

### WATER MAIN

WATER MAINS SHALL BE DUCTILE IRON PIPE, CLASS 52, CONFORMING WITH ANSI/AWWA SPECIFICATIONS C105/A21.5. CORROSION PROTECTION SHALL CONSIST OF THE FOLLOWING OR AN EQUAL SUBJECT TO THE APPROVAL OF THE CITY ENGINEER:

- PIPE SHALL HAVE ONE (1) MILLIMETER OF ZINC WELDED TO IT'S EXTERIOR IN ACCORDANCE WITH EN 545/ISO 2531. ZINC SHALL BE APPLIED TO ACHIEVE A MEAN MASS OF 130 GRAMS PER SQUARE METER.
- A THREE (3) MILLIMETER EPOXY COATING SHALL BE APPLIED OVER THE ZINC DEPOSIT TO PROVIDE MECHANICAL PROTECTION OF THE ZINC AND SHALL BE COLORED BLUE.

JOINTS ON THE PIPE SHALL BE TYTON OR APPROVED EQUAL RUBBER GASKET TYPE CONFORMING TO ANSI/AWWA SPECIFICATION C111/A21.11.

### SANITARY SEWER- GRAVITY MAIN

SANITARY SEWER GRAVITY MAINS SHALL BE P.V.C. PIPE, SDR-26 OR LESS.

### SANITARY SEWER - FORCE MAIN


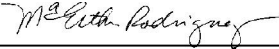
SANITARY SEWER FORCE MAINS SHALL BE C-900 CLASS 100 PVC WITH LOCATOR WIRE. THE WIRE SHALL BE A MINIMUM OF 12 GAUGE THW OR 12 GAUGE THWN, AND SHALL BE CONTINUOUS FOR THE ENTIRE LENGTH OF PIPE LAID BETWEEN CLEANOUTS. THE WIRE SHALL BE SECURED TO PIPE BY TAPE WRAPPED COMPLETELY AROUND PIPE EVERY 12 FEET OR LESS. THE WIRE SHALL BE BROUGHT INTO CLEANOUT MANHOLES WITH 2 FEET OF WIRE MORE THAN IS NEEDED TO REACH THE SURFACE.

### STORM SEWER

STORM SEWER MAINS SHALL BE:

- - CLASS III REINFORCED CONCRETE PIPE (RCP) WITH RUBBER ISOPRENE GASKETS
- PVC SDR-26 PIPE OR LESS.
- HIGH DENSITY POLYETHYLENE (HDPE) CORRUGATED PIPE WITH SMOOTH INTERIOR WALLS (TYPE "S"), WITH RUBBER GASKETTED, WATER-TIGHT JOINTS MEETING THE REQUIREMENTS OF ASTM 3212 (ADS N12 OR APPROVED EQUAL).

#### **CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT**

|                     |   |  |                           |                |
|---------------------|---|--|---------------------------|----------------|
| NOT TO SCALE        | <br>CITY OF<br>WATSONVILLE | STANDARD DRAWING FOR<br>WATER, SANITARY SEWER<br>& STORM SEWER PIPING  | DRAWN:<br>12/02           | REV.:<br>09/15 |
| DRAWN BY:<br>P.A.C. |   |  | RESOLUTION:<br>76-13 (CM) |                |
| CHECKED BY:<br>T.S. |   | <br>MARIA ESTHER RODRIGUEZ, CITY ENGINEER | DRAWING No.<br>S-201      |                |

THIS AREA AROUND MANHOLE  
SHALL BE BACKFILLED WITH  
SLURRY CEMENT BACKFILL

2 LAYERS OF RAM NECK MASTIC —  
TO BE PLACED BETWEEN SECTIONS  
(TYP.)

6" →

2' DIA.

12"  
MAX.  
CONC.  
RISE

—ADJUSTING RING(S) - 6" MAX.

— PRE-CAST CONE

TRIM INCOMING PIPE TO EXTEND TO MANHOLE, 2" MAX. V NOTCH INCOMING PIPE BOTTOM EDGE

— WATER STOP (TYP.)

– RELINER STAINLESS STEEL STRAPS OR EQUAL, SECURED WITH TWO STAINLESS STEEL BOLTS. STRAP AT 4' INTERVALS (MIN. OF 2)

—2 LAYERS OF MASTIC TO BE  
PLACED AT BASE

→ 6" MIN. CONCRETE COLLAR

SLOPE SHELF ABOVE SEWER CROWN :  
IN 12"

## FORM GROOVE IN BASE USING METAL FORM RING

#4 MAT REBAR 12" ON CENTER  
EACH WAY

## CONCRETE

1' MIN. OF  
DRAINROCK

GLUE FITTING, BELL &  
SPIGOT SWEEP ELBOW  
EMBEDDED IN CONCRETE  
AT 45° WITH FLOW

PRESS SEAL GASKET CORPORATION,  
W-S SERIES WATERSTOP GROUTING  
RINGS OR APPROVED EQUAL TO BE  
INSTALLED

6" MIN. CONCRETE  
COLLAR (TYP.)

