# Marion County Public Works
## Engineering Standard Details

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NOTES:
1. DIMENSIONS GIVEN ARE FOR A 90° ANGLE OF INTERSECTION. FOR ANGLES DEVIATING BY MORE THAN 5°, SEE STANDARD DRAWING 'ARTERIAL INTERSECTIONS AND MAJOR COMMERCIAL–INDUSTRIAL DRIVEWAYS–VARIOUS ANGLES'.
2. SURFACING AND BASE COURSE OF THE INTERSECTION, INCLUDING THE FLARE AREA, SHALL CONFORM TO SECTION IV: ROADWAY DESIGN STANDARDS OF THE MARION COUNTY DEPARTMENT OF PUBLIC WORKS ENGINEERING STANDARDS.
1. SURFACING AND BASE COURSE OF THE INTERSECTION, INCLUDING THE FLARE AREA, SHALL CONFORM TO SECTION IV: ROADWAY DESIGN STANDARDS OF MARION COUNTY DEPARTMENT OF PUBLIC WORKS ENGINEERING STANDARDS.

2. ALL DIMENSIONS IN THE TABLE BELOW ARE MEASURED IN FEET.

<table>
<thead>
<tr>
<th>ANGLE A</th>
<th>d</th>
<th>b</th>
<th>c</th>
<th>d</th>
<th>e</th>
<th>f</th>
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</tr>
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</table>
NOTES:
1. ALL EXCAVATED MATERIAL SHALL BE REMOVED FROM THE SITE AND BACKFILL SHALL BE 3/4" TO 1" MINUS AGGREGATE.
2 LANE ONE-WAY OR TWO-WAY

REFLECTIVE HYDRANT MARKER

HYDRANT 6"

2 LANE TWO-WAY CONTINUOUS LEFT TURN LANE

4 LANE TWO-WAY UNDIVIDED

4 LANE TWO-WAY CONTINUOUS LEFT TURN LANE

NOTES:
1. FIRE HYDRANT LOCATIONS SHALL BE INSTALLED IN ACCORDANCE WITH THE MOST RECENT VERSION OF MARION COUNTY FIRE CODE.
NOTES:
1. BLANKET INLAYS TO BE CONSTRUCTED WITH LEVEL 2, 1/2", DENSE, PG 64--22 HMAC IN DRY PAVEMENT CONDITIONS, WHERE EXISTING PAVEMENT IS AT LEAST 60° F AND RISING. EVERY 10° F BELOW 60°F THE CONTRACTOR MUST ADD 1/2" DEPTH TO THE BLANKET INLAY. TACK ALL PAVEMENT TO BE INLAID WITH EMULSIFIED ASPHALT.
2. "T"-CUT IS ALWAYS REQUIRED, HOWEVER A BLANKET INLAY MAY NOT BE. IF REQUIRED, BOTH SHALL BE SHOWN ON PROJECT PLANS.
3. MAJOR ROADS AND SPECIAL CONDITIONS MAY REQUIRE NON-COMPRESSIBLE BACKFILL CEMENT SLURRY.
4. THE COUNTY ENGINEER OR COUNTY INSPECTOR SHALL DETERMINE THE WIDTH AND THE LENGTH OF THE INLAY PATCH TO BEST FIT TRAVEL PATTERNS.
5. ASPHALT CONCRETE PAVEMENT "T"-PATCH/"T"-CUT 6" THICK OR MATCH EXISTING PAVEMENT (WHICHEVER IS GREATER) UP TO THE LEVEL OF THE ORIGINAL PAVEMENT.
3/4" PREFORMED FILLER (IN CONCRETE PAVEMENT OR GUTTER ONLY) TO EXTEND THROUGH THICKNESS OF CONCRETE

NOTE: BARS TO BE PLACED DURING CURB CONSTRUCTION.

1. ALL BARS TO BE PLACED 1 1/2" CLEAR OF NEAREST FACE OF CONCRETE UNLESS SHOWN OR NOTED OTHERWISE.
2. ALL BAR SPLICES SHALL BE 20" IN DIAMETER.
3. WHERE PRECAST INLETS ARE USED AS AN ALTERNATE TO CAST-IN-PLACE INLETS, A 4" COMPACTION LEVELING BED OF SAND OR 1/4" CRUSHED AGGREGATE SHALL BE PROVIDED.
4. FOR FRAME AND GRATE SPECIFICATIONS, SEE MARION COUNTY DEPARTMENT OF PUBLIC WORKS ENGINEERING STANDARD DRAWING 'FRAME AND GRATES CONCRETE INLETS'.
SECTION A-A

SECTION B-B

SECTION C-C

<table>
<thead>
<tr>
<th>INLET TYPE</th>
<th>W</th>
<th>W1</th>
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<tbody>
<tr>
<td>G-1</td>
<td>2'-8 7/8&quot;</td>
<td>1'-8 7/8&quot;</td>
</tr>
<tr>
<td>G-2, G-2M</td>
<td>3'-3 3/8&quot;</td>
<td>2'-3 3/8&quot;</td>
</tr>
</tbody>
</table>

NOTE:
1. ALL BARS TO BE PLACED 2" CLEAR OF NEAREST FACE OF CONCRETE UNLESS OTHERWISE APPROVED BY COUNTY ENGINEER.
2. FOR FRAME AND GRATE SPECIFICATIONS, SEE ENGINEERING STANDARD DETAIL 'FRAME AND GRATES CONCRETE INLETS'.
3. SEE ENGINEERING STANDARD DRAWING 'TYPE CG (CURBED) CONCRETE INLETS FOR CURB OPENING SPECIFICATIONS.'
NOTES:
1. 3/8" CROSS BARS SHALL BE FLUSH WITH THE GRATE SURFACE AND MAY BE FILLET WELDED, RESISTANCE WELDED, OR ELECTRO FORGED TO BEARING BARS.

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**FRAME AND GRATES**

**CONCRETE INLETS**

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**GRADE TYPE 1**

- **V**: 1'-10 3/4" (1'-9 3/8"
- **Y**: 2'-4 3/4" (2'-3 3/8"
- **Y1**: 1'-9"
- **NUMBER OF BARS**: 12
- **TYPE**: 2
- **REMARKS**: 2-GRATES

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**FRAME**

- **V**: 1/2" X 2 1/2" SQUARE EDGE FLAT BARS
- **Y**: 2'-8 1/2"
- **TYP. ANCHORS**: 4
- **3" X 2 1/2" X 3/8" ANGLE**
- **3/4" ANCHOR**
- **5/8" X 3" BOLT, 2 EACH END**
- **5/8" X 2 1/2" SQUARE EDGE FLAT BARS**

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**CURB GUTTER APRON**

- **FLARE GUTTER IN TRANSITION SECTION**
- **5 5/16"**
- **3'-4" TRANSITION**
- **40 1/4"**

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**REVISIONS**

**MARION COUNTY DEPARTMENT OF PUBLIC WORKS**

**FRAME AND GRATES**

**CONCRETE INLETS**

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**FILLET WELD**

**FILLET WELD ALL AROUND**
NOTE:
1. RAMP MAY BE CONCRETE OR ASPHALT. AREA IS SHOWN IN LIGHTER CONCRETE HATCH.
2. DETAIL ASSUMES A 6" CURB HEIGHT.
CURB RAMP CROSSING
GRADE BREAK LESS THAN OR EQUAL TO 5 FEET
FROM BACK OF CURB

CURB RAMP CROSSING
GRADE BREAK GREATER THAN 5 FEET
FROM BACK OF CURB

CURB RAMP CROSSING
DIRECTIONAL CURB WITH FLARED CONSTRUCTION

NOTES:
1. DETECTABLE WARNING SURFACE DETAILS AND LOCATIONS ARE BASED ON APPLICABLE MARION COUNTY DEPARTMENT OF PUBLIC WORKS ENGINEERING STANDARDS.
2. SEE MARION COUNTY DEPARTMENT OF PUBLIC WORKS ENGINEERING STANDARD DRAWING "DETECTABLE WARNING SURFACE LOCATIONS" FOR NON-DIRECTIONAL CURBS.
3. ON MARION COUNTY ROADS, GUTTER MAY BE REQUIRED DEPENDENT ON EXISTING CONDITIONS.
4. DETECTABLE WARNING SURFACE PLACEMENT FOR PERPENDICULAR RAMPS VARY AS SHOWN.
5. DETECTABLE WARNING SURFACE PLACEMENT ACROSS THE GRADE BREAK IS PROHIBITED.

LEGEND:
- MARKED OR INTENDED CROSSING LOCATION
- SIDEWALK
- DETECTABLE WARNING SURFACE
- LANDSCAPE AREA (NON-WALKABLE SURFACE)
- RUNNING SLOPE 7.5% MAX. (MAX. 8.3% FINISHED SURFACE SLOPE)
- FLARE SLOPE (MAX. 10.0% FINISHED SURFACE SLOPE)
NOTES:
1. 5' WIDTH – NEW CONSTRUCTION, 4' WIDTH – ALTERATIONS.
2. DETECTABLE WARNING SURFACE PANELS PLACED IN THE LOWER 2' OF RAMP THROAT.
3. TACTILE PANEL TO BE FULL WIDTH OF RAMP.
4. ARRANGE DOMES USING IN-LINE PATTERN ONLY, AS SHOWN IN TRUNCATED DOME DETAIL.
5. USE INSET TYPE ONLY.
6. DETECTABLE SURFACE AREA COLOR SHALL BE PER LOCAL JURISDICTION.
7. STANDARD BROOM FINISH ALL OTHER SIDEWALK RAMP AREAS.
8. RAMP FLARES SHALL BE 24" MIN. TO 36" MAX.
9. NO LIPS AT RAMPS.
STANDARD HATCHES

HATCH EXAMPLE  |  NAME OF PATTERN – REPRESENTED USE

| SOLID (TRANSPARENCY 25% TO 50%) – VARIOUS USES | AR SAND – VARIOUS USES |
| ANSI31 – PAVEMENT | ANSI37 – VARIOUS USES |
| AR–CONC – CONCRETE | GRASS – ABOVE SURFACE EARTH |
| EARTH – BELOW SURFACE EARTH | GRAVEL – VARIOUS TYPES OF AGGREGATE |

