<table>
<thead>
<tr>
<th>DRAWING NUMBER</th>
<th>TITLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>9-1</td>
<td>STORM DRAIN PIPE BEDDING AND INITIAL BACKFILL (10/09)</td>
</tr>
<tr>
<td>9-7A</td>
<td>STANDARD PRECAST CONCRETE DRAINAGE MANHOLE (8/10)</td>
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<tr>
<td>9-8A</td>
<td>TYPE A SADDLE MANHOLE (11/98)</td>
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<td>9-9</td>
<td>GREY CAST IRON STANDARD 24&quot; MANHOLE FRAME &amp; COVER (10/09)</td>
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<tr>
<td>9-10</td>
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<td>GRATE TYPE MANHOLE COVER (08/10)</td>
</tr>
<tr>
<td>9-13B</td>
<td>DROP INLET TYPE B (10/09)</td>
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<tr>
<td>9-13C</td>
<td>DROP INLET TYPE C (01/09)</td>
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<tr>
<td>9-14</td>
<td>WELDED STEEL GRATE FRAME (04/07)</td>
</tr>
<tr>
<td>9-15</td>
<td>WELDED STEEL GRATE (04/07)</td>
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<td>9-16</td>
<td>CENTER SUPPORT ASSEMBLY FOR MULTIPLE GRATES (04/07)</td>
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<td>9-17</td>
<td>CATCH BASIN FACE PLATE ASSEMBLY AND PROTECTION BAR (04/07)</td>
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<td>9-18</td>
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<td>CORRUGATED METAL PIPE DRAINAGE INLET TYPE I (10/09)</td>
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<td>CORRUGATED PIPE FITTINGS (11/98)</td>
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<td>9-24</td>
<td>LINED CHANNEL SECTION (10/09)</td>
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<td>TRASH RACK 24&quot;-36&quot; PIPE (10/09)</td>
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<td>9-26H</td>
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<td>FLEXIBLE CONNECTOR PIPE TO MANHOLE (10/09)</td>
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<td>9-34</td>
<td>CAST IRON 24&quot; MANHOLE FRAME &amp; COVER FOR TYPE G AND 300-1 INLET (4/07)</td>
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<td>9-35</td>
<td>WATER STOP (10/09)</td>
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<tr>
<td>9-36</td>
<td>24&quot; MANHOLE FRAME &amp; COVER FOR TYPE J INLET (10/15)</td>
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<td>300-1</td>
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<tr>
<td>301-1</td>
<td>CURB OPENING CATCH BASIN (12/02)</td>
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<tr>
<td>308-0</td>
<td>MONOLITHIC CATCH BASIN CONNECTION (3/07)</td>
</tr>
<tr>
<td>309-0</td>
<td>CATCH BASIN REINFORCEMENT (01/06)</td>
</tr>
</tbody>
</table>
GENERAL NOTES:
1. AREA ABOVE BEDDING AND INITIAL BACKFILL PER DRAWING 4-31.
2. SEE SECTION 19 "TRENCH EXCAVATION BEDDING AND BACKFILL".
3. BACKFILL WITH CLEAN CRUSHED ROCK TYPE B OR C.
4. IF MINIMUM TRENCH WIDTH CANNOT BE ACHIEVED, CONTROL DENSITY.
   BACKFILL PER SECTION 50-15 SHALL BE USED (UP TO SPRING LINE).
   IN LIEU OF CLEAN CRUSHED ROCK AT NO EXTRA COST (WITH APPROVAL
   OF THE DIRECTOR).
5. COVER LESS THAN STANDARD WILL ONLY BE ALLOWED IF THE MINIMUM COVER
   OVER THE PIPE BELL IS LESS THAN TABLE 38-1 AND WITH THE APPROVAL
   OF THE DIRECTOR.
6. B=4" FOR PIPES 12"-54" ID AND B=6" FOR PIPES >54" ID OR MINIMUM DEPTH
   OF BEDDING MATERIAL SHALL BE 1-1/2" BELOW THE PIPE BELL, WHICHEVER
   IS GREATER.
7. THE TRENCH WIDTH ABOVE THE PIPE MAY BE INCREASED FOR CONSTRUCTION
   PURPOSES.
8. THE MINIMUM TRENCH WIDTH CALCULATIONS ARE BASED ON THE PIPE PLACED
   IN THE CENTER OF A TRENCH. IF A PIPE CAN NOT BE PLACED IN THE CENTER
   OF A TRENCH, THE TRENCH SHALL BE WIDENED SO THAT ON BOTH SIDES OF
   THE PIPE, THE DISTANCE FROM THE TRENCH WALL TO THE OUTSIDE OF THE PIPE
   IS EQUAL TO (TRENCH WIDTH - PIPE OD)/2.

SACRAMENTO COUNTY
MUNICIPAL SERVICES AGENCY

STORM DRAIN PIPE
BEDDING AND
INITIAL BACKFILL

DRAWN BY: STAFF
SCALE: NONE
REVISION DATE: 10/09

DIRECTOR, DEPARTMENT OF WATER RESOURCES
JANUARY 2014

9-1
IN PAVED AREAS SET FLUSH WITH PAVEMENT. IN UNPAVED AREAS WITH GRATE TYPE COVERS SET 1" BELOW ADJACENT GRADE.

6" CONCRETE COLLAR W/2-#4 HOOPS IN UNPAVED AREAS

PROVIDE FRAME AND COVER PER DRAWING 9-9A. USE OF GRATE TYPE COVER IN UNPAVED AREAS PER DRAWING 9-9B OR 9-11 BY DIRECTOR APPROVAL.

IN PAVED AREAS SET FLUSH WITH PAVEMENT. IN UNPAVED AREAS WITH GRATE TYPE COVERS SET 1" BELOW ADJACENT GRADE.

6" CONCRETE COLLAR W/2-#4 HOOPS IN UNPAVED AREAS

4" CONCRETE COLLAR IN PAVED AREAS

GRADE RINGS-3"MIN 12" MAX

C = 6.5" WITH ONE GRADE RING AND 8" WITH TWO OR MORE GRADE RINGS.

PIPE OPENINGS PER PLAN

TABLE OF MINIMUM DIMENSIONS FOR ROUND MANHOLES

<table>
<thead>
<tr>
<th>M.D.</th>
<th>MIN A</th>
<th>MIN B</th>
<th>MIN W</th>
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<tbody>
<tr>
<td>45&quot;</td>
<td>18&quot;</td>
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<td>8&quot;</td>
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<tr>
<td>96&quot;</td>
<td>24&quot;</td>
<td>12&quot;</td>
<td>9&quot;</td>
</tr>
</tbody>
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** = TRANSITION SLAB REDUCES THE INSIDE DIAMETER FROM 72" TO 60"
NOTES:
1. ALL MANHOLES SHALL MEET H-20 LOAD SPECIFICATIONS.

2. PRECAST MANHOLES SHALL USE FLEXIBLE COMPRESSION GASKET OR BOOT
CONNECTOR CONFORMING TO ASTM C-923. (CONNECTION SHALL BE WATER AND SOIL
TIGHT). FOR PIPES GREATER THAN 30" I.D., BASE MAY BE CAST-IN-PLACE WITH A
WATER STOP CONFORMING TO ASTM C-923.

3. SUMP SHALL BE 1'-0" DEEP, MEASURED FROM INVERT OF OUTFALL PIPE. SUMP NOT
REQUIRED IF OUTFALL PIPE IS 24" I.D. OR LARGER. SUMPS SHALL NOT BE ALLOWED
OUT OF THE COUNTY RIGHT OF WAY.

4. RISER SECTIONS, CONES, AND ADJUSTING RINGS SHALL CONFORM TO ASTM C-478.

5. ALL JOINTS SHALL BE MADE WITH PREFORMED PLASTIC JOINT SEALING COMPOUND OR
PRE-LUBRICATED GASKET. FOLLOWING INSTALLATION, GROUT ALL INTERIOR AND
EXTERIOR JOINTS.

6. CONCENTRIC COMPONENTS SHALL BE USED UNLESS OTHERWISE SPECIFIED ON THE
PLANS.

7. PRECAST MANHOLES SHALL BE SIZED TO PROVIDE THE FOLLOWING: THE ANNULAR
SPACE ON THE INSIDE OF THE MANHOLE BARREL BETWEEN CORED PIPE CONNECTION
HOLES SHALL BE A MINIMUM OF 12-INCHES OR HALF THE DIAMETER OF THE
SMALLER CORED HOLE (WHICHEVER IS GREATER). IF THE CONNECTION HOLE IS CAST
MONOLITHICALLY WITH THE MANHOLE BARREL THE MEASUREMENT SHALL BE TAKEN
FROM THE FINISHED CONCRETE CONNECTION SURFACE.