SHELF  
SLOPE

SHELF  
SLOPE

4' MIN.

8" TYP.—

1"

SET BOWL 1" BELOW INCOMING PIPE

## INSTALLATION DETAIL

1. ALL CONCRETE SHALL BE IN ACCORDANCE WITH SECTION 90 - 2, "MINOR CONCRETE" OF THE CALTRANS STANDARD SPECIFICATIONS
2. PRECAST CONES, BARREL AND RINGS SHALL MEET ASTM C478.
3. PRE-CAST CONCRETE BASE SECTIONS ARE PROHIBITED.
4. SLURRY CEMENT BACKFILL SHALL BE IN ACCORDANCE WITH SECTION 19, "SLURRY CEMENT BACKFILL" OF THE CALTRANS STANDARD SPECIFICATIONS.
5. FOR SANITARY SEWERS, PROVIDE DROP INLET WHERE GRADE OF ENTERING LINE IS 24" OR MORE ABOVE THE FLOWLINE OF THE SEWER MANHOLE.

NOT TO SCALE

DRAWN BY:  
P.A.C.

CHECKED BY:  
T.S.

CITY OF  
WATSONVILLE

STANDARD DRAWING FOR

# STANDARD MANHOLE

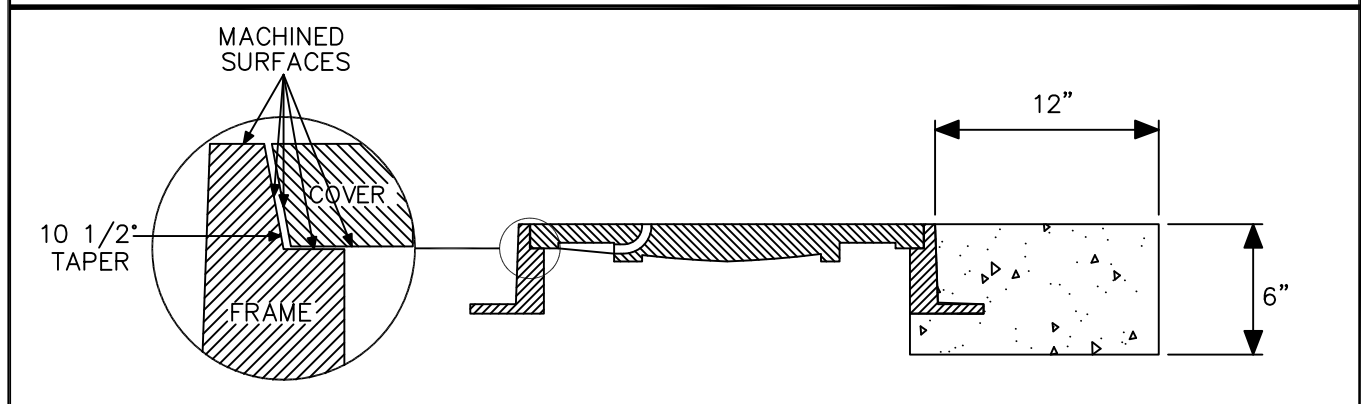
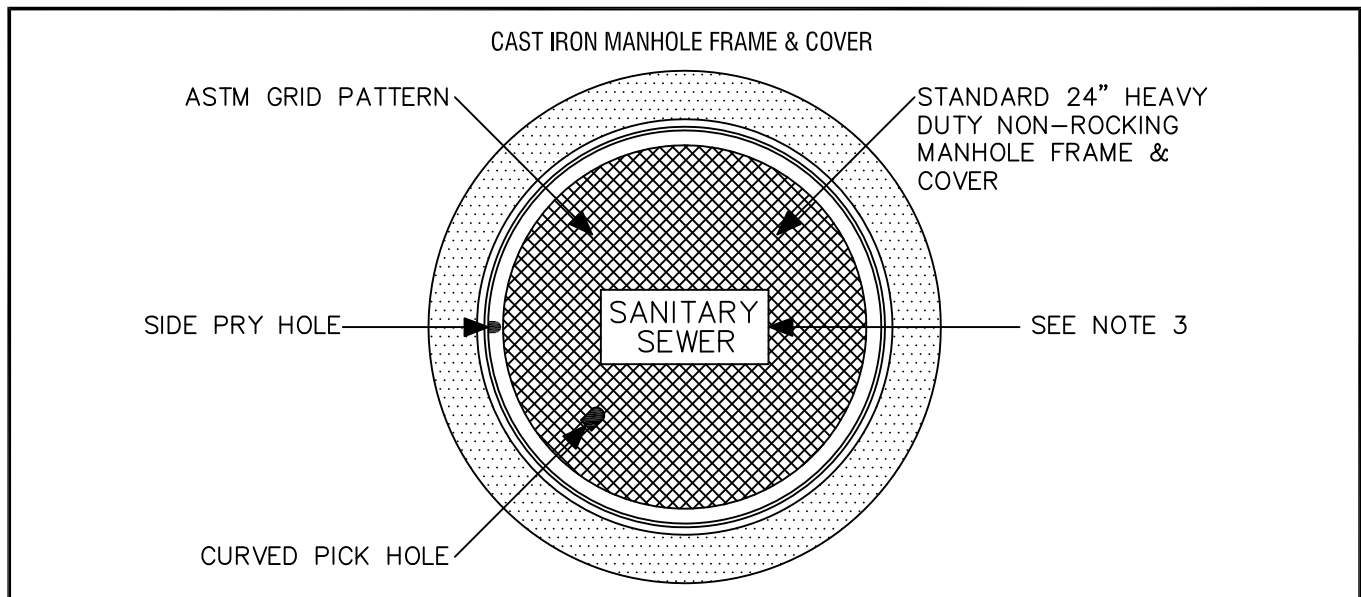
MARIA ESTHER RODRIGUEZ, CITY ENGINEER