STANDARD ABBREVIATIONS

- MIN. = MINIMUM
- MAX. = MAXIMUM
- P.C.C. = PORTLAND CEMENT CONCRETE
- P.S.I. = POUNDS PER SQUARE INCH
- TYP. = TYPICAL
- CL = CENTERLINE
- DIA. = DIAMETER
- FT = FEET
- ’ = FEET
- “ = INCHES
- PMAC = POLYMER MODIFIED ASPHALT CEMENT
- HMAC = HOT MIX ASPHALTIC CEMENT
- PUE = PUBLIC UTILITY EASEMENT
- O.C. = ON CENTER
- ODOT = OREGON DEPARTMENT OF TRANSPORTATION
NOTES:
1. DRIVEWAY SHALL HAVE SIDE DITCHES AND MAY REQUIRE PAVING.
2. DRIVEWAY SHALL BE CROWNED (ABOUT 3" HIGHER IN THE MIDDLE TO SHED WATER TO THE SIDES) AND SHALL HAVE SIDE DITCHES.
3. STEEPER DRIVEWAYS MAY REQUIRE ASPHALT PAVING AND SLOTTED DRAINS OR WATER BARS ACROSS THE DRIVEWAY TO PICK UP DRAINAGE BEFORE IT FLOWS TO THE ROAD.
4. EXISTING SHOULDER MAY BE GRAVEL OR PAVEMENT.
5. TOP OF DRIVEWAY AT DITCH LINE SHALL BE AT LEAST 2 1/2" BELOW EDGE OF PAVEMENT.
6. IF NO DITCH IS PRESENT, LINE SHALL BE AT LEAST 2 1/2" BELOW EDGE OF PAVEMENT AT 10' BACK FROM EDGE OF PAVEMENT.
7. GRANULAR BACKFILL SHALL BE NO LESS THAN 6" IN DEPTH, UNLESS OTHERWISE APPROVED. WHEN PAVED, ASPHALT IS TO BE NO LESS THAN 2" ON TOP OF GRANULAR BACKFILL.
8. SEE MARION COUNTY DEPARTMENT OF PUBLIC WORKS ENGINEERING STANDARDS 'GENERAL NOTES – DRIVEWAY CONSTRUCTION STANDARDS'.
10. "RADIUS" IS THE RADIUS IN FEET OF THE TRANSITION OR FLARE SECTION CONNECTING THE ACCESS TO THE EDGE OF THE HIGHWAY PAVEMENT.
NOTES:
1. DRIVEWAY WIDTH TYPICALLY SHOWN ON PROJECT PLANS. WHEN NOT SPECIFIED, WIDTH SHALL BE AS DIRECTED BY THE COUNTY ENGINEER. IN EITHER CASE, DRIVEWAY WIDTH SHALL NOT EXCEED LIMITS SET FORTH IN MARION COUNTY, ENGINEERING STANDARDS TABLE 6.
2. SIDEWALKS, INCLUDING PORTION CROSSING DRIVEWAY, SHALL HAVE TRANSVERSE CONTRACTION JOINTS AT 5’ INTERVALS AND TOOL ROUNDED BEFORE BROOMING. ALL EDGES SHALL BE TOOL ROUNDED AFTER BROOMING.
3. WHEN EXISTING DRIVEWAY CANNOT MATCH NEW DRIVEWAY WITHIN SLOPE LIMITATIONS SHOWN, ADJUST EXISTING DRIVEWAY, NOT CURB AND SIDEWALK GRADE.
4. DRIVEWAY APPROACH DIMENSIONS SHALL NOT BE ADJUSTED WITHOUT SPECIFIC PRIOR (BEFORE FORMING) INSPECTOR APPROVAL.
5. CONCRETE STRENGTH SHALL BE 3000 P.S.I. IN 28 DAYS. NO COLOR ADDITIVES SHALL BE USED.
6. 2% MAX. CROSS SLOPE OF SIDEWALK IS MeASURED FROM BACK OF WALK TO FACE OF CURB. 8.33% MAX. SLOPE OF SIDEWALK TRANSITION TO DRIVEWAY IS RELATIVE TO RUNNING SLOPE OF SIDEWALK.
7. SEE MARION COUNTY DEPARTMENT OF PUBLIC WORKS ENGINEERING STANDARD DRAWING ‘STANDARD SIDEWALK DETAILS’ FOR ADDITIONAL RESTRICTIONS AND SPECIFICATIONS NOT SHOWN.
8. EXPANSION JOINTS 1/2” x 3-1/2” PREMOLDED JOINT MATERIAL AT LOCATIONS SHOWN.
NOTES:
1. WATER BARS ARE REQUIRED ON DRIVEWAYS WITH SLOPES GREATER THAN 10%.
2. ASPHALT WATER BARS (BERMS) REQUIRE A TACK COAT OF LIQUID ASPHALT TO BE APPLIED BEFORE BUILDING THE BERM SO THAT IT WILL BE STABLE AND ADHERE TO THE DRIVEWAY SURFACE.
3. THE WATER BARS (BERMS) ARE TO BE OF ADEQUATE ELEVATION AND WIDTH TO ENSURE THAT THE WATER RUNOFF WILL NOT FLOW ONTO COUNTY ROAD SHOULDERS OR TRAVELING SURFACE.
4. THE WATER BARS (BERMS) CAN BE CONSTRUCTED IN EITHER THE 'A' OR 'B' CONFIGURATION SHOWN IN DRAWING ABOVE, TO DIRECT SURFACE RUNOFF ON EITHER SIDE OF DRIVEWAY TO A CONSTRUCTED DITCH SECTION. CONTROL OF WATER FLOW INTO EXISTING ROADSIDE DITCH IS THE PRIMARY PURPOSE OF THESE WATER BARS (BERMS).
5. THE NEAREST PART OF THE WATER BAR CONFIGURATION CONSTRUCTED SHALL BE 2' TO 5' BEHIND THE CULVERT, MEASURED FROM THE CENTER OF THE CULVERT, OR A MINIMUM OF 5' MEASURED FROM THE EDGE OF PAVEMENT UNLESS OTHERWISE NOTED.
OUTSIDE OF CURVE

RIGHT-OF-WAY LINE

RSZ

LOC

SOR

SC IS 10’ MIN.

DIRECTION OF TRAVEL

DIRECTION OF TRAVEL

POINT OF TANGENCY

GENERAL CASE

RIGHT-OF-WAY LINE

SC IS 10’ MIN.

NOTES:
1. NO STRUCTURES MAY BE PLACED ON THE OUTSIDE OF A CURVE WITH A POSTED SPEED LIMIT OF 40 MPH OR OVER UNLESS PRIOR APPROVAL IS OBTAINED FROM COUNTY ENGINEER.
2. PSL = LOC + SOR

<table>
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<tr>
<td>40</td>
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<tr>
<td>45</td>
<td>255</td>
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<tr>
<td>50</td>
<td>290</td>
</tr>
<tr>
<td>55</td>
<td>325</td>
</tr>
</tbody>
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DEFINITIONS:
- P = POINT OF TANGENCY.
- PC = POINT OF CURVATURE.
- LOC = LENGTH OF CURVE (FEET) AT EDGE OF TRAVELED WAY FROM POINT OF CURVATURE TO POINT OF TANGENCY.
- SOR = SAFETY OVERRUN (FEET) BEYOND POINT OF TANGENCY.
- RSZ = RESTRICTED STRUCTURE ZONE, WHERE POLES AND/OR OBSTACLES MUST BE REMOVED OR BARRICADED AT MARION COUNTY'S DISCRETION.
- SC = STRUCTURE CLEARANCE TO NEAREST FACE OF STRUCTURE FROM EDGE OF TRAVELED WAY.
NOTES:
1. LATERAL CENTERLINE TO BE AT OR ABOVE SPRINGING LINE OF MAIN LINE.
2. LATERAL CONNECTION TO BE A MINIMUM OF 1 1/2' FROM MAIN LINE JOINT.
3. DIAMETER OF LATERAL PIPE SHALL NOT BE GREATER THAN 1/2 THE DIAMETER OF THE MAIN LINE PIPE.
4. LATERAL PIPE SHALL NOT PROJECT INSIDE OF THE MAIN LINE PIPE.
5. THE HOLE IN THE PIPE SHALL BE CUT IN A MANNER THAT DOES NOT CRACK OR OTHERWISE DAMAGE THE PIPE.
6. LATERAL DIAMETER MAXIMUM 8".
NOTES:
1. THE FOLLOWING TYPES OF MAILBOXES ARE GENERALLY NOT PERMITTED WITHIN MARION COUNTY'S RIGHT-OF-WAY:
   1.1. MASONRY STRUCTURES.
   1.2. FACADES OF ANY TYPE.
   1.3. WELDMENT STRUCTURES SUCH AS HEAVY CHAIN, CRANK SHAFTS, GEAR ASSEMBLIES, HORSESHOES, ETC.
   1.4. FARM IMPLEMENTS.
   1.5. MAILBOX ENCLOSURES SUCH AS WELL-CASING, PIPES, BOXES, CAGES, PLATE STEEL WELDMENTS, ETC.
   1.6. MAILBOXES ON HORIZONTAL PLANKS.
   1.7. MAILBOX RECEPTACLES HEAVIER THAN 11 POUNDS.
2. MAILBOXES OF HEAVY GAGE STEEL, CAST IRON, AND OTHER MATERIALS HAVE BEEN DESIGNED AND SOLD TO DETER VANDALISM. ALTHOUGH MANY OF THESE BOXES MEET THE U.S. POSTAL SERVICE REQUIREMENTS, IF THEY ARE GREATER THAN 11 LBS, THEY WILL NOT BE PERMITTED IN MARION COUNTY RIGHT-OF-WAY. THESE HEAVY-DUTY BOXES ARE POTENTIALLY HAZARDOUS TO OCCUPANTS OF ERRANT VEHICLES REGARDLESS OF THE TYPE OF SUPPORT THAT IS USED.
3. MAILBOX MUST BE SECURELY ATTACHED TO POST.
4. CONCRETE COLLAR MAY BE REQUIRED AS DIRECTED BY THE COUNTY ENGINEER.
5. MAILBOX INSTALLATIONS WITH GREATER THAN TWO MAILBOXES REQUIRE A MULTIPLE MAILBOX SUPPORT. SEE SHEET 2.
6. HEIGHT OF MAILBOX TYPICAL WITH LOCAL UNITED STATES POSTAL SERVICE OFFICE REQUIREMENTS.
7. SEE PAGE 2 OF MARION COUNTY DEPARTMENT OF PUBLIC WORKS ENGINEERING STANDARD DRAWING ‘MAILBOX AND POST INSTALLATIONS IN COUNTY RIGHT-OF-WAY’ FOR MORE DETAILS.
TYPICAL METAL POST INSTALLATION

SINGLE MAILBOX SUPPORT
FRONT
SIDE

SEE DETAIL A

OPTIONAL ANTI-TWIST DEVICE

2" OUTSIDE DIAMETER STANDARD STEEL OR ALUMINUM PIPE POST

1/4" STOVE BOLTS

1 1/8"

SINGLE 2" x 4"x
1/8" x 4" ANGLE

3/4" x 3" BOLT
WITH LOCK WASHER AND NUT

MULTIPLE MAILBOX SUPPORT
FRONT
SIDE

CONCRETE COLLAR WHEN REQUIRED

2" OUTSIDE DIAMETER THIN WALL FORMED TUBE SUPPORT FRAME

2'-6"

SEE DETAIL B

ANGLE LEG

CONCRETE COLLAR WHEN REQUIRED

SEE DETAIL B

ANGLE LEG

WEDGE

SELF TAPPING SCREW

DIRECTION OF VEHICLE TRAVEL

NOTES:
1. SEE PAGE 1 OF MARION COUNTY DEPARTMENT OF PUBLIC WORKS ENGINEERING STANDARD DRAWING "MAILBOX AND POST INSTALLATIONS IN COUNTY RIGHT-OF-WAY" FOR NOTES AND SPECIFICATIONS.
NOTES:
1. IF SHOULDER IS ALREADY LOW, IT WILL BE NECESSARY TO BLADE DEEP ENOUGH TO REMOVE ANY SOD.
2. WHEN WIDENING IS NOT REQUIRED, EXCAVATE 6–1/2” AND PLACE 6” OF 3/4” TO 1” MINUS AGGREGATE.
3. WHEN ROAD WIDENING IS REQUIRED, SEE MARION COUNTY DEPARTMENT OF PUBLIC WORKS ENGINEERING STANDARD DRAWINGS 'ROAD WIDENING DETAILS – RURAL' AND 'ROAD WIDENING DETAILS – URBAN' FOR DEPTH OF EXCAVATION AND BASE.

### MAILBOX TURNOUT TABLE

<table>
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<th>ROAD WIDTH</th>
<th>TURNOUT WIDTH</th>
<th>TAPER LENGTH</th>
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<tr>
<td>20’</td>
<td>4’</td>
<td>12’</td>
</tr>
<tr>
<td>22’ TO 32’</td>
<td>3’</td>
<td>10’</td>
</tr>
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4. SEE MARION COUNTY DEPARTMENT OF PUBLIC WORKS ENGINEERING STANDARD DETAIL 'MAILBOX AND POST INSTALLATIONS IN COUNTY RIGHT–OF–WAY'.
NOTES:

1. PRIOR TO PAVING, LOWER MANHOLE BY REMOVING FRAME/COVER AND ADJUSTMENT RINGS (AS NECESSARY). PLACE STEEL PLATE OVER MANHOLE. STEEL PLATE SHALL BE CAPABLE OF H2O (16,000 LBS) TRAFFIC LOADING SPECIFICATIONS AS SET BY AASHTO.

2. CIRCULAR SAW CUT EXCAVATION AROUND MANHOLE 12" MINIMUM FROM MANHOLE FRAME. NOTE: SAW CUT SHALL BE SEGMENTAL.

3. RAISE MANHOLE FRAME AND COVER TO GRADE AND PROFILE BY INSTALLING CONCRETE RINGS AND LEVELING MORTAR.

4. BACKFILL WITH HIGH EARLY-STRENGTH PORTLAND CEMENT CONCRETE TO FINISH GRADE OF PMAC BASE COURSE. COMPACT SUBGRADE AS SPECIFIED PRIOR TO PLACEMENT OF PORTLAND CEMENT CONCRETE.

5. COVER MANHOLE WITH STEEL PLATE. STEEL PLATE SHALL OVERLAP SAW CUT 24" MINIMUM, AND SHALL BE CAPABLE OF H2O (16,000 LBS) TRAFFIC LOADING SPECIFICATIONS AS SET BY AASHTO.

