Block at Pipe Bend</td>
<td>January 2019</td>
</tr>
<tr>
<td>4040M</td>
<td>Thrust Block General Notes</td>
<td>January 2019</td>
</tr>
<tr>
<td>4050M</td>
<td>Gate Valve 4” to 12” Box &amp; Extension System</td>
<td>January 2019</td>
</tr>
<tr>
<td>4061M</td>
<td>SHEET 1 OF 6 16” thru 20” Horizontal Butterfly Valves</td>
<td>January 2019</td>
</tr>
<tr>
<td>4061M</td>
<td>SHEET 2 OF 6 16” thru 20” Horizontal Butterfly Valves</td>
<td>January 2019</td>
</tr>
<tr>
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<tr>
<td>5010M</td>
<td>Wastewater Main Tie-In</td>
<td>January 2019</td>
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**Division 5000: Wastewater Collection**
5015M  Wastewater Access Device         January 2019
5020M  Wastewater Manhole Precast      January 2019
5030M  Wastewater Manhole Cast-In-Place January 2019
5031M  Sanitary Sewer Manhole Inflow Prevention January 2019
5032M  Sanitary Sewer Manhole Corrosion Prevention January 2019
5033M  Lift Station Wet Well Inflow & Corrosion Prevention January 2019
5060M  SHEET 1 OF 2 Type S Vented Sanitary Sewer Manhole January 2019
5060M  SHEET 2 OF 2 Type S Vented Sanitary Sewer Manhole January 2019
5080M  SHEET 1 OF 2 Wastewater Manhole Drop Connections January 2019
5080M  SHEET 2 OF 2 Wastewater Manhole Drop Connections January 2019
5090M  Wastewater Manhole Line Intersection January 2019
5100M  Wastewater Manhole False Bottom January 2019
5101M  SHEET 1 OF 3 Sanitary Sewer Manhole Lid January 2019
5101M  SHEET 2 OF 3 Bolt Down Sanitary Sewer Manhole Lid January 2019
5101M  SHEET 3 OF 3 Standard Composite Sanitary Sewer Manhole Frame & Cover January 2019
5120M  Residential Lateral w/ Cleanout at Property Line January 2019
5140M  Wastewater Lateral Cleanout Frame and Cover January 2019
5170M  Abandonment of Manhole Inside or Outside of Pavement January 2019
5200M  Sanitary Sewer Pipeline Marker January 2019

**Division 6000: Stormwater Drainage**

<table>
<thead>
<tr>
<th>No.</th>
<th>Title</th>
<th>Effective Date</th>
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<tbody>
<tr>
<td>6010M</td>
<td>SHEET 1 OF 3 Stormwater Manhole 4', 5', or 6' Square</td>
<td>January 2019</td>
</tr>
<tr>
<td>6010M</td>
<td>SHEET 2 OF 3 Stormwater Manhole 4', 5', or 6' Square</td>
<td>January 2019</td>
</tr>
<tr>
<td>6010M</td>
<td>SHEET 3 OF 3 Stormwater Manhole Lid</td>
<td>January 2019</td>
</tr>
</tbody>
</table>
No. | Title | Effective Date
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7001M | Capital Improvements Program Project Information Sign | January 2019
7002M SHEET 1 OF 4 | Major–Major Intersection Pavement Markings | January 2019
7002M SHEET 2 OF 4 | Major–Minor Intersection Pavement Markings | January 2019
7002M SHEET 3 OF 4 | Pavement Markings Details | January 2019
7002M SHEET 4 OF 4 | Pavement Markings Details | January 2019
7003M SHEET 1 OF 3 | Residential Street Light and Sign Locations | January 2019
7003M SHEET 2 OF 3 | Street Name Sign Details | January 2019
7003M SHEET 3 OF 3 | Street Name Sign Details Double Mount | January 2019
7004M | Median Conduit System | January 2019
7005M | Manhole and Valve Vault Mow Strip | January 2019
NOTES:
1. DESIGN SHALL SHOW ON THE DRAWINGS THE LOCATIONS WHERE OVERFLOW STRUCTURES SHALL BE INSTALLED. OVERFLOW STRUCTURES ARE REQUIRED AT ALL POINTS AND AT A SPACING OF APPROXIMATELY 300 FT WHERE NO LOW POINT IS APPARENT.
2. DESIGNER SHALL ON THE DRAWINGS THE LOCATIONS WHERE SILT FENCE IS TO BE TURNED UPSLOPE. UPSLOPE LENGTHS SHALL BE A MINIMUM OF 10 FEET.
3. STEEL FENCE POSTS ADJACENT TO ROW AND PEDESTRIAN AREAS SHALL BE CAPPED.
SILT FENCE GENERAL NOTES:

1. STEEL POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF ONE FOOT.

2. THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. WHERE FENCE CANNOT BE TRENCHED IN (e.g., PAVEMENT), WEIGHT FABRIC FLAP WITH ROCK ON UPHILL SIDE TO PREVENT FLOW FROM SEEPING UNDER FENCE.

3. THE TRENCH MUST BE A MINIMUM OF 6 INCHES DEEP AND 6 INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.

4. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE, WHICH IN TURN IS ATTACHED TO THE STEEL FENCE POST. THERE SHALL BE A 3 FOOT OVERLAP, SECURELY FASTENED WHERE ENDS OF FABRIC MEET.

5. INSPECTION SHALL BE MADE EVERY TWO WEEKS AND AFTER EVERY RAIN EVENT. REPAIR OR REPLACEMENT SHALL BE MADE WITHIN 24 HOURS AS NEEDED.

6. SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

7. ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF HALF THE HEIGHT OF THE FENCE. THE SILT SHALL BE DISPOSED OF AT AN APPROVED SITE AND IN SUCH A MANNER AS TO NOT CONTRIBUTE TO ADDITIONAL SITATION.
NOTES:
ACTUAL DIMENSIONS OF THE CHECK DAMS SHALL BE DESIGNED BASED ON THE FLOW CONDITIONS IN THE DRAINAGE SWALE OR DITCH. PROVIDE CALCULATIONS THAT DOCUMENT THE FOLLOWING PARAMETERS USED TO DESIGN THE CHECK DAMS.

*HEIGHT OF CHECK DAMS BASED ON SWALE AND DITCH DIMENSIONS AND FLOW CONDITIONS.

*SPACING OF CHECK DAMS BASED ON GRADE OF THE SWALE OR DITCH. TOP OF DOWNSTREAM DAM SHALL BE AT SAME ELEVATION AS TOE OF UPSTREAM DAM.
ROCK CHECK DAM GENERAL NOTES:

1. USE ONLY OPEN GRADED ROCK 4–8 INCHES IN DIAMETER FOR STREAM FLOW CONDITION. USE OPEN GRADED ROCK 3–5 INCHES IN DIAMETER FOR OTHER CONDITIONS.

2. IF RECYCLED CONCRETE IS USED, IT SHALL BE CLEAN GRADED CRUSHED CONCRETE FREE OF REINFORCING STEEL AND OTHER OBJECTIONABLE MATERIAL AND HAVE AT MOST 1.5% DELETERIOUS MATERIAL CONFORMING TO TxDOT’S RECYCLED MATERIAL SPECIFICATIONS.

3. THE ROCK CHECK DAM SHALL BE SECURED WITH A WOVEN WIRE SHEATHING HAVING A MAXIMUM OPENING OF 1 INCH AND A MINIMUM WIRE SIZE OF 20 GAUGE AND SHALL BE BURIED IN A TRENCH APPROXIMATELY 3 TO 4 INCHES DEEP.

4. THE ROCK CHECK DAM SHALL BE INSPECTED EVERY TWO WEEKS OR AFTER EVERY RAIN EVENT AND SHALL BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.

5. WHEN SILT REACHES A DEPTH EQUAL TO ONE–THIRD OF THE HEIGHT OF THE ROCK CHECK DAM OR ONE FOOT, WHICHEVER IS LESS, THE SILT SHALL BE REMOVED AND DISPOSED OF PROPERLY.

6. WHEN THE SITE IS COMPLETELY STABILIZED, THE ROCK CHECK DAM AND ACCUMULATED SILT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED MANNER.

7. ROCK CHECK DAM SHOULD BE USED AS CHECK DAMS FOR CONCENTRATED FLOW AND ARE NOT INTENDED FOR USE IN PERIMETER PROTECTION.
MIN. LENGTH PER TABLE 3.9
RADIUS = 5'
GRADE TO DRAIN AWAY FROM STABILIZATION AND PAVED SURFACES
EXIT MUST BE SLOPED SO THAT STORM WATER IS NOT ALLOWED TO LEAVE THE SITE AND ENTER ROAD
TRANSITION TO PAVED SURFACE

MIN. LENGTH PER TABLE 3.9
GRADE TO PREVENT RUNOFF FROM LEAVING SITE

3''-5'' STONE
EXISTING GRADE
FILTER FABRIC UNDER ALL ROCK
PAVED SURFACE

0.5' MIN

NOTES:
INSTALL SILT FENCE, CONSTRUCTION SAFETY FENCING, OR SIMILAR BARRIER ALONG THE CONSTRUCTION ACCESS.

<table>
<thead>
<tr>
<th>DISTURBED AREA</th>
<th>MIN. WIDTH OF EXIT</th>
<th>MIN. LENGTH OF EXIT</th>
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<tbody>
<tr>
<td>&lt;1 ACRE</td>
<td>15 FEET</td>
<td>20 FEET</td>
</tr>
<tr>
<td>&gt;1 ACRE BUT &lt;5 ACRES</td>
<td>25 FEET</td>
<td>50 FEET</td>
</tr>
<tr>
<td>&gt;5 ACRES</td>
<td>30 FEET</td>
<td>50 FEET</td>
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</tbody>
</table>
STABILIZED CONSTRUCTION EXIT GENERAL NOTES:

1. STONE SHALL BE 3 TO 5 INCH DIAMETER CRUSHED ROCK.

2. IF RECYCLED CONCRETE IS USED, IT SHALL BE CLEAN GRADED CRUSHED CONCRETE FREE OF REINFORCING STEEL AND OTHER OBJECTIONABLE MATERIAL AND HAVE AT MOST 1.5% DELETERIOUS MATERIAL CONFORMING TO TxDOT’S RECYCLED MATERIAL SPECIFICATIONS.

3. THE THICKNESS SHALL NOT BE LESS THAN 6 INCHES.

4. THE WIDTH SHALL BE NO LESS THAN THE FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS.

5. WHEN NECESSARY, VEHICLES SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO A PUBLIC ROADWAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE WITH DRAINAGE FLOWING AWAY FROM BOTH THE STREET AND THE STABILIZED ENTRANCE. ALL SEDIMENT SHALL BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATERCOURSE USING APPROVED METHODS.

6. THE ACCESS SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PAVED SURFACES. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO PAVED SURFACES MUST BE REMOVED IMMEDIATELY.

7. THE ACCESS MUST BE PROPERLY GRADED OR INCORPORATE A DRAINAGE SWALE TO PREVENT RUNOFF FROM LEAVING THE CONSTRUCTION SITE.
EXCAVATED STONE OUTLET SEDIMENT TRAP VIEW LOOKING UPSTREAM
N.T.S.

EXCAVATED STONE OUTLET SEDIMENT TRAP SECTION VIEW
N.T.S.

NOTES:
ACTUAL DIMENSIONS OF THE SEDIMENT TRAP SHALL BE DESIGNED BASED ON FLOW CONDITIONS AND SITE TOPOGRAPHY. PROVIDE CALCULATIONS THAT DOCUMENT THE FOLLOWING PARAMETER USED TO DESIGN THE TRAP:

- SIZE OF CONTRIBUTING DRAINAGE AREA
- DESIGN STORM VOLUME AND FLOW RATE AT THE TRAP
- HEIGHT, SLOPE, AND LENGTH OF STONE OUTLET
- STORAGE VOLUME
- EXTENT OF GRADING TO PROVIDE THE CONTROLLED OUTLET
Containment berm constructed from bottom material excavated to create an average pond depth of at least 30' when measured from the bottom of the swale to the low point in the top of rock outlet.

**BERMED STONE OUTLET SEDIMENT TRAP PLAN VIEW**

- 12" mean diameter wire wrapped stone
- Overflow and filtered water
- 2' min
- 2:1 max slide slopes
- L

**BERMED STONE OUTLET SEDIMENT TRAP SECTION VIEW**

- 12" mean diameter wire wrapped stone
- 10'
- Minimum 10" depression below top of rock
- 4' min
- Min freeboard of 10'
- 40" max to top of rock

**NOTE:**

Actual dimensions of the sediment reap shall be design based on flow conditions and site topography. Provide calculations that document the following parameter used to design the trap:

- Size of contributing drainage area
- Design storm volume and flow rate at the trap
- Height, slope, and length of stone outlet
- Storage volume
- Extent of grading to provide the controlled outlet

<table>
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<tr>
<th>TRIBUTARY AREA (ACRES)</th>
<th>L (FT)</th>
<th>We (FT)</th>
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<tr>
<td>&lt;0.5</td>
<td>59</td>
<td>13</td>
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<td>0.51–1.0</td>
<td>82</td>
<td>16</td>
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<td>36</td>
</tr>
<tr>
<td>4.51–5.0</td>
<td>187</td>
<td>36</td>
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</table>
NOTE: DO NOT LOCATE EMERGENCY SPILLWAY ON EARTH BERM
OPTIONAL: A COLLAR OF 1.5-3 INCH, WELL GRADED GRAVEL (NOT SHOWN) MAY BE PLACED AROUND THE PERFORATED RISER.
NOTES:

1. TEXAS ADMINISTRATIVE CODE TITLE 30, CHAPTER 299 (30 TAC 299), DAMS AND RESERVOIRS, CONTAINS SPECIFIC REQUIREMENTS FOR DAMS THAT:
   - HAVE A HEIGHT GREATER THAN OR EQUAL TO 25 FEET AND A MAXIMUM STORAGE CAPACITY GREATER THAN OR EQUAL TO 15 ACRE-FEET; OR
   - HAVE A HEIGHT GREATER THAN OR EQUAL TO 25 FEET AND A MAXIMUM STORAGE CAPACITY GREATER THAN OR EQUAL TO 50 ACRE-FEET

2. IF THE SIZE OF THE DETENTION BASIN MEETS OR EXCEEDS THE ABOVE APPLICABILITY, THE DESIGN MUST BE IN ACCORDANCE WITH STATE CRITERIA, AND THE FINAL CONSTRUCTION PLANS AND SPECIFICATIONS MUST BE SUBMITTED TO THE TCEQ FOR REVIEW AND APPROVAL.

3. SEDIMENT BASINS SHOULD BE INSPECTED REGULARLY (AT LEAST AS OFTEN AS REQUIRED BY THE TPDES CONSTRUCTION GENERAL PERMIT) TO CHECK FOR DAMAGE AND TO INSURE THAT OBSTRUCTIONS ARE NOT DIMINISHING THE EFFECTIVENESS OF THE STRUCTURE. SEDIMENT SHALL BE REMOVED AND THE BASIN SHALL BE REGRADED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT STORAGE CAPACITY OF THE IMPOUNDMENT HAS BEEN REDUCED BY 20 PERCENT. THE REMOVED SEDIMENT MAY BE STOCKPILED OR DISTRIBUTED ONSITE IN AREAS THAT ARE PROTECTED BY EROSION AND SEDIMENT CONTROLS.
ORGANIC FILTER TUBE GRATE INLET PROTECTION CROSS SECTION

FLOW

ORGANIC FILTER TUBE
(12" MIN. DIAMETER)

GRATE INLET

2"x2" STEEL STAKES
MAX 4' SPACING

12" MIN. OVERLAP

LESS THAN 5% SLOPE

EXCAVATED IMPOUNDMENT GRATE INLET PROTECTION PLAN VIEW

ORGANIC FILTER TUBE
(12" MIN. DIAMETER)

2"x2" STEEL STAKES
MAX 4' SPACING

9" MIN.

3" EMBEDMENT MIN.

12" MIN.

SLOPE VARIES

EMBEDMENT DETAIL FOR ORGANIC FILTER TUBE

NOTES:

1. DESIGN SHALL SHOW ON THE DRAWINGS THE LOCATIONS WHERE OVERFLOW STRUCTURES SHALL BE INSTALLED. OVERFLOW STRUCTURES ARE REQUIRED AT ALL LOW POINTS AND AT A SPACING OF APPROXIMATELY 300 FT WHERE NO LOW POINT IS APPARENT.

2. DESIGNER SHALL SHOW ON THE DRAWINGS THE LOCATIONS WHERE SILT FENCE IS TO BE TURNED UPSLOPE. UPSLOPE LENGTHS SHALL BE A MINIMUM OF 10 FEET.
NOTES:

1. THIS CONTROL WILL DECREASE THE CAPACITY OF THE INLET. IT SHALL ONLY BE USED WHEN THE ENGINEER HAS DETERMINED THERE IS ADEQUATE STORAGE OR POSITIVE OVERFLOW.

2. ALLOWED FOR NON-ACCEPTED ROADWAY.

3. FOR ACTIVE ROADWAY, SEDIMENT FROM ADJACENT STREET SHALL BE RETAINED ON SITE OR USE AN INLET COVER.

4. OVERLAP ROCK FILTER TUBES A MINIMUM OF 1-FOOT.
BLOCK AND GRAVEL DROP INLET PROTECTION CROSS SECTION
N.T.S.

BLOCK AND GRAVEL DROP INLET PROTECTION CROSS SECTION
N.T.S.

BLOCK AND GRAVEL GRATE INLET PROTECTION PLAN VIEW
N.T.S.
FILTER STONE (1/2" X 1/2") FOR COVERING WEEP HOLES

3:1 MAX SLOPE

EXCAVATED AREA = DESIGN STORM VOLUME OR 3,600 CF PER ACRE DISTURBED

1" DIA. WEEP HOLES, TO BE FILLED WITH GROUT PRIOR TO BACKFILLING OF STORAGE AREA

1' MIN. 2' MAX.

GRATE INLET

EXCAVATED IMPOUNDMENT GRATE INLET PROTECTION CROSS SECTION
N.T.S.

1.5" FILTER STONE

FLOW

FLOW

GRATE INLET

EXCAVATED IMPOUNDMENT GRATE INLET PROTECTION PLAN VIEW
N.T.S.
PIPE INLET SEDIMENT TRAP PLAN VIEW
N.T.S.

PIPE INLET SEDIMENT TRAP CROSS SECTION
N.T.S.
SIX LANE DIVIDED
STANDARD SECTION (P6D-M6D)
MID-BLOCK
N.T.S.

LEFT TURN LANE SECTION
MID-BLOCK
N.T.S.

1. SAWED LONGITUDINAL CONTRACTION
JOINT OR CONSTRUCTION JOINT

NOTES:
1. REINFORCED CURB HEIGHT AND WIDTH SHALL BE 6".
2. SLOPES ADJACENT TO THE R.O.W. SHALL BE NO STEEPER THAN 4:1.
3. KEYWAY JOINT REQ'D FOR NEW ROADWAY CONSTRUCTION,
   LONGITUDINAL BUTT JOINT REQ'D ON EXISTING SECTION.
4. TOP 4" OF MEDIAN AND PARKWAY BACKFILL SHALL BE TOPSOIL MATERIAL.

* A GEOTECHNICAL EVALUATION AND DESIGN SHALL BE
   CONDUCTED TO DETERMINE AN ADEQUATE PAVEMENT SECTION
   BASED ON A MINIMUM 30 YEAR DESIGN LIFE FOR ALL PAVING
   PROJECTS. (REFER TO ENGINEERING DESIGN MANUAL)
   THE MINIMUM ALLOWABLE PAVEMENT DESIGN SHALL BE NO
   LESS THAN 9"-4000 PSI CONCRETE WITH #4 BARS AT 18"
   CENTERS ON A 8" LIME STABILIZED SUBGRADE COMPACTED TO
   95% STANDARD PROCTOR DENSITY. THE PLASTICITY INDEX
   SHALL NOT EXCEED 12.

<table>
<thead>
<tr>
<th>ROAD TYPE</th>
<th>R.O.W. @ MID-BLOCK (A)</th>
<th>MEDIAN WIDTH (B)</th>
<th>MEDIAN WIDTH (C)</th>
<th>PARKWAY WIDTH (D)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P6D</td>
<td>130'</td>
<td>20'</td>
<td>9'</td>
<td>19'</td>
</tr>
<tr>
<td>M6D</td>
<td>124'</td>
<td>20'</td>
<td>9'</td>
<td>16'</td>
</tr>
</tbody>
</table>

REFERENCE ENGINEERING DESIGN MANUAL FOR INTERSECTION LAYOUT INFORMATION

DATE: DECEMBER 2018
STANDARD DRAWING NO.
2010M

P6D-M6D
6 LANE DIVIDED THOROUGHFARE
CITY OF McKinney, Texas
1. **SAWED LONGITUDINAL CONTRACTION JOINT OR CONSTRUCTION JOINT**

### Standard Section (G4D-M4D)

**MID-BLOCK**

**N.T.S.**

### Left Turn Lane Section

**MID-BLOCK**

**N.T.S.**

#### Notes:
1. Reinforced curb height and width shall be 6".
2. Slopes adjacent to the R.O.W. shall be no steeper than 4:1.
3. Keyway joint req'd for new roadway construction; longitudinal butt joint req'd on existing section.
4. Top 4" of median and Parkway backfill shall be topsoil material.