DRAWN:  
11/10

REV.:  
8/12

RESOLUTION:  
76-13 (CM)

DRAWING No.  
**S-202**



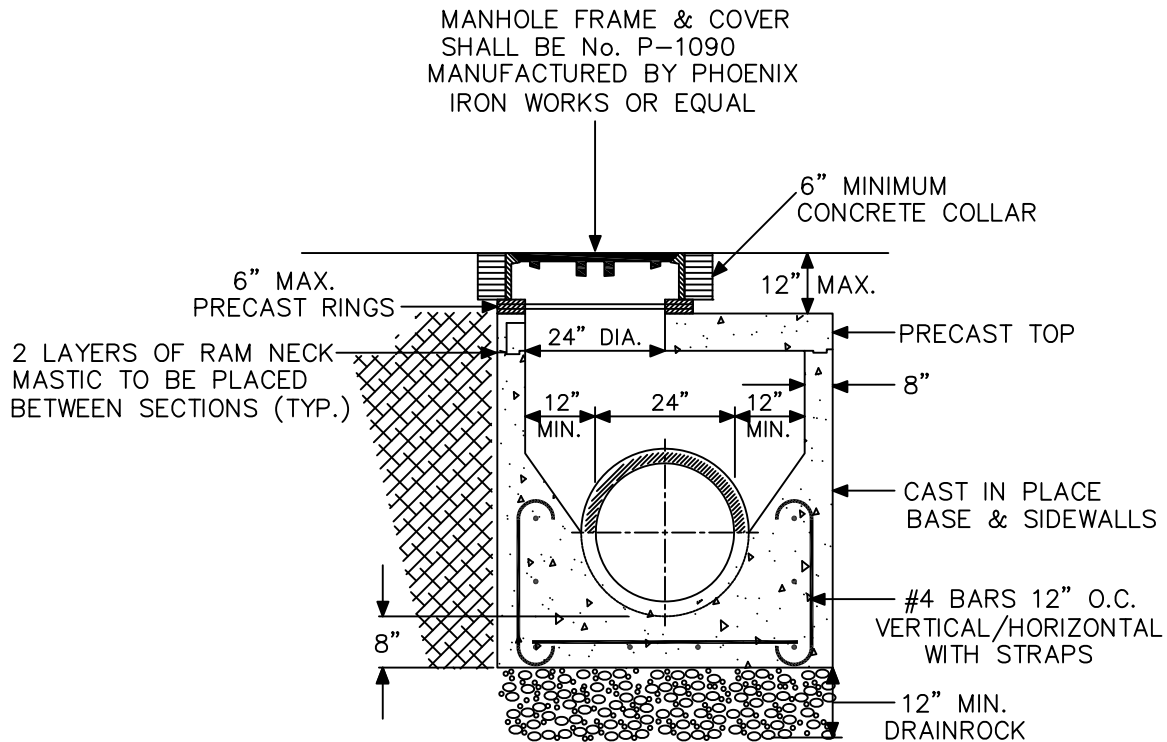
#### NOTES:

1. FRAME AND COVER SHALL BE BY THE SAME MANUFACTURER. FOUNDRY NAME SHALL BE STAMPED ON FRAME AND COVER. FRAME AND COVER TO BE PHOENIX IRON WORKS CAT. No. P-1090, OR D & L SUPPLY No. A-1024, OR APPROVED SUBMITTED EQUAL.
2. FRAMES AND COVERS SHALL BE FULLY MACHINED ON A TOTAL OF FIVE SURFACES TO ENSURE INTERCHANGABILITY AND A CLOSE, QUIET FIT. MACHINED VERTICAL SURFACES SHALL BE SLOPED.
3. COVER SHALL BE MARKED "SANITARY SEWER" OR "STORM DRAIN" AS APPROPRIATE.
4. COVER SURFACE SHALL BE SKID RESISTANT, PER ASTM SPECIAL PUBLICATION #362-1962.
5. ALL CASTINGS SHALL BE DIPPED IN ASPHALT PAINT.
6. ALL MATERIAL USED IN MANUFACTURING SHALL CONFORM TO ASTM SPECIFICATION A159-64T-G3000 OR OF UNITED STATES GOVERNMENT SPECIFICATION QQ1-653, MANUFACTURED UNDER U.S. PATENT No. 3289556.
7. APPROXIMATE WEIGHT COMPONENTS:
 

|       |            |
|-------|------------|
| COVER | - 140 LBS. |
| FRAME | - 130 LBS. |
| TOTAL | - 270 LBS. |

#### CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT



|                     |   |   |                             |                |
|---------------------|---|---|-----------------------------|----------------|
| NOT TO SCALE        | <br>CITY OF<br>WATSONVILLE | STANDARD DRAWING FOR<br><b>STANDARD MANHOLE<br/>FRAME &amp; COVER</b>   | DRAWN:<br>10/98             | REV.:<br>10/11 |
| DRAWN BY:<br>P.A.C. |   |   | RESOLUTION:<br>76-13 (CM)   |                |
| CHECKED BY:<br>T.S. |   | <br>MARIA ESTHER RODRIGUEZ, CITY ENGINEER | DRAWING No.<br><b>S-203</b> |                |