8. SEE SECTION 39, "MANHOLES".

9. CONSTRUCT WITH FLAT SLAB TOP WHEN HEIGHT IS TOO SHALLOW TO CONSTRUCT WITH CONES.

10. FOR THE SLAB REDUCER OF THE BOX MANHOLE (BOX TO ROUND DIAMETER), THE
DIAMETER OF THE ROUND REDUCER SHALL NOT BE MORE THAN 12" SMALLER THAN
THE INSIDE BOX WIDTH.

11. FLAT SLAB TOP MANHOLES SHALL HAVE A 36" MANHOLE FRAME AND COVER PER
DRAWING 9-10.
TYPE A
CAST-IN-PLACE PIPE ONLY

NOTE:
REMOVE CONCRETE IN MANHOLE OPENING AND CONSTRUCT RISER BASE WHILE CONCRETE IS STILL WORKABLE.
PLACE RISER SECTION AFTER CONCRETE HAS SET.
SEE SECTION 39, "MANHOLES," AND SECTION 36, "CAST-IN-PLACE CONCRETE PIPE."

CONCRETE COLLAR PER SHEET 1 OF STD. DWG. 9-7A.
STANDARD 24" FRAME AND COVER. SEE NOTES ON SHEET 1 OF STD. DWG. 9-7A.

VARIABLE

1'-6" MAX.

VARIABLE 48" MIN.

48"

6"
NOTES:
1. ALL CASTINGS TO CONFORM TO ASTM A48, CLASS 35B.
2. FRAME AND COVER TO MEET H-20 LOAD SPECIFICATIONS.
3. EXPOSED SURFACES OF THE CASTING WITH THE PARTS ASSEMBLED AND
   DISASSEMBLED SHALL BE PAINTED WITH COMMERCIAL QUALITY ASPHALTUM
   PAINT AFTER TESTING AND ASSEMBLY.
4. LOCKING COVER TYPE FRAME AND COVERS SHALL BE USED IN EASEMENT
   AREAS UNLESS OTHERWISE APPROVED.
5. SHALL NOT BE USED ON FLAT SLAB TOP MANHOLES.
6. MACHINED HORIZONTAL AND VERTICAL BEARING SURFACES NOT TO EXCEED
   1/64" TOLERANCE.

SACRAMENTO COUNTY
MUNICIPAL SERVICES AGENCY

GREY CAST IRON
STANDARD 24" MANHOLE
FRAME & COVER

SET WEIGHT
FRAME  140 LBS
COVER  130 LBS
TOTAL  270 LBS

DIRECTOR, DEPARTMENT OF WATER RESOURCES
JANUARY 2014

DRAWN BY: STAFF
SCALE: NONE
REVISION DATE: 10/09

9-9A
GENERAL NOTES:
1. CAST IRON TO CONFORM TO ASTM A-48, CLASS 35B.
2. NOT TO BE USED IN COUNTY RIGHT-OF-WAY.
3. EXPOSED SURFACES OF THE CASTING WITH THE PARTS ASSEMBLED AND DISASSEMBLED SHALL BE PAINTED WITH COMMERCIAL QUALITY ASPHALTUM PAINT AFTER TESTING AND ASSEMBLY.
4. LOCKING COVER TYPE FRAME AND COVERS SHALL BE REQUIRED UNLESS OTHERWISE APPROVED.
5. MANHOLE COVER SHALL FIT FRAME SHOWN ON DRAWING 9-9A OR 9-10.
6. THIS COVER MAY ONLY BE USED WITH APPROVAL OF THE DIRECTOR.

DIMENSION TABLE

<table>
<thead>
<tr>
<th>LID</th>
<th>A</th>
<th>B</th>
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<tbody>
<tr>
<td>24&quot;</td>
<td>22%&quot;</td>
<td>25%&quot;</td>
</tr>
<tr>
<td>36&quot;</td>
<td>35%&quot;</td>
<td>38%&quot;</td>
</tr>
</tbody>
</table>

SACRAMENTO COUNTY MUNICIPAL SERVICES AGENCY

BEEHIVE GRATE FOR STANDARD 24"/36" MANHOLE COVER

DRAWN BY: STAFF
SCALE: NONE
REVISION DATE: 08/10

9-9B
NOTES:
1. MACHINED HORIZONTAL AND VERTICAL BEARING SURFACES NOT TO EXCEED 1/64" TOLERANCE.
2. ALL CASTINGS TO CONFORM TO ASTM A48, CLASS 358.
3. FRAME AND COVER TO MEET H-20 LOAD SPECIFICATIONS.
4. EXPOSED SURFACES OF THE CASTINGS, WITH THE PARTS ASSEMBLED AND DISASSEMBLED, SHALL BE PAINTED WITH COMMERCIAL QUALITY ASPHALTUM PAINT AFTER TESTING AND ASSEMBLY.
5. LOCKING COVER TYPE FRAME AND COVERS SHALL BE USED WHEN SPECIFIED IN CONTRACT DOCUMENTS.
6. H-20 RATED SLOTTED GRATE OR GRADE TYPE MANHOLE COVER MAY BE SUBSTITUTED FOR COVER WHEN SPECIFIED IN CONTRACT DOCUMENTS OR UPON APPROVAL OF DIRECTOR.
7. SHALL BE USED ON ALL FLAT SLAB TOP MANHOLES.
8. FOR BOLT DOWN COVER - DRILL AND TAP, NO BOSS REQUIRED. USE EXISTING STANDARD PATTERN.
NOTES

1. MANHOLE COVER SHALL FIT FRAME SHOWN ON DRAWING 9-9A or 9-10.

2. SEATING SURFACES SHALL BE MACHINED AS SHOWN IN DETAIL ON DRAWING 9-9.

3. THIS COVER MAY BE USED ONLY WITH APPROVAL OF THE DIRECTOR.

4. EXPOSED SURFACES OF THE CASTINGS, WITH THE PARTS ASSEMBLED AND DISASSEMBLED, SHALL BE PAINTED WITH COMMERCIAL QUALITY ASPHALTUM PAINT AFTER TESTING AND ASSEMBLY.

5. COVER TO MEET H-20 LOAD SPECIFICATIONS.
CONSTRUCT 6" OF VERTICAL CURB BEFORE BEGINNING TRANSITION ON TYPE 1A CURB AND GUTTER

LIP OF GUTTER

DRAIN PIPE SIZE AS INDICATED ON PLANS (MIN. 12" DIA.)

TYPE 1A CURB AND GUTTER

PLAN

SECTION B-B

*THIS DIMENSION MAY VARY.

BACK OF CURB

6"

SECTION A-A

TYPE 2-VERTICAL C&C

CONNECTOR PIPE OR MONOLITHIC CATCH BASIN CONNECTION (DRAWING 308-0). ALL PIPE CONNECTIONS SHALL CONFORM TO ASTM C-923. PRECAST UNITS SHALL BE BOOT TYPE OR INTEGRAL COMPRESSION GASKET. CAST IN PLACE UNITS SHALL INCLUDE A WATER STOP IF THE MONOLITHIC CATCH BASIN CONNECTION IS NOT REQUIRED.

SECTION C-C

OPEN-BACK HOOD

1.125R

8"

SECTION A-A

TYPE 1A-ROLLED C&C

NOTES
1. STANDARD DEPRESSION FOR INLET IS 1-1/2".
2. FRAME AND GRATE SHALL CONFORM TO DRAWINGS 9-14 AND 9-15.
3. OPEN-BACK HOOD SHALL BE H-20 RATED.
4. ALL EXPOSED EDGES SHALL HAVE A 1/8" R (MINIMUM).
5. AN EDGING TOOL SHALL BE USED ON ALL EDGES WHERE THE CONCRETE SIDEWALK AND CURB MEET THE TOP OF THE HOOD.
6. EXPOSED SURFACES OF THE GRATES, FRAMES AND HOODS WITH THE PARTS ASSEMBLED AND DISASSEMBLED SHALL BE PAINTED WITH COMMERCIAL QUALITY ASPHALTUM PAINT AFTER TESTING AND ASSEMBLY.
7. CAST IRON HOODS SHALL BE 3/4" THICK, NO GALVANIZING REQUIRED.
NOTES:
1. SEE DRAWINGS 9-14 AND 9-15 FOR FRAME AND GRATE DETAILS.
2. BOTTOM OF INLET SHALL BE PLACED PRIOR TO OR AT THE SAME TIME AS SIDE WALLS.
3. SEE NOTE 1 OF DRAWING 9-13B FOR GUTTER DEPRESSION.