### Roadway Design Table

<table>
<thead>
<tr>
<th>ROAD TYPE</th>
<th>R.O.W. @ MID-BLOCK (A)</th>
<th>MEDIAN WIDTH (B)</th>
<th>MEDIAN WIDTH (C)</th>
<th>PARKWAY WIDTH (D)</th>
</tr>
</thead>
<tbody>
<tr>
<td>G4D</td>
<td>120'</td>
<td>20</td>
<td>9'</td>
<td>20'</td>
</tr>
<tr>
<td>M4D</td>
<td>100'</td>
<td>20</td>
<td>7'</td>
<td>18'</td>
</tr>
</tbody>
</table>

* A Geotechnical Evaluation and Design shall be conducted to determine an adequate pavement section based on a minimum 30-year design life for all paving projects. (Refer to Engineering Design Manual)

The minimum allowable pavement design shall be no less than 9" for G4D and 8" for M4D - 4000 PSI concrete with #4 bars at 18" centers on a 8" lime stabilized subgrade compacted to 95% standard proctor density. The plasticity index shall not exceed 12.

---

**McKinney, Texas**

**G4D-M4D**

**4 LANE DIVIDED THOROUGHFARE**

**CITY OF McKinney, Texas**

**DATE: DECEMBER 2018**

**STANDARD DRAWING NO.:**

**2020M**
A GEOTECHNICAL EVALUATION AND DESIGN SHALL BE CONDUCTED TO DETERMINE AN ADEQUATE PAVEMENT SECTION BASED ON A MINIMUM 30 YEAR DESIGN LIFE FOR ALL PAVING PROJECTS. (REFER TO ENGINEERING DESIGN MANUAL). THE MINIMUM ALLOWABLE PAVEMENT DESIGN SHALL BE NO LESS THAN 8”–4000 PSI CONCRETE WITH #4 BARS AT 18” CENTERS ON A 8” LIME STABILIZED SUBGRADE COMPACTED TO 95% STANDARD PROCTOR DENSITY. THE PLASTICITY INDEX SHALL NOT EXCEED 12.

NOTES:
1. REINFORCED CURB HEIGHT AND WIDTH SHALL BE 6”.
2. SLOPES ADJACENT TO THE R.O.W. SHALL BE NO STEEPER THAN 4:1.
3. TOP 4” OF PARKWAY BACKFILL SHALL BE TOPSOIL MATERIAL.

SAWED LONGITUDINAL CONTRACTION JOINT OR CONSTRUCTION JOINT

MINOR ARTERIAL (M4U)
MID BLOCK
N.T.S.
COLLECTOR STREET (C2U)
N.T.S.

RESIDENTIAL STREET (R2U)
N.T.S.

1. SAWED LONGITUDINAL CONTRACTION JOINT OR CONSTRUCTION JOINT

NOTES:
1. REINFORCED CURB HEIGHT AND WIDTH SHALL BE 6".
2. SLOPES ADJACENT TO THE R.O.W. SHALL BE NO STEEPER THAN 4:1.
3. TOP 4" OF PARKWAY BACKFILL SHALL BE TOPSOIL MATERIAL.

* A GEOTECHNICAL EVALUATION AND DESIGN SHALL BE CONDUCTED TO DETERMINE AN ADEQUATE PAVEMENT SECTION BASED ON A MINIMUM 30 YEAR DESIGN LIFE FOR ALL PAVING PROJECTS. (REFER TO ENGINEERING DESIGN MANUAL)

THE MINIMUM ALLOWABLE PAVEMENT DESIGN SHALL BE NO LESS THAN 8" IN COMMERCIAL/6" IN RESIDENTIAL FOR C2U AND 6" FOR R2U—4000 PSI CONCRETE WITH #4 BARS AT 18" CENTERS ON A 6" LIME STABILIZED SUBGRADE COMPACTED TO 95% STANDARD PROCTOR DENSITY. THE PLASTICITY INDEX SHALL NOT EXCEED 12.
A geotechnical evaluation and design shall be conducted to determine an adequate pavement section based on a minimum 30 year design life for all paving projects. (Refer to Engineering Design Manual.) The minimum allowable pavement design shall be no less than 8" in commercial/6" in residential—4000 psi concrete with #4 bars at 18" centers on a 6" lime stabilized subgrade compacted to 95% standard proctor density. The plasticity index shall not exceed 12.

NOTE:
1. Spacing and construction of joints shall conform to city street joint details.
2. All accessible routes shall meet ADA and TAS requirements.
3. The sidewalk thickness across any alley shall be 6" minimum.
GENERAL NOTES FOR ALLEYS:
1. SPACING AND CONSTRUCTION OF JOINTS SHALL CONFORM TO CITY PAVEMENT JOINT DETAILS.
2. ALL ACCESSIBLE ROUTES SHALL MEET ADA & TAS REQUIREMENTS.
3. ENSURE APPROPRIATE POSITIVE DRAINAGE OF FINISHED CONCRETE.

* A GEOTECHNICAL EVALUATION AND DESIGN SHALL BE CONDUCTED TO DETERMINE AN ADEQUATE PAVEMENT SECTION BASED ON A MINIMUM 30 YEAR DESIGN LIFE FOR ALL PAVING PROJECTS. (REFER TO ENGINEERING DESIGN MANUAL)

THE MINIMUM ALLOWABLE PAVEMENT DESIGN SHALL BE 6" IN COMMERCIAL/6" IN RESIDENTIAL-4000 PSI CONCRETE WITH #4 BARS AT 18" CENTERS ON A 6" LIME STABILIZED SUBGRADE COMPACTED TO 95% STANDARD PROCTOR DENSITY. THE PLASTICITY INDEX SHALL NOT EXCEED 12.
CONSTRUCTION JOINT

SAWED GROOVE 1/4" WIDE

REINFORCING BARS

HOT Poured RUBBER JOINT SEALING COMPOUND 1" MIN.

SAWED GROOVE 1/4" WIDE

REINFORCING BARS

HOT Poured RUBBER JOINT SEALING COMPOUND 1" MIN.

SAWED CONTRACTION JOINT

NOTE: SAWED JOINTS SHALL BE EVERY 15' FOR ALL THICKNESS OF CONCRETE AND SHALL BE CONSTRUCTED WITHIN THE FIRST 12 HOURS OF CONCRETE PLACEMENT.

KEYWAY JOINT

FOR PAVEMENT THICKNESS > 6"

NOTE: STEEL REINFORCEMENT SHALL BE AS SPECIFIED IN THE SITE SPECIFIC PAVEMENT DESIGN FOR THE GIVEN ROADWAY.

EXPANSION JOINT

HOT Poured RUBBER JOINT SEALING COMPOUND 1" MIN.

24" #6 SMOOTH DOWEL CENTERED ON REDWOOD

DOWEL COATING

TRANSUCENT DOWEL SLEEVE (CLOSED END TO FIT DOWEL & BE SECURED) TO BE INSTALLED 18" C-C OR AS SPECIFIED IN SITE SPECIFIC PAVMT. DESIGN.

NOTES:
1. DOWELS AND REINFORCING BARS SHALL BE SUPPORTED BY AN APPROVED DEVICE.
2. SLEEVES FOR DOWELS SHALL HAVE AN INSIDE DIAMETER OF 1/16" GREATER THAN THE DIAMETER OF THE DOWELS AND SHALL BE APPROVED BY THE ENGINEER PRIOR TO USE.
3. EXPANSION JOINTS TO BE CONSTRUCTED A MAXIMUM OF 400' APART ON STRAIGHT PAVING, AS WELL AS INTERSECTION P.C.'S & P.T.'S UNLESS OTHERWISE SPECIFIED.
4. REBAR BASKET FOR EXPANSION JOINTS IS REQUIRED.

DATE: DECEMBER 2018

STANDARD DRAWING NO.

2050M

CITY OF McKinney, Texas
LONGITUDINAL BUTT JOINT

NOTES:
1. DEFORMED BARS SHALL BE DRILLED INTO PAVEMENT HORIZONTALLY BY USE OF MECHANICAL RIG. ALL DRILLED DEFORMED BARS SHALL BE EPOXIED.
2. HAND DRILLING IS NOT ACCEPTABLE, Pushing deformed bars into green concrete is not acceptable.
3. REINFORCING SHALL BE AS SPECIFIED IN THE SITE SPECIFIC PAVEMENT/GEOTECHNICAL DESIGN.
Expansion joints (spaced 400 ft. maximum; locate at structures, intersections, P.C.'s, P.T.'s)

Provide cl joint both ways

Sawed transverse contraction joint

Sawed contraction joint

R.O.W.

Straight crown

Specified crown

Notes:
1. Sawed contraction joints shall be spaced at 15' for all pavement thickness.

Spacing diagram for transverse joints
**STREET HEADER AT EXISTING AND FUTURE CONCRETE PAVEMENT**

**STREET HEADER AT ASPHALT PAVEMENT**

**NOTES:**
1. PAVEMENT BARS TO BE BENT DOWN INTO HEADER.
2. HEADER AND PAVEMENT TO BE MONOLITHIC.
3. NEW ASPHALT SHALL MATCH PROPOSED PAVEMENT THICKNESS WITH TOP 2" TYPE D AND THE REMAINING ASPHALT SHALL BE TYPE B PER TXDOT SPECIFICATIONS.
MEDIAN NOSE TYPE "A"
FOR W GREATER THAN 6' AND LESS THAN 9'

MEDIAN NOSE TYPE "B"
FOR W GREATER THAN 9' AND LESS THAN 33'

MEDIAN NOSE TYPE "C"
FOR W GREATER THAN OR EQUAL TO 33'

4" MIN - 4000 PSI REINFORCED CONCRETE W/ #4 BARS 18" OC
INTEGRAL COLORED TEXTURED CONCRETE BRICK RED 90° HERRINGBONE PATTERN FLUSH W/ TOP OF CURB (INSTALL PER TxDOT SPECIFICATION - ITEM 528)

COLOR TEXTURED CONCRETE DETAIL

DATE: DECEMBER 2018
STANDARD DRAWING NO.
2080M
CITY OF MCKINNEY, TEXAS
MONOLITHIC MEDIAN NOSE DETAIL
NTS

KEYED CONSTRUCTION JOINT
NTS

SECTION A-A
NTS

SECTION B-B
NTS

NOTE:
REINFORCEMENT BARS SHALL MATCH THOSE IN PAVEMENT.

CITY OF McKinney, Texas

DATE: DECEMBER 2018
STANDARD DRAWING NO. 2080M
GEOMETRIC DESIGN OF THE MINI TRAFFIC CIRCLE SHALL ALLOW FOR ALL OF THE FOLLOWING (FOR ALL MOVEMENTS):

- **Passenger Vehicle (P)**
  - Entry Speed: 15 MPH
  - Path Constraints: No encroachment of central island

- **Truck Movements (TL-30)**
  - Entry Speed: 5 MPH
  - Path Constraints: No encroachment of oncoming traffic circle

- **Fire Truck Movement**
  - Entry Speed: 5 MPH
  - Path Constraints: No encroachment of outside curb by vehicle wheel path

- **Fire Truck Body, Wheelbase, and Turning Specifications**
  - To be obtained from City of McKinney Fire Marshall.

**Notes:**
1. Use of Mini Traffic Circles shall be on low speed (30 MPH OR LESS), low volume R2U facilities and locations shall be approved by the Engineer. Collector classification C2U facilities shall be tapered to T2U in advance of mini traffic circle approaches as depicted.
2. Traffic circle geometric requirements provided in this detail are intended to provide general guidance and minimum requirements. All design is subject to the approval of the City Engineer and actual requirements may vary based on site-specific applications. Turning movements for all.
3. Reinforcement design of the center island and mountable curb to be provided by the engineer.
4. All markings shown are required unless otherwise directed by the City.
5. Street name signs (refer to detail 7003MB) to be placed at opposite corners (2 placements per circle) with location preference given to the major roadway approaches.

**Residential Mini Traffic Circle**

**McKinney, Texas**

**City of McKinney, Texas**

**Date: December 2018**

**Standard Drawing No.: 2085M**
SPEED TABLE INTEGRAL WITH CONCRETE PAVING, 3" MAX HEIGHT (*BRICK RED* OR EQUIVALENT INTEGRAL COLORED CONCRETE)

STANDARD CONCRETE PAVING

SPEED HUMP MARKINGS IN ACCORDANCE WITH THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (TMUTCD)

INTEGRAL SPEED HUMP

W17-1 WARNING SIGN

MONOLITHIC CURB

RESIDENTIAL STREET (R2U) PLAN VIEW

27' B-B

2'-6"

6" TAPER

6" TAPER

CONCRETE PAVING

SUBGRADE

STEEL REINFORCEMENT

SPEED TABLE INTEGRAL WITH CONCRETE PAVING, 3" MAX HEIGHT (*BRICK RED* OR EQUIVALENT INTEGRAL COLORED CONCRETE)

NORMAL ROADWAY 5" PARABOLIC CROWN

RESIDENTIAL STREET SECTION A-A (R2U)

RESIDENTIAL STREET SECTION B-B (R2U)

NOTES:
1. USE OF SPEED HUMPS SHALL BE ON LOW SPEED (30 MPH OR LESS), LOW VOLUME R2U FACILITIES WITH AN ADT LESS THAN 2,000 VPD AND LOCATIONS SHALL BE APPROVED BY THE ENGINEER.
2. SPEED HUMPS SHALL NOT BE PLACED OVER MANHOLES, WATER VALVES, SURVEY MONUMENTS, ETC.
3. SPEED HUMPS SHALL NOT BE INSTALLED IN A LOCATION SUCH THAT ROADWAY DRAINAGE IS COMPROMISED.
4. SPEED HUMPS SHALL NOT BE INSTALLED WITHIN 20 FEET OF A DRIVEWAY (MEASURED FROM THE EDGE OF DRIVEWAY).
5. SPEED HUMPS TO BE CONSTRUCTED MONOLITHICALLY WITH ROADWAY CONCRETE PAVING.
6. STRIPING AND SIGNS SHOWN TO BE INSTALLED SHALL MEET CITY REQUIREMENTS FOR PAVEMENT MARKINGS AND SIGNING.
NOTES:
1. USE OF SPEED TABLES SHALL BE ON LOW SPEED (30 MPH OR LESS), LOW VOLUME R2U FACILITIES WITH AN ADT LESS THAN 4,000 VPD AND LOCATIONS SHALL BE APPROVED BY THE ENGINEER.
2. SPEED TABLES SHALL NOT BE PLACED OVER MANHOLES, WATER VALVES, SURVEY MOUNMENTS, ETC.
3. SPEED TABLES SHALL NOT BE INSTALLED IN A LOCATION SUCH THAT ROADWAY DRAINAGE IS COMPROMISED.
4. SPEED TABLES SHALL NOT BE INSTALLED WITHIN 20 FEET OF A DRIVEWAY (MEASURED FROM THE EDGE OF DRIVEWAY).
5. SPEED TABLES TO BE CONSTRUCTED MONOLITHICALLY WITH ROADWAY CONCRETE PAVING.
6. STRIPING AND SIGNS SHOWN TO BE INSTALLED SHALL MEET CITY REQUIREMENTS FOR PAVEMENT MARKINGS AND SIGNING.
INTEGRAL CURB & GUTTER

SEPARATE CURB & GUTTER

MOUNTABLE CURB DETAIL

NOTES:
1. INTEGRAL CURB AND GUTTER SHALL BE USED ON ALL NEW STREETS.
2. FOR INTEGRAL CURB AND GUTTER, REINFORCEMENT SHALL MATCH STREET PAVING
   REINFORCING. FOR SEPARATE CURB AND GUTTER, #4 BARS SHALL BE USED.
3. ALL CURBS SHALL BE CONSTRUCTED OF 4000 PSI PORTLAND CEMENT CONCRETE
   UNLESS OTHERWISE SPECIFIED.
4. GRADE SHALL BE MEASURED AT BACK OF CURB.
5. NO VERTICAL DOWELED CURBS SHALL BE ALLOWED.
6. #4 REBAR SHALL BE USED.
NOTES: ALL NEWLY CONSTRUCTED SIDEWALKS, CURB RAMPS AND CROSSWALKS INSTALLED WITHIN CITY OF MCKINNEY PUBLIC RIGHTS-OF-WAY SHALL BE CONSIDERED A PEDESTRIAN ACCESS ROUTE AND SHALL CONFORM TO THE MOST CURRENT GUIDELINES FOR PUBLIC RIGHTS-OF-WAY CREATED BY THE UNITED STATES ACCESS BOARD.

1. SEE DETAIL 2125M (SHEET 2 OF 4) FOR RAMP FEATURE DESCRIPTIONS
2. SEE DETAIL 2125M (SHEET 3 OF 4) FOR SECTIONS X-X AND Y-Y
3. SEE DETAIL 2125M (SHEET 4 OF 4) FOR ADDITIONAL NOTES
A DETECTABLE WARNING DEVICES (DWD) SHALL BE PRE-MANUFACTURED CAST-IN-PLACE PLATES FROM THE CITY OF MCKINNEY APPROVED VENDOR LIST INSTALLED TO THE MANUFACTURER’S SPECIFICATIONS, AND SHALL MEET ALL ADA REQUIREMENTS. NO BRICK PAVERS ALLOWED. COLOR TO BE BRICK RED OR SIMILAR. DWD SHALL BE 24 INCHES IN LENGTH FOR THE FULL WIDTH OF THE STREET CONNECTION STARTING AT THE BACK OF CURB.

B ALSO KNOWN AS "CLEAR SPACE" PER ADA PROWAG, THE CITY REQUIRES A MINIMUM LANDING SPACE OF 5-FOOT BY 5-FOOT AT THE BOTTOM OF EVERY RAMP. THIS LANDING SPACE SHALL HAVE A CROSS SLOPE IN BOTH DIRECTIONS THAT DOES NOT EXCEED 2.0% AND SHALL BE WHOLLY OUTSIDE THE PARALLEL VEHICULAR TRAVEL PATH.

C THE RAMP COMPONENT OF THE DIRECTIONAL CURB RAMP SHALL HAVE A CONTINUOUS LONGITUDINAL SLOPE MORE THAN 5% AND LESS THAN 8.3%. THE RAMP SHALL ALSO HAVE A CROSS SLOPE OF NO MORE THAN 2.0%. LENGTH OF RAMP CAN VARY, BUT SHALL NOT EXCEED 15 FEET TO ACHIEVE DESIRED ELEVATION CHANGE.

D ALSO KNOWN AS "TURNING SPACE" PER ADA PROWAG, A MINIMUM LANDING SPACE OF 4-FOOT BY 4-FOOT SHALL BE AT THE TOP OF EVERY RAMP. WHERE THE TURNING SPACE IS CONSTRAINED AT THE BACK-OF-SIDEWALK, THE TURNING SPACE SHALL BE 4-FOOT BY 5-FOOT MINIMUM. THIS LANDING (TURNING) SPACE SHALL HAVE A CROSS SLOPE IN BOTH DIRECTIONS THAT DOES NOT EXCEED 2.0%. LANDING MUST MATCH WIDTH OF SIDEWALK AND LENGTH SHALL BE THE SAME DISTANCE (*SQUARED* LANDING).


F PAVING CONTRACTOR SHALL LEAVE BLOCK OUT WITH A KEYWAY JOINT INSTALLED, MINIMUM OF 18 INCHES MEASURED FROM BACK OF CURB. BLOCK OUT SHALL BE POURED MONOLITHICALLY WITH CURB RAMP. CONCRETE SHALL TIE TO STREET PAVING WITH A KEYWAY JOINT PER CITY DETAIL 2050M. NO CURB SHALL BE CONSTRUCTED WHERE A DWD IS PROVIDED. THE CURB ON EITHER SIDE SHALL HAVE A TYPICAL 5 FOOT TAPER TO TRANSITION FROM THE STANDARD 6-INCH CURB HEIGHT TO BE FLUSH WITH RAMP.

G ALL WORK ASSOCIATED WITH ACCESSIBLE ROUTES SHALL BE INSTALLED FLUSH WITH ALL FEATURES TO MINIMIZE VERTICAL SURFACE DISCONTINUITIES. EACH SEGMENT ALONG ACCESSIBLE ROUTE SHALL BE FLUSH WITH NO MORE (ZERO TOLERANCE) THAN A 1/4-INCH GRADE SEPARATION (ELEVATION DIFFERENCE), OR 1/2-INCH GRADE SEPARATION IF BEEVED (BEVEL SLOPE SHALL NOT BE STEEPER THAN 50%).