6. APPLY TACK COAT TO EXPOSED CONCRETE SURFACES PRIOR TO PAVING.

7. AFTER PORTLAND CEMENT CONCRETE HAS CURED (3000 PSI IN 24 HOURS), PLACE PMAC WEARING COURSE AS SHOWN.
NOTES:
1. THE FOLLOWING MATERIALS AND ITEMS OF WORK SHALL BE PROVIDED BY THE PRIVATE SURVEYOR: PROVIDE, DRIVE AND SET CAP ON 5/8" DIAMETER ROD, WITH PORTLAND CEMENT CONCRETE BASE.
2. THE CONTRACTOR WILL BE REQUIRED TO PROVIDE THE FOLLOWING MATERIALS AND ITEMS OF WORK: EXCAVATION, INCLUDING EXCAVATION BELOW NORMAL ROADWAY EXCAVATION PAYLINE, PLACING 1/2" MASTIC, PROVIDING, SETTING AND ADJUSTING MONUMENT BOX TO FINISH GRADE, BACKFILLING AND PAVING. BACKFILL SHALL CONSIST OF HMAC PAVEMENT (PORTLAND CEMENT CONCRETE MAY BE ALLOWED WITH PRIOR APPROVAL OF THE COUNTY ENGINEER OR COUNTY SURVEYOR).
3. PROPOSED LOCATIONS OF MONUMENTS SHALL BE SHOWN ON THE PROJECT PLANS AND ARE APPROXIMATE ONLY. EXACT LOCATION WILL BE DETERMINED AT THE TIME OF CONSTRUCTION.
4. 24" DIAMETER HOLE IS ACCEPTABLE FOR 14" DIAMETER BOX ON LOCAL STREETS WITH PREVAILING SPEEDS LESS THAN 35 MPH.
NOTES:
1. SEE MARION COUNTY DEPARTMENT OF PUBLIC WORKS ENGINEERING SPECIAL PROVISION 'NON-COMPRESSIBLE BACKFILL (CDF–CONTROLLED DENSITY FILL)' FOR SPECIFICATIONS.
2. PROVIDE BATCH TICKETS AND TEST CYLINDERS FOR EACH LOAD TO THE COUNTY INSPECTOR, WHEN REQUIRED.
3. IF CDF IS USED AS A DRIVABLE SURFACE, IT MUST BE DUG OUT BEFORE PAVING.
NOTES:

1. APPROACH WIDTH (W):
   1.1 RESIDENTIAL 12' TO 24'
   1.2 COMMERCIAL 28' TO 40'
   1.2.1 FOR COMMERCIAL DRIVEWAYS, WIDTH SHALL BE SET BY COUNTY ENGINEER ON A SITE SPECIFIC BASIS.

2. FLARE:
   2.1 36° FOR COMMERCIAL AND INDUSTRIAL WHERE TRAVEL LANE IN STREET IS ADJACENT TO CURB. (I.E. PARKING PROHIBITED).
   2.2 NONE REQUIRED FOR RESIDENTIAL AND COMMERCIAL WHERE PARKING IS ALLOWED IN STREET ADJACENT TO CURB.

3. BROOMING DIRECTION:
   3.1 BACK OF WALK TO FACE OF CURB.

4. DEEP SCORING, SHINING & EXPANSION JOINTS:
   4.1 DEEP SCORED CONTRACTION JOINTS ARE TO BE MADE EVERY 5' OF SIDEWALK AND EVERY 15' OF CURB. WHEN CURB IS CUT TO ALLOW FOR A DRAIN LINE, A DEEP SCORE IS TO BE MADE AT BOTH CURB EDGES, NOT OVER PIPE. SEE NOTE 4.4.5 BELOW.
   4.2 DEEP SCORED CONTRACTION JOINTS ARE TO BE FORMED TO A DEPTH OF 1-1/4' X 1-1/4' IN WIDTH.
   4.3 EXPANSION JOINTS USING 1/2' X 3-1/2' PRE-MOLDED JOINT FILLER MATERIAL ARE REQUIRED AT:
   4.3.1 ALONG SIDEWALK AT DRIVEWAY – A PROPERTY LINE SIDEWALK WILL REQUIRE EXPANSION JOINTS ON BOTH SIDES OF SIDEWALK.
   4.3.2 ALONG SIDEWALK WHERE IT INTERSECTS ANOTHER SIDEWALK.
   4.3.3 AT EDGES OF UTILITY VAULTS OR OTHER STRUCTURES EXPOSED TO SIDEWALK.
   4.3.4 IN SIDEWALK TO ISOLATE A WHEELCHAIR RAMP.
   4.3.5 ON CURB SIDEWALKS PLACED AT 90° ACROSS THE SIDEWALK AT BEGINNING (TOP) OF CURB TRANSITION.
   4.3.6 NO RUNNING PIECE OF SIDEWALK SHALL BE MORE THAN 40' WITHOUT AN EXPANSION JOINT.

5. CONCRETE SPECIFICATIONS:
   5.1 A MINIMUM OF 3,000 PSI CONCRETE IN 28 DAYS SHALL BE USED FOR ALL CURBS, DRIVEWAY APPROACHES AND SIDEWALKS.
   5.2 CONCRETE SHALL BE AIR ENTRAINED; TOTAL AIR CONTENT (PERCENT BY VOLUME OF CONCRETE) SHALL BE BETWEEN 5% AND 7%.

6. CURB REMOVAL:
   6.1 WHEN FULL HEIGHT CURB SECTION IS REMOVED, THE FOLLOWING PROVISIONS SHALL APPLY:
   6.1.1 VERTICAL SAW CUTS SHALL BE MADE AT OUTSIDE EDGES OF CURB TRANSITIONS. THIS APPLIES TO BOTH TYPE A AND TYPE C CURBS. WHEN WEEP HOLES ARE TO BE INSTALLED, ADDITIONAL CURB WILL NEED TO BE REMOVED.
   6.1.2 FOR TYPE A CURB AND GUTTER, THE ENTIRE CURB AND GUTTER SHALL BE REMOVED AND RE-POURED. MATERIAL IN CURB AREA SHALL BE REMOVED TO SUBGRADE AND RE-POURED. PROVIDE 6" OF CONCRETE BELOW FLOW LINE IN CURB AREA.
   6.1.3 TYPE C CURB SHALL BE REMOVED TO FULL DEPTH AND RE-POURED. PROVIDE 10" OF CONCRETE BELOW ASPHALT IN CURB AREA.

7. DRAIN LINES:
   7.1 WEEP HOLES FOR DRAINS ARE TO EXIT IN A FULL HEIGHT CURB SECTION OUTSIDE CURB TRANSITION AREA OF DRIVEWAY. DRAIN LINES IN SIDEWALK ARE TO BE LOCATED UNDER OR ADJACENT TO A CONTRACTION JOINT. DRAIN LINES ARE TO CROSS SIDEWALKS AT 90° (PERPENDICULAR) TO CURB.
   7.2 WHERE CURB CUTS ARE MADE FOR CONSTRUCTION OF A DRIVEWAY APPROACH, ONE DRAIN LINE IS ALLOWABLE IN CURB TRANSITION AREA IF LINE IS PLACED DIRECTLY ADJACENT TO CURB CUT (HIGHEST POINT OF TRANSITION).
   7.3 DRAIN LINES ARE TO BE PLACED AT GUTTER FLOW LINE.
   7.4 DRAIN PIPE IS TO BE PLACED ADJACENT TO CURB CUT. A CONTRACTION JOINT IS TO BE SCORED ALONG BOTH CUTS.
SEE 'DETECTABLE WARNING SURFACE LOCATIONS' DETAIL

NOTES:
1. USE ALTERATIONS ONLY WHEN SITE OR DESIGN CONSTRAINTS PROHIBIT INSTALLING NEW RAMPS.
2. RAMPS SHALL HAVE 2% MAX. CROSS SLOPE.
3. TURNING SPACE NOTES:
   3.1. NEW CONSTRUCTION SHALL BE 4' x 4' MINIMUM
   3.2. ALTERATIONS TO EXISTING SHALL BE 3' x 3' MINIMUM.
   3.3. MAXIMUM SLOPE SHALL BE 2% IN ANY DIRECTION.

Slope 1.5% max.
(Max. 2.0% finished)

Slope 7.5% max.
(Max. 8.3% finished)

Detectable Warning Surface

Counter Slope (5.0% max.)
NOTES:
1. USE ALTERATIONS TURNING SPACE ONLY WHEN SITE OR
   DESIGN CONSTRAINTS PROHIBIT A LARGER AREA.
2. COUNTER SLOPE IS 5% MAX, CROSS SLOPE IS 2% MAX.

- SLOPE 1.5% MAX.
  (MAX. 2.0% FINISHED)

- SLOPE 7.5% MAX.
  (MAX. 8.3% FINISHED)

- DETECTABLE WARNING SURFACE
TYPICAL PATCH FOR FLEXIBLE PAVEMENT

OIL MAT (MACADAM) PAVEMENT

C MIX ASPHALT CONCRETE REPLACEMENT PATCH – 4" MIN. IN 2 LIFTS.
(TACK JOINTS WITH EMULSIFIED ASPHALT BEFORE PAVING)

- REMOVE LOOSEND MATERIAL
- EXISTING OIL MAT
- EXISTING EARTH OR GRANULAR BASE
- VERTICAL CUT (SEE NOTE 1)
- 3/4" TO 1" MINUS COMPACTED CRUSHED AGGREGATE 6" MIN. THICKNESS OR MATCH EXISTING BASE
- COMPACTED TRENCH BACKFILL 3/4" TO 1" MINUS CRUSHED ROCK
- TRENCH WIDTH
- EXISTING ASPHALT CONCRETE SURFACE
- VERTICAL CUT (SEE NOTE 1)
- 1" MIN. SAW CUT BEYOND ANY BROKEN PAVEMENT (SEE NOTE 3)
- EXISTING ASPHALT CONCRETE SURFACE

TYPICAL PATCH FOR RIGID PAVEMENT

ASPHALT CONCRETE SURFACE

PORTLAND CONCRETE CEMENT PAVEMENT

MATCH EXISTING CLASS "C" ASPHALT CONCRETE PAVEMENT

- REMOVE LOOSEND MATERIAL
- EXISTING ASPHALT PAVEMENT
- VERTICAL CUT (SEE NOTE 2)
- 6" MIN. CLASS A/3000 P.S.I. P.C.C.
- EXISTING P.C.C.
- 3/4" TO 1" MINUS COMPACTED CRUSHED ROCK 6" MIN. THICKNESS
- COMPACTED TRENCH BACKFILL 3/4" TO 1" MINUS CRUSHED ROCK
- TRENCH WIDTH
- EXISTING P.C.C.
- VERTICAL CUT (SFF NOTE 2)

NOTES:
1. CUTS IN ASPHALT CONCRETE PAVEMENT SHALL BE MADE WITH HYDRAULICALLY–OPERATED SPADE–TIPPED PAVEMENT BREAKER, CUTTING WHEEL, CONCRETE SAW, OR OTHER APPROVED METHOD. INTERMITTENT PUNCHING WITH A POINTED JACK HAMMER BIT WILL NOT BE PERMITTED.
2. CUTS IN PORTLAND CONCRETE CEMENT PAVEMENT SHALL BE MADE WITH A CONCRETE SAW.
3. SAND AND SEAL 4" BAND OVER JOINT WITH AR4000 OR EQUIVALENT.

MARION COUNTY DEPARTMENT OF PUBLIC WORKS

PAVEMENT PATCHING
SOIL CONSERVATION SERVICE
TR–55 LAG–Tc METHOD PEAK DISCHARGE COMPUTATION SHEET

INPUT
1. (IN) (24 HOUR) (____–YR FREQ.)
   RAINFALL (MAP EXHIBIT 2–3A)

2. 
   RUNOFF CURVE NO. (EXHIBIT 2–2A)

3. ________ FT
   HYDRAULIC LENGTH

4. ________ %
   WATERSHED SLOPE

5. ________ %
   HYDR. LENGTH MODIFIED

6. ________ %
   IMPERVIOUS AREA

7. ________ SQ MI
   DRAINAGE AREA (DA)

8. ________ %
   PONDS, SWAMPS

9. ________ HR
   BASIC LOG

10. FIGURE 3–3
    HYDR. LENGTH ADJ.

11. FIGURE 3–4
    IMP. AREA ADJ.

12. ________ HR
    Tc

13. ________ IN
    PEAK FACTOR
    RUNOFF VOLUME

14. ________ CSM/IN
    FIG. 2
    BASIC PEAK DISCHARGE

15. ________ SQ MI
    FIGURE 2
    DRAINAGE AREA

16. ________
    TABLE E–2, E–3, OR E–4
    LOCATION DETERMINES TABLE

17. ________ CFS
    PONDS, SWAMPS ADJ.

ADJUSTED PEAK DISCHARGE

MARION COUNTY DEPARTMENT OF PUBLIC WORKS

FILE: C:\ENGINEERING\L1\L2\L1\151\USGS\SOIL CONSERVATION \ SERVICE TR–55 LAG–Tc METHOD PEAK DISCHARGE COMPUTATION SHEET.DOC
CREATION DATE: 07/08/1994
REVISION DATE: 11/29/2022
SCALE: N.T.S
SHEET: 1 of 1
NOTES:
1. REFLECTORIZED SHEETING SHALL BE ENGINEERING GRADE AND CONFORM TO THE FEDERAL HIGHWAY ADMINISTRATIONS 'MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES'.
SEE NOTE 2

SEE ENGINEERING
STANDARD DETAIL
'DETECTABLE WARNING
SURFACE LOCATIONS'

12" MIN.
(3" MIN. CURB EXPOSURE)

SEE NOTE 2

20" MIN. TYP.