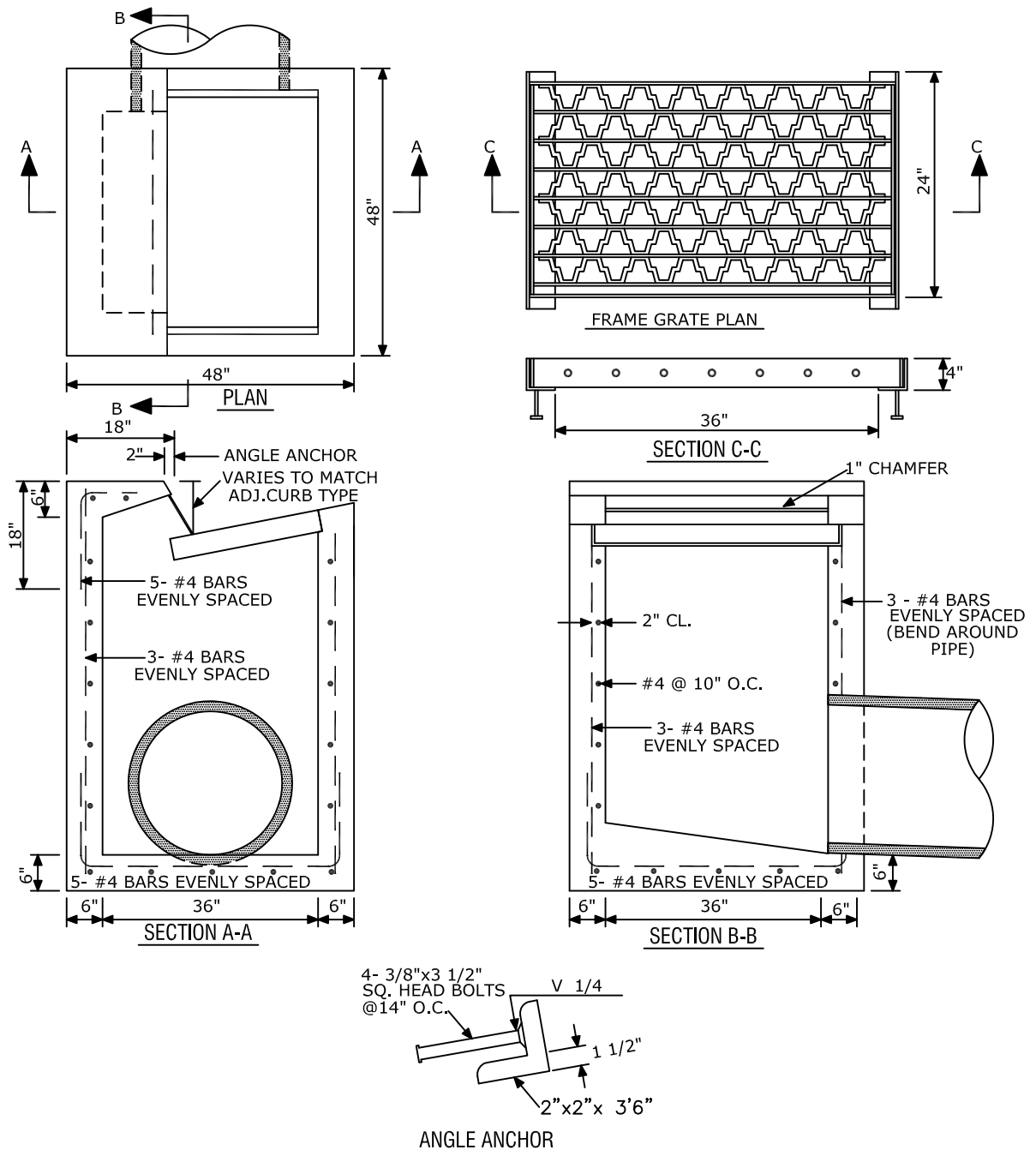


NOTES:

- 1) ALL CONCRETE SHALL BE ACCORDANCE WITH SECTION 90-2, "MINOR CONCRETE", OF THE CALTRANS STANDARD SPECIFICATIONS.
- 2) PRECAST CONES, BARREL, TOP AND RINGS SHALL MEET ASTM C478.
- 3) PRECAST CONCRETE BASE SECTIONS ARE PROHIBITED.
- 4) BACKFILL ANY VOIDS BETWEEN MANHOLE AND EXCAVATION WITH SLURRY CEMENT BACKFILL (SECTION 19, CALTRANS SPECS)

CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT


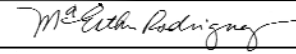
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|---------------------|---|--|---------------------------|-------|
| NOT TO SCALE        | <br>CITY OF<br>WATSONVILLE | STORM DRAIN<br>MANHOLE<br><32" CLEARANCE   | DRAWN:<br>9/12            | REV.: |
| DRAWN BY:<br>P.A.C. |   |  | RESOLUTION:<br>76-13 (CM) |       |
| CHECKED BY:<br>T.S. |   |  | DRAWING No.<br>S-204      |       |
|                     |   | <br>MARIA ESTHER RODRIGUEZ, CITY ENGINEER |                           |       |