H A SIDEWALK HEADER SHALL BE CONSTRUCTED AT ENDS OF ALL WORK PERFORMED.

I STREET CROSSINGS SHALL ADHERE TO SAME GUIDELINES AS OTHER ACCESSIBLE ROUTES WITHIN PUBLIC RIGHT-OF-WAY, AND SHALL BE FOR THE FULL WIDTH OF THE IN-LINE ACCESSIBLE ROUTE. CROSS SLOPE SHALL NOT EXCEED 2%. NEW STREET CONSTRUCTION SHALL INCORPORATE ALL ADA DESIGN REQUIREMENTS. IT SHALL BE THE RESPONSIBILITY OF THE DESIGN PROFESSIONAL AND CONTRACTOR TO ENSURE ALL STREET CROSSINGS MEET THE REQUIREMENTS OF PROWAG. STREET ALTERATIONS ON EXISTING STREETS TO BRING TO COMPLIANCE SHALL BE AT THE CITY ENGINEER’S DISCRETION.

J ALL CURBS CONSTRUCTED AS PART OF AN ADA RAMP SHALL MATCH CITY CURB STANDARDS.

* SEE PROWAG SPECIAL DESIGN CONSIDERATIONS WHEN STREET CROSSING HAS NO STOP OR YIELD CONDITION.

SHEET 2 OF 4
DETECTABLE WARNING DEVICE
(PRE-FABRICATED PLATE MINIMUM 24-INCHES
WIDE FOR FULL WIDTH OF STREET CONNECTION)

MINIMUM 6" TRANSITION TO MATCH
ADJACENT PAVEMENT THICKNESS

REINFORCING BARS

STREET BLOCK-OUT TO BE Poured
MONOLITHICALLY WITH RAMP

SECTION X-X
N.T.S.

**KEYWAY JOINT FOR NEW CONSTRUCTION. STREET CONNECTION
SHALL BE LONGITUDINAL BUTT JOINT FOR CONNECTIONS TO
EXISTING ROADWAYS.

4'x4' MIN. LANDING
(2% MAX SLOPE EACH WAY)

RAMP
(0.3% MAX LONGITUDINAL SLOPE, 2%
MAX CROSS SLOPE. LENGTH VARIES AS
REQUIRED - MAX LENGTH 15 FT)

5'x5' MIN. LANDING
(2% MAX SLOPE EACH WAY. MUST
MANTAIN POSITIVE DRAINAGE)

TOOLEO JOINT

NOTE: ALL SIDEWALK CURB RAMPS WILL BE 4000 PSI CONCRETE.

SECTION Y-Y
N.T.S.

DATE: DECEMBER 2018
STANDARD DRAWING NO.
2125M

CITY OF McKinney, Texas
PEDESTRIAN ACCESSIBILITY (WITHIN PUBLIC R.O.W.)

ALL NEWLY CONSTRUCTED SIDEWALKS, CURB RAMPS AND CROSSWALKS INSTALLED WITHIN CITY OF MCKINNEY PUBLIC RIGHTS-OF-WAY SHALL BE CONSIDERED A PEDESTRIAN ACCESS ROUTE AND SHALL CONFORM TO THE MOST CURRENT GUIDELINES FOR PUBLIC RIGHTS-OF-WAY CREATED BY THE UNITED STATES ACCESS BOARD.

CURB RAMPS

1. ALL SLOPES SHOWN ARE MAXIMUM ALLOWABLE. LESSER SLOPES THAT WILL STILL DRAIN PROPERLY SHOULD BE USED. ADJUST CURB RAMP LENGTH OR GRADE OFApproach SIDEWALKS AS DIRECTED.
2. LANDINGS SHALL HAVE A MAXIMUM 2% SLOPE IN THE TRANSVERSE AND LONGITUDINAL DIRECTIONS.
3. CLEAR SPACE AT THE BOTTOM OF CURB RAMPS SHALL BE A MINIMUM OF 5’ X 5’ WHOLLY CONTAINED WITHIN THE CROSSWALK AND WHOLLY OUTSIDE THE PARALLEL VEHICULAR TRAVEL PATH.
4. MAXIMUM ALLOWABLE CROSS SLOPE ON SIDEWALK AND CURB RAMP SURFACES IS 2%.
5. ADDITIONAL INFORMATION ON CURB RAMP LOCATION, DESIGN, LIGHT REFLECTIVE VALUE AND TEXTURE MAY BE FOUND IN THE MOST CURRENT EDITION OF THE TEXAS ACCESSIBILITY STANDARDS (TAS), 16 TAC 68.102, 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN, AND 2011 PROPOSED ACCESSIBLE GUIDELINES FOR PEDESTRIAN FACILITIES IN PUBLIC RIGHT-OF-WAY (PROWAG).
6. CROSSWALK DIMENSIONS, CROSSWALK MARKINGS AND STOP BAR LOCATIONS SHALL BE AS SHOWN ELSEWHERE IN THE PLANS. AT INTERSECTIONS WHERE CROSSWALK MARKINGS ARE NOT REQUIRED, CURB RAMPS AND ACCESSIBLE ROUTES SHALL ALIGN WITH THEORETICAL CROSSWALKS UNLESS OTHERWISE DIRECTED.
7. HANDRAILS ARE NOT REQUIRED ON CURB RAMPS.
8. PROVIDE A FLUSH TRANSITION WHERE THE CURB RAMPS CONNECT TO THE STREET.
9. ACCESSIBLE ROUTES ARE CONSIDERED "RAMPS" WHEN LONGITUDINAL SLOPES ARE BETWEEN 5% AND 8.3% (MAXIMUM ALLOWABLE). SIDEWALKS UNDER 5% LONGITUDINAL SLOPE ARE DEEMED ACCESSIBLE ROUTES AND MUST FOLLOW ALL APPLICABLE GUIDELINES.

DETECTABLE WARNING DEVICE

10. CURB RAMPS OR LANDINGS MUST CONTAIN A DETECTABLE WARNING SURFACE THAT CONSISTS OF RAISED TRUNCATED DOMES COMPLYING WITH SECTION 705 OF THE TAS. THE SURFACE MUST CONTRAST VISUALLY WITH ADJOINING SURFACES. FURNISH AND INSTALL AN APPROVED CAST-IN-PLACE DARK RED DETECTABLE WARNING SURFACE MATERIAL ADJACENT TO UNCOLORED CONCRETE, UNLESS SPECIFIED ELSEWHERE IN THE PLANS.
11. DETECTABLE WARNING MATERIALS MUST MEET CITY OF MCKINNEY MATERIAL SPECIFICATION (REFER TO TXDOT APPROVED VENDOR LIST) AND BE LISTED ON THE MATERIAL PRODUCER LIST. INSTALL PRODUCTS IN ACCORDANCE WITH MANUFACTURER’S SPECIFICATIONS.
12. DETECTABLE WARNING SURFACES MUST BE SLIP RESISTANT AND NOT ALLOW WATER TO ACCUMULATE.
13. DETECTABLE WARNING SURFACES SHALL BE A MINIMUM OF 24” IN DEPTH IN THE DIRECTION OF PEDESTRIAN TRAVEL, AND EXTEND THE FULL WIDTH OF THE CURB RAMP OR LANDING WHERE THE PEDESTRIAN ACCESS ROUTE ENTERS THE STREET.
14. DETECTABLE WARNING SURFACES SHALL BE LOCATED SO THAT THE EDGE NEAREST THE CURB LINE IS AT THE BACK OF CURB. WHEN PLACED ON THE RAMP, ALIGN THE ROWS OF DOMES TO BE PERPENDICULAR TO THE GRADE BREAK BETWEEN THE RAMP RUN AND THE STREET. WHERE DETECTABLE WARNING SURFACES ARE PROVIDED ON A SURFACE WITH A SLOPE THAT IS LESS THAN 5 PERCENT, DOME ORIENTATION IS LESS CRITICAL. DETECTABLE WARNING SURFACES MAY BE CURVED ALONG THE CORNER RADIUS.

SIDEWALKS

15. PROVIDE CLEAR GROUND SPACE AT OPERABLE PARTS, INCLUDING PEDESTRIAN PUSH BUTTONS. OPERABLE PARTS SHALL BE PLACED WITHIN ONE OR MORE REACH RANGES SPECIFIED IN TAS 308.
16. PLACE TRAFFIC SIGNAL OR ILLUMINATION POLES, GROUND BOXES, CONTROLLER BOXES, SIGNS, DRAINAGE FACILITIES AND OTHER ITEMS SO AS NOT TO OBSTRUCT THE PEDESTRIAN ACCESS ROUTE OR CLEAR GROUND SPACE.
17. STREET GRADIES AND CROSS SLOPES SHALL BE AS SHOWN ELSEWHERE IN THE PLANS.
18. CHANGES IN LEVEL GREATER THAN 1/4 INCH ARE NOT PERMITTED (1/2 INCH WITH BEVEL).
19. WHERE A 4’ SIDEWALK IS PROVIDED, A 5’X 5’ PASSING AREAS ARE REQUIRED AT INTERVALS NOT TO EXCEED 200’.
20. THE LEAST POSSIBLE GRADE SHOULD BE USED TO MAXIMIZE ACCESSIBILITY. THE RUNNING SLOPE OF SIDEWALKS AND CROSSWALKS WITHIN THE PUBLIC RIGHT OF WAY MAY FOLLOW THE GRADE OF THE PARALLEL ROADWAY. WHERE A CONTINUOUS GRADE GREATER THAN 5% MUST BE PROVIDED, HANDRAILS MAY BE DESIRABLE TO IMPROVE ACCESSIBILITY. HANDRAILS MAY ALSO BE NEEDED TO PROTECT PEDESTRIANS FROM POTENTIALLY HAZARDOUS CONDITIONS. IF PROVIDED, HANDRAILS SHALL COMPLY WITH TAS 505.
21. HANDRAIL EXTENSIONS SHALL NOT PROTRUDE INTO THE USABLE LANDING AREA OR INTO INTERSECTING PEDESTRIAN ROUTES.
NOTES:
1. EXISTING CURB AND GUTTER, IF ANY MUST BE SAWED AS DIRECTED BY THE CITY ENGINEER, HORIZONTAL CURB CUT SHALL BE AT AN ELEVATION OF 1" ABOVE THE EXISTING GUTTER WITH A MINIMUM LENGTH AS SHOWN. THE TRADITIONAL SAW CUT SHALL HAVE A RUN OF 2'-6" AND SHALL RISE TO MEET THE EXISTING TOP OF CURB. ALL EXPOSED EDGES SHALL BE GROUND TO A 1/2" RADIUS. ALL EXPOSED EDGES SHALL BE GROUND TO A 1/4" RADIUS. SAW CUTTING SHALL BE PERFORMED WITH A RIDE-ON SAW EQUIPPED WITH A DIAMOND SAW BLADE.
2. SIDEWALK SECTION THRU DRIVEWAY SHALL BE POURED SAME THICKNESS AS DRIVEWAY APPROACH,(EXISTING SIDEWALK, IF ANY, SHALL BE REMOVED AND REPLACED.)
3. THIS WORK SHALL NOT DISRUPT THE DESIGN FLOWLINE OF EXISTING GUTTER.
PLAN VIEW

MATCH EXISTING STREET SECTION (6" MINIMUM THICKNESS)

SECTION A-A

MAINTAIN FLOWLINE OF EXISTING GUTTER

EXISTING STREET

2% FALL FROM R.O.W. TO TOP OF CURB

2% MAX FOR 5'

SIDEWALK

1'

R.O.W. LINE

11.5 FT TYPICAL

INSPECTION MUST BE MADE BY BUILDING INSPECTOR PRIOR TO PLACEMENT OF CONCRETE

RESIDENTIAL DRIVE APPROACH

CITY OF McKinney, TEXAS

DATE: DECEMBER 2018

STANDARD DRAWING NO.

2150M
MATCH EXISTING STREET SECTION (6" MINIMUM THICKNESS)

PLAN VIEW
N.T.S.

2.5' TYP.

SEE DETAIL 2055M

EXISTING ALLEY

1% MIN. - 8% MAX.

2" COMPACTED WASHED SAND BEDDING

SECTION A-A
N.T.S.

INSPECTION MUST BE MADE BY BUILDING INSPECTOR PRIOR TO PLACEMENT OF CONCRETE

4000 PSI CONC @ 28 DAYS, NO. 4 BARS @ 18" O.C.E.W. (SEE STD. DETAIL NOTE 1)

R.O.W. LINE

- 3'

11' MIN. TO 20' MAX.

MIN. 6'

2.5' TYP.

SEE DETAIL 2055M

A L L E Y

SEE DETAIL 2055M

A
RESIDENTIAL DRIVE APPROACH GENERAL NOTES:

1. IF ADJACENT CURB IS DAMAGED DURING SAW CUT OF BLOCKOUT, DAMAGED CURB SHALL BE REPLACED TO CITY OF McKinney STANDARDS.

2. IF THE BLOCKOUT IS WITHIN TWO FEET OF REDWOOD HEADER OR SAW JOINT, EXTEND THE BLOCKOUT TO THE HEADER OR JOINT.

3. CHECK FOR VALVE BOXES, WATER METERS AND SANITARY SEWER CLEANOUTS IN PROPOSED PAVING LOCATIONS. ADJUST DEVICE PER CITY STANDARDS.

4. IF WATER VALVE IS ADJACENT TO SIDEWALK, REMOVE CONCRETE PAD FROM WATER VALVE AND ADJUST TO GRADE WITH NEW CONCRETE PAD. SIDEWALK WILL SERVE AS PAD IF LOCATED IN WALK, AND A MINIMUM 48-INCH PEDESTRIAN PATH CAN BE MAINTAINED.

5. NO PORTION OF A DRIVEWAY BLOCKOUT MAY ENCROACH ON A STORM INLET VARIABLE THROAT BLOCKOUT.

6. TRAFFIC-BEARING CLEANOUTS SHALL BE INSTALLED IF SANITARY SEWER SERVICE FALLS WITHIN DRIVEWAY PAVING.

7. NO EXPOSED AGGREGATE PERMITTED WITHIN RIGHT-OF-WAY.

8. DRIVE APPROACH SLOPE MUST END AT FACE OF GUTTER – NOT AT END OF BLOCKOUT.

9. ROADWAY PAVEMENT JOINTS SHALL NOT EXTEND THROUGH DRIVE.

10. REINFORCING SHOWN IS MINIMUM ONLY AND SHOULD MATCH PROJECT SPECIFIC PAVEMENT DESIGN, WHICHEVER IS MORE CONSERVATIVE.

11. CURB, GUTTER, PAVEMENT AND VALLEY TO BE Poured MONOLITHIC.

12. DRIVEWAY SLOPE FROM R.O.W. TO HOUSE SHALL NOT EXCEED 12% FOR ALL PARTS OF THE DRIVEWAY UNLESS APPROVED IN WRITING BY BUILDING INSPECTIONS DEPT.

13. NO DRIVEWAY CUT SHALL BE LOCATED CLOSER THAN 30 FT. FROM THE CURB RETURN OF AN ADJACENT ROADWAY INTERSECTION, MEASURED FROM THE PCBEGINNING POINT OF CURVATURE) OF THE STREET RADIUS TO THE CLOSEST EDGE OF THE PAVEMENT OF THE DRIVEWAY.

14. ELEVATION DIFFERENTIALS FROM THE LOW SIDE DRIVEWAY CONNECTION TO THE STREET TO THE FINISHED PAD EXCEEDING THE VALUES BELOW FOR THE FOLLOWING BUILDING SETBACKS SHALL REQUIRE SPECIAL TREATMENT TO HOMES THAT MAY INCLUDE, BUT NOT LIMITED TO DROP GARAGES TO MAINTAIN A MAXIMUM DRIVEWAY SLOPE OF 12%:
   • 20 FT SETBACK = 2.4 FEET ELEVATION DIFFERENCE
   • 25 FT SETBACK = 3.0 FEET ELEVATION DIFFERENCE
   • 30 FT SETBACK = 3.6 FEET ELEVATION DIFFERENCE

   ELEVATION DIFFERENTIAL MEASURED FROM DOWNSTREAM CORNER OF DRIVEWAY AT R.O.W. LINE TO BUILDING SETBACK LINE

15. EACH SIDEWALK CROSSING A DRIVEWAY SHALL MEET ALL REQUIRED FEDERAL GUIDELINES FOR ACCESSIBLE ROUTES.
   • 2% MAXIMUM CROSS SLOPE *(See Below)
   • 5% MAXIMUM LONGITUDINAL SLOPE OR MATCHING STREET GRADE IF EXCEEDS 5%

* CITY INSPECTORS WILL CHECK THE SLOPES AT PRE–POUR AND ALSO AT "BUILDING FINAL". IF MORE THAN 2% CROSS SLOPE IS FOUND, CORRECTIONS MUST BE MADE TO COMPLY WITH THE 2% SLOPE OR LESS.
**Notes:**

1. The cross slope of the sidewalk shall be no greater than 2%.
2. Sidewalk concrete within city R.O.W. shall be minimum 4,000 psi concrete.
3. All sidewalks shall maintain positive drainage.
4. Paved sidewalks shall be provided along both sides of all thoroughfares and collectors, and along all residential or local streets which are located immediately adjacent to a school site and for a distance of one block along such streets leading directly to a school site.
5. Minimum width of 6' if sidewalk adjacent to curb.
6. Steel wire mesh is not acceptable.
7. No below grade stakes in expansion joints.
8. All reinforcing steel shall be supported by an approved device.

**Sheet 1 of 3**

**McKinney, Texas**

**Reinforced Concrete Sidewalks Joints and Spacing**

**City of McKinney, Texas**

**Date: December 2018**

**Standard Drawing No.: 2170M**
JOINT LUG DETAIL FOR MEDIAN PAVEMENT
LEAD WALK CONNECTIONS OR SIDEWALK ADJACENT TO CURB
N.T.S.

PROPERTY LINE

4"

FUTURE SIDEWALK

2"

CONCRETE SIDEWALK

2" COMPACTED CLEAN SAND

#3 BAR

6"

4"

BENT #3 BARS @ 18" O.C.

SIDEWALK HEADER
N.T.S.