TURNING SPACE:
• NEW CONSTRUCTION – 4' x 4' MIN.
• ALTERATIONS – 3' x 3' MIN.
• MAX. SLOPE 2% IN ANY DIRECTION.

1:1 TAPER NOMINAL

SLOPE 1.5% MAX.
(MAX. 2.0% FINISHED)

SLOPE 7.5% MAX.
(MAX. 8.3% FINISHED)

SLOPE VARIABLE

DETECTABLE WARNING SURFACE

NOTES:
1. USE ALTERATIONS ONLY WHEN SITE OR DESIGN CONSTRAINTS PROHIBIT INSTALLING A 4’ x 4’ AREA.
2. COUNTER SLOPE SHALL BE 5% MAX. CROSS SLOPE SHALL BE 2% MAX.
4" THICK CONCRETE

SEE NOTE 2

SEE NOTE 2

SEE ENGINEERING STANDARD DETAIL 'DETECTABLE WARNING SURFACE LOCATIONS'

BUFFER

BUFFER

TURNING SPACE:
- NEW CONSTRUCTION – 4' X 4' MIN.
- ALTERATIONS – 3' X 3' MIN.
- MAX. SLOPE 2% IN ANY DIRECTION

NOTES:
1. USE ALTERATIONS TURNING SPACE ONLY WHEN SITE OR DESIGN CONSTRAINTS PROHIBIT A LARGER AREA.
2. COUNTER SLOPE SHALL BE 5% MAX, CROSS SLOPE SHALL BE 2% MAX.

SLOPE 1.5% MAX.  
(MAX. 2.0% FINISHED)

SLOPE 7.5% MAX.  
(MAX. 8.3% FINISHED)

DETECTABLE WARNING SURFACE
NOTES:
1. UNLESS OTHERWISE DIRECTED BY THE COUNTY ENGINEER, MOUND TOP OF TRENCH.
2. UNLESS OTHERWISE SPECIFIED, RESURFACING SHALL CONSIST OF 8" OF 3/4" TO 1" MINUS CRUSHED AGGREGATE.
3. UNLESS OTHERWISE SPECIFIED, PAVEMENT THICKNESS SHALL CONFORM WITH MARION COUNTY ENGINEERING STANDARDS.
4. FOR ROCK OR OTHER INCOMPRESSIBLE MATERIALS, THE TRENCH SHALL BE OVEREXCAVATED A MINIMUM OF 6" AND REFILLED WITH AGGREGATE MATERIAL AS DIRECTED BY THE COUNTY ENGINEER.
5. BEDDING AND BACKFILL MATERIALS IN THE PIPE ZONE SHALL BE COMPACTED AS SPECIFIED PRIOR TO BACKFILLING THE REMAINDER OF THE TRENCH.
6. ENGINEER MAY REQUIRE NON-COMPRESSIBLE BACKFILL IN PLACE OF AGGREGATE. SEE MARION COUNTY DEPARTMENT OF PUBLIC WORKS ENGINEERING STANDARD DETAIL 'NON-COMPRESSIBLE BACKFILL (CDF – CONTROLLED DENSITY FILL)' FOR SPECIFICS.
NOTES:
1. ALL HOLES SHALL BE CORE DRILLED. THE MAXIMUM DIAMETER OF THE CORE SHALL BE 10".
2. PRIOR TO BACKFILLING, ALL SIDES OF THE POTHOLE SHALL BE VISIBLE FROM THE SURFACE. POTHOLE WALLS THAT CANNOT BE SEEN SHALL BE EXCAVATED OPEN.
3. IF POTHOLES ARE CLOSER THAN 5' APART (EDGE TO EDGE AT BASE OF POTHOLE) THEN POTHOLES SHALL BE DUG OUT TO BE A CONTINUOUS TRENCH.
4. POTHOLES ARE TO BE BACKFILLED WITH A NON-COMPRESSIBLE BACKFILL (CDF – CONTROLLED DENSITY FILL) AND TOPPED WITH 6" OF COLD ASPHALT MIX AND LEFT 1/2" ABOVE GRADE.
5. TRENCHES SHALL BE BACKFILLED WITH CONTROLLED DENSITY FILL, "T" PATCHED WITH A MINIMUM OF 6" OF ASPHALT OR MATCH EXISTING PAVEMENT (WHICHEVER IS GREATER) UP TO THE LEVEL OF THE ORIGINAL PAVEMENT. SEE MARION COUNTY DEPARTMENT OF PUBLIC WORKS ENGINEERING STANDARD DRAWING 'BLANKET INLAY' FOR MORE DETAILS.
6. POTHOLES OR TRENCHES WITHIN 5' FROM EDGE OF ROAD OR FACE OF CURB SHALL BE BACKFILLED WITH CDF AND TOPPED WITH 6" OF COMPACTED 3/4" TO 1" MINUS AGGREGATE OR AS DIRECTED BY COUNTY INSPECTOR.
7. CDF BATCH TICKETS MUST BE GIVEN TO THE COUNTY INSPECTOR BEFORE PAVING.
INSTRUCTIONS:
1. LABEL FINISHED PAVEMENT ELEVATIONS AT LARGE DOTS.
2. LABEL PROJECTED TOP OF CURB AND FLOW LINE ELEVATIONS AT DIAMONDS.
3. DRAW ARROWS FOR SURFACE FLOW DIRECTION AT SMALL DOTS.
4. MODIFY TYPICAL DIMENSIONS SHOWN AS NEEDED.

GENERAL NOTES:
1. THE CENTERLINE OF THE MINOR STREET SHALL TIE INTO THE EDGE OF THE TRAVEL LANE OF THE MAJOR STREET.
2. DIMENSIONS SHOWN ARE TYPICAL AND SHALL BE USED FOR EXAMPLE.

LEGEND:
- FINISHED PAVEMENT ELEVATIONS
- PROJECTED TOP OF CURB AND FLOW LINE ELEVATIONS
- SURFACE FLOW DIRECTION MARKERS
NOTES:
1. MILL EXISTING PAVEMENT TO A MINIMUM DEPTH OF 1 1/2". SAND AND SEAL PAVING JOINTS WITH HOT PAVING GRADE OIL (PG 64–22 OR EQUIVALENT)
NOTES:
1. MILL EXISTING PAVEMENT TO A MINIMUM DEPTH OF 1 1/2". SAND AND SEAL PAVING JOINTS WITH HOT PAVING GRADE OIL (PC 64–22 OR EQUIVALENT)
NOTES:
1. SEE MARION COUNTY DEPARTMENT OF PUBLIC WORKS ENGINEERING SPECIAL PROVISION 'UNDERGROUND WORK IN THE ROADBED INFLUENCE ZONE (IN-ZONE)' FOR ADDITIONAL SPECIFICATIONS.
NOTES:
1. DIMENSIONS SHOWN ARE TYPICAL. THEY SHALL BE VARIED AS NECESSARY TO CONFORM TO PAVEMENT WIDTH
DRIVEWAY SLOPING UP FROM ROAD

NOTES:

1. THE SURFACE ELEVATION ON THE ACCESS OVER THE CULVERT PIPE SHALL BE 2 1/2" LOWER THAN THE EDGE OF THE ROAD PAVEMENT. SEE MARION COUNTY DEPARTMENT OF PUBLIC WORKS ENGINEERING STANDARDS FOR MORE DETAILS.

2. IF THE DIFFERENCE IN ELEVATION BETWEEN THE DRIVEWAY ELEVATION AT THE CULVERT AND A POINT 20' BACK FROM THE CULVERT IS:
   2.1. 1' OR LESS, THE DRIVEWAY SHALL HAVE DITCHES ON EACH SIDE TO DRAIN INTO THE ROADSIDE DITCH AND SHALL BE CROWNED TO SHED THE DRAINAGE TO THE DITCHES.
   2.2. 1' TO 2', THE DRIVEWAY SHALL BE PAVED FROM THE ROAD TO 10' BEYOND THE CULVERT. THE DRIVEWAY SHALL BE CROWNED AND THE DRIVEWAY DITCHES SHALL BE RIP-RAPPED ALONG THE PAVED DRIVEWAY.
   2.3. 2' OR MORE, THE DRIVEWAY SHALL BE PAVED FROM THE ROAD TO 15' BEYOND THE CULVERT. THE DRIVEWAY SHALL BE CROWNED WITH THE DRIVEWAY DITCHES PAVED ALONG THE PAVED DRIVEWAY. THERE SHALL ALSO BE A SLOTTED DRAIN OR WATER BAR ANGLED ACROSS THE PAVED DRIVEWAY. SEE MARION COUNTY DEPARTMENT OF PUBLIC WORKS ENGINEERING STANDARD DETAIL 'SLOTTED DRAIN DETAIL' FOR MORE DETAILS.

3. RIP-RAP 4" TO 6" PIT RUN X MIN. 8" THICK OR OREGON DEPARTMENT OF TRANSPORTATION CLASS 50.
DRAIN TO DRIVEWAY DRAINAGE SWALE
OR PIPE TO COUNTY ROADSIDE DITCH

RIGHT-OF-WAY

CULVERT (WHEN REQUIRED)

FLOW DIRECTION

2' MIN. TO 5' MAX.

ROADSIDE DITCH LINE

GRAVEL OR ASPHALT SURFACE

END CAP

FLOW DIRECTION

CHANNEL

OUTLET

NOTES:
1. CONSTRUCT SLOTTED DRAIN PER MANUFACTURER’S SPECIFICATIONS, MUST BE NO LESS THAN 2’ BUT NO MORE THAN 5’ MEASURED FROM THE CENTER OF THE CULVERT TO CENTER OF OUTLET OR A MINIMUM OF 5’ MEASURED FROM THE EDGE OF ROADWAY PAVEMENT.
2. SLOTTED DRAIN TO BE MAINTAINED BY PROPERTY OWNER.
NOTES:
1. PIPES CAN BE PLACED IN ANY WALL. MAXIMUM PIPE SIZE IS 18".
2. ALL CONCRETE SHALL BE IN COMPLIANCE WITH THE MOST RECENT EDITION OF THE OREGON DEPARTMENT OF TRANSPORTATION OREGON STANDARD SPECIFICATIONS.
3. DRAINS SHALL BE 4" CONCRETE DRAIN TILE.
4. TO CONSTRUCT CLEANOUTS, REPLACE GRATE WITH 1'-3 1/2" x 1'-11 1/2" STEEL PLATE 3/4" THICK. DRILL ONE 1" DIAMETER LIFT HOLE NEAR ONE END PLATE.
5. LOCATION, PIPE SIZE, AND ELEVATION, SHALL BE SHOWN ON PROJECT PLANS. STATION SHOWN ON PROJECT PLANS IS TO CENTERLINE OF CATCH BASIN.
6. SEE MARION COUNTY DEPARTMENT OF PUBLIC WORKS ENGINEERING STANDARD DETAIL 'CATCH BASIN GRATES AND FRAMES TYPES A AND B' FOR GRATE AND FRAME DETAILS.
WARP PAVING AS SHOWN TO FORM LOCAL DEPRESSION (DEPTH 1")

SECTION A-A

SECTION B-B

NOTES:
1. SEE MARION COUNTY DEPARTMENT OF PUBLIC WORKS ENGINEERING STANDARD DETAIL 'CATCH BASIN GRATES AND FRAMES TYPE A AND B' FOR MORE DETAILS.
2. DRAINS SHALL BE 4" CONCRETE DRAIN TILE.
3. LOCATION, PIPE SIZE, AND ELEVATION SHALL BE SHOWN ON PROJECT PLANS.
4. PIPES CAN BE PLACED IN ANY WALL.
5. MAXIMUM PIPE SIZE 18".
6. STATION SHOWN ON PROJECT PLAN SHALL BE TO CENTERLINE OF CATCH BASIN.
NOTES:
1. LOCATION, PIPE SIZE, AND ELEVATION, SHALL BE SHOWN ON PROJECT PLANS.
2. CATCH BASIN MAY BE BUILT WITH OR WITHOUT A SUMP, AS DIRECTED BY THE COUNTY ENGINEER.
4. SEE MARION COUNTY DEPARTMENT OF PUBLIC WORKS ENGINEERING STANDARD DETAIL 'TYPE 3 CATCH BASIN FRAME AND GRATE' FOR MORE DETAILS.
5. PLACE CLASS 50 RIP-RAP IN FRONT OF CATCH BASIN 4’ TO 5’ LONG, 1’ IN DEPTH.
6. RIP-RAP SHALL BE GROUTED.
TYPE 3 CATCH BASIN FRAME AND GRATE

NOTES:
1. LOCATION, PIPE SIZE, AND ELEVATION, SHALL BE SHOWN ON PROJECT PLANS.
2. SEE MARION COUNTY DEPARTMENT OF PUBLIC WORKS ENGINEERING STANDARD DETAIL 'TYPE 1 AND CLEANOUT' FOR MORE DETAILS.
3. CATCH BASIN MAY BE BUILT WITH OR WITHOUT A SUMP, AS DIRECTED BY THE COUNTY ENGINEER.
24 3/4" CLASS 30 CAST IRON HEAVY TRAFFIC LOADING COVER, DIAMOND STYLE SURFACE (INLAND FOUNDRY NO. 706 OR APPROVED EQUAL).