SACRAMENTO COUNTY MUNICIPAL SERVICES AGENCY

DROP INLET
TYPE C

9-13C

DIRECTOR, DEPARTMENT OF WATER RESOURCES
JANUARY 2014
NOTES:

1. OMIT 1/2" FRAME ANCHORS OVER CENTER SUPPORT ASSEMBLY WHEN MULTIPLE FRAMES ARE USED.

2. MATERIAL: ASTM A36 MILD STEEL.

3. SEE ARTICLE 50-34, "SEWER AND STORM DRAIN CASTINGS," OF SECTION 50.

4. EXPOSED SURFACES OF THE GRATING, FRAMES AND HOODS WITH THE PARTS ASSEMBLED AND DISASSEMBLED SHALL BE PAINTED WITH COMMERCIAL QUALITY ASPHALTUM PAINT AFTER TESTING AND ASSEMBLY.

SACRAMENTO COUNTY MUNICIPAL SERVICES AGENCY

WELDED STEEL GRATE FRAME

DIRECTOR, DEPARTMENT OF WATER RESOURCES
JANUARY 2014

DRAWN BY: L. PETERS
SCALE: NONE
REVISION DATE: 04/07

9-14
NOTES:
1. DIMENSIONS TO CENTERLINE OF BARS UNLESS OTHERWISE NOTED.
2. EXPOSED SURFACES OF THE GRATES, FRAMES AND HOODS, WITH THE PARTS ASSEMBLED AND DISASSEMBLED, SHALL BE PAINTED WITH COMMERCIAL QUALITY ASPHALTUM PAINT AFTER TESTING AND ASSEMBLY.
NOTES:
1. OMIT 1/2" FRAME ANCHORS OVER CENTER SUPPORT
2. L=57 INCHES FOR CURB OPENING CATCH BASIN WITH GRATING(S) AND DEBRIS SKIMMER (STANDARD PLAN 301).
3. EXPOSED SURFACES OF THE GRATES, FRAMES AND HOODS, WITH PARTS ASSEMBLED AND DISASSEMBLED, SHALL BE PAINTED WITH COMMERCIAL QUALITY ASPHALTUM PAINT AFTER TESTING AND ASSEMBLY.
1 #4 bar x W+6". In addition to reinforcing steel per drawing 301-1.

2"x3" opening for concrete placement

Interior face of drop inlet end wall

Face plate 3/4" ø hole

End anchor

END DETAIL

SACRAMENTO COUNTY MUNICIPAL SERVICES AGENCY

CATCH BASIN FACE PLATE ASSEMBLY AND PROTECTION BAR

DRAWN BY: S. PIMENTEL
SCALE: NONE
REVISION DATE: 5/12

DIRECTOR, DEPARTMENT OF WATER RESOURCES
JANUARY 2014

9-17
SHEET 1 OF 2
FACE PLATE ANCHORS

GENERAL NOTES:
1. TO BE USED ONLY IN TYPE 2 CURB AND GUTTER WITH A 2" DEPRESSION. USE IN TYPE 1A CURB AND GUTTER ONLY UPON APPROVAL OF THE DIRECTOR. ALTERNATE ANGLE IRON SIZE, DEPRESSION DEPTH, AND SLAB THICKNESS MAY BE USED UPON APPROVAL OF THE DIRECTOR.
2. ALL PARTS SHALL BE STEEL, EXCEPT SET SCREWS, WHICH SHALL BE STAINLESS STEEL OR BRASS.
3. EXPOSED SURFACES OF THE GRATES, FRAMES AND HOODS WITH THE PARTS ASSEMBLED AND DISASSEMBLED SHALL BE PAINTED WITH COMMERCIAL QUALITY ASPHALTUM PAINT AFTER TESTING AND ASSEMBLY.
4. FACE PLATE LENGTHS SHALL BE CAST INTO THE STRUCTURE CONTINUOUS FOR THE FULL LENGTH + 12".
5. WHEN CURB INLET OPENING HEIGHT EXCEEDS: 6" INSTALL 1" Ø STEEL PROTECTION BAR, 12" INSTALL 2-1" Ø STEEL PROTECTION BARS (EQUALLY SPACED), 17" INSTALL 3-1" Ø STEEL PROTECTION BARS (EQUALLY SPACED).
6. WHEN CURB INLET OPENING LENGTH EXCEEDS 7" INSTALL 1" Ø STEEL SUPPORT BOLTS, SPACED AT NOT MORE THAN 5' O.C.
7. ALTERNATE ANGLE IRON SIZE, DEPRESSION DEPTH, AND SLAB THICKNESS MAY BE USED UPON APPROVAL OF THE DIRECTOR.
8. TOP SLAB OVER INLET SHALL BE 4½".
NOTES:
1. PROVIDE 1/4" X 18" GALV. CHAIN WELD TO COVER AND EYE BOLT.
2. PROVIDE END OR SIDE OPENINGS AS SHOWN ON PLAN OR CROSS SECTION.
3. TOP OF ALL WALLS TO BE FINISHED TO A FLAT PLANE TO PROVIDE EVEN BEARING FOR THE GRATE COVER.
4. ALL METAL SHALL BE GALVANIZED PER ASTM A123.
5. INSTALL A GREEN CARBONITE UTILITY MARKER PRODUCT NUMBER CRM306607 OR EQUIVALENT. UTILITY MARKER SHALL HAVE A 3"X12" SILVER/WHITE HIGH INTENSITY STRIP ON THE FRONT AND A 3"X3" SILVER/WHITE HIGH INTENSITY STRIP ON THE BACK. INSTALL THE UTILITY MARKER PER MANUFACTURER'S STANDARDS. THE MARKER SHALL BE INSTALLED 1' FROM THE EDGE OF PAVEMENT AT THE CENTERLINE OF THE DROP INLET.
NOTES:
1. CURB INLET ASSEMBLY MAY BE PRECAST CONCRETE, OR FORMED AND CAST-IN-PLACE P.C.C.

2. EXPOSED SURFACES OF THE GRATES, FRAMES AND HOODS, WITH THE PARTS ASSEMBLED AND DISASSEMBLED, SHALL BE PAINTED WITH COMMERCIAL QUALITY ASPHALTUM PAINT AFTER TESTING AND ASSEMBLY.

3. SEE STD. DWG. 9-17 FOR FACE PLATE ASSEMBLY.

SACRAMENTO COUNTY MUNICIPAL SERVICES AGENCY

DROP INLET TYPE G

DRAWN BY: STAFF
SCALE: NONE
REVISION DATE: 10/09
9-19
SHEET 1 OF 3

DIRECTOR, DEPARTMENT OF WATER RESOURCES
JANUARY 2014
FOR VERTICAL CURB (TYPE 2)

TOP OF CURB
NORMAL GUTTER F.L.

GUTTER TRANSITION ELEVATION

2' 4' 2'

BACK OF CURB

CURB INLET

LIP OF GUTTER

GUTTER TRANSITION PLAN

3' - 9''

24''

CURB FACE

LEVELING SCREWS (OPTIONAL)

CURB INLET DETAIL

NOTES:
1. CURB INLET ASSEMBLY MAY BE PRECAST CONCRETE, OR FORMED AND CAST-IN-PLACE P.C.C.
2. EXPOSED SURFACES OF THE GRATES, FRAMES AND HOODS, WITH THE PARTS ASSEMBLED AND DISASSEMBLED, SHALL BE PAINTED WITH COMMERCIAL QUALITY ASPHALTUM PAINT AFTER TESTING AND ASSEMBLY.

SACRAMENTO COUNTY MUNICIPAL SERVICES AGENCY

DROP INLET
TYPE G
Type 2 C & G

DIRECTOR, DEPARTMENT OF WATER RESOURCES
JANUARY 2014

DRAWN BY: STAFF
SCALE: NONE
REVISION DATE: 10/09

9-19
SHEET 2 OF 3
FOR ROLLED CURB (TYPE 1A)

GUTTER TRANSITION ELEVATION

GUTTER/ROAD TRANSITION PLAN

CURB INLET DETAIL

NOTES:
1. CURB INLET ASSEMBLY MAY BE PRECAST CONCRETE, OR FORMED AND CAST-IN-PLACE P.C.C.