½" EXPANSION JOINT WITH SEALING COMPOUND (BY FUTURE CONNECTION)

LIME STABILIZED SUBGRADE

8" #3 BAR @ 18" CENTERS INSTALLED 4" DOWN FROM TOP OF CURB

8" MIN

2" COMPACTED CLEAN SAND

USE EDGER—BOTH SIDES

MATCH ROUNDED EDGE RADIUS ON CURB

½" SEALED NON-EXTRUDED PRE-FORMED EXPANSION MATERIAL
REINFORCED CONCRETE RETAINING WALL WITH 6' SIDEWALK

CITY OF MckINNEY, TEXAS

REINFORCED CONCRETE RETAINING WALL WITH 6' SIDEWALK

DATE: DECEMBER 2018
STANDARD DRAWING NO.
2180M

NOTES:
1. FOR USE OF THIS STANDARD DETAIL, THE FOLLOWING GEOTECHNICAL SITE CONDITIONS MUST BE MET:
   - MINIMUM ALLOWABLE BEARING PRESSURE: 1,500 PSF
   - MINIMUM COEFFICIENT OF FRICTION: 0.3
   - MAXIMUM ACTIVE PRESSURE COEFFICIENT (Ko): 0.65
2. ALL MATERIALS SHALL BE SUBMITTED FOR APPROVAL PRIOR TO CONSTRUCTION.
3. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI.
4. ALL REINFORCING STEEL SHALL BE GRADE 60.
5. ALL CLEAR COVER SHALL BE 2" WHERE FORMED AND 3" WHERE CAST AGAINST EARTH.
6. IF ANY SURCHARGE LOAD IS ANTICIPATED WITHIN A HORIZONTAL DISTANCE OF HALF THE WALL HEIGHT FROM THE BACK OF WALL, AN ENGINEERING DESIGN IS REQUIRED, SEALED BY A REGISTERED ENGINEER IN THE STATE OF TEXAS. THIS INCLUDES DEAD LOAD SURCHARGES AND LIVE LOAD SURCHARGES SUCH AS TRAFFIC LOADS.
7. JOINT LOCATIONS SHALL MATCH ON SIDEWALK AND WALL. JOINT SPACING SHALL BE EVERY 30 FEET FOR CONTROL JOINTS AND EVERY 90 FEET FOR EXPANSION JOINTS. TYPE B WATERSTOP SHALL BE APPLIED ON THE FILLED SIDE OF ALL EXPANSION AND CONSTRUCTION JOINTS.
8. FOR WALL HEIGHTS LESS THAN 2'-0", STRUCTURAL DESIGN IS NOT REQUIRED (SEE McKinney ENGINEERING DESIGN MANUAL).
NOTES:
1. ALL DIMENSIONS ARE TO BACK OF CURB UNLESS OTHERWISE NOTED.
2. NO CONCRETE REPLACEMENT WIDTH SHALL BE LESS THAN 18".
3. PAVEMENT SECTION SHALL MATCH THAT OF EXISTING STREET. IN LIEU OF LIME STABILIZATION, 1" ADDITIONAL CONCRETE MAY BE USED WITH A MINIMUM OF 8" OF FLEXIBLE BASE COARSE PER GEOTECHNICAL RECOMMENDATION.
4. ALL TIEBARS FOR LONGITUDINAL CONSTRUCTION JOINTS SHALL BE MACHINE DRILLED. NO HAND DRILLING ALLOWED.
5. IF MEDIAN WIDTH < 6', CONSTRUCT REINFORCED CONCRETE CAP (MINIMUM 4-INCH THICKNESS).
6. ALL SAWCUTS TO BE FULL DEPTH AND EITHER PERPENDICULAR AND/OR PARALLEL WITH STREET CENTERLINE. NO ANGLED OR CURVED SAWCUTS ALLOWED.
7. WHEN SAWCUT EXCEEDS HALF OF CONSTRUCTION JOINT PANEL WIDTH, FULL PANEL REMOVAL AND REPLACEMENT SHALL BE REQUIRED.
8. TYPICAL R1/R2 VALUES:
   150" TYP. FOR SINGLE TURN LANE
   250" TYP. FOR DUAL TURN LANE
9. MUST MATCH JOINTS OF ADJACENT TRAFFIC LANES

* REFER TO CONSTRUCTION DRAWINGS FOR STORAGE, TRANSITION AND RADIi DIMENSIONS.
NOTES:
1. ALL DIMENSIONS ARE TO BACK OF CURB UNLESS OTHERWISE NOTED.
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NOTES:
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2. NO CONCRETE REPLACEMENT WIDTH SHALL BE LESS THAN 18”.
3. PAVEMENT SECTION SHALL MATCH THAT OF EXISTING STREET. IN LIEU OF LIME STABILIZATION, 1” ADDITIONAL CONCRETE MAY BE USED WITH A MINIMUM OF 8” OF FLEXIBLE BASE COARSE PER GEOTECHNICAL RECOMMENDATION.
4. ALL DOWELS FOR LONGITUDINAL BUTT JOINTS SHALL BE MACHINE DRILLED. NO HAND DRILLING ALLOWED.
5. ALL SAWCUTS TO BE FULL DEPTH AND EITHER PERPENDICULAR AND/OR PARALLEL WITH STREET CENTERLINE. NO ANGLED OR CURVED SAWCUTS ALLOWED.
6. WHEN SAWCUT EXCEEDS HALF OF CONSTRUCTION JOINT PANEL WIDTH, FULL PANEL REMOVAL AND REPLACEMENT SHALL BE REQUIRED.
7. REFER TO CONSTRUCTION DRAWINGS FOR GRADING OF TURN LANE. CONTRACTOR TO ENSURE ALL AREAS OF TURN LANE DRAIN PROPERLY WITH NO PONDING OF WATER.
8. TYPICAL R1/R2 VALUES:
   150’ TYP. FOR SINGLE TURN LANE
   250’ TYP. FOR DUAL TURN LANE
9. MUST MATCH JOINTS OF ADJACENT TRAFFIC LANES.

* REFER TO CONSTRUCTION DRAWINGS FOR STORAGE, TRANSITION AND RADII DIMENSIONS.
FIRE LANE SECTION
(LOCATED OUTSIDE OF PARKING AREA)

* THICKNESS AND REINFORCING TO BE SPECIFIED BY DESIGN ENGINEER AND BASED ON GEOTECHNICAL EVALUATION. MIN. ALLOWABLE SECTION SHALL BE 6" THICK, #4 BARS AT 18" C.E.W. ON 6" LIME STABILIZED SUBGRADE. SEE NOTE 4

NOTES:
1. MINIMUM UNOBSERVED FIRE LANE WIDTH SHALL BE NOT LESS THAN 24 FEET.
2. MINIMUM UNOBSERVED VERTICAL CLEARANCE SHALL BE NOT LESS THAN 14 FEET.
3. FIRE LANE PAVEMENT SHALL BE CONSTRUCTED TO MEET CITY OF MCKINNEY STANDARDS.
4. SUBGRADE SHALL BE LIME STABILIZED AND COMPACTED TO 95% STANDARD PROCTOR DENSITY. PLASTICITY INDEX SHALL NOT EXCEED 12. AS AN ALTERNATIVE TO LIME STABILIZATION, CONCRETE THICKNESS MAY BE INCREASED BY 1" WITH A MINIMUM OF 6" CRUSH STONE BASE COURSE PER TXDOT ITEM 247 AND GEOTECHNICAL RECOMMENDATION.
5. MINIMUM SLOPE IN ALL DIRECTIONS SHALL NOT BE LESS THAN 0.5%. MAXIMUM CROSS SLOPE, AND SHALL NOT EXCEED 3%. MAXIMUM LONGITUDINAL SLOPE SHALL NOT EXCEED 6%.
6. ASPHALT FIRE LANES SHALL NOT BE USED UNLESS APPROVED BY THE DIRECTOR OF ENGINEERING. IF APPROVED, MIN. DESIGN SHALL BE 2" TYPE D HMAC SURFACE COURSE OVER 6" ASPHALT STABILIZED BASE COURSE PER TXDOT ITEM 292. SUBGRADE REQUIREMENTS REMAIN PER NOTE 4.
7. PRIVATE PARKING THICKNESS SHALL BE AS SPECIFIED IN THE PLANS BY THE DESIGN ENGINEER.

FIRE LANE PAVEMENT
CITY OF MCKINNEY, TEXAS
DATE: DECEMBER 2018
STANDARD DRAWING NO. 2510M
CONCRETE PAVING REQUIREMENTS

1. CONCRETE MIX DESIGN SHALL BE SUBMITTED TO CITY FOR APPROVAL ONE WEEK PRIOR TO PLACING CONCRETE. CONCRETE MIX DESIGN MUST BE SEALED BY A LICENSED ENGINEER WITH AN ORIGINAL SIGNATURE AND DATE. MIN. COMPRESSIVE STRENGTH IS 4000*PSI AT 28 DAYS. FLY ASH REPLACEMENT IS 20% MAX BY UNIT WEIGHT. MULTIPLE DESIGNS REQUIRED FOR MACHINE POURS, HAND POURS AND STRUCTURAL POURS. TEMPERATURES OF ALL CONCRETE SHALL NOT EXCEED 95 DEGREES F. ALL CONCRETE EXCEEDING THIS WILL BE REJECTED FROM THE PROJECT COMPLETELY.

2. SUBGRADE:
   OPTION 1: LIME STABILIZATION
   OPTION 2 WITH PRIOR APPROVAL OF THE ENGINEERING DEPARTMENT: FIRE LANE SHALL BE 6 INCHES THICK, BUT MAY INCREASE BY ONE (1) INCH AND A MINIMUM OF 6 INCHES FLEXIBLE BASE COURSE IN LIEU OF TREATING THE SUBGRADE WITH LIME OR CEMENT PER GEOTECHNICAL RECOMMENDATION.

3. FORMING OF PAVEMENT:
   - SLIP FORM — REQUIRED
   - HAND POUR — AT INTERSECTIONS AND OTHER MISC. AREAS

4. DENSITY REPORT PRIOR TO PAVING RECEIVED. DENSITIES ARE ONLY GOOD FOR 72 HOURS. DENSITIES RECEIVED ON A FRIDAY ARE ONLY GOOD UP UNTIL NOON ON THE FOLLOWING MONDAY. DENSITIES TAKEN BEFORE INCLEMENT WEATHER MAY BE REQUIRED TO BE RETAKEN AT THE INSPECTOR’S DISCRETION.

5. TEST CYLINDER: MINIMUM 4 NEEDED FOR BREAKS AT 7, 14, & 28 DAYS (4000 PSI, 28 DAYS)

6. ALL DRIVE APPROACHES, SIDEWALKS WITHIN CITY RIGHT-OF-WAY, AND BARRIER FREE RAMPS MUST BE BUILT TO CITY OF MCKINNEY AND ADA/TAS STANDARDS.

7. MANHOLES FRAME AND COVERS SHALL BE RAISED TO GRADE PRIOR TO PLACEMENT OF CONCRETE.

8. ALL VALVES SHALL BE OPERABLE BEFORE SUBGRADE PREPARATION AND PAVING OPERATION BEGIN.

9. REBAR:
   a) SHALL BE A MIN. OF #4 REBAR, PLACE 18 INCHES OCEW, WITH
   b) MINIMUM COVER IS 2 INCHES, AND THE MAXIMUM LATERAL COVER IS 3 INCHES,
   c) SHALL BE TIED AT EACH JOINT, WITH CHAIRS PLACED AT EVERY OTHER JOINT, EACH BAR, EACH DIRECTION.
   d) MUST BE FREE OF ANY RUST OR DEBRIS PRIOR TO PLACEMENT OF CONCRETE.
   e) NO VEHICLES ON REBAR (E.G. TAILGATING).

10. WOOD STAKES — NO WOOD STAKES INSIDE OF FORMS

11. EXPANSION JOINTS:
   a) EXPANSION DOWELS BARS SHALL BE SMOOTH, LEVEL, AND PERPENDICULAR TO THE JOINT, ADEQUATELY SUPPORTED TO RETAIN PROPER ALIGNMENT; AND WITH ONE SIDE GREASED AND THE END PROTECTED WITH A PROPERLY LOCATED EXPANSION CAP.
   b) REDWOOD JOINTS MUST BE FULL DEPTH OF THE SLAB, RESTING ON GRADE.

12. EXPANSION JOINTS FOLLOW THE STREET STANDARDS SUCH AS EVERY 400 FEET, PC AND PT.
CLASS "B"
N.T.S.

NOTES:

1. $B_c$ = OUTSIDE DIAMETER OF PIPE

2. $B_d$ = TRENCH WIDTH

3. IN–PLACE DENSITY/MOISTURE CONTENT SHALL BE TESTED AND VERIFIED AS SPECIFIED BY THE CITY, OR AT AN AVERAGE FREQUENCY OF ONCE PER 300 LINEAR FEET PER ONE FOOT OF DEPTH.
NOTES:
1. CRUSHED STONE STANDARD GRADATION SHALL MEET AGGREGATE GRADE NO. 4 GRADATIONS. REFER TO TABLE BELOW.

<table>
<thead>
<tr>
<th>STANDARD CRUSHED STONE GRADATION — AGGREGATE GRADE 4</th>
<th>PERCENT BY WEIGHT</th>
</tr>
</thead>
<tbody>
<tr>
<td>RETAINED ON 1-1/2 IN. SIEVE</td>
<td>0%</td>
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<tr>
<td>RETAINED ON 1 IN. SIEVE</td>
<td>0 TO 5%</td>
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<tr>
<td>RETAINED ON 1/2 IN. SIEVE</td>
<td>40 TO 75%</td>
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<tr>
<td>RETAINED ON NO. 4 SIEVE</td>
<td>90 TO 100%</td>
</tr>
<tr>
<td>RETAINED ON NO. 8 SIEVE</td>
<td>95 TO 100%</td>
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</table>

2. DUCTILE IRON PIPE WITH POLYWRAP SHALL USE AGGREGATE GRADE NO. 8 GRADATIONS. REFER TO TABLE BELOW.

<table>
<thead>
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<th>FINE CRUSHED STONE—AGGREGATE GRADE 8</th>
<th>PERCENT BY WEIGHT</th>
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<tbody>
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<td>RETAINED ON 3/4-IN. SIEVE</td>
<td>0%</td>
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<tr>
<td>RETAINED ON 3/8-IN. SIEVE</td>
<td>0 TO 5%</td>
</tr>
<tr>
<td>RETAINED ON NO. 4 SIEVE</td>
<td>35 TO 60%</td>
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<tr>
<td>RETAINED ON NO. 8 SIEVE</td>
<td>60 TO 100%</td>
</tr>
</tbody>
</table>

3. NON–METALLIC DETECTOR TAPE SHALL BE USED FOR DUCTILE IRON PIPE AND METALLIC DETECTOR TAPE SHALL BE USED FOR HDPE AND PVC PIPE.

4. DETECTOR TAPE FOR WATER LINES SHALL BE BLUE AND LABELED "CAUTION BURIED WATER LINE BELOW".

5. DETECTOR TAPE FOR SANITARY SEWER LINES SHALL BE GREEN AND LABELED "CAUTION BURIED SEWER LINE BELOW".

5. IN–PLACE DENSITY/MOISTURE CONTENT SHALL BE TESTED AND VERIFIED AS SPECIFIED BY THE CITY, OR AT AN AVERAGE FREQUENCY OF ONCE PER 300 LINEAR FEET PER ONE FOOT OF DEPTH.
GENERAL NOTES:

1. CLAY CUT-OFF WALLS SHALL BE CONSTRUCTED AT APPROXIMATELY 250 FOOT INTERVALS ALONG ALL WASTEWATER MAIN INSTALLATIONS BETWEEN MANHOLES.

2. THE CLAY CUT-OFF WALL SHALL BE PLACED AT THE MID POINT OF THE LENGTH OF THE PIPE BEING PLACED, BUT NOT AT A LOCATION WHERE A LATERAL OR SERVICE CONNECTS TO THE MAIN. THE MINIMUM CLEARANCE IS 10 FEET.

3. MATERIAL FOR CLAY CUT-OFF WALL TO BE CLEAN MATERIAL WITH NO LUMPS LARGER THAN 3". CLAY TO HAVE P.I. OF 30 TO 40. MATERIAL TO BE PLACED IN 6" LIFTS, MOISTENED TO OPTIMUM MOISTURE CONTENT AND COMPACTED WITH HAND HELD MECHANICAL TAMPER, WITHOUT DAMAGING THE PIPE.

SECTION VIEW

TRENCH DAM = TRENCH WIDTH + 12" (6" EA. SIDE)

DATE: DECEMBER 2018

STANDARD DRAWING NO. 3061M

CITY OF MCKINNEY, TEXAS
NOTES:
1) PREFABRICATED PLASTIC SPACERS SHALL BE RACI NORTH AMERICA OR APPROVED EQUAL. FOR THE SPECIFIC APPLICATION AS RECOMMENDED BY THE MANUFACTURER.
2) CONTRACTOR SHALL PROVIDE SUPPORT UNDER CARRIER PIPE TO HAVE MIN. 1" CLEARANCE BETWEEN PIPE BELL AND ENCASEMENT PIPE.
3) ENDS OF ENCASEMENT PIPE SHALL HAVE END SEALS INSTALLED PER MANUFACTURER’S REQUIREMENTS. END SEALS SHALL BE CCI MODEL ESW WRAP-AROUND BY CCI PIPELINE SYSTEMS OR APPROVED EQUAL.
4) CONTRACTOR SHALL ONLY DRY BORE WITHIN THE ROW
5) STEEL ENCASEMENT PIPE SHALL CONFORM TO AWWA C-200. THE PIPE SHALL BE FABRICATED IN ACCORDANCE WITH ASTM A-570 FROM STEEL PLATES HAVING MINIMUM YIELD STRENGTH OF 36,000 PSI. ENCASEMENT PIPE SHALL HAVE A MINIMUM OF 3/4" WALL THICKNESS.
6) STEEL ENCASEMENT PIPE SHALL BE PAINTED INSIDE AND OUTSIDE WITH TWO COATS OF TNEMEC, HB TNEMECOL, SERIES 46-465 COAL TAR, OR CITY APPROVED EQUIVALENT PRIOR TO DELIVERY TO THE JOB SITE. MINIMUM COATING INSIDE AND OUTSIDE SHALL BE 12-MILS DRY FILM THICKNESS (DFT) PER EACH COAT.
7) ENCASEMENT PIPE SHALL BE FIELD WELDED IN ACCORDANCE WITH AWWA C-206. WELDED JOINTS SHALL BE WIRE BRUSHED AND PAINTED WITH ONE COAT OF TNEMEC, OMNITHANE SERIES 530, 2.5-MILS DRY FILM THICKNESS (DFT) OR CITY APPROVED EQUIVALENT. REFER TO NOTE 5. FOR COATING AFTER PRIMING.
PLAN
N.T.S.

SECTION X–X
N.T.S.

REFER TO
STD. DWG. No. 4040M
FOR GENERAL NOTES.

HORIZONTAL THRUST BLOCK
AT PIPE BEND

CITY OF McKinney, Texas
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<th>T (IN.)</th>
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<th>(\Delta = 22.5^\circ) C (FT.)</th>
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### TABLES OF DIMENSIONS AND QUANTITIES

**HORIZONTAL THRUST BLOCK AT PIPE BEND**

**CITY OF McKinney, Texas**

**DATE: December 2018**

**STANDARD DRAWING NO.**

**4010M**
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<tr>
<td></td>
<td>A (FT.)</td>
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<td>VOL. (C.Y.)</td>
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<tr>
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**TABLES OF DIMENSIONS AND QUANTITIES**

HORIZONTAL THRUST BLOCK AT PIPE BEND

CITY OF MckINNEY, TEXAS

DATE: DECEMBER 2018

STANDARD DRAWING NO. 4010M

Mckinney, Texas

Unique by nature.
### Plan of Plug Thrust Block

### Plan of Tee Thrust Block

#### Earth

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**Refer to STD. DWG. No. 4040M for General Notes.**

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**Horizontal Thrust Block**

**At Tees and Plugs**

**CITY OF McKinney, Texas**

**DATE: December 2018**

**Standard Drawing No.: 4020M**
VERTICAL THRUST BLOCK AT PIPE BEND

CITY OF McKinney, TEXAS

DATE: DECEMBER 2018
STANDARD DRAWING NO. 4030M

REFER TO STD. DWG. No. 4040M FOR GENERAL NOTES.

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GENERAL NOTES FOR ALL THRUST BLOCKS:

1. CONCRETE FOR BLOCKING SHALL BE 2000 PSI MINIMUM.

2. ALL CALCULATIONS ARE BASED ON INTERNAL PRESSURE OF 200 PSI FOR DUCTILE IRON, P.V.C., AND 150 PSI FOR CONCRETE PIPE.

3. VOLUMES OF THRUST BLOCKS ARE NET VOLUMES OF CONCRETE TO BE FURNISHED. THE CORRESPONDING WEIGHT OF THE CONCRETE (CLASS "B") IS EQUAL TO OR GREATER THAN THE VERTICAL COMPONENT OF THE THRUST ON THE VERTICAL BEND.

4. WALL THICKNESS (T) ASSUMED HERE FOR ESTIMATING PURPOSES ONLY.

5. POUR CONCRETE FOR BLOCK AGAINST UNDISTURBED EARTH.

6. DIMENSIONS MAY BE VARIED AS REQUIRED BY FIELD CONDITIONS WHERE AND AS DIRECTED BY THE ENGINEER. THE VOLUME OF CONCRETE BLOCKING SHALL NOT BE LESS THAN SHOWN HERE.

7. THE SOIL BEARING PRESSURES ARE BASED ON 1000 LBS./S.F. IN SOIL AND 2000 LBS./S.F. IN ROCK.

8. USE POLYETHYLENE WRAP OR EQUAL BETWEEN CONCRETE AND BEND, TEE, OR PLUG TO PREVENT THE CONCRETE FROM STICKING TO IT.

9. CONCRETE SHALL NOT EXTEND BEYOND JOINTS.

10. IN ADDITION TO THRUST BLOCKING, ALL FITTINGS MUST BE RESTRAINED.

11. DESIGN ENGINEER OF RECORD SHALL VERIFY DESIGN OF THRUST BLOCKS USING PROJECT SITE SPECIFIC CONDITIONS, AND INCORPORATE ANY NECESSARY IMPROVEMENTS.
NOTES:
1. IN UNEPAVED AREAS, INSTALL 2’ X 2’ 4” CONCRETE VALVE PAD FLUSH WITH THE TOP OF VALVE BOX AT GRADE. REINFORCE WITH #3 BARS ON 6” CENTERS BOTH WAYS. 2” MINIMUM COVER ON REBAR.


3. NRS RESILIENT-SEATED GATE VALVES SHALL CONFORM TO AWWA C509 OR AWWA C515. RUBBER-SEATED BUTTERFLY VALVES SHALL CONFORM TO AWWA C504. ALL VALVES SHALL HAVE A 2” SQUARE OPERATING NUT AND OPEN TO THE LEFT. ALL VALVES SHALL BE MUELLER, CLOW OR AMERICAN FLOW CONTROL.

4. PROPERLY BACKFILL AROUND VALVE STACK TO MAINTAIN STRAIGHT ALIGNMENT TO VALVE OPERATING NUT.

5. IF WATER VALVE IS DEEPER THAN 20 FEET, THEN USE ONE FULL SECTION OF WATER PIPE STARTING AT OPERATING, NUT WITH BELL & SPIGOT JOINT NEAR THE TOP OF VALVE BOX TO COMPLETE THE VALVE ASSEMBLY.

GATE VALVE BOX AND EXTENSION SYSTEM
N.T.S.
NOTE:
COMPOSITE MANHOLE FRAME AND COVER ASSEMBLY, 32" O.D. AS MANUFACTURED BY TRUMBULL MANUFACTURING OR EQUAL.
GALVANIZED STEEL THREADED PIPE SUPPORT STANCHION, SIZE PER MFR'S RECOMMENDATION TO FIT VALVE BONNET EXTENSION O.D.