CLASS 30, 4 1/4" X 23 1/4" FLANGE UP CAST IRON FRAME RING HEAVY TRAFFIC LOADING (INLAND FOUNDRY NO. 706 OR APPROVED EQUAL).

PERSPECTIVE VIEW

TOP OF CURB
GUTTER FLOW LINE

PLAN TOP SECTION
1/2" X 10" ANCHOR BOLTS NUT
GUTTER FLOW LINE

PLAN BASE SECTION
BACK OF CURB
TOP FACE OF CURB
BOTTOM FACE OF CURB

GUTTER FLOW LINE
1/2" X 1/4" ANGLE NOSING
6" RADIUS NOSING AT TOP
TOP FACE OF CURB
LIMITS OF GUTTER

NOTES:
1. CONCRETE SHALL ATTAIN A STRENGTH OF 3000 P.S.I. IN 28 DAYS.
2. TOP SHALL BE REINFORCED WITH 4" X 4" X 6-6 WIRE MESH.
3. ALL METAL PARTS SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION.
4. COVER SHALL BE ASTM 1-48 CLASS 30 CAST IRON.
5. DRAIN SHALL BE P.V.C. (SCHEDULE 40) WITH CAP. DRAIN PIPE SHALL HAVE 6 3/8" DIAMETER HOLES IN LOWER SIDE. CAP SHALL HAVE 4 3/8" DIAMETER DRILL HOLES. TWO DRAINS REQUIRED WHEN CATCH BASIN LOCATED AT SAG VERTICAL CURVE.
6. SEE STANDARD DETAIL 'TYPE 4 CATCH BASIN B' FOR ADDITIONAL DETAILS.
SECTION A--A

GUTTER FLOW LINE

1/2" X 8" ANCHOR BOLTS

TOP OF FACE CURB
ANGLE NOSING
3 1/2" X 3
1/2" X 1/4"

NORMAL GUTTER

SEE SECTION B--B DETAIL

SECTION B--B

COVER
24 3/4" LID
SLOPE - 1/4"/FT

CLASS 30 CAST IRON FRAME AND COVER

SECTION B--B DETAIL

KEY WAY

SECTION C--C

TOP CURB GRADE

SUBGRADE
4" PERFORATED DRAIN PIPE AT SUBGRADE

AGGREGATE BACKFILL

CONCRETE

SLOPE

VARIABLE

4" X 4"-6-6 WIRE MESH REINFORCING

#3 REBAR PROJECTED 12" BEYOND STRUCTURE PLACES

REINFORCING STEEL DETAIL

NOTES:
1. SEE MARION COUNTY DEPARTMENT OF PUBLIC WORKS ENGINEERING STANDARD DETAIL "TYPE 4 CATCH BASIN -- A" FOR FULL DETAILS AND NOTES.

MARION COUNTY DEPARTMENT OF PUBLIC WORKS

TYPE 4 CATCH BASIN -- B
CAST IRON / CAST STEEL GRATE FRAMES

NOTES
1. ALL CASTINGS SHALL CONFORM TO ASTM A-48 (AASHTO M105) FOR GRAY IRON CASTINGS, CLASS 30, OR (AASHTO M192), CLASS 70, FOR CAST STEEL.
2. ROUNDS, FILLETS, TAPERS AND OTHER MINOR MODIFICATIONS TO THE DIMENSIONS SHOWN FOR CASTINGS MAY BE MADE TO CONFORM TO COMMON SHOP PRACTICES, AS DETERMINED BY COUNTY ENGINEER.
NOTES:
1. COVER AND FRAME TO BE MACHINED FOR TRUE BEARING.
2. SANITARY SEWER MANHOLE COVERS SHALL HAVE 2 HOLE LIDS.
3. STORM DRAIN MANHOLE COVERS SHALL HAVE 16 HOLE LIDS.
4. CAST IRON ADJUSTMENT RINGS ALLOWED ONLY WITH OVERLAYS AND NOT ON NEW MANHOLES. MAXIMUM 1 ADJUSTMENT RING PER MANHOLE.
5. STANDARD DEPTHS ARE 1.5", 2", 2.5", OR 3".
GUTTER NOTES:
1. SLOPE 5% NORMAL.
2. SLOPE –5% MAX ON HIGH SIDE CURB ON STREETS HAVING SHED SECTION.

GENERAL NOTES:
3. CURB TYPE SHALL BE SHOWN ON PLANS.
4. CONSTRUCT EXPANSION JOINTS AT 200 FOOT MAXIMUM SPACING.
5. CONSTRUCT CONTRACTION JOINTS AT 10 FOOT SPACING.
6. 3000 PSI CONCRETE TO BE USED FOR ALL CURBS, UNLESS NOTED OTHERWISE ON PROJECT PLANS.
7. CURBS AND GUTTERS SHOWN MAY BE USED WITH EITHER ASPHALTIC CONCRETE OR PORTLAND CEMENT CONCRETE PAVEMENTS.
8. TRANSITIONS FROM ONE TYPE OF CURB TO ANOTHER SHALL BE SHOWN ON PROJECT PLANS.
1. PREMOLDED JOINT FILLER MATERIAL SHALL BE PLACED ON ALL EDGES OF UTILITY VAULTS OR STRUCTURES EXPOSED TO SIDEWALK. MATERIAL SHALL BE RECESSED OR CUT TO WITHIN 1/2" OF FINISHED CONCRETE SURFACE.

2. 3000 P.S.I. CONCRETE IN 28 DAYS TO BE USED ON SIDEWALKS. NO COLOR ADDITIVES ARE ALLOWED.

3. PAVEMENT, TURF OR PLANTED AREAS DISTURBED BY SIDEWALK CONSTRUCTION SHALL BE RESTORED TO ORIGINAL CONDITION OR BETTER.

4. TRANSITION SLOPE TO SIDEWALK (8.33% MAX LONGITUDINAL SLOPE, BUT NOT EXCEEDING 12' TOTAL LENGTH).

5. CONTRACTION JOINTS SHALL BE 1-1/4" x 1/4" WIDE, SPACED 5' ON CENTER.

6. INSTALL 3" ROOF DRAINS UNDER SIDEWALK TO MEET EXISTING WEEP HOLES IN CURB. PROVIDE CONTRACTION JOINT OVER OR ADJACENT TO DRAIN PIPE. WHERE NO WEEP HOLES EXIST, INSTALL WEEP HOLES AND DRAINS AS DIRECTED BY COUNTY ENGINEER.

7. EXPANSION JOINTS 1/2" X 3-1/2" PREMOLDED JOINT FILLER MATERIAL, SPACED 40' ON CENTER.

8. PLACE EXPANSION JOINTS AT ADJACENT CONCRETE STRUCTURES, IN LONG RUNS OF WALK OVER 40', AND AT SIDEWALK RAMPS.

SLOPE 1.5% MAX.
(MAX. 2.0% FINISHED)

SLOPE 7.5% MAX.
(MAX. 8.3% FINISHED)

DETECTABLE WARNING SURFACE
LEACH LINE MIN 50' AT 1/4" PER FOOT (PERPENDICULAR TO SLOPE OF LAND)

SLOPE OF LAND NOT TO EXCEED 10%

TRASH TRAP

ROOF DRAIN

HOUSE

MARION COUNTY DEPARTMENT OF PUBLIC WORKS

STANDARD TRASH TRAP AND LEACH LINE PLAN

MARION COUNTY

REVISIONS

DATE DESCRIPTION OF CHANGE

12/20/2004

12/28/2022

N.S.

1/12
NOTES:
1. TELECOMMUNICATIONS AND POWER SHALL BE PLACED ON THE SOUTH OR WEST SIDE OF THE ROAD. GAS SHALL BE PLACED ON THE NORTH OR EAST SIDE OF THE ROAD.
2. UTILITY DEPTH SHALL BE AS SHOWN IN THE TABLE BELOW. DEPTH SHALL BE MEASURED FROM THE BOTTOM OF DITCH, IF PRESENT.

<table>
<thead>
<tr>
<th>UTILITY UNDERGROUND DEPTH (SEE NOTE 2)</th>
<th>DEPM</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>POWER</td>
<td>36&quot;</td>
<td></td>
</tr>
<tr>
<td>GAS (SEE NOTE 7)</td>
<td>36&quot;</td>
<td></td>
</tr>
<tr>
<td>TELECOMMUNICATION</td>
<td>30&quot;</td>
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<td>STORM</td>
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</tr>
<tr>
<td>SANITARY SEWER</td>
<td>SEE NOTE 3</td>
<td></td>
</tr>
</tbody>
</table>

3. SEWER DEPTH SHALL COMPLY WITH LOCAL JURISDICTION REQUIREMENTS.
4. FOR NATURAL GAS RELINING, 30" DEPTH MAY BE ALLOWED IF SHOWN ON PROJECT PLANS.
SPECIAL BASE FOR MANHOLES AT ANGLE POINT IN LINE

Diameter

10" 10"

#5 Dia. at 12" each way

R = 2 x Diameter (of larger pipe)

10" 10"

SECTION A-A

4" 4'-0"

2-1/2"

8" Min.

#5 Dia. at 12" each way

NOTES:
1. Precast manhole barrel sections, eccentric cone and standard frame and cover shall conform to engineering standard detail 'storm drain standard precast manhole'.
2. All concrete shall be Class 3000 - 1 1/2.
3. Form channels in manhole as shown to conform to inside diameters of pipes.
4. Plywood form manhole base.
5. Location, pipe size and elevation shall be shown on project plans.
PLAN
(FRAME AND COVER NOT SHOWN)

SECTION A-A

SET FRAME IN MORTAR BED AND SLOPE TO MATCH PAVEMENT. 2" MAX. MORTAR BED DEPTH.

8" COVER SLAB

MORTAR ALL JOINTS

COVER SLAB REINFORCEMENT

#6 BARS AT 4" ON CENTER (6)

#6 BARS (2)

2" CLEARANCE

1 1/2" CLEARANCE FOR ALL BARS

#6 BARS (2)

4" TO 8" DIA.

#4 HOOP (TOP LAYER) LAP 10"

#6 BARS AT 4" ON CENTER (2)

#6 BAR

#6 BARS AT 4" ON CENTER (2)

NOTES:
1. PRECAST BARREL SHALL BE REINFORCED CONCRETE MANHOLE SECTION CONFORMING TO ASTM C478, AASHTO M199.
2. SEE ENGINEERING STANDARD DETAIL 'STANDARD MANHOLE CASTING DETAILS' FOR MANHOLE FRAME AND COVER SPECIFICATIONS.
3. ALL CONCRETE SHALL BE CLASS 3000–1 1/2.
4. FORM CHANNELS IN MANHOLE AS SHOWN.
5. MAXIMUM PIPE SIZE SHALL BE 21". LOCATION, SIZE, AND ELEVATION SHALL BE SHOWN ON PROJECT PLANS.
6. PLYWOOD FORM MANHOLE BASE.
NOTES:
1. PRECAST BARREL, CONE, AND ADJUSTMENT RINGS SHALL BE REINFORCED CONCRETE MANHOLE SECTIONS CONFORMING TO ASTM C 478, AASHTO M199.
2. FOR STANDARD MANHOLE FRAME AND COVER DETAILS SEE ENGINEERING STANDARD DETAIL 'STANDARD MANHOLE CASTING DETAILS'.
3. FOR MANHOLE WITH "H" LESS THAN 4'-0" SEE ENGINEERING STANDARD DETAIL 'STORM DRAIN SHALLOW PRECAST MANHOLE (H LESS THAN 4'-0")'.
4. INSIDE JOINTS SHALL NOT EXCEED 3/8" IN THICKNESS.
5. FORM CHANNELS IN MANHOLE BASE AS SHOWN.
6. MAXIMUM PIPE SIZE SHALL BE 21". LOCATION, PIPE SIZE, AND ELEVATION SHALL BE SHOWN ON PROJECT PLANS.
7. PLYWOOD FORM MANHOLE BASE.
8. CONCRETE FOR BASE SHALL BE CLASS 3000 1-1/2.
ONE DIRECTIONAL STRIPING

NORMAL DOUBLE
NARROW DOUBLE
NO PASS (LEFT)

NO PASS (RIGHT)
SKIP LINE ONLY

TWO DIRECTIONAL STRIPING

NORMAL DOUBLE
NORMAL DOUBLE
NO PASS (RIGHT)

NO PASS RIGHT
SKIP LINE ONLY
SKIP LINE ONLY

NARROW DOUBLE

NO PASS (LEFT)
NO PASS (LEFT) BOTHWAYS
NO PASS (RIGHT) BOTHWAYS

NOTES:
1. STRIPING SYMBOLS ARE TO BE PAINTED BY STRIPING COMPANY PRIOR TO PAINTING STRIPES ON A ROAD.
MAINTENANCE NOTES:
1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOW OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH 2" STONE AS CONDITIONS DEMAND, AND REPAIR AND/OR CLEANOUT OF STRUCTURES USED TO TRAP SEDIMENT.
2. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY.
3. ALL TRUCKS TRANSPORTING SATURATED SOILS SHALL BE WELL SEALED. WATER DRIPPAGE FROM TRUCKS MUST BE REDUCED TO 1 GALLON PER HOUR PRIOR TO LEAVING THE SITE.