2. EXPOSED SURFACES OF THE GRATES, FRAMES AND HOODS, WITH THE PARTS ASSEMBLED AND DISASSEMBLED, SHALL BE PAINTED WITH COMMERCIAL QUALITY ASPHALTUM PAINT AFTER TESTING AND ASSEMBLY.

3. USE OF TYPE G INLET IN TYPE 1A C&G ONLY WITH APPROVAL FROM THE DIRECTOR.

SACRAMENTO COUNTY MUNICIPAL SERVICES AGENCY

DROP INLET
TYPE G
Type 1A C & G

DIRECTOR, DEPARTMENT OF WATER RESOURCES
JANUARY 2014

DRAWN BY: STAFF
SCALE: NONE
REVISION DATE: 10/09

9-19
SHEET 3 OF 3
PLAN

42" DIAMETER TO 72" DIAMETER
C.M.P. INLET

OPENING LENGTH L, AS SPECIFIED ON PLANS
2'-0" MIN.

2'X2' MINIMUM ACCESS DOOR

PROVIDE 1" DIAMETER HOLE IN DOOR AND C.M.P.
AND FURNISH 1/4"X12"
GALVANIZED CHAIN

5/16" RAISED PATTERN FLOOR PLATE, GALVANIZED, ALL STEEL
EDGES SMOOTH AND CHAMFERED

2-4" HEAVY DUTY BUTT HINGES
GALVANIZED (WITH BRASS PIN)
FILLET WELDED TO COVER AND FRAME

PLAN

24" DIAMETER TO 36" DIAMETER
C.M.P. INLET

OPENING LENGTH L, AS SPECIFIED ON PLANS
1'-8" MIN.

2-4" HEAVY DUTY BUTT HINGES
GALVANIZED (WITH BRASS PIN)
FILLET WELDED TO COVER AND FRAME

PROVIDE 1" DIAMETER HOLE IN DOOR AND C.M.P.
AND FURNISH 1/4"X12"
GALVANIZED CHAIN

5/16" RAISED PATTERN FLOOR PLATE, GALVANIZED, ALL STEEL
EDGES SMOOTH AND CHAMFERED
FOR OPENING 12" OR GREATER IN HEIGHT, PLACE HORIZONTAL 1/2" DIA. BAR AT MIDPOINT OF OPENING

SECTION
24" DIAMETER TO 36" DIAMETER
C.M.P. INLET

NOTES
1. LOCATIONS, HEIGHTS, AND LENGTH OF OPENINGS SHALL BE AS SHOW ON THE PLANS.

2. AREA OF THE OPENING SHALL NOT BE LESS THAN THE AREA OF OUTFALL PIPE.

3. OUTFALL PIPE TO BE CUT FLUSH WITH INSIDE OF RISER.

4. NOT TO BE USED AS A JUNCTION STRUCTURE.

5. DIAMETER OF RISER PIPE SHALL BE AT LEAST ONE SIZE LARGER THAN OUTFALL PIPE.

6. TO BE USED ONLY WITH THE SPECIFIC APPROVAL OF THE DIRECTOR.

7. INSTALL A GREEN CARBONITE UTILITY MARKER PRODUCT NUMBER CRM306607 OR EQUIVALENT. UTILITY MARKER SHALL HAVE A 3"X12" SILVER/WHITE HIGH INTENSITY STRIP ON THE FRONT AND A 3"X3" SILVER/WHITE HIGH INTENSITY STRIP ON THE BACK. INSTALL THE UTILITY MARKER PER MANUFACTURER'S STANDARDS. THE POST SHALL BE INSTALLED 1' FROM THE EDGE OF PAVEMENT AT THE CENTERLINE OF THE DROP INLET.

---

<table>
<thead>
<tr>
<th>RISER DIAMETER</th>
<th>H, MAX</th>
<th>HEIGHT T, MAX</th>
<th>GAGES (MINIMUM)</th>
</tr>
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<tr>
<td>24&quot;</td>
<td>4'</td>
<td>8&quot;</td>
<td>0.079&quot;</td>
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<tr>
<td>72&quot;</td>
<td>10'</td>
<td>18&quot;</td>
<td>0.109&quot;</td>
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---

SACRAMENTO COUNTY MUNICIPAL SERVICES AGENCY
CORRUGATED METAL PIPE DRAINAGE INLET
TYPE I

DRAWN BY: STAFF
SCALE: NONE
REVISION DATE: 10/09

DIRECTOR, DEPARTMENT OF WATER RESOURCES
JANUARY 2014

9-20
SHEET 2 OF 2
NOTES:
1. STANDARD DEPRESSION FOR INLET IS 1 1/2".
2. MANHOLE FRAME AND COVER SHALL CONFORM TO DRAWING 9-36.
3. FRAME AND GRATE SHALL CONFORM TO DRAWINGS 9-14 AND 9-15.
4. ALL EXPOSED EDGES SHALL HAVE A 1/2" RADIUS (MINIMUM).
5. AN EDGING TOOL SHALL BE USED ON ALL EDGES WHERE THE CONCRETE SIDEWALK AND CURB MEET THE TOP OF THE HOOD.
6. EXPOSED SURFACES OF THE GRATE, FRAMES AND HOOD WITH THE PARTS ASSEMBLED AND DISASSEMBLED SHALL BE PAINTED WITH COMMERCIAL QUALITY ASPHALTUM PAINT AFTER TESTING AND ASSEMBLY OR GALVANIZED.
7. INLET SHALL NOT BE CAST IN PLACE.
### Fitting Sizes

<table>
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<tr>
<th>DIA (in)</th>
<th>A (ft)</th>
<th>E (ft)</th>
<th>F (ft)</th>
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</tr>
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<td>4</td>
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</tr>
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<td>18</td>
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<td>4</td>
<td>4</td>
</tr>
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<td>14</td>
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</tr>
<tr>
<td>84</td>
<td>3</td>
<td>16</td>
<td>12</td>
</tr>
<tr>
<td>90</td>
<td>3</td>
<td>16</td>
<td>12</td>
</tr>
<tr>
<td>96</td>
<td>3</td>
<td>16</td>
<td>12</td>
</tr>
</tbody>
</table>

### Notes

1. To use table, refer to diagram and select letter representing desired dimension, then enter table at correct pipe dimension and read dimension in column under appropriate letter heading.

2. Dimensions on table allow for use of standard 12 inch wide band coupler on sizes 12 inch through 54 inch and 24 inch wide band on 60 inch and larger sizes.

3. For pipe–arch fittings, choose pipe diameter equal to or greater than arch span. (Example: 35 inch x 24 inch pipe–arch; use dimensions for 36 inch pipe).

4. Structural reinforcement may be required on some larger sizes.
1. **Concrete Pipe to Concrete Pipe Without Standard Joint**

   - Concrete Collar
   - T or 6" Min.
   - Inside Face
   - 12" Min.
   - 12" Min.
   - 6"

2. **Cast-In-Place or Pre-Cast Concrete Pipe to CSP**

   - Concrete Collar
   - 6" Min.
   - 3" T or 6" Min.
   - C.M.P.
   - Inside Face
   - Cast-In-Place or Pre-Cast Concrete Pipe

3. **Concrete Pipe, C.M.P. Into Existing Pipe or Structure**

   - Concrete Pipe
   - C.M.P.
   - Inside Face
   - 6" Min.
   - 12"

4. **Pipes of Dissimilar Metals**

   - Mortar or Grout
   - Std C.M.P. Band Coupler
   - Inside Face
   - 3"
   - 6"
   - 9"
   - 9"
   - 6"
NATIVE SELECT, FINELY DIVIDED BACKFILL 90% RELATIVE COMPACTION

WEEP HOLE SHALL BE CENTERED IN A MINIMUM OF 1 C.F. OF 3/4" CRUSHED ROCK CONFORMING TO SECTION 50 "CLEAN CRUSHED ROCK", TYPE B. ROCK SHALL BE WRAPPED IN FABRIC CONFORMING TO SECTION 50 "GEOTEXTILE FABRIC". HOLE SHALL BE 2" DIAMETER PIPE CUT TO FIT FLUSH WITH CHANNEL FACE. (TYPICAL)

4" Poured-In-Place Concrete

CUTOFF WALL
TO BE PLACED ALONG ENTIRE END OF LINED SECTION AT BEGINNING AND AT END OF LINING

TYPICAL FULL LINING

CONSTRUCTION JOINT

SACRAMENTO COUNTY MUNICIPAL SERVICES AGENCY
LINED CHANNEL SECTION

DIRECTOR, DEPARTMENT OF WATER RESOURCES
JANUARY 2014

DRAWN BY: MYRA FIELDS
SCALE: NONE
REVISION DATE: 10/09

9-24
SHEET 2 OF 2
CONNECT TRASH RACK TO BRACKET WITH $\frac{1}{2} \times 2\frac{1}{2}$ HEX BOLTS WITH TWO HEX NUTS EACH.