GALVANIZED STANCHION SUPPORT BASE W/ADJUSTABLE THREADED BUSHING, AND GALVANIZED STEEL BASE PLATE

3/4" LEVELING GROUT

4" HIGH CONCRETE BASE, LENGTH AND WIDTH SHALL BE 3" LARGER EACH SIDE THAN STANCHION BASE PLATE

3/4" S.S. EXPANSION ANCHOR BOLTS MIN. 4" EMBEDMENT (OR USE EPOXY DOWELS AND TIE TO #5 BARS, TYP. OF 4)

4 - #5 BARS, 2 EACH WAY

BFV SUPPORT & ACTUATOR MANHOLE STANDARD DETAIL—VALVE ACTUATOR SUPPORT

N.T.S.
PIPE WRAPPER CENTERED ON SUPPORT, THICKNESS = 8".

STEEL PIPE OR BAR WRAPPED PIPE

#5 BARS @ 10" O.C. EACH FACE, TYP.

1' - 4" TYP.

12" 12"

2" CLR. TYP.

2' - 0"

+ 1/2 PIPE O.D.

2" CLR. TYP

12"

3" CLR. TYP

1' - 6" TYP.

#4 TIE BARS @ 12" O.C. EACH FACE, EACH WAY TYP.

BFV ACTUATOR MANHOLE & SADDLE SUPPORT DETAIL - SECTION

N.T.S.

1/4" HDPE PAD BETWEEN PIPE AND SADDLE

6" 6"

PIPE O.D.

2" CLR. TYP

#5 BARS @ 10" O.C. EACH FACE, TYP.

1/2 PIPE O.D.

12"

2' - 0"

12"

12"

#4 BARS @ 12" O.C. EACH FACE, EACH WAY, TYP.

#5 BARS EACH FACE, TYP.

#4 TIE BARS @ 12" O.C. EACH FACE, EACH WAY TYP.

BFV ACTUATOR MANHOLE & SADDLE SUPPORT DETAIL - SECTION

N.T.S.

16" THRU 20"

HORIZONTAL BUTTERFLY VALVES

CITY OF MckINNEY, TEXAS

DATE: DECEMBER 2018

STANDARD DRAWING NO.

4061M
FILL ANNULAR SPACE W/NON-SHRINK NON-METALLIC GROUT

LINK SEAL OR APPROVED EQUAL

VALVE ACTUATOR BONNET EXTENSION

CIRCULAR HOLE IN PRECAST MANHOLE SECTION AS REQUIRED TO PASS OPERATOR BONNET EXTENSION. COORDINATE WITH VALVE MANUFACTURER.

MANHOLE WALL PENETRATION DETAIL
N.T.S.

VALVE ACTUATOR SUPPORT BASE, SEE DETAIL 6, SHEET 2 OF 2

3000 PSI(MIN) CONCRETE FILL, SLOPED 2% TO FLOOR SUMP

18"x18"x12" DEEP FLOOR SUMP

ACTUATOR MANHOLE, SHALL BE PRECAST IN ACCORDANCE WITH ASTM C-478

STANDARD COMPOSITE MANHOLE FRAME AND COVER

RFV SUPPORT & ACTUATOR MANHOLE STANDARD DETAIL—MANHOLE INTERIOR PLAN
N.T.S.
SPECIFICATIONS:
BASS & HAYS OR APPROVED EQUAL MANHOLE RING BH 400–24, 225 LBS, BASS & HAYS BH 380–24 ML OR APPROVED EQUAL COVER; 140 LBS; LOCKING COVER; 15 LBS: UNIT=415 LBS.
TRAFFIC RATED 2"
DOMESTIC WATER BLOW-OFF BOX

CITY OF McKinney, Texas

DATE: DECEMBER 2018
STANDARD DRAWING NO. 4067M

SPECIFICATIONS:
BASS & HAYS OR APPROVED EQUAL MANHOLE RING BH 400-24, 225 LBS; BASS & HAYS BH 400-24 OR APPROVED EQUAL COVER, 140 LBS: UNIT=415 LBS
2" DOMESTIC WATER BLOW-OFF HYDRANT

NOTES:
2" VALVE NOT NEEDED IF AN EXISTING VALVE IS LOCATED ON THE WATER MAIN FOR A STUBOUT.
2" SEAMLESS 250 PSI BLUE-COLORED POLYETHYLENE ASTM D2737, DR9, CTS WATER SERVICE PIPE

2" BRASS CURB STOP (AWWA TAPER THREAD)

8" BLIND FLANGE DRILLED AND TAPPED FOR SIZE DESIGNATED ON PLANS

WATER MAIN

PRECAST GRADE RINGS IRON TO IRON COUPLING

4" DIA. PRECAST CONC. M.H. CONE

2" DUCTILE IRON COUPLING 90° BEND

4" DUCTILE IRON AIR VENT PIPE

COMBINATION AIR VACUUM VALVE VENT-O-MAT, APCE VALVE SERIES 1800 OR APPROVED EQUAL FINE CRUSHED ROCK

8" BLIND FLANGE DRILLED AND TAPPED FOR SIZE DESIGNATED ON PLANS

NOTE:
WHEN NOT IN PAVING OR WALK, A CONCRETE PAD, REINFORCED W/#3 BARS AT 12" C-C EACH WAY, SHALL EXTEND A MINIMUM OF 2" AROUND THE M.H. AND VENT PIPE, AND SHALL BE A MINIMUM OF 4" THICK. PROTECTION OF AIR VENT WITH BOLLARDS SHALL BE SITE SPECIFIC AS DETERMINED BY THE ENGINEER OF RECORD.

TYPE "1" AIR VALVE
N.T.S.

STANDARD DRAWING NO. 4090M

DATE: DECEMBER 2018

CITY OF McKinney, Texas
NOTE:
WHEN NOT IN PAVING OR WALK, A CONCRETE PAD REINFORCED
W/#3 BARS AT 12" C-C EACH WAY, SHALL EXTEND A MINIMUM OF
2' AROUND THE M.H. AND VENT PIPE, AND SHALL BE A MINIMUM
OF 4" THICK. PROTECTION OF AIR VENT WITH BOLLARDS SHALL BE
SITE SPECIFIC AS DETERMINED BY THE ENGINEER OF RECORD.

NOTE:
ON 4" AND LARGER TWO PIECE COMBINATION
AIR VALVES, THE OUTLET PIPING OF THE
SMALL VALVE SHALL BE VENTED INTO THE
SIDE OF THE LARGER VENT PIPE THAT GOES
ABOVE GROUND.

TYPE "2" AIR VALVE
N.T.S.

AIR RELEASE VALVE

COMBINATION AIR VACUUM VALVE
TYPE "2" (PAVEMENT)

CITY OF McKinney, Texas
DUCTILE IRON PIPE

VENT OPENING HEIGHT IS MIN. 6”
ABOVE FLOOD PLAIN ELEVATION OR
7’-0” ABOVE FINAL GRADE,
WHICHEVER IS GREATER

S.S. IN SECT
SCREEN SECURED
OVER OPENING.

AIR VENT
N.T.S.

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PLAN VIEW
N.T.S.

CRUSHED ROCK POCKET

4” P.V.C. DRAIN PIPE

M.H.

MIN. 6’ - 6” PIKE

SECTION

MIN.

2'-0”

1'-0”

1'-0”

COMBINATION AIR VACUUM VALVE
TYPE "2"

CITY OF McKinney, Texas

DATE: DECEMBER 2018
STANDARD DRAWING NO. 4100M
TYPE B MANHOLE NOTES:

1. PLACE 2000 P.S.I. GROUT AROUND VALVE BOX ABOVE MANHOLE. EXTEND GROUT A MINIMUM OF 6 INCHES ALL AROUND.

2. VALVE BOX SHALL BE CUT OFF AT INSIDE FACE OF PRECAST MANHOLE.

3. THE VALVE EXTENSION SHALL BE POSITIONED WHERE IT CAN BE OPERATED ABOVE GROUND. VALVE EXTENSION SHALL BE POSITIONED TO WITHIN 4 INCHES OF MANHOLE TOP. PROVIDE CORE HOLE THROUGH THE TOP OF MANHOLE AND PROVIDE COVER FOR OPENING. SEAL PENETRATION IN MANHOLE FOR VALVE BOX UTILIZING RAM NECK, SYNCHOFLEX AND NON-SHRINK GROUT.

4. ROOF VENT SIZE SHALL MATCH VALVE SIZE (4" OR 6" I.D.) AND SHALL BE D.I.P. OR GALV. STEEL PIPE AND SHALL BE SECURED TO MANHOLE WALLS USING GALVANIZED STEEL 2" x 1/4" PIPE STRAPS AND 5/8" DIA. x 4" OR 6" LONG S.S. ANCHOR BOLTS. EXTERIOR VENT OPENING SHALL HAVE S.S. INSECT SCREEN SECURED OVER VENT PIPE OPENING.

5. ALL AIR/VACUUM VALVES & BUTTERFLY VALVES SHALL INCLUDE CORROSION PROTECTION TEST STATIONS.

6. AIR VENT PIPING SHALL BE CONNECTED TO AIR/VACUUM VALVE WITH FLANGE CONNECTION.

7. CATHODIC PROTECTION PER DESIGN.

AIR & VACUUM RELEASE VALVE WITH MANHOLE

NO SCALE

VENT PIPE CLAMP

NO SCALE

COMBINATION AIR/VACUUM VALVE

NO SCALE

COMBINATION AIR/VACUUM VALVE (REFER TO PLANS FOR SIZE)

FLAG CATE VALVE W/BEVEL GEARING

FLG. OUTLET (SAME SIZE AS VALVE)

20" FLG. OUTLET

NOTE: COMBINATION AIR AND VACUUM—AIR RELEASE VALVE SERIES 1800 VENT—O—MAT OR APPROVED EQUAL.

DATE: DECEMBER 2018

STANDARD DRAWING NO. 4100M
NOTES:

1. FIRE HYDRANTS SHALL BE THREE WAY BREAKAWAY TYPE NO LESS THAN 5-1/4 INCHES IN SIZE AND MUST CONFORM TO AWWA SPECIFICATIONS C-502. THEY SHALL BE MUELLER "SUPER CENTURION", AMERICAN FLOW CONTROL "WATEROUS PACER", WITH ALL BRONZE TO BRONZE MOVING PARTS.

2. ALL JOINTS SHALL BE RESTRAINED.

3. TYPICAL VALVE: ACTUAL VALVE LOCATION WILL DEPEND ON LOCATION OF WATER MAIN.

4. REFER TO STANDARD DETAIL 4120M FOR ADDITIONAL LAYOUT INFORMATION.

5. TWO 2-1/2 INCH NST HOSE CONNECTIONS ARE REQUIRED.

6. THE 4 INCH DIAMETER STEAMER CONNECTION SHALL BE 4.800 PITCH WITH 4 THREADS PER INCH.

7. THE OPERATING NUT SHALL BE 1-3/4 INCH P TO F PENTAGON NUT, OPEN LEFT.

8. THE STEAMER NOZZLE SHALL FACE THE FIRE LANE, ADJACENT ROADWAY OR AS DIRECTED BY THE FIRE DEPARTMENT.

9. ALL BOLTS SHALL BE THE SAME SIZE.

10. 45° BENDS MAY BE USED TO ACCOMMODATE SITE CONDITIONS FOR FIRE HYDRANT LEADS.

11. ONLY ONE BARREL EXTENSION (6", 12", 18", OR 24") CAN BE USED ON EACH FIRE HYDRANT. THE BREAKAWAY COUPLER ON THE STEM NEEDS TO LINE UP WITH THE BREAKAWAY LOCATION ON THE BARREL.

12. ALL FIRE HYDRANTS ARE TO BE PAINTED WITH TWO COATS OF DIFFUSED ALUMINUM, SILVER PAINT. THE TOP BONNET INCLUDING THE LIP AND ALL NOZZLE CAPS SHALL BE PAINTED THE APPROPRIATE COLOR BASED ON THE WATER MAIN SIZE AS FOLLOWS: FOR 8 INCH AND LARGER WATER MAINS THE COLOR SHALL BE TNMEC SERIES 2H HI-BUILD TNMEC-GLOSS, TRUE BLUE SAFETY.

13. PRIMER AND FINAL PAINT COLORS SHALL BE FACTORY APPLIED PRIOR TO SHIPPING TO JOB SITE.
NOTES:

1. FIRE HYDRANTS SHALL BE PLACED 3 TO 6 FEET FROM BACK OF CURB UNLESS OTHERWISE INDICATED ON THE PLANS, OR AS REQUIRED TO CLEAR SIDEWALKS. FIRE HYDRANTS SHALL NOT BE LOCATED WITHIN A SIDEWALK.

2. A BLUE STIMSONITE, FIRE–LITE REFLECTOR (OR APPROVED EQUAL) SHALL BE PLACED IN THE CENTER OF THE STREET OPPOSITE EACH FIRE HYDRANT.

3. THE FIRE HYDRANT SHALL BE PAINTED WITH TWO COATS OF TNEMEC SERIES 530 OMNITHANE PAINT OR APPROVED EQUAL, AND TWO COATS OF PRIMER.
METER BOX TABLE

<table>
<thead>
<tr>
<th>1&quot; WATER SERVICE</th>
<th>2&quot; WATER SERVICES</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFW1818TEX--EJ--1SAF MCK--BODY</td>
<td>DFW2818--DR--1SAF MCK--BODY</td>
</tr>
<tr>
<td>DFW--18G--EJ -- RING</td>
<td>DFW--18G--EJ -- LID</td>
</tr>
<tr>
<td>DFW18--1SAF MCK--LID</td>
<td>DFW20--1SAF LARGE MCK--LID</td>
</tr>
</tbody>
</table>

NOTES:

1. SERVICE PIPE SHALL BE 1" OR 2" SEAMLESS 250 PSI BLUE COLORED POLYETHYLENE ASTM D2737, SDR 9,CTS WATER SERVICE PIPE, NSF61 APPROVED.
2. TOP OF METER BOXES SHALL BE 1" ABOVE FINISHED GRADE.
3. METER BOX SHALL HAVE A MINIMUM OF 6" OF GRAVEL BENEATH METER BOX AS ILLUSTRATED.
4. LOCATION OF THE METER BOX SHALL BE LOCATED TO ALLOW 6" CLEARANCE FROM CURB.

MATERIAL LIST:

A. SERVICE SADDLE SHALL BE BRASS WITH DOUBLE BRONZE FLATTENED STRAPS OR STAINLESS STEEL DOUBLE BOLT WIDE STRAPS. NO BANDED OR HINGED STRAPS SHALL BE ALLOWED. SERVICE SADDLES SHALL MEET AWWA/CC TAPPING OUTLET (TAPERED THREADS) REQUIREMENTS. ALL SERVICE SADDLES SHALL BE; FORD MODELS 202B AND 2025, CAMBRIDGE MODELS SERIES 810 AND 811, A.Y. MCDONALD MODELS 3845 AWWA AND 3825 AWWA. AND MUELLER WATER PRODUCTS, INC. MODELS BR 2 B AND BR 2 S OR APPROVED EQUAL. PVC WATER LINES REQUIRE STRAPS TO BE A MINIMUM OF 2" WIDE.

B. 1" OR 2" CORPORATION STOP: 300 PSI BALL TYPE VALVE, AWWA X B COMPRESSION, NSF61 APPROVED (H--15008N BY MUELLER CO. OR APPROVED EQUAL).

C. 1" OR 2" SERVICE PIPE SHALL BE SEAMLESS 200 PSI BLUE COLORED POLYETHYLENE ASTM D2737, SDR9,CTS WATER SERVICE PIPE, NSF61 APPROVED.

D. 1" OR 2" LOCKING ANGLE METER VALVE: 1" OR 2" FIP INLET, 1" OR 2" SWIVEL COUPLING D NUT OUTLET, 300 PSI BALL TYPE VALVE ONLY, FULL PORT DESIGN ONLY, VALVE PASSAGE AND BALL IS EQUAL SIZE TO SMALLEST END CONNECTION, NON BLOW OUT STEM, UNFILLED TEFLOM SEALS, NSF61 APPROVED (H--14258N BY MUELLER CO. OR APPROVED EQUAL).

E. WATER METERS CENTERED IN BOX AS ILLUSTRATED.

F. PLASTIC ROUND METER BOX (SEE TABLE ABOVE).
NOTES:
1. SERVICE PIPE SHALL BE 2" SEAMLESS 250 PSI BLUE COLORED POLYETHYLENE ASTM D2737, SDR 9, CTS WATER SERVICE PIPE, NSF61 APPROVED.
2. TOP OF METER BOXES SHALL BE 1" ABOVE FINISHED GRADE.
3. METER BOX SHALL HAVE A MINIMUM OF 6" OF GRAVEL BENEATH METER BOX AS ILLUSTRATED.
4. BRANCH CONNECTION AND BOTH ANGLE METER VALVES MUST BE INSTALLED PRIOR TO FIRST METER INSTALLATION EVEN THOUGH THE SECOND PROPERTY MAY NOT BE READY FOR SERVICE.
5. LOCATION OF THE METER BOX SHALL BE LOCATED TO ALLOW 6" CLEARANCE FROM CURB.
MATERIAL LIST:
A. SERVICE SADDLE SHALL BE BRASS WITH DOUBLE BRONZE FLATTENED STRAPS OR STAINLESS STEEL DOUBLE BOLT WIDE STRAPS. NO BANDED OR HINGED STRAPS SHALL BE ALLOWED. SERVICE SADDLES SHALL MEET AWWA/CC TAPPING OUTLET (TAPERED THREADS) REQUIREMENTS. ALL SERVICE SADDLES SHALL BE: FORD MODELS 202B AND 202S, CAMBRIDGE MODELS SERIES 810 AND 811, A.Y. MCDONALD MODELS 3845 AWWA AND 3825 AWWA AND MUELLER WATER PRODUCTS, INC. MODELS BR 2 B AND BR 2 S OR APPROVED EQUAL. PVC WATER LINES REQUIRE STRAPS TO BE A MINIMUM OF 2" WIDE.
B. 2" CORPORATION STOP: 300 PSI BALL TYPE VALVE, AWWA X B COMPRESSION, NSF61 APPROVED (H-1500B8N BY MUELLER CO. OR APPROVED EQUAL).
C. BRANCH CONNECTION: 2" COMPRESSION SERVICE PIPE INLET AND (2) 1" COMPRESSION OUTLETS, SERVICE TEE AS ILLUSTRATED (CAMBRIDGE BRASS PART# 150NL-H74 OR APPROVED EQUAL).
D. 1" LOCKING ANGLE METER VALVE: 1" FIP INLET, 1" SWIVEL COUPLING D NUT OUTLET, 300 PSI BALL TYPE VALVE ONLY, FULL PORT DESIGN ONLY, VALVE PASSAGE AND BALL IS EQUAL SIZE TO SMALLEST END CONNECTION, NON BLOW OUT STEM, UNFILLED TEFLOK SEALS, NSF61 APPROVED (H-14285N BY MUELLER CO. OR APPROVED EQUAL).
E. WATER METERS CENTERED IN BOX AS ILLUSTRATED.
F. PLASTIC ROUND METER BOX (SEE TABLE ABOVE).
1. CONCRETE: MINIMUM DESIGN STRENGTH OF 4500 PSI AT 28 DAYS. UNIT IS OF MONOLITHIC CONSTRUCTION AT FLOOR AND FIRST STAGE OF WALL WITH SECTIONAL RISER TO REQUIRED DEPTH.

2. REINFORCEMENT: GRADE 60 REINFORCED. STEEL BAR CONFORMING TO ASTM A615 ON REQUIRED CENTERS OR EQUAL.

3. HATCHWAY: 1/4” ALUMINUM DIAMOND PLATE COVER WITH EXTRUDED ALUMINUM FRAME. HATCH TO BE FURNISHED WITH 316 STAINLESS STEEL SNAP LOCK & BRASS HINGES. TRAFFIC RATED HATCHWAY WHERE NEEDED.

4. PRECAST VAULT SHALL BE FROM PARK EQUIPMENT COMPANY MATCHING DETAIL SHOWN OR APPROVED OTHER. MINIMUM 6” CLEARANCE REQUIRED FROM INTERIOR WALLS.
NOTES:

1. CONCRETE: MINIMUM DESIGN STRENGTH OF 4500 PSI AT 28 DAYS. UNIT IS OF MONOLITHIC CONSTRUCTION AT FLOOR AND FIRST STAGE OF WALL WITH SECTIONAL RISER TO REQUIRED DEPTH.

2. REINFORCEMENT: GRADE 60 REINFORCED. STEEL BAR CONFORMING TO ASTM A615 ON REQUIRED CENTERS OR EQUAL.

3. HATCHWAY: 1/4" ALUMINUM DIAMOND PLATE COVER WITH EXTRUDED ALUMINUM FRAME. HATCH TO BE FURNISHED WITH 316 STAINLESS STEEL SNAP LOCK & BRASS HINGES.