CONSTRUCTION NOTES:
4. THE AREA OF THE CONSTRUCTION ENTRANCE SHALL BE STRIPPED OF ALL TOPSOIL, VEGETATION, ROOTS, AND OTHER NON-COMPACTABLE MATERIAL.
5. SUBGRADE SHALL BE COMPACTED AND PROOF ROLLED PRIOR TO PLACEMENT OF GRANULAR MATERIAL. FAILURE TO PASS PROOF ROLL WILL REQUIRE USE OF WET WEATHER SECTION, SEE NOTE 8.

NOTES:
6. IF PRACTICABLE, GRADE 25' MIN. OF CONSTRUCTION ENTRANCE TO DRAIN AWAY FROM STREET GRADE. ADJACENT AREAS TO DRAIN AWAY FROM TEMPORARY CONSTRUCTION ENTRANCE.
7. WIDTH OF INGRESS/EGRESS AREA:
   7.1. FOR RESIDENTIAL, 20' LONG X 20' WIDE WITH 8" DEEP OF 3/4" TO 1" MINUS CLEAN CRUSHED ROCK OVER GEOTEXTILE FABRIC.
   FOR COMMERCIAL, 50' LONG X 20' WIDE WITH 8" TO 18" OF 3/4" TO 1" MINUS CLEAN CRUSHED ROCK OVER GEOTEXTILE FABRIC.
8. PLACE 3" TO 6" PIT RUN (ANGULAR) ROCK OVER 8 OUNCE NON-WOVEN GEOTEXTILE FABRIC.
DRIVEWAYS WITH CURB LINE SIDEWALK

FOR CURB & GUTTER SEE
MARION COUNTY DEPARTMENT
OF PUBLIC WORKS
ENGINEERING STANDARD
DRAWING 'STANDARD P.C.C.
CURB AND GUTTER SECTIONS'

SECTION A-A

ZONE TO MATCH EXISTING
DRIVEWAY
5' TYP. TRANSITION LENGTH

5' SIDEWALK
TYP.

1/2" RADIUS

PROJECTED BACK
OF SIDEWALK

Curb & Gutter

Pavement

6" P.C.C. RESIDENTIAL/LIGHT COMMERCIAL
8" P.C.C. HEAVY COMMERCIAL
6" MIN. COMPACTED CRUSHED AGGREGATE

SLOPE 1.5% MAX.
(MAX. 2.0% FINISHED)

SLOPE 7.5% MAX.
(MAX. 8.3% FINISHED)

NOTES:
1. DRIVEWAY WIDTH TYPICALLY SHOWN ON PROJECT PLANS. WHEN NOT SPECIFIED, WIDTH SHALL BE AS DIRECTED BY THE COUNTY ENGINEER. IN EITHER CASE, DRIVEWAY WIDTH SHALL NOT EXCEED THE LIMITS SET FORTH IN MARION COUNTY DEPARTMENT OF PUBLIC WORKS ENGINEERING STANDARDS TABLE 6.
2. SIDEWALKS, INCLUDING PORTION CROSSING DRIVEWAY, SHALL HAVE TRANSVERSE CONTRACTION JOINTS AT 5' INTERVALS AND TOOL ROUNDED BEFORE BROOMING. ALL EDGES SHALL BE TOOL ROUNDED AFTER BROOMING.
3. WHEN EXISTING DRIVEWAY CANNOT MATCH NEW DRIVEWAY WITHIN SLOPE LIMITATIONS SHOWN, ADJUST EXISTING DRIVEWAY, NOT CURB AND SIDEWALK GRADE.
4. DRIVEWAY APPROACH DIMENSIONS SHALL NOT BE ADJUSTED WITHOUT SPECIFIC PRIOR (BEFORE FORMING) INSPECTOR APPROVAL.
5. CONCRETE STRENGTH SHALL BE 3000 P.S.I. IN 28 DAYS. NO COLOR ADDITIVES SHALL BE USED.
6. 2% MAX. SIDEWALK CROSS SLOPE IS MEASURED FROM BACK OF WALK TO FACE OF CURB. 8.33% MAX. SIDEWALK TRANSITION CROSS SLOPE IS RELATIVE TO RUNNING SLOPE OF SIDEWALK.
7. SEE MARION COUNTY DEPARTMENT OF PUBLIC WORKS ENGINEERING STANDARD DRAWING 'STANDARD SIDEWALK DETAILS' FOR ADDITIONAL RESTRICTIONS AND SPECIFICATIONS NOT SHOWN.

MARION COUNTY DEPARTMENT OF PUBLIC WORKS

TYPE 1 DRIVEWAY
APPROACH CURB
LINE SIDEWALK

CREATION DATE: 03/01/2016
REVISION DATE: 07/24/2023
SCALE: N.T.S
SHEET: 1 OF 1
FOR CURB AND GUTTER SEE MARION COUNTY DEPARTMENT OF PUBLIC WORKS ENGINEERING STANDARD DRAWING 'STANDARD P.C.C. CURB AND GUTTER SECTIONS'

SECTION A-A

NOTES:
1. DRIVEWAY WIDTH NORMALLY SHOWN ON PROJECT PLANS. WHEN NOT SHOWN, WIDTH SHALL BE AS DIRECTED BY THE COUNTY ENGINEER. IN EITHER CASE, DRIVEWAY WIDTH SHALL NOT EXCEED THE LIMITS SET FORTH IN MARION COUNTY ENGINEERING STANDARDS TABLE 6.
2. SIDEWALKS, INCLUDING THE PORTION CROSSING A DRIVEWAY, SHALL HAVE TRANSVERSE CONTRACTION JOINTS AT 5' INTERVALS AND TOOL ROUNDED BEFORE BROOMING. ALL EDGES SHALL BE TOOL ROUNDED AFTER BROMING.
3. WHEN EXISTING DRIVEWAY CANNOT MATCH NEW DRIVEWAY WITHIN SLOPE LIMITATIONS SHOWN, ADJUST EXISTING DRIVEWAY, NOT CURB AND SIDEWALK GRADE.
4. DRIVEWAY APPROACH DIMENSIONS SHALL NOT BE ADJUSTED WITHOUT SPECIFIC PRIOR (BEFORE FORMING) COUNTY INSPECTOR APPROVAL.
5. CONCRETE STRENGTH SHALL BE 3000 P.S.I. IN 28 DAYS. NO COLOR ADDITIVES SHALL BE USED.
6. SEE MARION COUNTY DEPARTMENT OF PUBLIC WORKS ENGINEERING STANDARD DRAWING 'STANDARD SIDEWALK DETAILS' FOR ADDITIONAL RESTRICTIONS AND SPECIFICATIONS NOT SHOWN.
7. COMMERCIAL DRIVEWAYS ARE REQUIRED TO OBTAIN COUNTY ENGINEER APPROVAL FOR THIS TYPE OF APPROACH.
NOTES:
1. ASPHALT CONCRETE AND AGGREGATE BASE SHALL CONFORM TO MARION COUNTY DEPARTMENT OF PUBLIC WORKS ENGINEERING STANDARDS, UNLESS OTHERWISE REQUIRED BY COUNTY ENGINEER.
2. UTILITIES MAY BE PLACED IN SHOULDER AREA IF CUT OR FILL SLOPES EXTEND OUTSIDE OF RIGHT-OF-WAY.
3. IN NEW SUBDIVISIONS, TELECOMMUNICATIONS AND POWER SHALL BE PLACED ON THE SOUTH OR WEST SIDE OF THE ROAD. GAS SHALL BE PLACED ON THE NORTH OR EAST SIDE OF THE ROAD, UNLESS OTHERWISE APPROVED BY COUNTY ENGINEER.
4. MEASURING FROM THE TOP OF THE UTILITY, MINIMUM DEPTH SHALL BE AS SHOWN IN THE TABLE BELOW. DEPTH SHALL BE MEASURED FROM THE BOTTOM OF DITCH, IF PRESENT.

<table>
<thead>
<tr>
<th>UTILITY TYPE</th>
<th>DEPTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>POWER</td>
<td>36&quot;</td>
</tr>
<tr>
<td>GAS</td>
<td>36&quot; (SEE NOTE 7)</td>
</tr>
<tr>
<td>TELECOMMUNICATION</td>
<td>30&quot;</td>
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<tr>
<td>WATER</td>
<td>30&quot;</td>
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<tr>
<td>STORM</td>
<td>30&quot;</td>
</tr>
<tr>
<td>SANITARY SEWER</td>
<td>SEE NOTE 6</td>
</tr>
</tbody>
</table>

5. 50' RIGHT-OF-WAY WIDTH IS PERMITTED ON CUL-DE-SACS LESS THAN 500' LONG.
6. SANITARY SEWER DEPTH SHALL COMPLY WITH LOCAL JURISDICTION REQUIREMENTS.
7. FOR NATURAL GAS RELINING, 30" DEPTH MAY BE ALLOWED IF SHOWN AND APPROVED ON PROJECT PLANS.
8. FILL SLOPE SHALL BE 4:1 MAX. AND 2:1 MAX. WITH GUARDRAIL.
9. LOCAL ROADS SHALL HAVE A 6' FORE SLOPE AND COLLECTOR ROADS SHALL HAVE A 7' FORE SLOPE.
10. LOCAL ROADS SHALL HAVE A 4' FORE SLOPE AND COLLECTOR ROADS SHALL HAVE A 5' FORE SLOPE.
NOTES:
1. ASPHALT CONCRETE AND AGGREGATE BASE SHALL CONFORM TO MARION COUNTY DEPARTMENT OF PUBLIC WORKS ENGINEERING STANDARDS, UNLESS OTHERWISE REQUIRED BY COUNTY ENGINEER.
2. UTILITIES MAY BE PLACED IN SHOULDER AREA IF CUT OR FILL SLOPES EXTEND OUTSIDE OF RIGHT-OF-WAY.
3. IN NEW SUBDIVISIONS, TELECOMMUNICATIONS AND POWER SHALL BE PLACED ON THE SOUTH OR WEST SIDE OF THE ROAD. GAS SHALL BE PLACED ON THE NORTH OR EAST SIDE OF THE ROAD, UNLESS OTHERWISE APPROVED BY COUNTY ENGINEER.
4. MINIMUM UTILITY DEPTH SHALL BE AS SHOWN IN THE TABLE BELOW. DEPTH SHALL BE MEASURED FROM THE BOTTOM OF DITCH, IF PRESENT.