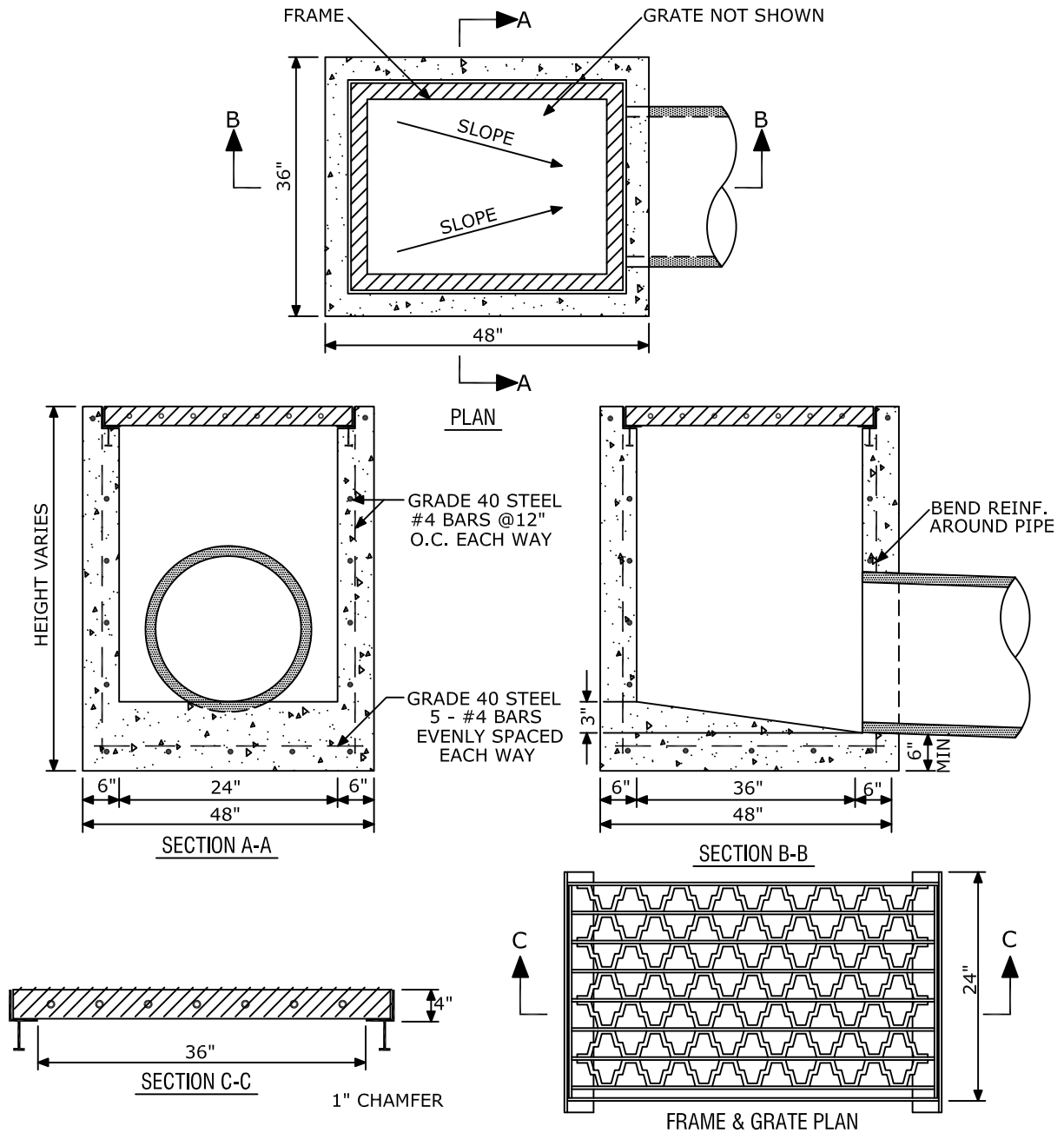


**NOTES:**

- 1) GRATE SHALL BE GRADE TYPE 24-10S AS DETAILED BY CALTRANS STANDARD PLAN D77B.
- 2) FRAME SHALL BE AS DETAILED BY CALTRANS STANDARD PLAN D77A.
- 3) CONCRETE SHALL CONFORM TO THE PROVISIONS OF SECTION 90-2, "MINOR CONCRETE", OF THE CALTRANS STANDARD SPECIFICATIONS.
- 4) PRE-CAST BASES ARE PROHIBITED.

CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT

|                     |  |   |                             |               |
|---------------------|--|---|-----------------------------|---------------|
| NOT TO SCALE        |  <p>CITY OF WATSONVILLE</p> | <p>STANDARD DRAWING FOR<br/><b>DROP INLET<br/>TYPE "D"</b></p>  | DRAWN:<br>9/11              | REV.:<br>5/13 |
| DRAWN BY:<br>P.A.C. |  |   | RESOLUTION:<br>76-13 (CM)   |               |
| CHECKED BY:<br>T.S. |  | <br>MARIA ESTHER RODRIGUEZ, CITY ENGINEER | DRAWING No.<br><b>S-205</b> |               |



#### NOTES:

- 1) CONCRETE SHALL CONFORM TO THE PROVISIONS OF SECTION 90-2, "MINOR CONCRETE", OF THE CALTRANS STANDARD SPECIFICATIONS.
- 2) GRATE SHALL BE TYPE 24 -10S AS DETAILED BY CALTRANS STANDARD PLAN D77B.
- 3) FRAME SHALL BE AS DETAILED BY CALTRANS STANDARD PLAN D77A.
- 4) PRE-CAST BASES ARE PROHIBITED.

CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT

NOT TO SCALE

DRAWN BY:  
P.A.C.

CHECKED BY:  
T.S.



STANDARD DRAWING FOR  
**DROP INLET  
TYPE "F"**

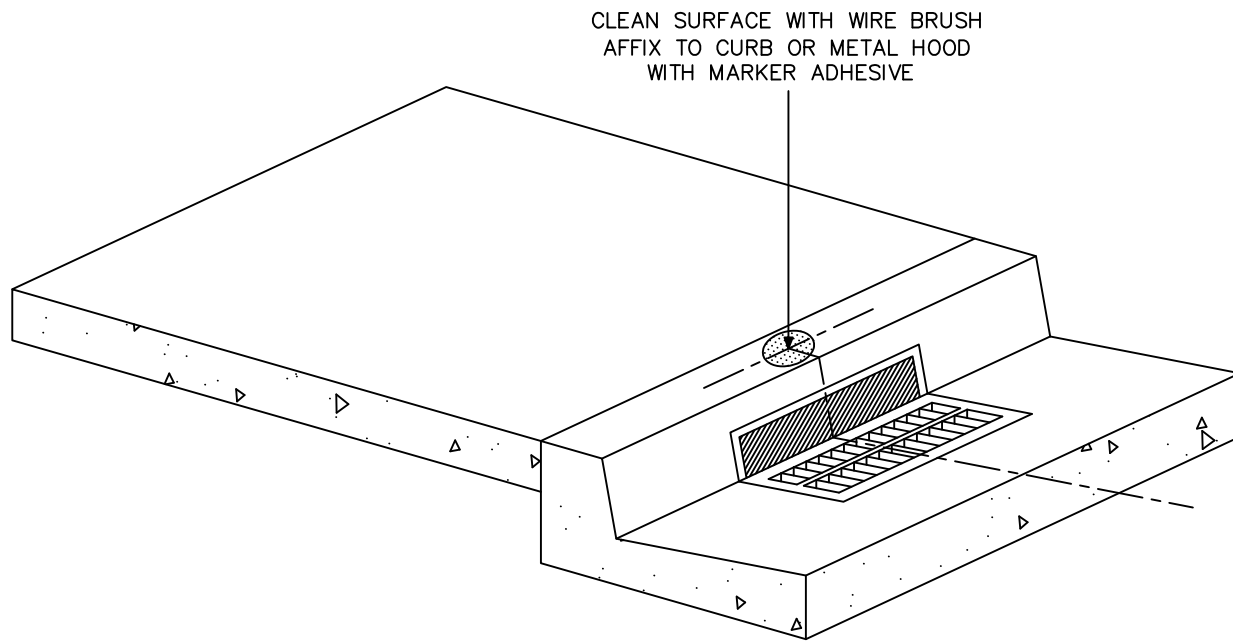
*Maria Esther Rodriguez*  
MARIA ESTHER RODRIGUEZ, CITY ENGINEER