4. PRECAST VAULT SHALL BE FROM PARK EQUIPMENT COMPANY MATCHING DETAIL SHOWN OR APPROVED OTHER.

5. FDC RISER SHALL BE DETERMINED FROM HYDRAULIC CALCULATION, BUT SHALL BE 4" MIN.. A 6" MIN. SHALL BE USED ON SYSTEM DEMANDS GREATER THAN 750 GPM.

6. MINIMUM 6" CLEARANCE REQUIRED FROM INTERIOR WALLS.
**NOTES:**

1. **CONCRETE:** MINIMUM DESIGN STRENGTH OF 4500 PSI AT 28 DAYS. UNIT IS OF MONOLITHIC CONSTRUCTION AT FLOOR AND FIRST STAGE OF WALL WITH SECTIONAL RISER TO REQUIRED DEPTH. NO CAST-IN-PLACE VAULTS SHALL BE ALLOWED.

2. **REINFORCEMENT:** GRADE 60 REINFORCED. STEEL BAR CONFORMING TO ASTM A615 ON REQUIRED CENTERS OR EQUAL.

3. **3' X 5' GALVANIZED STEEL DOUBLE LEAF SPRING ASSISTED HATCHWAY** – TRAFFIC RATED W/ SLAM LOCK AND SAFETY NET.

4. **ALL VAULTS SHALL BE PRECAST. PRECAST VAULT SHALL BE FROM PARK EQUIPMENT COMPANY MATCHING DETAIL SHOWN OR APPROVED EQUAL. MINIMUM 6' CLEARANCE REQUIRED FROM INTERIOR WALLS.**
3.75" THREE RAIL COMPOSITE PIPELINE MARKER MANUFACTURED BY CARSONITE INTERNATIONAL OR APPROVED EQUAL

TOP OF GROUND

24"

3.75" BLUE MARKER WITH WHITE BLOCK TEXT

SEE DETAIL BELOW

EACH MARKER SHALL INCLUDE A BARB ANCHOR FOR PERMANENT ANCHORING

NOTES:

1. MARKER SHALL BE LOCATED ON BOTH SIDES OF ALL ROADS AND RAILROADS, AND AT ALL MANHOLES.

2. MARKER SHALL ALSO BE PLACED AT ALL HORIZONTAL BENDS.

3. EACH MARKER SHALL HAVE A STICKER PRINTED WITH THE FOLLOWING INFORMATION "CAUTION WATER PIPELINE, BEFORE DIGGING, CONTACT (TEXAS 811)."
NOTES:

1. CLEAN POTABLE-WATER HOSE ONLY. THIS HOSE MUST BE REMOVED DURING THE HYDROSTATIC PRESSURE TEST.

2. APPLIES TO PIPES WITH DIAMETERS 8 IN. THROUGH 12 IN. LARGER SIZES MUST BE HANDLED ON A CASE BY CASE BASIS.
PROVIDE 1" HOPE DR-9 BLUE POLY, OR SCH 40 PVC PIPE WITH COMPRESSION FITTINGS

FLOW

PROVIDE 1" BRASS BALL VALVE WITH SMOOTH TUBE OR 1" HOSE BIB WITH SMOOTH OUTLET

PLAN VIEW

PROVIDE 1" BRASS QUARTER TURN BRASS BALL VALVE

FLOW

3’ 0” USUAL

FINISH GRADE

PROVIDE SUPPORT FOR POLY PIPE WHILE ABOVE GRADE

ELEVATION VIEW

AFTER TESTING IS COMPLETE:
1. CONNECT TO A PERMANENT DOMESTIC SERVICE OR,
2. REMOVE COPPER SAMPLE STEM AND COIL UP POLY PIPE IN CITY APPROVED METER CAN OR,
3. REMOVE "C" AND "D" AND PROVIDE CAP ON CORD STOP.

NOTES:

1. SERVICE PIPE SHALL BE SEAMLESS 250 PSI BLUE COLORED POLYETHYLENE ASTM D2737, SDR 9,CTS WATER SERVICE PIPE, NSF61 APPROVED.

MATERIAL LIST:

A. SERVICE SADDLE SHALL BE BRASS WITH DOUBLE BRONZE FLATTENED STRAPS OR STAINLESS STEEL DOUBLE BOLT WIDE STRAPS. NO BANDED OR HINGED STRAPS SHALL BE ALLOWED. SERVICE SADDLES SHALL MEET AWWA/CC TAPPING OUTLET (TAPERED THREADS) REQUIREMENTS. ALL SERVICE SADDLES SHALL BE; FORD MODELS 202B AND 202S, CAMBRIDGE MODELS SERIES 810 AND 811, A.Y. McDONALD MODELS 3845 AWWA AND 3825 AWWA AND MUELLER WATER PRODUCTS, INC. MODELS BR 2 B AND BR 2 S OR APPROVED EQUAL. PVC WATER LINES REQUIRE STRAPS TO BE A MINIMUM OF 2" WIDE.

B. CORPORATION STOP: 300 PSI BALL TYPE VALVE, AWWA X B COMPRESSION, NSF61 APPROVED (H-1500BM BY MUELLER CO. OR APPROVED EQUAL)

C. SERVICE PIPE SHALL BE SEAMLESS 250 PSI BLUE COLORED POLYETHYLENE ASTM D2737, SDR9,CTS WATER SERVICE PIPE, NSF61 APPROVED.

D. LOCKING ANGLE METER VALVE: FIP INLET, SWIVEL COUPLING D NUT OUTLET, 300 PSI BALL TYPE VALVE ONLY. FULL PORT DESIGN ONLY, VALVE PASSAGE AND VALVE IS EQUAL SIZE TO SMALLEST END CONNECTION, NON BLOW OUT STEM, UNFILLED TEFLOM SEALS, NSF61 APPROVED (H-14258N BY MUELLER CO. OR APPROVED EQUAL).
NOTE:
1. STRAIGHT CLAMP AND TRANSITION CLAMP COUPLINGS SHALL BE POLYWRAPPED.
2. BAND SHALL BE STAINLESS STEEL 18-8 TYPE 304.
3. TRANSITION GASKET MATERIAL (RA-SEAL) PLIABLE BUTYL RUBBER SEALANT FOR TEMPERATURE RANGE –65° TO 180°F.
4. CLAMPS SHALL BE MODEL 108 MANUFACTURED BY JCM INDUSTRIES OR APPROVED EQUAL.
NOTES:

1. FIRST MAIN LINE JOINT TO BE A MIN. OF 5’ LONG.
2. IF FALSE M.H. ARE REQUIRED, THEY SHALL BE CONSTRUCTED, INSTALLED AND REMOVED PER STD. DWG. NO. 5100M.
3. M.H.’S LOCATED OUTSIDE OF PAVING SHALL BE CONSTRUCTED WITH A CONCRETE MOW STRIP PER STD. DWG. NO. 700SM.
4. REFER TO STD. DWG. NO. 5031M FOR INFLOW PROTECTION AT MANHOLE GRADE RINGS, MANHOLE JOINTS AND ON OUTSIDE OF STRUCTURE.
5. CONCRETE SHALL BE 5,000 PSI 28 DAY STRENGTH.
6. REINFORCING SHALL MEET OR EXCEED ASTM C476 REQUIREMENTS.

STUBOUTS TO BE MIN. 5’ LONG SUPPORTED BY EMBEDMENT SPECIFIED IN PLANS. STUBOUTS TO BE GROUTED AT M.H. WITH NON SHRINK GROUT. STUBOUTS SHALL ALSO BE FITTED WITH WATER TIGHT STOPPER OR CAP

FACTORY INSTALLED INVERT WITH PRECAST BASE

BASE RISER WITH “BUTT END” INTEGRATED INTO THE CONC. BASE

MONOLITHICALLY POUR INVERT WITH CONCRETE BASE

SPRING LINE STUBOUTS TO BE FITTED WITH A WATER TIGHT STOPPER OR CAP

STUBOUTS TO BE A MIN. OF 5’ LONG

APPROVED RESILIENT PIPE TO MANHOLE CONNECTOR OR GASKET REQ’D FOR PIPE OTHER THAN CLAY OR CONCRETE

CLASS "H" EMBEDMENT

SUBGRADE COMPACTED TO 95% STANDARD PROCTOR DENSITY

CAST IN PLACE BASE N.T.S.

REFER TO STD. DWG. NO. 5030M

WASTEWATER MANHOLE PRECAST

DATE: DECEMBER 2018

STANDARD DRAWING NO.

5020M

CITY OF MCKINNEY, TEXAS
CONCRETE CONE

\( \frac{1}{2}'' \) NON SHRINK GROUT COATING

STANDARD SANITARY SEWER MANHOLE FRAME & COVER PER CITY OF MCKINNEY STANDARD

REFER TO STD. DETAIL 5031M

4000 PSI CONCRETE MONOLITHIC POUR

SECTION VIEW

N.T.S.

SEC. "A"

UNDISTURBED SUBGRADE COMPACTED TO 95% STANDARD PROCTOR DENSITY

12'' MIN. 5'' MIN.

12'' MIN.

CLASS "H" EMBEDMENT

UNDISTURBED SUBGRADE COMPACTED TO 95% STANDARD PROCTOR DENSITY

FIRST MAIN LINE JOINT TO BE A MIN. OF 5' LONG

APPROVED RESILIENT PIPE-TO-MANHOLE CONNECTOR OR GASKET REQUIRED FOR PIPE

STUBOUT CONNECTION

N.T.S.

\#3'S AT 6'' O.C. E.W.

STANDARD SANITARY SEWER MANHOLE FRAME & COVER PER CITY OF MCKINNEY STANDARD

CONSTRUCTION JOINT WITH KEY WAY WATERSTOP AND \#3'S AT 12'' O.C. EXTENDING 9'' INTO WALL (NOT REQ'D FOR CONTINUOUS POUR)

SECTION A-A

N.T.S.

\#3'S AT 6'' O.C., E.W.

M.H. LID SHOULD BE IN LINE WITH UPSTREAM PIPE WHERE POSSIBLE

ACCESS STEEL LAYOUT

N.T.S.

\#3'S AT 6'' O.C., E.W.

15'' (3'') 30''

6'' MIN.

30''

6'' MIN.

4''-0''

3'' MIN.

5''-0'' & 6''-0''

8'' MIN.

TRANSITION DETAIL FOR 5' & 6'' DIA. M.H.'S

N.T.S.

NOTES:
1. IF FALSE M.H. BOTTOMS ARE REQUIRED THEY SHALL BE CONSTRUCTED, INSTALLED AND REMOVED PER STD. DWG. NO. 5100M
2. M.H.'S LOCATED OUTSIDE OF PAVING SHALL BE CONSTRUCTED WITH A CONCRETE MOW STRIP PER STANDARD DETAIL 7005M
3. REFER TO STD. DWG. NO. 5031M FOR INFLOW PROTECTION AT MANHOLE GRADE RINGS AND ON THE OUTSIDE OF MANHOLE STRUCTURE
4. CAST IN PLACE MANHOLE WILL REQUIRE A P.E. SEALED DESIGN SUBMITTED BY CONTRACTOR, AND APPROVED BY CITY OF MCKINNEY ENGINEER. CAST IN PLACE BASE MUST BE A MINIMUM 12'' THICK WITH \#5 BARS @ 12'' OC-EW (EACH WAY) AND SHALL EXTEND 1' BEYOND MANHOLE.

WASTEWATER MANHOLE CAST-IN-PLACE

DATE: DECEMBER 2018

STANDARD DRAWING NO.

5030M

CITY OF MCKINNEY, TEXAS
STANDARD SANITARY SEWER MANHOLE FRAME & COVER PER CITY OF McKinney STANDARD

THE OUTSIDE OF THE JOINTS AND ADJUSTMENT RINGS NEED TO BE WRAPPED AS NOTED ON THIS DETAIL.

PRECAST ADJUSTING RINGS

2 ROWS BITUMASTIC JOINT SEALANT, EZ-STIK OR APPROVED EQUAL (TYPICAL)

OUTSIDE OF MANHOLE TO BE COATED WITH 62.5 MILS WET FILM THICKNESS (WFT) ERTECH 2100 ASPHALT EMULSION MANUFACTURED BY ERTECH OR APPROVED EQUAL.

MANHOLE JOINTS SHALL BE WRAPPED WITH A HEAT SHRINK THERMO PLASTIC MATERIAL "WRAPIDSEAL" MANUFACTURED BY CANUSA COATING SYSTEMS, "GATOR WRAP" MANUFACTURED BY SEALING SYSTEMS, INC. OR APPROVED EQUAL.

ELEVATION
N.T.S.

NOTE:
1. REQUIRED ON ALL SANITARY SEWER MANHOLES.
APPLY POLYURETHANE COATING MATERIAL (SPRAYROQ) TO ALL EXPOSED CONCRETE AND GROUTED SURFACES. SURFACE PREPARATION AND POLYURETHANE COATING MATERIAL APPLICATION SHALL FOLLOW MANUFACTURERS RECOMMENDATIONS.

NOTE:
1. PRIOR TO THE POLYURETHANE COATING PROCESS, PRESSURE WASH AND CLEAN STRUCTURE. FILL BUG HOLES, JOINTS, HONEYCOMBS AND AROUND PIPE PENETRATIONS WITH A CEMENTITIOUS REPAIR MATERIAL (CRM) AS NEEDED. USE STRONG SEAL MS2C MANUFACTURED BY THE STRONG COMPANY, INC. OR APPROVED EQUAL. THEN APPLY A MINIMUM OF 125 MILS (1/8 INCH) THICKNESS OF A POLYURETHANE COATING MATERIAL (EXISTING MANHOLES REQUIRE A MINIMUM OF 250 MILS THICKNESS OF POLYURETANE COATING MATERIAL). FOR THE POLYURETHANE COATING MATERIAL USE SPRAYWALL MANUFACTURED BY SPRAYROQ, INC. OR APPROVED EQUAL.
2. ADDITIONAL CLEANING, PREPARATION, AND REPAIR METHODS MAY BE REQUIRED FOR EXISTING MANHOLES DEPENDING ON CONDITION ASSESSMENT OF THE MANHOLE. CONTACT ENGINEERING DEPARTMENT FOR ADDITIONAL SPECIFICATIONS.
3. THIS DETAIL APPLIES TO DROP MANHOLES, MANHOLES ON LINES 15 INCH OR GREATER, FIRST MANHOLE UPSTREAM OF CONNECTION TO 15" AND GREATER LINE SIZES, MANHOLES IN FLOODPLAINS, AND FORCE MAIN TRANSITION MANHOLES.
4. SPARK TESTING IS REQUIRED FOR COATINGS. COST FOR TESTING IS SUBSIDIARY TO OTHER BID ITEMS. CITY INSPECTOR TO BE PRESENT FOR SPARK TESTING. CONTRACTOR TO PROVIDE WRITTEN SPARK TEST RESULTS TO CITY.
5. EXISTING BRICK MANHOLES SHALL BE REPLACED.
WET WELLS:
1. MANHOLE JOINTS SHALL BE WRAPPED WITH A HEAT SHRINK THERMO PLASTIC MATERIAL "WRAPIDSEAL" MANUFACTURED BY CANUSA COATING SYSTEMS, "GATOR WRAP" MANUFACTURED BY SEALING SYSTEMS, INC. OR APPROVED EQUAL.

2. THE OUTSIDE OF THE JOINTS AND ADJUSTMENT RINGS NEED TO BE WRAPPED AS NOTED ON THIS DETAIL.

APPLY POLYURETHANE COATING MATERIAL (SPRAYROQ) TO ALL EXPOSED CONCRETE AND GRouted SURFACES. SURFACE PREPARATION AND POLYURETHANE COATING MATERIAL APPLICATION SHALL FOLLOW MANUFACTURERS RECOMMENDATIONS.

ELEVATION
N.T.S.

NOTE:
1. PRIOR TO THE POLYURETHANE COATING PROCESS, PRESSURE WASH AND CLEAN STRUCTURE. FILL BUG HOLES, JOINTS, HONEYCOMBS AND AROUND PIPE PENETRATIONS WITH A CEMENTITIOUS REPAIR MATERIAL (CRM) AS NEEDED. USE STRONG SEAL MS2C MANUFACTURED BY THE STRONG COMPANY, INC. OR APPROVED EQUAL. THEN APPLY A MINIMUM OF 125 MILS (1/16 INCH) THICKNESS OF A POLYURETHANE COATING MATERIAL (EXISTING WET WELLS REQUIRE A MINIMUM OF 250 MILS (1/8") THICKNESS OF POLYURETHANE COATING MATERIAL). FOR THE POLYURETHANE COATING MATERIAL USE SPRAYWALL MANUFACTURED BY SPRAYROQ, INC. OR APPROVED EQUAL.

2. ADDITIONAL CLEANING, PREPARATION, AND REPAIR METHODS MAY BE REQUIRED FOR EXISTING WET WELLS AND LIFT STATIONS DEPENDING ON A CONDITION ASSESSMENT PROVIDED BY THE ENGINEER OF RECORD. CONTACT ENGINEERING DEPARTMENT FOR ADDITIONAL SPECIFICATIONS.

3. THIS DETAIL APPLIES TO ALL WET WELLS AND LIFT STATIONS.

4. SPARK TESTING IS REQUIRED FOR COATINGS. COST FOR TESTING IS SUBSIDIARY TO OTHER BID ITEMS. CITY INSPECTOR TO BE PRESENT FOR SPARK TESTING. CONTRACTOR TO PROVIDE WRITTEN SPARK TEST RESULTS TO CITY.
6" DIA. DIP FLG X FLG
90° BEND

3" MAX.

4" REINFORCED CONCRETE MOW
STRIP. REINFORCE WITH #3 BARS
ON 18" CENTERS EACH WAY.

24" MAXIMUM
ADJUSTMENT

1'-0" MIN.

1'-0" MIN.

20'-0" MAX
SPACING

6" DIA. DI FLANGED X
PLAIN END WALL PIPE

6" DIA. DIP FLANGED
TEE

FILL BOTTOM OF
STANDPIPE WITH GROUT

12" MAX. TO Ø OF VENT
OPENING.

12" MIN.

12"

6" DIA. DIP BLIND FLG
WITH 6" CUT OUT

16 MESH SS
BUG SCREEN

6' ABOVE EX. GROUND OR 2'
ABOVE 100 YR FLOODPLAIN
(WHICHEVER IS GREATER).
THE DESIGN ENGINEER SHALL
PROVIDE HEIGHT OF VENT
OPENING IN PLAN AND
PROFILE SHEET

SET IN MORTAR BED AND
BRING TO GRADE) PRECAST
CONCRETE GRADE RINGS

EPOXY LINED DUCTILE
IRON PIPE

12" TO Ø OF VENT OPENING.

MONOLITHIC CONCRETE SHALL HAVE
A MINIMUM COMPRESSIVE STRENGTH
OF 4000 P.S.I. AT 28 DAYS

SANITARY SEWER MAIN.

2-#3 BENT REBARS

NOTES:
1. REFER TO STANDARD DETAIL 5030M FOR MANHOLE. CONCRETE SHALL BE MONOLITHIC POUR.
2. REFER TO STD. DWG. NO. 5031M FOR INFLOW PROTECTION AT MANHOLE GRADE RINGS, MANHOLE
JOINTS, AND ON OUTSIDE OF STRUCTURE.
NOTES:
1. BOLLARD HEIGHT SHALL EXTEND TO 1 FOOT ABOVE THE OVERALL HEIGHT OF THE VENT PIPE.

4" REINFORCED CONCRETE MOW STRIP.

GROUT PLUG

8" DIA SCHED 40 STEEL PIPE, GRIND SMOOTH, FILL WITH CONC AND PAINT AS SPECIFIED

FOUNDATIONDEPTH SHALL MATCH ABOVE GROUND HEIGHT OF BOLLARD

4,000 PSI CONCRETE ENCASEMENT

1'-6" MIN DIA

3" CLR

1" TOP OF FINISH GRADE

4" MIN

VARIES
INSTALL STANDARD PIPE STRAP AT 3' SPACING PER 5080M(SHEET 3 OF 3) DETAIL, MINIMUM 2 STRAPS PER MANHOLE. APPLY MOISTURE INSENSITIVE ANCHORING ADHESIVE CAPSULE AND H.A.S. ROD ASSEMBLY PER MANUFACTURERS REQUIREMENTS.