BAR "A"

2"x12"x$\frac{3}{8}$" BAR

HEADWALL

SIDE BAR LENGTH AND ANGLE WILL BE DETERMINED BY WING WALL DESIGN.

BAR "A" @ 6" OC

SYMETRICAL ABOUT CENTER LINE

TOP VIEW

SIDE VIEW

SACRAMENTO COUNTY MUNICIPAL SERVICES AGENCY

TRASH RACK
24" - 36" PIPE

DIRECTOR, DEPARTMENT OF WATER RESOURCES
JANUARY 2014

DRAWN BY: J. ESLABON
SCALE: NONE
REVISION DATE: 10/09

9-26G
SHEET 1 OF 4
# Trash Rack Dimensions

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</thead>
<tbody>
<tr>
<td>24</td>
<td>30</td>
<td>11</td>
<td>3/8 x 2 1/2</td>
<td>46</td>
<td>48</td>
<td>40</td>
<td>18</td>
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<tr>
<td>27</td>
<td>33.5</td>
<td>11</td>
<td>3/8 x 2 1/2</td>
<td>50</td>
<td>48</td>
<td>42</td>
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<td>30</td>
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<td>11</td>
<td>3/8 x 2 1/2</td>
<td>53</td>
<td>48</td>
<td>46</td>
<td>21</td>
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<tr>
<td>33</td>
<td>40.5</td>
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<td>3/8 x 2 1/2</td>
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<td>13</td>
<td>3/8 x 2 1/2</td>
<td>60</td>
<td>60</td>
<td>52</td>
<td>24</td>
</tr>
</tbody>
</table>

*Includes outside frame

---

**Notes:**

1. See figure 9-26H for pipe headwall details.
3. All fillet welds to be 3/6".
4. All steel shall conform to section 75 of the state specifications and ASTM A36, A575 and A576.

---

**Sacramento County Municipal Services Agency**

**Trash Rack**

24" - 36" Pipe

**Detail B**

**Detail C**

---

**Drawn by: J. Eslabon**

**Scale: None**

**Revision Date: 10/09**

**9-26G**

**Sheet 2 of 4**
### TRASH RACK DIMENSIONS

<table>
<thead>
<tr>
<th>PIPE DIA (IN)</th>
<th>PIPE OD (IN)</th>
<th>QUANTITY* BAR &quot;A&quot;</th>
<th>BAR &quot;A&quot; SIZE (IN)</th>
<th>H (IN)</th>
<th>W (IN)</th>
<th>L (IN)</th>
<th>S (IN)</th>
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<tr>
<td>42</td>
<td>51</td>
<td>15</td>
<td>3/8 x 2-1/2</td>
<td>67</td>
<td>72</td>
<td>60</td>
<td>47-3/4</td>
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<tr>
<td>48</td>
<td>58</td>
<td>17</td>
<td>3/8 x 2-1/2</td>
<td>74</td>
<td>84</td>
<td>70</td>
<td>47-3/4</td>
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<tr>
<td>54</td>
<td>65</td>
<td>21</td>
<td>3/8 x 2-1/2</td>
<td>81</td>
<td>108</td>
<td>72</td>
<td>47-3/4</td>
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<tr>
<td>60</td>
<td>72</td>
<td>23</td>
<td>3/8 x 2-1/2</td>
<td>88</td>
<td>120</td>
<td>80</td>
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<td>3/8 x 2-1/2</td>
<td>102</td>
<td>144</td>
<td>96</td>
<td>47-3/4</td>
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</tbody>
</table>

*Includes outside frame

### NOTES:

1. SEE FIGURE 9-26H FOR PIPE HEADWALL DETAILS.
2. MATERIAL TO CONFORM TO ASTM DESIGNATION A-36. GALVANIZE ALL EXPOSED FERROUS PARTS AFTER FABRICATION.
3. ALL FILLET WELDS TO BE 3/16".
4. ALL STEEL SHALL CONFORM TO SECTION 75 OF THE STATE SPECIFICATIONS AND ASTM A36, A575, AND A576.
5. GATE HINGES TO BE COATED TO RESIST CORROSION.

---

**Access Gate Detail**

**Detail E**

- 2" ROLLED STEEL HANDLE WELDED TO GATE FRAME
- DRILL 3/8" DIA HOLE FOR HEAVY DUTY PAD LOCK

---

**Sacramento County Municipal Services Agency**

**Trash Rack**

**42" Pipe and Larger**

Drawn by: L. Esler

Scale: None

Revision Date: 1/03

January 2014

Director, Department of Water Resources

Sheet 4 of 4
**NOTES**

1. PLACE #5 REBAR ON DIAGONALS @ 
   4" FROM PIPE OD.
2. PIPE CONNECTIONS SHALL CONFORM 
   TO ASTM C-923. UNITS SHALL 
   INCLUDE A WATER STOP.
3. CHAMFER ALL EXPOSED EDGES 3/4".
4. ALL STEEL MINIMUM 2" FROM CONCRETE 
   EDGES.
5. ALL LAP SPlices MINIMUM 12".

**HEADWALL DIMENSIONS**

<table>
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<tr>
<th>PIPE Dia</th>
<th>PIPE OD</th>
<th>W</th>
<th>Hmax</th>
<th>T*</th>
<th>Lmax</th>
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<tbody>
<tr>
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<td>10&quot;</td>
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<td>3&quot;-6&quot;</td>
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**REINFORCING STEEL DIMENSIONS AND DATA**

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<tr>
<th></th>
<th>A BAR</th>
<th>B BAR</th>
<th>C BAR</th>
<th>D BAR</th>
<th>E BAR</th>
<th>WINGWALL TOP BAR</th>
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<td>H ≤ 7&quot;</td>
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**SACRAMENTO COUNTY MUNICIPAL SERVICES AGENCY**

**PIPE HEADWALL, ENDWALL**

**WINGWALL STRUCTURE**

**DIRECTOR, DEPARTMENT OF WATER RESOURCES**

**JANUARY 2014**

**DRAWN BY: STAFF**

**SCALE: NONE**

**REVISION DATE: 10/09**

**SHEET 3 OF 3**
GENERAL NOTES:

1. GUARDRAIL - 1½" SEAMLESS STEEL PIPE ASTM 53 GRADE B, HOT DIP GALVANIZED. PAINT COLOR (IF NEEDED) TO BE SPECIFIED ON PLANS AT NO EXTRA COST.
2. ALL GUARDRAIL WELDS ½" FILLET GROUND SMOOTH.
3. MAXIMUM SPACING OF POSTS SHALL BE 6'.
4. TO BE SHOWN ON IMPROVEMENT PLANS FOR PLACEMENT.

SACRAMENTO COUNTY MUNICIPAL SERVICES AGENCY
PIPE HEADWALL, ENDWALL WINGWALL STRUCTURE

DIRECTOR, DEPARTMENT OF WATER RESOURCES
JANUARY 2014
1. USE CLASS "B" CONCRETE OR GROUTED COBBLES AS SPECIFIED.

2. 4"X4"-W4XW4 WWF THROUGHOUT CONCRETE

3. ON LINED CHANNELS APRON SHALL CONNECT TO SIDE LINING.

4. B=DITCH BOTTOM WIDTH OR AS SHOWN ON PLANS.

5. D=DITCH WATER DEPTH PLUS ONE FOOT OF FREEBOARD.
METAL POST INSTALLATION

GATEWAY

WOOD POST INSTALLATION

See Note 3

WIRE MESH GATE INSTALLATION FOR EITHER WOOD OR METAL POST FENCES

SACRAMENTO COUNTY
MUNICIPAL SERVICES AGENCY

BARBED WIRE AND WIRE MESH FENCES

DIRECTOR, DEPARTMENT OF WATER RESOURCES
JANUARY 2014

DRAWN BY: STAFF
SCALE: NONE
REVISION DATE: 11/98

9-28 SHEET 1 OF 3
END AND CORNER POST ASSEMBLY

Type BW = 5 lines of barbed wire.
Type WM = Wire mesh and 3 lines of barbed wire.