DRAWN:  
9/11

REV.:  
5/13

RESOLUTION:  
76-13 (CM)

DRAWING No.  
**S-206**



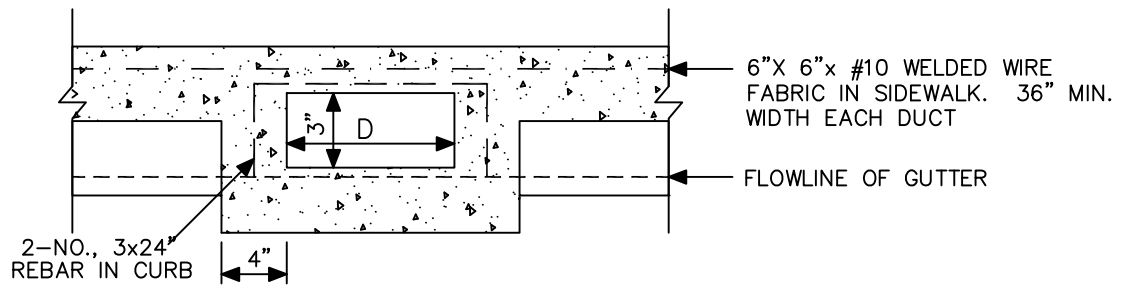
STORM DRAIN MARKER DETAIL

NOTES:

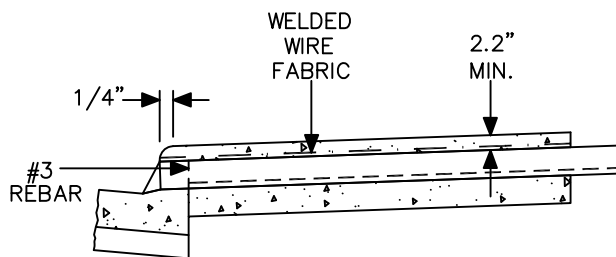
- 1) THE STORM DRAIN MARKER SHALL BE CENTERED ABOVE THE STORM DRAIN CATCH BASIN AS SHOWN.
- 2) STAINLESS STEEL STORM DRAIN MARKER SHALL BE ALMETEK STORM DRAIN MARKER, WITH FISH READING "DRAINS TO WATERWAY".

CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT

|                     |   |   |                             |
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| NOT TO SCALE        | <br>CITY OF<br>WATSONVILLE | WATER DIVISION STANDARD DRAWING<br><br><b>STORM DRAIN MARKER<br/>INSTALLATION</b>   | DATE DRAWN:<br>5/10         |
| DRAWN BY:<br>P.A.C. |   |   | DATE REVISED:<br>76-13 (CM) |
| CHECKED BY:<br>T.S. |   | <br>MARIA ESTHER RODRIGUEZ, CITY ENGINEER | DRAWING No.<br><b>S-207</b> |



METAL DUCT SECTION



THE CONCRETE AND COVER FOR METALLIC DRAINS SHALL EXTEND CONTINUOUSLY FROM PROPERTY LINE TO THE FACE OF CURB.