NOTE:
1. DROP BOWL, DROP PIPE CHANNEL LINER AND STAINLESS STEEL PIPE CLAMPS AS MANUFACTURED BY RELINER/DURAN INC. OR APPROVED EQUAL.
2. INSIDE DROP CONNECTIONS MAY ONLY BE USED ON NEW MANHOLE.
3. EVALUATE EXISTING MANHOLES TO PROVIDE 4'-0" MINIMUM CLEARANCE BETWEEN DROP BOWL APPARATUS AND INSIDE WALL OF MANHOLE. IF MINIMUM CLEARANCE CANNOT BE ACHIEVED AN OUTSIDE DROP WILL BE ALLOWED.
HVA ADHESIVE CAPSULE ANCHOR

A. DRILL HOLES WITH ANSI B212.1S MATCHED TOLERANCE CARBIDE TIPPED DRILL BITS WITH DRILL IN ROTO-HAMMER MODE OR USE A MATCHED TOLERANCE DIAMOND CORE DRILL BIT OF DIAMETER SPECIFIED BY HILTI.

B. DRILLED HOLE SPECIFICATIONS (DIAMETER & DEPTH) SHALL COMPLY WITH HILTI SPECIFICATION OR ICC ESR 1562.

C. ALLOWABLE LOADS MAY BE INCREASED BY 33-1/3% FOR SHORT-TERM WIND OR SEISMIC LOAD RESISTANCE IAW ICC ESR 1682 UNLESS NOT PERMITTED BY THE APPLICABLE BUILDING CODE.

D. WHEN CONDUCTED, PROOF TEST ANCHORS IN THE FIELD TO 150–200% OF HILTI PUBLISHED ALLOWABLE TENSION LOAD UNLESS NOTED OTHERWISE IN A PROOF TEST LOAD TABLE. TORQUE TESTING IS NOT PERMITTED.

E. ANCHORS SHALL BE TIGHTENED WITH A CALIBRATED TORQUE WRENCH. USE OF AN IMPACT WRENCH IS NOT PERMITTED.

F. CONTACT HILTI TECHNICAL SUPPORT AT 1-800-879-8000 FOR INSTALLATION INSTRUCTIONS IN SUBMERGED WATER CONDITIONS.

G. CONTACT HILTI TECHNICAL SUPPORT AT 1-800-879-8000 FOR ADDITIONAL ASSISTANCE WITH HILTI ADHESIVE ANCHOR INSTALLATIONS.

H. INSTALLATION INSTRUCTIONS:

1. FOR HVA ADHESIVE CAPSULES WITH H.A.S. THREADED RODS:

   1.1. DRILL ANCHOR HOLE WITH A CARBIDE BIT (SEE NOTE 1 ABOVE), TO SPECIFIED EMBEDMENT DEPTH.

   1.2. CLEAN HOLE WITH COMPRESSED AIR OR BLOW OUT PUMP. INSERT NOZZLE TO BOTTOM OF HOLE.

   1.3. IF USING MATCHED TOLERANCE CARBIDE BIT, REMOVE STANDING WATER FROM HOLE.

   1.4. INSERT APPROPRIATE HVA CAPSULE INTO HOLE WITH POINTED END FIRST. CAPSULE LENGTH IS LONGER THAN STANDARD EMBEDMENT AND WILL PROTRUDER FROM HOLE. DO NOT CUT OFF ANY PART OF THE HVA CAPSULE.

   1.5. THREAD NUT ONTO ROD.

   1.6. PLACE A WASHER ON FIRST NUT AND THREAD BLACK SETTING NUT DOWN ON WASHER.

   1.7. TIGHTEN NUTS TOGETHER SO THAT BLACK SETTING WASHER IS AT TOP OF ROD.

   1.8. INSERT SQUARE DRIVE SHAFT INTO HAMMER DRILL AND ATTACH PROPER IMPACT SOCKET.

   1.9. WITH HAMMER DRILL ON ROTARY HAMMER, ENGAGE TOP NUT OF HAS ROD ASSEMBLY AND ROTOHAMMER ROD THROUGH CAPSULE(S) INTO THE HOLE. STOP DRILL ROTATION IMMEDIATELY UPON REACHING BOTTOM OF HOLE.

   1.10. DO NOT DISTURB OR LOAD ANCHOR BEFORE CURING TIME ELAPSES.

---

<table>
<thead>
<tr>
<th>DETAILS</th>
<th>HAS Rod Size</th>
<th>in. 3/8</th>
<th>1/2</th>
<th>5/8</th>
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<td>nominal bit diameter</td>
<td>15/32</td>
<td>9/16</td>
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<tr>
<td>h = adv. depth of embed.</td>
<td>capsule length</td>
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<td>6-5/8</td>
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Recommended Hilti Rotary Hammer Drill TE-515, 18M, 25 TE-18M, 25, 55, 76 TE-55, 76 TE-76

For Sl: 1 inch = 25.4mm, 1ft-lb = 1.4 Nm

Curing Time Table (Approximate)

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<th>Approx. Curing Time</th>
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<th>Material</th>
<th>Temperature</th>
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<td>50°F/10°C</td>
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<td>5 Hour</td>
<td>23°F/-5°C</td>
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INSTALLATION INSTRUCTIONS:

1. SET THE DRILL DEPTH GAUGE AND DRILL A HOLE TO THE REQUIRED HOLE DEPTH. IMPORTANT: CLEAN OUT DUST AND DEBRIS. USE COMPRESSED AIR OR VACUUM AT BOTTOM OF HOLE. WHEN USING THE HILTI MATCHED TOLERANCE DIAMOND CORE BIT, IMMEDIATELY REMOVE STANDING WATER.

2. INSERT APPROPRIATE DIAMETER HVA ADHESIVE CAPSULE INTO PRE-DRILLED HOLE IN BASE MATERIAL. NOTE: THE BEST METHOD FOR SETTING MULTIPLE CAPSULES IS TO CRUSH THE FIRST CAPSULE(S) INTO THE HOLE AND THEN INSERT THE NEXT CAPSULE. DO NOT CUT OFF CAPSULES PARTIALLY PROTRUDING FROM THE HOLE.

3. CAPSULE LENGTH IS LONGER THAN STANDARD EMBEDDED DEPTH AND WILL PROTRUDE FROM THE HOLE.


6. DO NOT DISTURB OR LOAD THE SET ANCHOR BEFORE THE SPECIFIED CURING TIME ELAPSES.

---

WASTEWATER MANHOLE DROP CONNECTIONS

DATE: DECEMBER 2018

CITY OF MCKINNEY, TEXAS

McKINNEY
Unique by nature.

STANDARD DRAWING NO.

CITY OF MCKINNEY, TEXAS

5080M
NOTES:
1. REFER TO MANHOLE STANDARD DRAWINGS FOR ADDITIONAL DETAIL OF M.H.
2. 2' MAXIMUM DIFFERENCE BETWEEN ENTRANCE PIPE AND EXIT PIPE FLOWLINE WITH 1:1 MAXIMUM SLOPE.
3. PROVIDE A CONTINUOUS INVERT FLOWLINE TO FLOWLINE MAKING A SMOOTH TRANSITION.
INSTALLATION

FALSE MANHOLE BOTTOM SHALL BE FURNISHED AND INSTALLED IN ALL MANHOLES CONSTRUCTED IN ADVANCE OF PAVING. THESE FALSE MANHOLE BOTTOMS WILL BE INSTALLED AT A TIME DIRECTED BY THE ENGINEER BUT WILL USUALLY BE AFTER ALL WORK IS COMPLETED ON THE WASTEWATER SYSTEM INCLUDING THE AIR TEST, BUT PRIOR TO THE FINAL INSPECTION.

REMOVAL

FALSE MANHOLE BOTTOM SHALL BE REMOVED AFTER THE FINAL APPURTENANCE ADJUSTMENT INSPECTION. THE PAVING CONTRACTOR AND OWNER’S REPRESENTATIVE WILL COORDINATE THE REMOVAL OF THE FALSE MANHOLE BOTTOMS.

INSTALLATION AND REMOVAL POSITION

METAL STRAP HINGES (MIN. 3” LONG) W/BOLTS

5/8” HOLE FOR 1/2” NYLON ROPE HANDLES

PLAN VIEW

N.T.S.

3/4” PLYWOOD

5/8” HOLES FOR 1/2” NYLON ROPE HANDLES

D = INSIDE DIAMETER OF MANHOLE

NYLON ROPE HANDLES

WASTEWATER MANHOLE FALSE BOTTOM

CITY OF MCKINNEY, TEXAS

DATE: DECEMBER 2018

STANDARD DRAWING NO. 5100M
1480A COVER

SECTION A-A

BOTTOM VIEW

CITY OF McKinney, TX

SANITARY SEWER MANHOLE LID

CITY OF McKinney, Texas

PRODUCT NUMBER
NCR09-2259C

DESIGN FEATURES

MATERIALS
COVER RAY IRON
ASTM A48 CL35B

DESIGN LOAD
HEAVY DUTY

COATING
UN-DIPPED

OPEN AREA
N/A

✓ DESIGNATES MACHINE SURFACE

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EJ GROUP®

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1480ZPT ASSEMBLY

CITY OF McKinney, TX

SANITARY SEWER MANHOLE LID

PRODUCT NUMBER
NPR10-1550A

DESIGN FEATURES

MATERIALS
COVER: GRAY IRON
ASTM A-48 CL35B
FRAME: GRAY IRON
ASTM A-48 CL35B

DESIGN LOAD
HEAVY DUTY

COATING
UNPRINT

OPEN AREA
N/A

DESIGNATES MACHINE SURFACE

SECTION A-A

1 1/2" RAISED LETTERING
(4) 1" HOLES
ON A 35 1/2" DIA BOLT CIRCLE

(4) 1/2"-13 HEX HD S.S. BOLTS W/STEEL & RUBBER WASHERS

1/4" DIA NEOPRENE GASKET

BOLT DOWN

DATE: DECEMBER 2018
STANDARD DRAWING NO.
5101M

CITY OF McKinney, TEXAS

Call Today for More Information 800.626.4653
www.ejw.com
EJW EAST JORDAN MANUFACTURING COMPANY
MADE IN THE USA

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NOTES:
1. RESIDENTIAL SEWER LATERAL SHALL BE MINIMUM 4" PVC CLASS 160 SDR 26 AT A 2% MINIMUM GRADE.
2. SEWER LATERALS SHALL EXTEND TO A POINT 10 FT BEYOND RIGHT-OF-WAY LINE AND SHALL BE A MAXIMUM OF 5 FT DEEP.
3. SEWER LATERALS SHALL BE PLACED AT THE C. OF EACH LOT.
4. DURING INITIAL LATERAL INSTALLATION, A 4" CLEANOUT SHALL BE BROUGHT 3-4 FT ABOVE GRADE AT THE R.O.W. LINE.
5. PRIOR TO FINAL GRADING, LATERAL LOCATION SHALL BE MARKED ON CURB AND CLEANOUT TO BE CUT 1 FOOT BELOW GRADE.
6. CONNECTION TO THE MAIN SHALL BE MADE WITH A COMBO WYE & EXTRA–LONG SWEEP 90° BEND.
7. NO CONNECTIONS OR FITTINGS ARE ALLOWED ON THE VERTICAL STACK.

RESIDENTIAL LATERAL W/CLEANOUT AT PROPERTY LINE

DATE: DECEMBER 2018
STANDARD DRAWING NO. 5120M
CITY OF MCKINNEY, TEXAS
1. THE WORDS "WASTEWATER LATERAL CLEANOUT" SHALL BE CAST INTO TOP OF COVER.
2. MATERIALS TO BE CAST IRON, P.V.C. OR ABS PLASTIC.
SEE DETAIL BELOW

GREEN MARKER W/ WHITE BLOCK TEXT

3.75" x 72" THREE RAIL COMPOSITE PIPELINE MARKER MANUFACTURED BY CARSONITE INTERNATIONAL OR APPROVED EQUAL

TOP OF GROUND

EACH MARKER SHALL INCLUDE A BARB ANCHOR FOR PERMANENT ANCHORING

NOTES:
1. MARKER SHALL BE LOCATED ON BOTH SIDES OF ALL ROADS AND RAILROADS, AND AT ALL MANHOLES.
2. MARKER SHALL ALSO BE PLACED AT ALL HORIZONTAL BENDS.
3. EACH MARKER SHALL HAVE A STICKER PRINTED WITH THE FOLLOWING INFORMATION "CAUTION SANITARY SEWER PIPELINE, BEFORE DIGGING, CONTACT (TEXAS 811)."

SANITARY SEWER PIPELINE MARKER

CITY OF McKinney, TEXAS

DATE: DECEMBER 2018

STANDARD DRAWING NO. 5200M
PLAN
N.T.S.

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<tr>
<th>M.H. SIZE(W)</th>
<th>V</th>
<th>T</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>H</th>
<th>FOR PIPE SIZES</th>
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<tr>
<td>4’</td>
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<td>8”</td>
<td>6”</td>
<td>9”</td>
<td>6”</td>
<td>1’-3”</td>
<td>18”-39”</td>
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<tr>
<td>5’</td>
<td>6’-4”</td>
<td>8”</td>
<td>6”</td>
<td>12”</td>
<td>8”</td>
<td>1’-8”</td>
<td>42”-48”</td>
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<tr>
<td>6’</td>
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<td>9”</td>
<td>16”</td>
<td>10”</td>
<td>2’-2”</td>
<td>54”-60”</td>
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</tbody>
</table>

TABLE OF DIMENSIONS

NON-SHRINK GROUT

PRECAST CONCRETE GRADE RINGS AS REQUIRED TO RAISE GRADE

VERT. #4 BARS @ 12” OUTSIDE AND INSIDE FACES (TYP)

2”X4” KEYWAY OR CONTINUOUS #4 BARS AT 8” C/C (4’ & 5’ M.H.), #5 BARS @ 8” C/C (6’ M.H.)

#4 BARS AT 6” C/C (4’ M.H.) OR #5 BARS AT 8” C/C (5’ & 6’ M.H.) EACH WAY

COMPACTED CRUSHED STONE, STANDARD GRADATION

STORMWATER MANHOLE
4’, 5’, OR 6’ SQUARE

NOTE:
1. ACCESS MANHOLE SHALL BE LOCATED ABOVE EXIT PIPE
2. FOR LINES OVER 60 INCHES, A SPECIAL DETAIL IS REQUIRED.
3. SEE DETAIL 7005M FOR MANHOLE MOWSTRIP.
4. SEE STRUCTURAL NOTES ON 6010M SHEET 2 OF 2.

STANDARD M.H. FRAME AND COVER AS SPECIFIED BY OWNER. SEE 6010M

HOR. #4 BARS @ 12” OUTSIDE FACE (TYP)

HOR. #4 BARS @ 12” C/C (4’ M.H.) OR 9” C/C (5’ & 6’ M.H.) INSIDE FACE (TYP)

SLOPE TO DRAIN

VARIES (8’-0” MAX)

2’-0” MAX

30°

STEEL TROWEL FINISH

COMPACTED CRUSHED STONE, STANDARD GRADATION

SECTION A-A
N.T.S.

DATE: DECEMBER 2018
STANDARD DRAWING NO. 6010M
CITY OF MCKINNEY, TEXAS
#4 BARS ø 6" C/C (4' M.H.)
OR #5 BARS AT 8" C/C (5' &
6' M.H.) EACH WAY. HOOK EACH END

VERT. #4 BARS ø 12" C/C
OUTSIDE & INSIDE FACES (TYP)

HOR. #4 BARS ø 12" OUTSIDE FACE
(TYP)

HOR. #4 BARS ø 12" C/C (4' M.H.) OR
9" C/C (5' & 6' M.H.) INSIDE FACE
(TYP)

#4 DOWELS AT 12" C/C
ALL AROUND (EXCEPT AT PIPE)

#4 BARS AT 6" C/C (4'
M.H.) OR #5 BARS AT 8"
C/C (5' & 6' M.H.) EACH WAY

SECTION B-B
N.T.S.

NOTES:
1. SLOPE INVERT OF MANHOLE AS INDICATED ON PLAN–PROFILE SHEET.
2. FOR USE OF THIS STANDARD DETAIL, THE FOLLOWING GEOTECHNICAL SITE CONDITIONS MUST BE MET:
   - MINIMUM ALLOWABLE BEARING PRESSURE: 1,500 PSF
   - MAXIMUM AT REST PRESSURE COEFFICIENT (Ko): 0.75
   - MAXIMUM FILL SOIL UNIT WEIGHT: 130 PCF
3. ALL MATERIALS SHALL BE SUBMITTED FOR APPROVAL PRIOR TO CONSTRUCTION.
4. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSION STRENGTH OF 4000 PSI.
5. ALL REINFORCING STEEL SHALL BE GRADE 60.
6. ALL CLEAR COVER SHALL BE 2" WHERE FORMED AND 3" WHERE CAST AGAINST EARTH.

40 BAR DIAMETERS

CORNER DETAIL
PLAN VIEW

40 BAR DIAMETERS

STORMWATER MANHOLE
4', 5', OR 6' SQUARE

CITY OF McKinney, Texas

DATE: DECEMBER 2018

STANDARD DRAWING NO.
6010M
NOTES:
1. THROAT OPENING SHALL BE 6 INCHES.
2. PRECAST INLETS MUST BE APPROVED BY ENGINEER.
3. THE FLOOR OF THE EXCAVATION MUST PROVIDE A FIRM, LEVEL BED FOR THE BASE SECTION TO REST UPON.
4. A MINIMUM OF 6 INCHES OF 1" DIAMETER (MAXIMUM ROCK OR GRAVEL SHALL BE USED TO PREPARE THE BEDDING TO FINAL GRADE OR IN LIEU OF THIS, AT LEAST 6 INCHES OF 2-SACK CEMENT STABILIZED SAND SHALL BE USED TO PREPARE THE BEDDING TO GRADE. CEMENT STABILIZED-SAND SHALL BE ALLOWED TO SET BY KEEPING HOLE PUMPED DRY.
5. AFTER CASTING HAS BEEN INSTALLED ON THE PROPER BEDDING, THE BACKFILL MATERIAL, WHICH IS FREE FLOWING AND CLEAR OF ROCKS, IN EXCESS OF 4" DIAMETER AND OTHER LUMPS WHICH WOULD PROHIBITED PROPER COMPACTION, SHALL BE COMMENCED IN LIFTS OF NO MORE THAN 18". THE MATERIAL USED FOR BACKFILL SHOULD BE OF TYPE A SUITABLE TO OBTAIN THE DENSITY REQUIREMENTS FOR SPECIFIC JOB.
6. CONCRETE TO BE 4000 PSI.
7. LOCKING DEVICE IS REQUIRED ON ALL STORM SEWER LIDS.
8. "NO DUMPING" WARNING PLAQUE TO BE INSTALLED ON ALL STANDARD AND RECESSED INLETS.
9. DESIGN SHOWN FOR INLETS UP TO 5'-0" IN DEPTH. SPECIAL DESIGN WILL BE REQUIRED FOR INLETS GREATER THAN 5'-0" IN DEPTH.
10. AT LEAST ONE ACCESS RING AND COVER SHALL BE PLACED OVER OUTFALL PIPE.
11. IF INLET IN SAG, BLOCKOUT SHALL EXTEND 10' EITHER SIDE OF INLET. IF NOT IN SAG, THEN BLOCKOUT SHALL EXTEND 10' UPSTREAM AND 5' DOWNSTREAM OF INLET.

INSTALLATION DRAWING FOR PRECAST 5 AND 10 FOOT CURB INLETS

CITY OF McKinney, Texas

DATE: DECEMBER 2018

STANDARD DRAWING NO.
6030M
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**Notes:**
- Bar lengths shown are for max height; inlet values shall be adjusted for usual height inlets.
- Dimensions shown for top slab openings as shown in the details; additional bars shall be provided at all top openings as shown in the details, number and dimensions to be modified as needed.
SECTION "A-A"
N.T.S.

PLAN OF TOP SLAB
N.T.S.

NOTES:
1. MATERIAL AND WORKMANSHIP SHALL CONFORM WITH THE REQUIREMENTS OF NTCOG STANDARD SPECIFICATIONS FOR STANDARD CONCRETE MANHOLEs, MINIMUM 4000 PSI CONCRETE.
2. LAYERS OF REINFORCING STEEL NEAREST THE INTERIOR AND EXTERIOR SURFACES SHALL HAVE A COVER OF 2" UNLESS OTHERWISE NOTED.
3. FOR DETAILS OF REINFORCING OF LOWER PORTIONS OF THE INLET SEE APPROPRIATE SQUARE MANHOLE DETAILS.
4. DEPTH OF DROP INLET FROM THROAT TO FLOW LINE OF INLET IS VARIABLE. APPROXIMATE DEPTH SHALL BE SHOWN ON PLANS AT LOCATION OF INLET.
5. ALL STANDARD DROP INLETS SHALL HAVE ONE OPENING ON EACH SIDE UNLESS OTHERWISE SHOWN ON THE PLANS.
6. DECK MAY BE REINFORCED SAME AS 4' SQUARE MANHOLE.
7. MANHOLE OPENING SHALL BE EAST JORDAN IRON WORKS #00303461 OR EQUAL WITH FISH IMAGE ON COVER AND TOP FLANGE ON FRAME.
8. APRON SLOPE SHALL BE 4:1 UNLESS NOTED OTHERWISE ON PLANS. IF APRON SLOPES DIFFER ON DIFFERENT SIDES OF THE INLET, ELEVATIONS SHALL BE SPECIFIED AT APRON CORNERS AND ALL GRADE BREAKS.
NOTES:

1. ROCK RIPRAP PROVIDED BEYOND APRON SHALL BE AS SPECIFIED IN PLANS BY DESIGN ENGINEER.
2. POSITIVE DRAINAGE MUST BE PROVIDED BEYOND CONCRETE APRON.
3. HEADWALL SLOPE SHALL BE SPECIFIED IN PLANS BY DESIGN ENGINEER (MAX. 3:1)
4. CONCRETE SHALL BE 4000 PSI.
5. CONCRETE APRON OR APPROVED EQUAL.