WOOD POST INSTALLATION

PULL POST ASSEMBLY

At 660' maximum intervals for WM fence.
At 1320' maximum intervals for BW fence.

METAL POST INSTALLATION

SACRAMENTO COUNTY
MUNICIPAL SERVICES AGENCY

BARBED WIRE AND WIRE MESH FENCES

DIRECTOR, DEPARTMENT OF WATER RESOURCES
JANUARY 2014

DRAWN BY: STAFF
SCALE: NONE
REVISION DATE: 11/98

9-28
SHEET 2 OF 3
**WIRE MESH GATE POST**

(See Note 4)

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<th>GATE WIDTHS</th>
<th>NOMINAL OD</th>
<th>WEIGHT PER FT</th>
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<tr>
<td>Up thru 6’</td>
<td>2–7/8”</td>
<td>5.79</td>
</tr>
<tr>
<td>Over 6’ thru 12’</td>
<td>4”</td>
<td>9.11</td>
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<tr>
<td>Over 12’ thru 18’</td>
<td>5 –9/16”</td>
<td>14.62</td>
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<tr>
<td>Over 18’ to 24’ Max</td>
<td>6–5/8”</td>
<td>18.97</td>
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**NOTES:**

1. Metal end post and end bar shown. Use wood end post and end bar for wood post installation.

2. Offset to be 2’ at monument locations, measured at right angles to R/W lines. Taper to achieve offset to be at least 20’ long.

3. Gateway to be used when specified in the special provisions.

4. Post dimensions and weights are minimums. Larger sizes may be used on approval of Engineer.


**LATCHING DEVICE FOR GATEWAYS**

See Note 1

- Latching bar 1” IDx2”–2”
- Steel pipe bar
- Wire loop
- End post
- End bar
- 1/4” Short link coil chain. Bolt to end post and weld or bolt to latching bar

**FENCE LOCATION**

Offset from right of way or properly line to be 6’ or as specified or shown on project plans. See Note 2.

**SACRAMENTO COUNTY MUNICIPAL SERVICES AGENCY**

**BARBED WIRE AND WIRE MESH FENCES**

DRAFT BY: STAFF
SCALE: NONE
REVISION DATE: 4/07

DIRECTOR, DEPARTMENT OF WATER RESOURCES
JANUARY 2014

9-28

SHEET 3 OF 3
END AND CORNER POST ASSEMBLY 2'-6" for fabric less than 60" high 3'-0" for fabric 60" and over

Horizontal brace with truss rod may be used as an alternate to a diagonal brace

Brace to be removed after all other fence construction is completed unless otherwise directed by the Engineer.

Tension wires

Line post

Brace

Truss rods

Offset from right of way or property line to be 6" or as specified or shown on detail plans (See Note 6)

FENCE LOCATION

Line posts at 1000' maximum intervals braced and trussed in both directions except that this bracing and trussing may be omitted when the fabric is stretched by the equipment

Notes:
1. Chain link fabric shall be zinc coated steel manufactured in compliance with ASTM Standard A 392 with a 2 inch mesh of 9 gauge wire with knuckled sellove.

2. Tension wire shall be 7 gauge.

3. Where barbed wire is specified, it shall include 3 strands of galvanized 4 point wire attached with extension arms set at 45 degrees.

Sacramento County Municipal Services Agency

Chain Link Fence

Director, Department of Water Resources
January 2014

Michael L. Peterson

Drawn by: Staff
Scale: None
Revision Date: 12/99

Sheet 1 of 2

9-29
<table>
<thead>
<tr>
<th>FENCE HEIGHT</th>
<th>NOMINAL ROUND O.D. (NOTES 7 &amp; 8)</th>
<th>H</th>
<th>ROLL FORMED</th>
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<tr>
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<td>1-7/8&quot; x 1-5/8&quot;</td>
<td>1-7/8&quot; x 1-5/8&quot;</td>
</tr>
<tr>
<td>Over 6'</td>
<td>2-3/8&quot;</td>
<td>2-1/4&quot; x 2&quot;</td>
<td>2&quot; x 1-3/4&quot;</td>
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<table>
<thead>
<tr>
<th>END, LATCH &amp; CORNER POSTS</th>
<th>NOMINAL ROUND O.D. (NOTES 7 &amp; 8)</th>
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<th>ROLL FORMED</th>
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<tr>
<td></td>
<td>2-7/8&quot;</td>
<td>3-1/2&quot; x 3-1/2&quot;</td>
<td>2&quot; x 1-3/4&quot;</td>
</tr>
<tr>
<td></td>
<td>1-5/8&quot;</td>
<td>1-1/2&quot; x 1-5/16&quot;</td>
<td>1-5/8&quot; x 1-1/4&quot;</td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th>RAILS &amp; BRACES</th>
<th>NOMINAL ROUND O.D. (NOTES 7 &amp; 8)</th>
<th>H</th>
<th>ROLL FORMED</th>
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<tr>
<td></td>
<td>1-5/8&quot;</td>
<td>1-1/2&quot; x 1-5/16&quot;</td>
<td>1-5/8&quot; x 1-1/4&quot;</td>
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### GATE POST (NOTE 7)

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<tr>
<th>FENCE HEIGHT</th>
<th>GATE WIDTHS</th>
<th>NOMINAL O.D.</th>
<th>WEIGHT PER FOOT</th>
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<td>6'-0&quot; and Less</td>
<td>Up thru 6'</td>
<td>2-7/8&quot;</td>
<td>5.79</td>
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<tr>
<td></td>
<td>Over 6' thru 12'</td>
<td>4-1/2&quot;</td>
<td>10.79</td>
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<td>Over 12' thru 18'</td>
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<td>14.62</td>
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<tr>
<td></td>
<td>Over 18' to 24' max</td>
<td>6-5/8&quot;</td>
<td>18.97</td>
</tr>
<tr>
<td>Over 6'-0&quot;</td>
<td>Up thru 6'</td>
<td>3-1/2&quot;</td>
<td>7.58</td>
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<td>Over 6' thru 12'</td>
<td>5-11/16&quot;</td>
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<tr>
<td></td>
<td>Over 12' thru 18'</td>
<td>6-5/8&quot;</td>
<td>18.97</td>
</tr>
<tr>
<td></td>
<td>Over 18' to 24' max</td>
<td>8-5/8&quot;</td>
<td>28.55</td>
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### NOTES

1. The above table shows examples of post and brace sections which may comply with the Standard Construction Specifications.
2. Sections shown in the tables must also comply with the strength requirements and other provisions of the Standard Construction Specifications.
3. Other sections which comply with the strength requirements and other provisions of the Standard Construction Specifications may be used on approval of the Engineer.
4. Options exercised shall be uniform on any one project.
5. Dimensions shown are nominal.
6. Offset to be 2'-0" at monument locations, measured at right angles to R/W lines. Toper to achieve offset to be at least 20' long.
7. Pipe sections for posts, rails, braces, and gates shall be schedule 40 galvanized pipe manufactured in conformance with ASTM F 1083.
9. Chain link gate frames shall be a minimum of 1-7/8" pipe weighing 2.72 lbs/ft.
10. Galvanized pipe holders of heavy cost construction with counterbalanced latches shall be provided for all gates. Gate holders shall be anchored with a minimum 24" length of 1-5/8" schedule 40 pipe set in 8" Ø concrete base.
11. Double gate assemblies shall also be fitted with heavy duty hinges and lift bar interlocking device with drop anchor at midspan that latches to embedded pipe.

---

**CHAIN LINK FENCE**

**SACRAMENTO COUNTY MUNICIPAL SERVICES AGENCY**

**DIRECTOR, DEPARTMENT OF WATER RESOURCES**

**JANUARY 2014**

**DRAWN BY: STAFF**

**SCALE: NONE**

**REVISION DATE: 2/07**

**9-29**

**SHEET 2 OF 2**

---

Above post dimensions and masses are minimums.
Larger sizes may be used on approval of the Engineer.