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<tbody>
<tr>
<td>POWER</td>
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<tr>
<td>GAS</td>
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</tr>
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<td>TELECOMMUNICATION</td>
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<tr>
<td>WATER</td>
<td>30&quot;</td>
</tr>
<tr>
<td>STORM</td>
<td>30&quot;</td>
</tr>
<tr>
<td>SANITARY SEWER</td>
<td>SEE NOTE 6</td>
</tr>
</tbody>
</table>

5. SEWER DEPTH SHALL COMPLY WITH LOCAL JURISDICTION REQUIREMENTS.
6. FOR NATURAL GAS RELINING, 30" DEPTH MAY BE ALLOWED IF SHOWN AND APPROVED ON PROJECT PLANS.
7. FILL SLOPE SHALL BE 4:1 MAX. AND 2:1 MAX. WITH GUARDRAIL.
TYPICAL SECTION

12' 10' 12' 10' 2'

DOUBLE CHIP SEAL NOMINAL THICKNESS (1 1/2")

AGGREGATE LEVELING COURSE 1 1/2" (MAX. ON SHOULDER)

EXISTING ASPHALT

MINIMUM

<table>
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<tr>
<th>EMULSION</th>
<th>AGGREGATE</th>
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</thead>
<tbody>
<tr>
<td>TYPE</td>
<td>TYPE</td>
</tr>
<tr>
<td>1ST SPREAD</td>
<td>HFRS-P2</td>
</tr>
<tr>
<td>2ND SPREAD</td>
<td>HFRS-P2</td>
</tr>
<tr>
<td>FOC COAT</td>
<td>HFRS-P1</td>
</tr>
</tbody>
</table>

NOTES:
1. PLEASE EXERCISE EXTREME CAUTION TO PREVENT EXCESS AGGREGATE AND/OR EMULSION FROM ENTERING WATERWAYS AT ALL SIDE DITCHES, CULVERTS, BRIDGES, SWALES, AND ADJACENT WETLAND AREAS.
2. PLEASE FOLLOW THE WETLAND/WATERS DELINEATION MAPS FOR EACH ROADWAY MILE.
3. THE EMULSION ASPHALT SHALL MEET THE SPECIFICATIONS OF AASHTO M316. AGGREGATES SHALL BE IN DESIGNATED SIZES AND SHALL CONFORM TO THE CURRENT OREGON DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS.
4. ROADWAY AND DITCH SLOPE VARIES.
NOTES:
1. THE MINIMUM THICKNESS OF THE AGGREGATE LEVELING COURSE MAY HAVE TO BE INCREASED, DEPENDING ON THE THICKNESS AND CONDITION OF THE EXISTING GRAVEL SURFACE.
2. CONSTRUCTION OF DRAINAGE CULVERTS, ROADSIDE DITCHES AND/OR ELEVATION OF ROADWAY MAY BE REQUIRED.
3. WHERE THE MACADAM PAVEMENT IS WIDER THAN THE EXISTING GRAVEL SURFACE, THE AGGREGATE LEVELING COURSE SHALL HAVE A MINIMUM THICKNESS OF 6".
4. THE CATIONIC EMULSION ASPHALT SHALL MEET THE SPECIFICATIONS OF AASHTO M208–72 OR ASTM D2397–73. AGGREGATES SHALL BE IN DESIGNATED SIZES AND SHALL CONFORM TO THE MOST RECENT OREGON DEPARTMENT OF TRANSPORTATION STANDARDS.
5. AGGREGATE LEVELING COURSE MIN. COMPACTION THICKNESS IS 1 1/2" UNDER ASPHALT MACADAM AND 2 3/4" MAX. ON SHOULDER.
RIGHT-OF-WAY WIDTH

20' MIN. WHERE DITCH IS REQUIRED

15' MIN. WHERE DITCH IS NOT REQUIRED

WIDTH OF DITCH VARIES 5' MIN.

2' SEE NOTE 6

NEW PAVED ROAD WIDTH VARIES

11', SEE NOTE 7

2 1/2" ASPHALT CONCRETE, CLASS B OR 0-11 ASPHALT PENETRATION MACADAM

SEE NOTE 6

SEE NOTE 7

SEE NOTE 4

SEE NOTE 3

SEE NOTE 2

2 1/2" THICK SHOULDER
3/4" TO 1" MINUS AGGREGATE CRUSHED ROCK 95% COMPACTION

FILL EXISTING DITCH WHERE REQUIRED TO WIDEN ROAD 95%
COMPACTION

VERTICAL CUT AT EDGE OF EXISTING GRAVEL ROAD

EXISTING GRAVEL ROAD WIDTH VARIES

VARIABLE

6" AGGREGATE BASE COURSE 3/4" TO 1" MINUS AGGREGATE CRUSHED ROCK WHERE NECESSARY 95%
COMPACTION

NOTES:
1. DISPOSE OF EXCAVATED MATERIAL OFF-SITE.
2. EXCAVATE DITCH WHERE REQUIRED TO PROVIDE DRAINAGE. SHALL BE SHOWN ON PROJECT PLANS.
3. TAPER SHOULDER TO MATCH EXISTING GROUND WHERE NO DITCH IS REQUIRED, SHALL BE SHOWN ON PROJECT PLANS.
4. 3" MINIMUM LEVELING COURSE 3/4" TO 1" MINUS AGGREGATE CRUSHED ROCK 95% COMPACTION. AGGREGATE LEVELING COURSE PLUS EXISTING GRAVEL SHALL EQUAL A THICKNESS OF 9".
5. 3:1 WHERE RIGHT-OF-WAY WIDTH IS LESS THAN 50'.
6. 1' WHERE RIGHT-OF-WAY WIDTH IS LESS THAN 40'.
7. 10' WHERE RIGHT-OF-WAY WIDTH IS LESS THAN 50'.
NOTES
1. SURFACING, BASE COURSE, AND SIDEWALK SHALL CONFORM TO MARION COUNTY DEPARTMENT OF PUBLIC WORKS ENGINEERING STANDARDS.
2. 50’ RIGHT-OF-WAY, CURB-LINE SIDEWALK.
3. REQUIRES 60’ RIGHT-OF-WAY.
NOTES:
1. SURFACE WIDTH AND CRUSHED ROCK SHALL CONFORM TO THE FOLLOWING:

<table>
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<tr>
<th>NUMBER OF DWELLINGS SERVED</th>
<th>SURFACE WIDTH (FEET)</th>
<th>3/4&quot; TO 1&quot; MINUS AGGREGATE CRUSHED ROCK THICKNESS (INCHES)</th>
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<tbody>
<tr>
<td>1</td>
<td>10'</td>
<td>6&quot;</td>
</tr>
<tr>
<td>2 OR MORE</td>
<td>16'</td>
<td>8&quot;</td>
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2. UTILITIES SHALL BE LOCATED AS SHOWN ON ENGINEERING STANDARD DETAIL 'TYPICAL 22' WIDE TURNPIKE SECTION AND UTILITY LOCATION FOR RURAL, LOCAL, AND COLLECTOR ROADS'.
NOTES:
1. DIMENSIONS ARE TYPICAL, AND APPLY TO EACH TRIANGLE IN A GIVEN SCENARIO.
2. REFER TO MARION COUNTY CODE 17.110.770.
NOTES:
1. DIMENSIONS ARE TYPICAL AND APPLY TO EACH TRIANGLE IN A GIVEN SCENARIO.
2. REFER TO MARION COUNTY CODE 16.27.200.
Plate 1: Rainfall I-D-R Curve Zone Map

NOTES:
1. PEAK INTENSITY SHALL BE DERIVED FROM ODOT'S RAINFALL INTENSITY–DURATION–RECURRENT (IDR) CURVES FOR A GIVEN ZONE.
RAINFALL INTENSITY - DURATION - RECURRENCE INTERVAL CURVES

Zone 3

RAINFALL INTENSITY - DURATION - RECURRENCE INTERVAL CURVES

Zone 5

SOURCE:
1. OREGON DEPARTMENT OF TRANSPORTATION HIGHWAY DIVISION HYDRAULICS DESIGN MANUAL, 2014.
RAINFALL INTENSITY - DURATION - RECURRENCE INTERVAL CURVES

Zone 7

Zone 8

SOURCE:
1. OREGON DEPARTMENT OF TRANSPORTATION HIGHWAY DIVISION HYDRAULICS DESIGN MANUAL, 2014.
## Determination of Required Storage

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<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
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</thead>
<tbody>
<tr>
<td>TIME (MINUTES)</td>
<td>C x A (ACRES)</td>
<td>RAIN INTENSITY (INCHES/HOUR)</td>
<td>INFLOW RATE (C.F.S.)</td>
<td>INFLOW VOLUME (CUBIC FEET)</td>
<td>OUTFLOW RATE (C.F.S.)</td>
<td>OUTFLOW VOLUME (CUBIC FEET)</td>
<td>REQUIRED STORAGE (CUBIC FEET)</td>
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<tr>
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<td></td>
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\[ C = \text{RUNOFF COEFFICIENT} \]
<table>
<thead>
<tr>
<th>AREAS OF DEVELOPED SITE (ACRES) SEE NOTE 1</th>
<th>ALLOWABLE OUTFLOW (CUBIC FEET PER SECOND)</th>
<th>ORIFICE DIAMETER (INCHES) SEE NOTE 2</th>
<th>VOLUME OF WATER TO BE STORED (CUBIC FEET)</th>
<th>WATER DEPTH OVER INLET GRATE (FEET) SEE NOTE 3</th>
<th>WATER STORAGE AREA (SQUARE FEET) SEE NOTE 3</th>
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<tr>
<td>0.5</td>
<td>0.10</td>
<td>1 11/16</td>
<td>780</td>
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</table>

NOTES:
1. FOR AREAS LESS THAN 0.5 ACRE, DETENTION IS NOT REQUIRED. FOR AREAS GREATER THAN 5.0 ACRES, THE DETENTION SYSTEM MUST BE DESIGNED ON A SITE-SPECIFIC BASIS WITH AN ALLOWABLE OUTFLOW BASED ON A 5-YEAR STORM WITH A RUNOFF FACTOR OF 0.20 AND STORAGE FOR A 10-YEAR STORM WITH A RUNOFF FACTOR OF 0.90.
2. ORIFICE DIAMETER (Do) IS BASED ON THE ALLOWABLE FLOW (Qo) AND AN ASSUMED TOTAL HEAD (Ho) ON THE ORIFICE OF 2.00 FEET (SEE TYPICAL DETAILS). IF THE TOTAL HEAD IS DIFFERENT, THE DIAMETER MUST BE DETERMINED FROM THE GRAPH ON SHEET 2.
3. IF SITE CONDITIONS NECESSITATE THE USE OF A DIFFERENT WATER STORAGE AREA, THE WATER DEPTH MUST BE CALCULATED AND AN ORIFICE DIAMETER DETERMINED PER NOTE 2 ABOVE. IN MOST CASES, THE FOLLOWING FORMULA CAN BE USED FOR CALCULATING THE DEPTH:
   \[ \text{Water Depth} = 3 \times \text{Volume of Stored Water} \div \text{Water Storage Area} \]
4. CATCH BASIN MAY BE ROUND, SQUARE, OR RECTANGULAR.
GENERAL NOTES

1. PROVIDE PROTECTION FROM ALL VEHICLE TRAFFIC, EQUIPMENT STAGING, AND FOOT TRAFFIC IN PROPOSED INFILTRATION AREAS PRIOR TO AND DURING.

2. DIMENSIONS:
   - WIDTH: 18” MINIMUM
   - DEPTH OF PLANTER (FROM TOP OF GROWING MEDIUM TO OVERFLOW ELEVATION): 12”
   - SLOPE OF PLANTER: 0.5% OR LESS

3. SETBACKS:
   - PLANTERS MUST BE MINIMUM OF 5 FEET FROM PROPERTY LINE.

4. OVERFLOW:
   - INLET ELEVATION MUST ALLOW FOR 2” OF FREEBOARD, MINIMUM.
   - PROTECT FROM DEBRIS AND SEDIMENT WITH STRAINER OR GRATE.
   - SIZE OVERFLOW FOR THE 50-YEAR DESIGN STORM. IDENTIFY OVERFLOW ROUTE IN THE STORMWATER MANAGEMENT PLAN.

5. PIPING:
   - PERFORATED UNDERDRAIN PIPING: SHALL BE ABS SCH. 40, DUCTILE IRON, OR PVC SCH.40, 6” MINIMUM DIAMETER. PVC NOT ALLOWED ABOVE GROUND.

6. DRAIN ROCK:
   - SIZE FOR FLOW-THROUGH PLANTER: 1 1/2” – 3/4” WASHED
   - DEPTH: 12” MINIMUM

7. SEPARATION BETWEEN DRAIN ROCK AND GROWING MEDIUM SHALL BE WITH FILTER FABRIC.

8. GROWING MEDIUM:
   - DEPTH: 18” MINIMUM
   - FACILITY SURFACE AREA MAY BE REDUCED BY 20% WHEN GROWING MEDIA DEPTH IS INCREASED TO 30” OR MORE.

9. VEGETATION: FOLLOW LANDSCAPE PLANS OR REFER TO PLANTING REQUIREMENTS IN APPENDIX H.

10. PLANTER FOUNDATION AND WALLS:
    - MATERIALS SHALL BE 4” REINFORCED CONCRETE, OR OTHER DURABLE MATERIAL.
    - CONCRETE WALLS SHALL BE INCLUDED ON FOUNDATION PLANS.
    - INSTALL INVERTED CURB AS NEEDED BETWEEN PLANTER AND ROAD SUBGRADE.
    - WALL HEIGHTS GREATER THAN 24” ABOVE GRADE REQUIRE HANDRAIL.