TYPE C HEADWALL

CITY OF McKinney, Texas

DATE: December 2018

STANDARD DRAWING NO.

6090M
1. 1/4"x4" STEEL PLATE (TYP. ALL SIDES)

2. 1"x1" STEEL ANGLES ALONG TOP EDGES

3. EXPANDED METAL MESH TYPICAL 1" OR 2", #13 REGULAR (ENGINEER TO SPECIFY).

4. WELD EXPANDED METAL MESH TO INSIDE ANGLES, TOP AND SIDES, TACK WELD AT ALL POINTS OF CONTACT WITH STEEL PLATES.

5. PROVIDE FULL CONTINUOUS WELD AT PLATE CONNECTIONS WITH ANGLE IRON.

6. DRILL HOLES, 2 EACH PLATE, SECURE WITH 1/4"x4" GALVANIZED STEEL EXPANSION ANCHORS

7. BEND STEEL PLATE TO MATCH PILOT CHANNEL AS NEEDED

8. ORIFICE (PER DESIGN ENGINEER)

NOTES:
1. ALL COMPONENTS OF TRASH RACK SHALL BE GALVANIZED OR CONSTRUCTED OF APPROVED CORROSION RESISTANT MATERIALS.

2. DESIGN ENGINEER SHALL SPECIFY LENGTH(L), WIDTH(W), HEIGHT(H) AND MESH SIZE OF TRASH RACK.

3. TOP OR SIDES OF TRASH RACK MUST BE REMOVABLE BY HINGE OR OTHER METHOD TO ALLOW ACCESS INSIDE FOR CLEANING OF DEBRIS AND SEDIMENT.

4. TRASH RACKS ARE REQUIRED ONLY FOR OPENINGS SMALLER THAN 12" IN DIAMETER, OR EQUIVALENT.

DISCLAIMER:
THIS DETAIL IS INTENDED AS AN EXAMPLE ONLY. THE DESIGN ENGINEER SHALL DESIGN AND SIZE A TRASH RACK SPECIFIC TO THE PROJECT. TRASH RACKS SHALL BE PRIVATELY MAINTAINED BY OWNER.
COLLIN COUNTY LOGO SHALL BE INCLUDED ON PROJECTS THAT INCLUDE COLLIN COUNTY MATCHING FUNDS. COLLIN COUNTY LOGO WILL BE PROVIDED TO THE CONTRACTOR IN ELECTRONIC FORMAT.

"PROJECT INFORMATION” SHALL BE PRINTED WITH BLACK LETTERING ON A WHITE BACKGROUND. THE PROJECT NAME SHALL BE PRINTED WITH 3-INCH TEXT. ALL OTHER INFORMATION SHALL BE PRINTED WITH 2-INCH TEXT.

ADA/TAS COMPLIANCE:

MAX 4” PROJECTION FROM POST IF LOCATED ADJACENT TO PEDESTRIAN ZONE

INSTALL 2X4 CROSS BAR AT MAX 27” HEIGHT IF LOCATED ADJACENT TO PEDESTRIAN ZONE

MAINTAIN 4’ CLEAR PEDESTRIAN WIDTH IF LOCATED ADJACENT TO PEDESTRIAN ZONE

NOTES:
1. CONTRACTOR SHALL PROVIDE CITY PROJECT MANAGER A PROOF FOR REVIEW PRIOR TO FABRICATION OF THE SIGN.
2. MCKINNEY LOGO WILL BE PROVIDED TO THE CONTRACTOR IN ELECTRONIC FORMAT, UPON REQUEST. CONTRACTOR SHALL MAINTAIN THE ASPECT RATIO OF THE LOGO USING A 12” HEIGHT. CUSTOM COLORS ARE AS FOLLOWS:
   GREEN: PMS 330; RGB 15, 59, 52; CMYK 93, 40, 64, 35.
   BROWN: PMS 448; RGB 58, 48, 13; CMYK 55, 40, 93, 50.
3. PROJECT INFORMATION SIGNS SHALL BE ERECTED IN ACCORDANCE WITH THE TxDOT BC (BARRICADE & CONSTRUCTION) STANDARD SHEETS, EXCEPT AS NOTED HEREIN.
4. REMOVE SIGNS AT END OF PROJECT.
NOTES:
1. ALL NEW STRIPING SHALL BE CITY APPROVED THERMOPLASTIC (TYPE I, DMS—B220) OR MMA AS SHOWN IN THE PLANS UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF ENGINEERING.
2. STOP BARS SHALL BE 24" WIDE AND EXTEND FROM 12" FROM NEAREST FACE OF CURB OR EDGE OF PAVEMENT ACROSS ALL APPROACH LANES.
3. INSTALL ALL PAVEMENT MARKINGS ACCORDING TO TxDOT STANDARD SPECIFICATION ITEMS 666, 668, 672, 677 AND 678.
4. DIMENSIONS OF SYMBOLS ARE TYPICAL. DIMENSIONS MAY BE MODIFIED IF SHOWN ON PLANS.
5. FOR ITEMS NOT SHOWN ON THESE SHEETS REFER TO TxDOT STANDARD SHEETS PM(1)—12, PM(2)—12 AND PM(3)—12 (OR LATEST TxDOT REVISION).
6. REMOVE EXISTING STRIPING PRIOR TO INSTALLATION OF NEW STRIPING. REMOVE EXISTING RAISED PAVEMENT MARKINGS (RPMS) THAT ARE IN CONFLICT WITH NEW STRIPING PLANS.
7. THESE DETAILS ARE FOR DESCRIPTION ONLY; NOT ALL INTERSECTIONS WILL HAVE ALL FEATURES.
8. INSTALL ARROWS STRIPING AS DIRECTED BY DIRECTOR OF ENGINEERING.
9. USE TYPE II—C—R RPMS ALONG LEFT TURN BAY STRIPES IN AREAS WITH DIVIDED HIGHWAYS OR RAISED MEDIANS. USE TYPE II—A—A WITH UNDIVIDED HIGHWAYS, FLUSH MEDIANS, AND TWO—WAY LEFT TURN LANES.
NOTES:
1. ALL NEW STRIPING SHALL BE CITY APPROVED THERMOPLASTIC (TYPE I, DMS–8220) OR MMA AS SHOWN IN THE PLANS UNLESS OTHERWISE APPROVED BY THE DIRECTOR OF ENGINEERING.
2. STOP BARS SHALL BE 24" WIDE AND EXTEND FROM 12" FROM NEAREST FACE OF CURB OR EDGE OF PAVEMENT ACROSS ALL APPROACH LANES.
3. INSTALL ALL PAVEMENT MARKINGS ACCORDING TO TxDOT STANDARD SPECIFICATION ITEMS 666, 668, 672, 677 AND 678.
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8. INSTALL ARROWS STRIPING AS DIRECTED BY DIRECTOR OF ENGINEERING.
9. USE TYPE II–C–R RPMS ALONG LEFT TURN BAY STRIPES IN AREAS WITH DIVIDED HIGHWAYS OR RAISED MEDIANS. USE TYPE II–A–A WITH UNDIVIDED HIGHWAYS, FLUSH MEDIANS, AND TWO–WAY LEFT TURN LANES.
DETAIL A - INTERNATIONAL STRIPING

- 24" SOLID WHITE
- 24" STOP BAR
- ADJUST INTERNATIONAL MARKINGS TO AVOID WHEEL PATH

DETAIL B - LEFT TURN BAY

- 8" SQUARE REFLECTORIZED WHITE RPM (TY II-C-R)
- 32' - 8' + 8'
- LEFT TURN ARROWS SHALL BE PLACED AT 32' FROM THE STOP BAR AND AT THE END OF THE LEFT TURN LANE.
- IF THE LEFT TURN LANE IS OVER 150' IN LENGTH PLACE ONE ARROW MARKING IN THE MIDDLE BETWEEN THE OTHER TWO ARROWS.
- BEGIN 8" STRIPE WHERE TURN BAY REACHES FULL WIDTH.

DETAIL C - APPROACH TO INTERSECTION

- 24" STOP BAR
- 4" WHITE SKIP LINES
- MATCH EXISTING AT PROJECT LIMIT
- NOTE: 4" WHITE SOLID LINE INSTALLED WHERE TURN BAY REACHES FULL WIDTH.

DETAIL D - 4" WHITE SKIPS

- 4" WHITE
- 30' HIGH
- TY II-C-R 4" RPM EVERY OTHER SKIP

DETAIL E - 4" DOUBLE YELLOW STRIPES

- 4" SQUARE TY II-A-A REFLECTORIZED RPM
- PROVIDE DETAILED LAYOUT ON PLAN SHEET.
- NOTE IF CONCURRING LEFTS OCCUR.
- * MATCH PAVEMENT MARKING WIDTH WITH APPROACH PAVEMENT MARKING WIDTH.

DETAIL F - TYPICAL SYMBOLS

- "ONLY" WORD
- TURN ARROW (LEFT OR RIGHT)
- OPTION ARROW (LEFT OR RIGHT)
- 3'-8"
- STRAIGHT ARROW

DETAIL H - YIELD TRIANGLES

- 12'8"
- 24'
- 36'
- POSTED SPEED LIMIT 40 MPH OR LESS
- POSTED SPEED LIMIT 45 MPH OR MORE

DETAIL I - RIGHT TURN BAY

- 32' - 8'
- 10'
- 4" SQUARE REFLECTORIZED WHITE RPM (TY II-C-R)
- RIGHT TURN ARROWS SHALL BE PLACED AT 32' FROM THE STOP BAR AND AT THE END OF THE RIGHT TURN LANE.
- IF THE RIGHT TURN LANE IS OVER 150' IN LENGTH PLACE ONE ARROW MARKING IN THE MIDDLE BETWEEN THE OTHER TWO ARROWS.
- BEGIN 8" STRIPE WHERE TURN BAY REACHES FULL WIDTH.

DETAIL J - LEFT TURN GUIDE LINES

- ALIGN WITH LANE STRIPING

DATE: DECEMBER 2018
STANDARD DRAWING NO.: 7002M

CITY OF McKinney, Texas

McKinney
Unique by nature.
RESIDENTIAL & COLLECTOR STREET SIGN & LIGHT LAYOUT

NOTES:
1. STREET NAME SIGNS SHALL BE FURNISHED AND INSTALLED BY THE DEVELOPER PER THE CITY’S STANDARDS.
2. THE INSTALLATION OF ANY SIGNS MUST BE COMPLETED PRIOR TO THE FINAL ACCEPTANCE OF THE SUBDIVISION.
3. ALL SIGNS SHALL COMPLY WITH THE LATEST VERSION OF THE TMUTCD.
4. SIGNS SHALL BE AS FOLLOWS:
   a. STOP SIGN: WHITE ASTM HIGH INTENSITY PRISMATIC GRADE REFLECTIVE SHEETING (MANUFACTURED BY 3M OR EQUAL) COVERED WITH EASY CUTABLE RED FILM, REVERSE SCREEN PROCESS.
   b. STREET NAME SIGN: WHITE ASTM HIGH INTENSITY PRISMATIC GRADE REFLECTIVE SHEETING (MANUFACTURED BY 3M OR EQUAL) COVERED WITH EASY CUTABLE GREEN FILM, REVERSE SCREEN PROCESS.
5. NAME PLATE SHALL BE MOUNTED 10' FROM TOP OF CURB.
6. SIGNS SHALL BE MOUNTED ON A 2 INCH BY 12 FOOT MINIMUM TELESPAR SQUARE POST WITH ONE OF THE FOLLOWING ANCHOR SYSTEMS:
   a. 2 ¼ INCH BY 30 INCH TELESPAR GROUND ANCHOR WITH 2 1/2 INCH BY 18 INCH TELESPAR ANCHOR SLEEVE DRIVEN INTO THE GROUND A DEPTH OF 28 INCHES. THE ANCHOR POST SYSTEM SHALL PROTRUDE 2 INCHES FROM FINISHED GRADE AT THE BASE OF THE SIGN AND BOLTED IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS, OR
   b. 2 ¼ INCH BY 30 INCH TELESPAR GROUND ANCHOR, WRAPPED TO PREVENT CONCRETE INfiltrATION INTO ANCHOR POST, SET IN 3,000 PSI CONCRETE 1 FOOT IN DIAMETER AND 28 INCHES DEEP. CONCRETE SHALL BE 4-INCH BELOW FINISHED GRADE.
7. STOP SIGNS SHALL BE MOUNTED 7 FEET FROM THE TOP OF THE CURB MEASURED TO THE BOTTOM OF THE LOWEST SIGN.
8. STOP SIGNS SHALL BE MOUNTED TO PROVIDE A MINIMUM 2 FOOT HORIZONTAL CLEARANCE FROM THE EDGE OF THE SIGN TO THE BACK OF CURB. NAME SIGNS SHALL BE MOUNTED TO PROVIDE A MINIMUM 12 INCH HORIZONTAL CLEARANCE FROM THE EDGE OF THE SIGN TO THE BACK OF THE CURB.
9. STOP SIGNS SHALL BE 30" FOR SINGLE LANE ROAD, AND 36" FOR A ROAD INTERSECTING A PLANNED MULTI-LANE ROAD.
10. FOR STREETS INTERSECTING ARTERIAL ROADWAYS, DEVELOPER/CONTRACTOR SHALL CONTACT THE CITY INSPECTOR TO COORDINATE SIGN PLACEMENT WITH CITY TRAFFIC DEPARTMENT.
11. DIMENSIONS SHOWN ABOVE ARE FROM BACK OF CURB.
12. STREET LIGHTS SHALL BE LOCATED ON OPPOSITE SIDE OF INTERSECTION FROM NAME BLADES.

REFER TO ENGINEERING DESIGN MANUAL FOR ADDITIONAL REQUIREMENTS.

SHEET 1 OF 3

McKINNEY
TEXAS
Unique by nature.

RESIDENTIAL STREET LIGHT AND SIGN LOCATIONS
CITY OF MCKINNEY, TEXAS

DATE: DECEMBER 2018
STANDARD DRAWING NO. 7003M
NOTES:
1. THE NAME SIGN BLADE SHALL BE 9 INCHES TALL BY 0.125 INCHES THICK MINIMUM.
2. THE STREET NAME SHALL BE 6 INCH FONT WITH UPPER AND LOWERCASE LETTERS. SUFFIX
   SHALL BE 3” FONT WITH UPPER AND LOWER CASE LETTERS. BLOCK NUMBERS SHALL BE
   3” FRONT. FONT WILL BE CLEARVIEW 1-W WITH 90% KERNING. TMUTCD STATES
   BACKGROUND SHALL BE GREEN AND ALL LETTERS SHALL BE WHITE.
3. THE CITY OF MCKINNEY LOGO ARTWORK WILL BE IN A 9 BY 9 INCH SQUARE. THE
   DEVELOPER/CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF THE LOGO MATERIALS.
   CONTACT THE CITY OF MCKINNEY TRANSPORTATION ENGINEER FOR LIST OF APPROVED
   VENDORS.
4. ALL BRACKETS SHALL HAVE A MINIMUM SLOT LENGTH OF 9 INCHES AND BE DESIGNED FOR
   FLAT BLADES.
5. IF LENGTH OF NAME SIGN BLADE IS GREATER THAN 54 INCHES, A DOUBLE MOUNT SHALL
   BE INSTALLED.
6. 9” MINIMUM BLADE MOUNT MAY BE USED IF BOTH STREET NAME SIGN BLADES ARE EQUAL
   TO OR LESS THAN 36”.

STREET NAME SIGN DETAILS

CITY OF MckINNEY, TEXAS

DATE: DECEMBER 2018
STANDARD DRAWING NO.
7003M
NOTES:
1. IF LENGTH OF NAME SIGN PLATE IS GREATER THAN 36”, A DOUBLE MOUNT SHALL BE INSTALLED ACCORDING TO DETAILS AS SHOWN.
2. 9” MINIMUM BLADE MOUNT MAY BE USED IF BOTH STREET NAME SIGN BLADES ARE EQUAL TO OR LESS THAN 36”.
3. FOR TXDOT NAME SIGN ASSEMBLIES, CONTRACTOR WILL NEED TO PROVIDE ADAPTER COUPLER DETAIL.
4. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR ANY DECORATIVE ELEMENTS.
NOTES
1. INSTALL ONE - TWO (2) INCH DIAMETER HDPE OR SCHEDULE 40 PVC CONDUIT (DOVE GREY IN COLOR) FOR ROADWAY LIGHTING AND TWO THRU THREE (3) INCH HDPE OR SCHEDULE 40 PVC CONDUIT (DOVE GREY IN COLOR) FOR FIBER OPTIC COMMUNICATION CABLE WITH TYPE 1 GROUND BOXES SPACED ON 500 FOOT INTERVALS. ROADWAY LIGHTING CONDUIT SHALL BE IN A SEPARATE TRENCH FROM THE COMMUNICATION CONDUITS SIX (6) FEET APART. THREE (3) FEET MINIMUM CONTRACTOR SHALL COORDINATE FINAL CONDUIT LOCATION WITH ENGINEERING STAFF. CONDUIT SHALL BE CONFORMING TO TXDOT SPECIFICATION ITEM 618 AND HAVE A MINIMUM BURIAL DEPTH OF 30 INCHES UNDER NEW PAVEMENT.
2. WHERE BENDS ARE REQUIRED, THEY SHALL BE OF THE LONG RADIUS TYPE.
3. THE CONDUIT SHALL BE CAPPED AFTER INSTALLATION WITH RED MARKER TAPE INSTALLED ON EACH CAP, WITH A MEANS PROVIDED TO PROVE CONDUIT IS UNOBSCURED BEFORE THE INTERSECTION PAVING WILL BE ACCEPTED BY THE CITY OF MCKINNEY.
4. THE GROUND BOXES AND THEIR INSTALLATION SHALL CONFORM TO THE LATEST VERSION OF TXDOT SPECIFICATION ITEMS 618 AND 624 AND TXDOT STANDARD DRAWINGS ED(4)-14 AND ITS(41)-16.
5. THE COVER SHALL BE POLYMER FOR ALL BOXES OF THE BOLT-DOWN TYPE. COMMUNICATION GROUND BOXES IN THE MEDIAN SHALL BE PERMANENTLY MARKED "CITY OF MCKINNEY COMMUNICATIONS".
6. ALL GROUND BOXES SHALL HAVE REINFORCED CONCRETE APRONS AND SHALL BE BEDDED FLUSH WITH THE FINISHED GRADE.
7. THE EXACT LOCATIONS WHERE CONDUIT CROSSES UNDER THE PAVING ARE TO BE MARKED WITH AN "X" AND PAINTED WITH RED PAINT ON THE CURB OR PAVING.
8. A NO. 9 GALVANIZED WIRE SHALL BE IN ALL CONDUIT. THIS WIRE SHALL EXTEND 1 FOOT (MINIMUM) BEYOND THE CONDUIT END WHEN THE CAP IS REMOVED. THE WIRE END SHALL BE COILED AND THEN TAPED TO THE CONDUIT SURFACE AT THE CONDUIT END FOR EASY FUTURE ACCESS.
9. CONDUIT AND GROUND BOXES DESCRIBED AND SHOWN ABOVE SHALL BE INSTALLED AT ALL ARTERIAL-ARTERIAL AND ARTERIAL-MAJOR COLLECTOR INTERSECTIONS PRIOR TO PAVEMENT CONSTRUCTION. (NOTE 10 FOR ILLUMINATION MAINTAINED BY ONCOR AND GRAYSON-COLLIN ELECTRIC COOPERATIVE)
10. TWO (2) INCH DIAMETER CONDUIT FOR ROADWAY ILLUMINATION SHALL RUN BETWEEN EACH ILLUMINATION POLE BASE AND SHALL NOT BE PLACED INSIDE GROUND BOXES. ONLY EXCEPTION IS ALLOWED AT THE ELECTRICAL SERVICE METER.
OUTSIDE EDGE OF SANITARY SEWER MANHOLE

3" CLR. TYPICAL

2'-0" MIN.

6" REINFORCED 4,000 PSI CONCRETE MOW STRIP.

ORIENTATION OF MOW STRIP MAY BE ADJUSTED IN FIELD AS APPROVED BY THE CITY.

3" MAX

6" MIN.

6" REINFORCED 4,000 PSI CONCRETE MOW STRIP. REINFORCE WITH #4 BARS ON 18" CENTERS EACH WAY.