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[Signature: Michael L. Peterson]
1. ALL UTILITY CROSSINGS OF EXISTING STREAMS SHALL BE AT LEAST 30" BELOW EXISTING CHANNEL SIDES AND BOTTOMS. DEEPER PLACEMENT MAY BE REQUIRED IF FUTURE CHANNEL IMPROVEMENTS ARE ANTICIPATED.

2. THE CUT SHALL BE SEALED AS SHOWN WITH GROUTED COBBLES OR CLASS B CONCRETE TO A WIDTH OF 1' ON EACH SIDE OF THE UTILITY TRENCH. ALL NATURAL STREAMS, AS SHOWN ON THE NATURAL STREAMS PLAN, SHALL UTILIZE GROUTED COBBLES.

3. CONSTRUCTION IS TO CONFORM TO SECTION 44 OF THE COUNTY CONSTRUCTION SPECIFICATIONS WITH CUT OFF WALLS CONFORMING TO STANDARD DRAWING 9-24.

SACRAMENTO COUNTY MUNICIPAL SERVICES AGENCY
UTILITY STREAM CROSSING

DIRECTOR, DEPARTMENT OF WATER RESOURCES
JANUARY 2014
NOTES:

1. TO HELP CREATE A FLEXIBLE, WATERTIGHT JOINT, DO NOT PLACE MORTAR AROUND THE CONNECTOR ON THE OUTSIDE OF THE STRUCTURE. ALSO, DO NOT PLACE MORTAR AROUND THE TOP HALF OF THE CONNECTOR ON THE INSIDE WHEN COMPLETING THE INVERT WORK.

2. RESILIENT CONNECTORS SHALL BE A FLEXIBLE COMPRESSION GASKET OR BOOT CONNECTOR PER SECTION 39 "MANHOLES" OF THE COUNTY CONSTRUCTION SPECIFICATIONS.

3. BOOT CONNECTORS SHALL NOT BE GROUTED.

4. ALL CONNECTORS SHALL MEET OR EXCEED THE REQUIREMENTS OF ASTM C-923.
CONSTRUCTION NOTES

1. Fabricate and install in conformance with Section 12-3.06A of the State Standard Specifications.

2. Sign panel shall conform to Type IIIA minimum reflective sheeting requirements of Section 12-3.06A of the State Standard Specifications.

3. Sign panel colors shall be black letters and border on a white background. Letter height and weight as follows:
   - Letter Height: 1-1/2", 2", 3" 
   - Line Weight: 5/16", 1/4", 3/8"

4. The County Seal emblem shall be provided by the County and installed as shown by the Contractor.

5. 4x4 Wood post shall be installed in conformance with Section 12-3.06A of the State Standard Specifications.

Michael L. Peterson
DIRECTOR, DEPARTMENT OF WATER RESOURCES
JANUARY 2014

SACRAMENTO COUNTY
MUNICIPAL SERVICES AGENCY

CONSTRUCTION
SITE SIGN

SCALE: NONE
REVISION DATE: 2/07
DRAWN BY: S.R.P. 9-32
Notes:

1. The nominal diameter of PVC pipe to be the same as the pipe to which it connects.

2. Use PVC pipe when the lateral connection is cut or damaged.

3. Alteration of pipe grades will be permitted only after written permission has been received from the engineer.

4. Whenever the span, whether caused by trench width or crossing angle of the PVC pipe, exceeds 3'-0". Replacement procedure and material shall be as directed by the engineer.

5. Bedding and initial backfill material shall be imported 3/4-inch crushed rock or gravel conforming to the requirements of Article 50-16, Type "B". For pipe 10" or less in diameter use 1/2-inch crushed rock or gravel conforming to Article 50-16, Type "A". Place per Standard Drawing 9-1A.


Michael L. Peterson

Director, Department of Water Resources
January 2014

Sacramento County Municipal Services Agency

Utility Crossing

Drawn by: Staff
Scale: None
Revision Date: 4/97

9-33
1. To be used only with Type G or 300-1 inlet.
2. All castings to conform to ASTM A48, Class 35B.
3. Frame and cover to meet H-20 load specifications.
4. Bearing surfaces are machined beveled to assure a close, non-rocking surface.
5. Exposed surfaces of the castings with the parts assembled and disassembled shall be painted with commercial quality asphaltum paint after testing and assembly.
6. See Article 50-34, "Sewer and Storm Drain Castings", of Section 50.

Michael L. Peterson
Director, Department of Water Resources
January 2014

Sacramento County Municipal Services Agency
Cast Iron 24" Manhole Frame & Cover for Type G and 300-1 Inlet

Drawn by S. Pimentel
Scale: None
Revision Date: 04/07

9-34
NOTES:
1 EMBED PIPE 3" MINIMUM INTO STRUCTURE.

2 CENTER WATERSTOP WITHIN STRUCTURE WALL. REMOVE ALL PORTIONS OF PIPE PROTRUDING INTO THE STRUCTURE IN ORDER TO FORM 3" RADIUS BETWEEN PIPE AND STRUCTURE WALL.

3 INCREASE WALL THICKNESS OF STRUCTURE BY ADDING A 4" CONCRETE COLLAR AROUND PIPE, AS NEEDED TO ACCOMMODATE MINIMUM EMBEDMENT REQUIREMENTS.

4 TO BE USED ON ALL CAST-IN-PLACE STRUCTURES. NOT ALLOWED ON PRE-CAST STRUCTURES.
NOTES:
1. ALL CASTINGS TO CONFORM TO ASTM A48, CLASS 35B.
2. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.
3. SHALL ONLY BE USED ON TYPE J INLETS.
4. EXPOSED SURFACES OF THE CASTING WITH THE PARTS ASSEMBLED AND DISASSEMBLED SHALL BE PAINTED WITH COMMERCIAL QUALITY ASPHALTUM PAINT AFTER TESTING AND ASSEMBLY. FRAME CAN BE GALVANIZED STEEL CONFORMING TO ASTM A36 AND A123.
5. WELDED WIRE FABRIC SHALL BE TACK WELD TO FRAME.
6. MANHOLE COVER SHALL HAVE A NON SLIP SURFACE.

2. ALL CURVED CONCRETE SURFACES SHALL BE FORMED BY CURVED FORMS, AND SHALL NOT BE SHAPED BY PLASTERING.

3. FLOOR OF BASIN SHALL BE GIVEN A STEEL TROWEL FINISH AND SHALL HAVE A LONGITUDINAL AND LATERAL SLOPE OF 1:12 MINIMUM AND 1:3 MAXIMUM, EXCEPT WHERE THE GUTTER GRADE EXCEEDS 8 PERCENT, IN WHICH CASE THE LONGITUDINAL SLOPE OF THE FLOOR SHALL BE THE SAME AS THE GUTTER GRADE. SLOPE FLOOR FROM ALL DIRECTIONS TO THE OUTLET.

4. DIMENSIONS:
   \[ B = 3 \text{ FEET} \quad 2 \text{ INCHES} \]
   \[ V = \text{THE DIFFERENCE IN ELEVATION BETWEEN THE TOP OF THE CURB AND THE INVERT OF THE CATCH BASIN AT THE OUTLET. NOTED ON THE PROJECT PLANS.} \]
   \[ V_u = \text{THE DIFFERENCE IN ELEVATION BETWEEN THE TOP OF THE CURB AND THE INVERT AT THE UPSTREAM END OF THE BASIN, AND SHALL BE DETERMINED BY THE REQUIREMENTS OF NOTE 3, BUT SHALL NOT BE LESS THAN CURB FACE PLUS 12 INCHES.} \]
   \[ V_i = \text{THE DIFFERENCE IN ELEVATION BETWEEN THE TOP OF THE CURB AND THE INVERT OF THE INLET. NOTED ON THE PROJECT PLANS.} \]
   \[ H = \text{NOTED ON THE PROJECT PLANS.} \]
   \[ W = \text{NOTED ON THE PROJECT PLANS.} \]
   \[ A = \text{THE ANGLE, IN DEGREES, INTERCEPTED BY THE CENTERLINE OF THE CONNECTOR PIPE AND THE CATCH BASIN WALL TO WHICH THE CONNECTOR PIPE IS ATTACHED.} \]

5. PLACE CONNECTOR PIPE AS INDICATED ON THE PROJECT PLANS UNLESS OTHERWISE SPECIFIED. THE CONNECTOR PIPE SHALL BE LOCATED AT THE DOWNSTREAM END OF THE BASIN. WHERE THE CONNECTOR PIPE IS SHOWN AT A CORNER, THE CENTERLINE OF THE PIPE SHALL INTERSECT THE INSIDE CORNER OF THE BASIN. THE PIPE MAY BE CUT AND TRIMMED AT A SKEW NECESSARY TO INSURE MINIMUM 3-INCH PIPE EMBEDMENT ALL AROUND, WITHIN THE CATCH BASIN WALL, AND 3-INCH RADIUS OF ROUNING OF STRUCTURE CONCRETE, ALL AROUND, ADJACENT TO PIPE ENDS. A MONOLITHIC CATCH BASIN CONNECTION SHALL BE USED TO JOIN THE CONNECTOR PIPE TO THE CATCH BASIN WHENEVER ANGLE "A" IS LESS THAN 70 DEGREES OR GREATER THAN 110 DEGREES, OR WHENEVER THE CONNECTOR PIPE IS LOCATED IN A CORNER. THE OPTIONAL USE OF A MONOLITHIC CATCH BASIN CONNECTION IN ANY CASE IS PERMITTED. MONOLITHIC CATCH BASIN CONNECTIONS MAY BE CONSTRUCTED TO AVOID CUTTING STANDARD LENGTHS OF PIPE.