11. WATERPROOF LINER (IF REQUIRED):
    - LINER SHALL BE 30 MIL PVC OR EQUIVALENT, FOR FLOW THROUGH FACILITIES.
    - A WATERPROOF LINER IS NOT REQUIRED IF THE FOUNDATION OR WALL MATERIAL IS WATERPROOF REINFORCED CONCRETE OR APPROVED EQUAL.

12. INSTALL SPLASH PAD TO TRANSITION FROM INLET TO GROWING MEDIUM. SEE DETAIL 007
GENERAL NOTES

1. PROVIDE PROTECTION FROM ALL VEHICLE TRAFFIC, EQUIPMENT STAGING, AND FOOT TRAFFIC IN PROPOSED INFILTRATION AREAS PRIOR TO, DURING AND AFTER CONSTRUCTION.

2. DIMENSIONS:
   - WIDTH: 30” MINIMUM
   - DEPTH OF PLANter (FROM TOP OF GROWING MEDIUM TO OVERFLOW ELEVATION): 12”
   - SLOPE OF PLANter: 0.5% OR LESS

3. SETBACKS:
   - PLANTERS MUST BE MINIMUM OF 5 FEET FROM PROPERTY LINE.

4. OVERFLOW:
   - OVERFLOW ELEVATION MUST ALLOW FOR 12” OF FREEBOARD, MINIMUM.
   - SIZE OVERFLOW FOR THE 50-YEAR DESIGN STORM. IDENTIFY OVERFLOW ROUTE IN THE STORMWATER MANAGEMENT PLAN.

5. DRAIN ROCK:
   - SIZE: 1 1/2” – 3/4” WASHED
   - DEPTH: 28” MINIMUM

6. SEPARATION BETWEEN DRAIN ROCK AND GROWING MEDIUM SHALL BE WITH FILTER FABRIC.

7. GROWING MEDIUM:
   - DEPTH: 18” MINIMUM

8. VEGETATION: FOLLOW LANDSCAPE PLANS OR REFER TO PLANTING REQUIREMENTS IN APPENDIX H.

9. PLANTER WALLS:
   - MATERIALS SHALL BE CONCRETE OR OTHER DURABLE MATERIAL.
   - CONCRETE WALLS SHALL BE INCLUDED ON FOUNDATION PLANS.
   - INSTALL INVERTED CURB AS NEEDED BETWEEN PLANTERS AND ROAD SUBGRADE.
   - WALL HEIGHTS GREATER THAN 24” ABOVE GRADE REQUIRE HANDRAIL.

10. WATERPROOF LINER:
    - LINER SHALL BE 30 MIL PVC OR EQUIVALENT.
    - A WATERPROOF LINER IS NOT REQUIRED IF THE WALL MATERIAL IS WATERPROOF REINFORCED CONCRETE OR APPROVED EQUAL.

11. INSTALL SPLASH PAD TO TRANSITION FROM INLET TO GROWING MEDIUM. SEE DETAIL 007
GENERAL NOTES

1. PROVIDE PROTECTION FROM ALL VEHICLE TRAFFIC, EQUIPMENT STAGING, AND FOOT TRAFFIC IN PROPOSED INFILTRATION AREAS PRIOR TO, AND DURING CONSTRUCTION. UNLESS REQUIRED BY SITE CONDITIONS, UNLINED RAIN GARDENS ARE PREFERRED TO MAXIMIZE ONSITE INFILTRATION.

2. DIMENSIONS:
   - DEPTH OF BASIN (FROM TOP OF GROWING MEDIUM TO OVERFLOW ELEVATION): 12"
   - FLAT BOTTOM WIDTH: 18" MINIMUM
   - SIDE SLOPES OF BASIN: 3:1 MAXIMUM
   - SLOPE OF RAIN GARDEN: 0.5% OR LESS

3. SETBACKS:
   - FILTRATION RAIN GARDEN MUST BE 10’ FROM FOUNDATIONS AND 5’ FROM PROPERTY LINES UNLESS APPROVED BY BUILDING OFFICIAL.

4. OVERFLOW:
   - OVERFLOW REQUIRED. INLET ELEVATION MUST ALLOW FOR 2” OF FREEBOARD, MINIMUM.
   - PROTECT FROM DEBRIS AND SEDIMENT WITH STRAINER OR GRATE.
   - SIZE OVERFLOW FOR THE 50-YEAR DESIGN STORM. IDENTIFY OVERFLOW ROUTE IN THE STORMWATER MANAGEMENT PLAN.

5. PIPING:
   - PERFORATED UNDERDRAIN PIPING: SHALL BE ABS SCH. 40, DUCTILE IRON, OR PVC SCH.40. MINIMUM DIAMETER IS 6”.

6. DRAIN ROCK:
   - SIZE: 1 1/2” to 3/4”-0 WASHED
   - DEPTH: 18” MINIMUM

7. SEPARATION BETWEEN DRAIN ROCK AND GROWING MEDIUM SHALL BE WITH FILTER FABRIC.

8. GROWING MEDIUM:
   - DEPTH: 18” MINIMUM
   - FACILITY SURFACE AREA MAY BE REDUCED BY 20% WHEN GROWING MEDIA DEPTH IS INCREASED TO 30” OR MORE.

9. VEGETATION: FOLLOW LANDSCAPE PLANS OR REFER TO PLANTING REQUIREMENTS IN APPENDIX H.

10. WATERPROOF LINER (IF REQUIRED), SHALL BE 30 MIL PVC OR EQUIVALENT.

11. INSTALL SPLASH PAD TO TRANSITION FROM INLETS TO GROWING MEDIUM. SEE DETAIL 007.
GENERAL NOTES

1. PROVIDE PROTECTION FROM ALL VEHICLE TRAFFIC, EQUIPMENT STAGING, AND FOOT TRAFFIC IN PROPOSED INFILTRATION AREAS PRIOR TO, DURING AND AFTER CONSTRUCTION.

2. DIMENSIONS:
   • DEPTH OF BASIN (FROM TOP OF GROWING MEDIUM TO OVERFLOW ELEVATION): 12"
   • FLAT BOTTOM WIDTH: 3’ MINIMUM
   • SIDE SLOPES OF BASIN: 3:1 MAXIMUM
   • SLOPE OF RAIN GARDEN: 0.5% OR LESS

3. SETBACKS:
   • INFILTRATION RAIN GARDEN MUST BE 10’ FROM FOUNDATIONS AND 5’ FROM PROPERTY LINES.

4. OVERFLOW:
   • SIZE OVERFLOW FOR THE 50-YEAR DESIGN STORM. IDENTIFY OVERFLOW ROUTE IN THE STORMWATER MANAGEMENT PLAN.

5. DRAIN ROCK:
   • SIZE: 1 1/2” TO 3/4”- WASHED
   • DEPTH: 18”

6. SEPARATION BETWEEN DRAIN ROCK AND GROWING MEDIUM SHALL BE WITH FILTER FABRIC.

7. GROWING MEDIUM:
   • DEPTH: 18” MINIMUM

8. VEGETATION: FOLLOW LANDSCAPE PLANS OR REFER TO PLANTING REQUIREMENTS IN APPENDIX H.

9. INSTALL SPLASH PAD TO TRANSITION FROM INLETS TO GROWING MEDIUM. SEE DETAIL 007
GENERAL NOTES

1. PROVIDE PROTECTION FROM ALL VEHICLE TRAFFIC, EQUIPMENT STAGING, AND FOOT TRAFFIC IN PROPOSED INFILTRATION AREAS PRIOR TO, AND DURING CONSTRUCTION. UNLESS REQUIRED BY SITE CONDITIONS, UNLINED SWALES ARE PREFERRED TO ALLOW MAXIMUM INFILTRATION.

2. DIMENSIONS:
   - DEPTH OF SWALE (FROM TOP OF GROWING MEDIUM TO OVERFLOW ELEVATION): 6”
   - LONGITUDINAL SLOPE OF SWALE: NO LESS THAN 0.3% AND NO MORE THAN 6.0%. INSTALL CHECK DAM IF OVER 4.0%. SEE NOTE 12.
   - FLAT BOTTOM WIDTH: 2’ MINIMUM
   - SIDE SLOPES OF SWALE: 3:1 MAXIMUM

3. SETBACKS:
   - FILTRATION SWALES MUST BE 10’ FROM FOUNDATIONS AND 5’ FROM PROPERTY LINES UNLESS APPROVED BY BUILDING OFFICIAL.

4. OVERFLOW:
   - INLET ELEVATION MUST ALLOW FOR 6” OF FREEBOARD, MINIMUM.
   - PROTECT FROM DEBRIS AND SEDIMENT WITH STRAINER OR GRATE.
   - SIZE OVERFLOW FOR THE 50-YEAR DESIGN STORM. IDENTIFY OVERFLOW ROUTE IN THE STORMWATER MANAGEMENT PLAN.

5. PIPING:
   - PERFORATED UNDERDRAIN PIPING: SHALL BE ABS SCH. 40, DUCTILE IRON, OR PVC SCH.40. MINIMUM DIAMETER IS 6”. PVC NOT ALLOWED ABOVE GROUND.
   - OVERFLOW PIPING: SHALL BE ABS SCH. 40, DUCTILE IRON, OR PVC SCH. 40 AND SHALL NOT BE PERFORATED. MINIMUM DIAMETER IS 6”. PVC NOT ALLOWED ABOVE GROUND.

6. DRAIN ROCK (IF REQUIRED):
   - SIZE: 1 1/2” – 3/4” WASHED
   - DEPTH: 12”

7. SEPARATION BETWEEN DRAIN ROCK AND GROWING MEDIUM SHALL BE WITH FILTER FABRIC.

8. GROWING MEDIUM:
   - 12” MINIMUM

9. VEGETATION: FOLLOW LANDSCAPE PLANS OR REFER TO PLANTING REQUIREMENTS IN APPENDIX H.

10. WATERPROOF LINER (IF REQUIRED): SHALL BE 30 MIL PVC OR EQUIVALENT.

11. INSTALL SPLASH PAD TO TRANSITION FROM INLETS TO GROWING MEDIUM. SEE DETAIL 007

12. CHECK DAMS: SHALL BE REQUIRED FOR OVER 4% SLOPE, SHALL BE SPACED AT A MAXIMUM 2-FOOT ELEVATION INTERVALS. MAINTAIN 4 – 10 INCH DEEP ROCK CHECK DAMS AT DESIGN INTERVALS. INTERMEDIATE FLOW SPREADERS SHALL BE INSTALLED AT A MINIMUM 50-FT INTERVALS.
GENERAL NOTES
1. PROVIDE PROTECTION FROM ALL VEHICLE TRAFFIC, EQUIPMENT STAGING, AND FOOT TRAFFIC IN PROPOSED INFILTRATION AREAS PRIOR TO, DURING AND AFTER CONSTRUCTION.
2. DIMENSIONS:
   • DEPTH OF SWALE (FROM TOP OF GROWING MEDIUM TO OVERFLOW ELEVATION): 6”
   • LONGITUDINAL SLOPE OF SWALE: 0.5% TO 6.0%
   • FLAT BOTTOM WIDTH: 2’
   • SIDE SLOPES OF SWALE: 3:1 MAXIMUM
3. SETBACKS:
   • INFILTRATION VEGETATED SWALES MUST BE 10’ FROM FOUNDATIONS AND 5’ FROM PROPERTY LINES.
4. OVERFLOW:
   • SIZE OVERFLOW FOR THE 50-YEAR DESIGN STORM. IDENTIFY OVERFLOW ROUTE IN THE STORMWATER MANAGEMENT PLAN.
5. DRAIN ROCK (IF REQUIRED):
   • SIZE: 1 1/2” – 3/4” - WASHED
   • DEPTH: 12”
6. SEPARATION BETWEEN DRAIN ROCK AND GROWING MEDIUM SHALL BE WITH FILTER FABRIC.
7. GROWING MEDIUM:
   • 12” MINIMUM
8. VEGETATION: FOLLOW LANDSCAPE PLANS OR REFER TO PLANTING REQUIREMENTS IN APPENDIX H.
9. SPLASH PAD TO TRANSITION FROM INLETS TO GROWING MEDIUM. SEE DETAIL 007
10. CHECK DAMS: REQUIRED FOR OVER 4% SLOPE, SHALL BE SPACED AT A MAXIMUM 2-FOOT ELEVATION INTERVALS. MAINTAIN 4 - 10 INCH DEEP ROCK CHECK DAMS AT DESIGN INTERVALS. INTERMEDIATE FLOW SPREADERS SHALL BE INSTALLED AT A minimum 50-FOOT INTERVALS.