6. DOWELS ARE REQUIRED AT EACH CORNER AND AT 7 FEET ON CENTER (MAXIMUM) ALONG THE BACKWALL.

7. THE FOLLOWING STANDARD PLANS ARE INCORPORATED HEREIN:
   308 MONOLITHIC CATCH BASIN CONNECTION
   309 CATCH BASIN REINFORCEMENT
   9-17 CATCH BASIN FACE PLATE ASSEMBLY AND PROTECTION BAR
   9-34 CATCH BASIN MANHOLE FRAME AND COVER

---

\[ \text{SACRAMENTO COUNTY MUNICIPAL SERVICES AGENCY} \]

\[ \text{CURB OPENING CATCH BASIN} \]

\[ \text{DIRECTOR, DEPARTMENT OF WATER RESOURCES JANUARY 2014} \]

\[ \text{DRAWN BY: LPETERS SCALE: NONE REVISION DATE: 10/09} \]

\[ 300-1 \text{ SHEET 2 OF 2} \]
1. WHERE THE BASIN IS TO BE CONSTRUCTED WITHIN THE LIMITS OF EXISTING OR PROPOSED SIDEWALK OR IS CONTIGUOUS TO SUCH SIDEWALK, THE TOP SLAB OF THE BASIN MAY BE Poured Either monolithic with the sidewalk or separately, using the same class of concrete as in the basin. When poured monolithically, the sidewalk shall be provided with a weakened plane or a 1-inch deep saw cut continuously around the external perimeter of the catch basin walls, including across the full width of the sidewalk. Surface of all exposed concrete shall conform in slope, grade, color, finish, and scoring to existing or proposed curb and walk adjacent to the basin.

2. ALL CURVED CONCRETE SURFACES SHALL BE FORMED BY CURVED FORMS, AND SHALL NOT BE SHAPED BY PLASTERING.

3. FLOOR OF BASIN SHALL BE GIVEN A STEEL TROWEL FINISH. FLOOR OF GRATING PORTION SHALL have a longitudinal and lateral slope of 1:12 minimum and 1:3 maximum, except where the gutter grade exceeds 8 percent, in which case the longitudinal slope of the floor shall be the same as the gutter grade. Slope floor from all directions to the outlet.

4. DIMENSIONS:
   \( V = \) THE DIFFERENCE IN ELEVATION BETWEEN THE TOP OF THE CURB AND THE INVERT OF THE CATCH BASIN AT THE OUTLET. NOTED ON THE PROJECT PLANS.
   \( V_t = \) THE DIFFERENCE IN ELEVATION BETWEEN THE TOP OF THE CURB AND THE INVERT OF THE INLET. NOTED ON THE PROJECT PLANS.
   \( H = \) NOTED ON THE PROJECT PLANS.
   \( W = \) NOTED ON THE PROJECT PLANS.
   \( W_g = 2 \) FEET 11-3/8 INCHES FOR ONE GRATING; ADD 3 FEET 5-3/8 INCHES FOR EACH ADDITIONAL GRATING. ONE GRATING IS REQUIRED UNLESS OTHERWISE SHOWN ON THE PROJECT PLANS.
   \( A = \) THE ANGLE, IN DEGREES, INTERCEPTED BY THE CENTERLINE OF THE CONNECTOR PIPE AND THE CATCH BASIN WALL TO WHICH THE CONNECTOR PIPE IS ATTACHED.

5. PLACE CONNECTOR PIPE AS INDICATED ON THE PROJECT PLANS UNLESS OTHERWISE SPECIFIED. The connector pipe shall be located at the downstream end of the basin. Where the connector pipe is shown at a corner, the centerline of the pipe shall intersect the inside corner of the basin. The pipe may be cut and trimmed at a skew necessary to insure minimum 3-inch pipe embedment all around, within the catch basin wall, and 3-inch radius of rounding of structure concrete, all around, adjacent to pipe ends. A monolithic catch basin connection shall be used to join the connector pipe to the catch basin whenever angle "A" is less than 70 degrees or greater than 110 degrees, or whenever the connector pipe is located in a corner. The optional use of a monolithic catch basin connection in any case is permitted. Monolithic catch basin connections may be constructed to avoid cutting standard lengths of pipe.

6. DOWELS ARE REQUIRED AT EACH CORNER AND AT 7 FEET ON CENTER (MAXIMUM) ALONG THE BACKWALL.

7. THE FOLLOWING STANDARD PLANS ARE INCORPORATED HEREIN:
   308 MONOLITHIC CATCH BASIN CONNECTION
   309 CATCH BASIN REINFORCEMENT
   9-14,15 FRAME AND GRATING FOR CATCH BASINS
   9-16 CENTER SUPPORT ASSEMBLY FOR MULTIPLE GRATES
   9-17 CATCH BASIN FACE PLATE ASSEMBLY AND PROTECTION BAR

8. THE GRATE SHALL BE PLACED 6" FROM THE BACK OF CURB FOR TYPE 2 CURB AND 8" FROM THE BACK OF CURB FOR TYPE 1 OR 1A CURB.
NOTES:

1. REINFORCING STEEL SHALL BE 1-1/2 INCHES CLEAR FROM FACE OF CONCRETE UNLESS OTHERWISE SHOWN.
2. REINFORCING STEEL FOR INSIDE FACE OF CATCH BASIN SHALL BE CUT AT CENTER OF OPENING AND BENT INTO WALLS OF MONOLITHIC CATCH BASIN CONNECTION. REINFORCING STEEL FOR OUTSIDE FACE OF CATCH BASIN SHALL BE CUT 2 INCHES CLEAR OF OPENING.
3. CONNECTION SHALL BE PLACED MONOLITHIC WITH CATCH BASIN. THE ROUNDED EDGE OF OUTLET SHALL BE CONSTRUCTED BY PLACING CONCRETE WITH THE SAME CLASS OF CONCRETE AS THE CATCH BASIN AGAINST A CURVED FORM WITH A RADIUS OF 3 INCHES.
4. CONNECTIONS SHALL BE CONSTRUCTED WHEN:
   (A) PIPES INLET OR OUTLET THROUGH CORNER OF CATCH BASIN.
   (B) ANGLE A FOR PIPES THROUGH 30 INCHES IN DIAMETER IS LESS THAN 70 DEGREES OR GREATER THAN 110 DEGREES.
### TYPICAL REINFORCEMENT DETAILS

<table>
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<tr>
<th>MAX. W</th>
<th>MAX. V</th>
<th>A&amp;B BARS</th>
<th>C BARS</th>
<th>D BARS</th>
<th>E BARS</th>
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</table>

*FOR W>28', V>12' OR B>4' SEE PROJECT PLANS*

### CURB OPENING CATCH BASIN REINFORCEMENT

**NOTE:** UNLESS OTHERWISE SPECIFIED REINFORCEMENT FOR CURB OPENING CATCH BASIN SHALL TERMINATE 2 INCHES FROM FACE OF CONCRETE.

---

Michael L. Peterson  
DIRECTOR, DEPARTMENT OF WATER RESOURCES  
JANUARY 2014

SACRAMENTO COUNTY  
MUNICIPAL SERVICES AGENCY

**CATCH BASIN REINFORCEMENT**

DRAWN BY: EJ FORREST  
SCALE: NONE  
REVISION DATE: 01/06  
309-0  
SHEET 1 OF 1