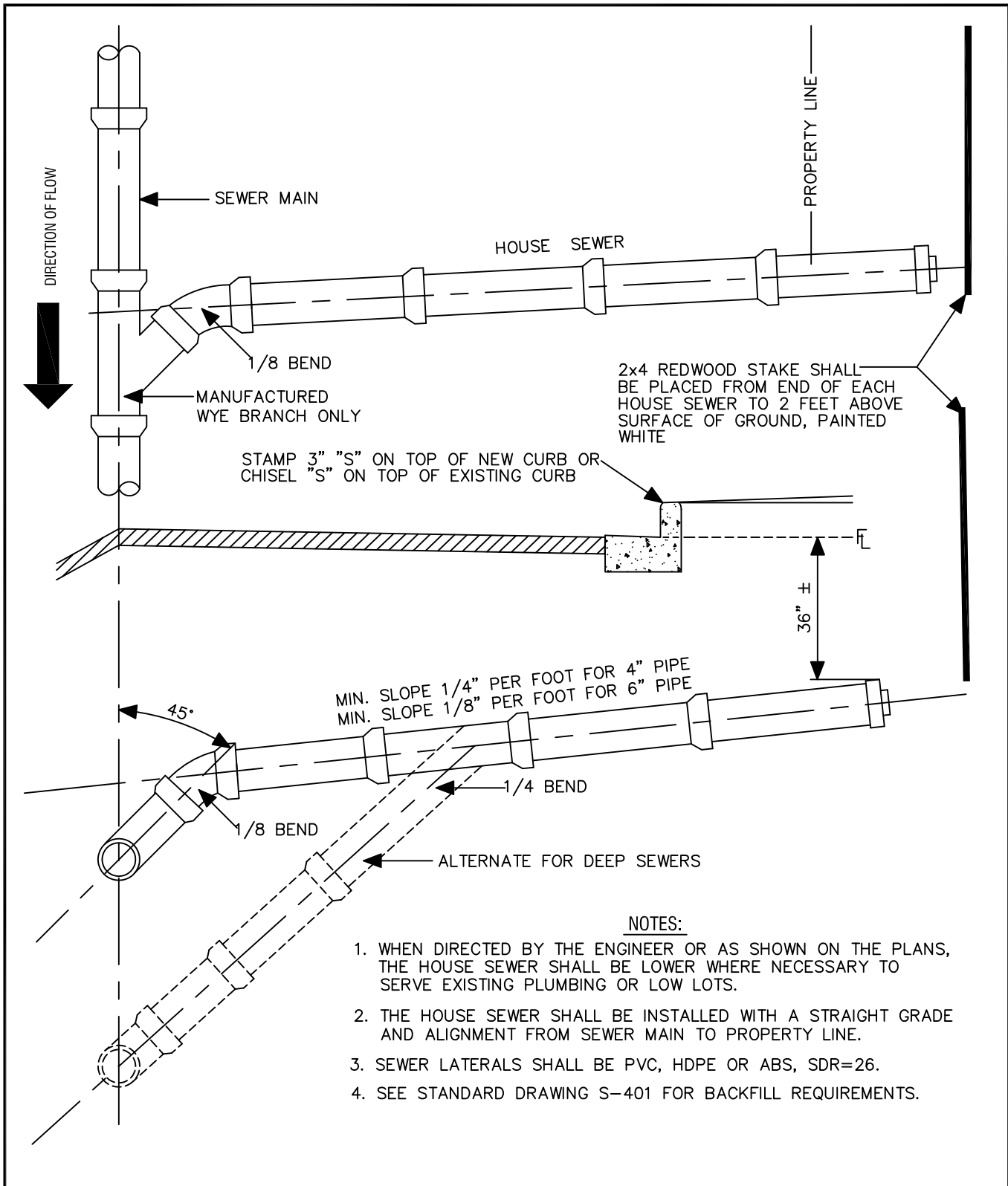
TYP. METALLIC DUCT: LONGITUDINAL SECTION

NOTES:

1. CURB DRAINS MAY BE 3" SCHEDULE 80 PVC PIPE, 3" CAST IRON PIPE, 3" X \_\_\_" RECTANGULAR CAST IRON PIPE OR 3" X \_\_\_" RECTANGULAR 18 GAUGE GALVANIZED STEEL DUCT.
2. CONCRETE SHALL CONFORM TO THE PROVISIONS OF SECTION 73, "CONCRETE CURBS AND SIDEWALKS", OF THE CALTRANS STANDARD SPECIFICATIONS.
3. CURB DRAINS SHALL BE CONTINUOUS BETWEEN THE FACE OF CURB AND BACK OF WALK.
4. METAL DUCT FORM SHALL BE SUPPORTED FROM DISTORTION DURING POUR OF CONCRETE BY FILLING WITH SAND, TEMPORARY SUPPORT WEDGED IN PLACE OR OTHER SUITABLE MEANS.

CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT



|                  |  |   |                        |            |
|------------------|--|---|------------------------|------------|
| NOT TO SCALE     |  <p>CITY OF WATSONVILLE</p> | STANDARD DRAWING FOR  | DRAWN: 6/99            | REV.: 4/13 |
| DRAWN BY: P.A.C. |  |   | RESOLUTION: 76-13 (CM) |            |
| CHECKED BY: T.S. |  | <br>MARIA ESTHER RODRIGUEZ, CITY ENGINEER | DRAWING No. S-208      |            |

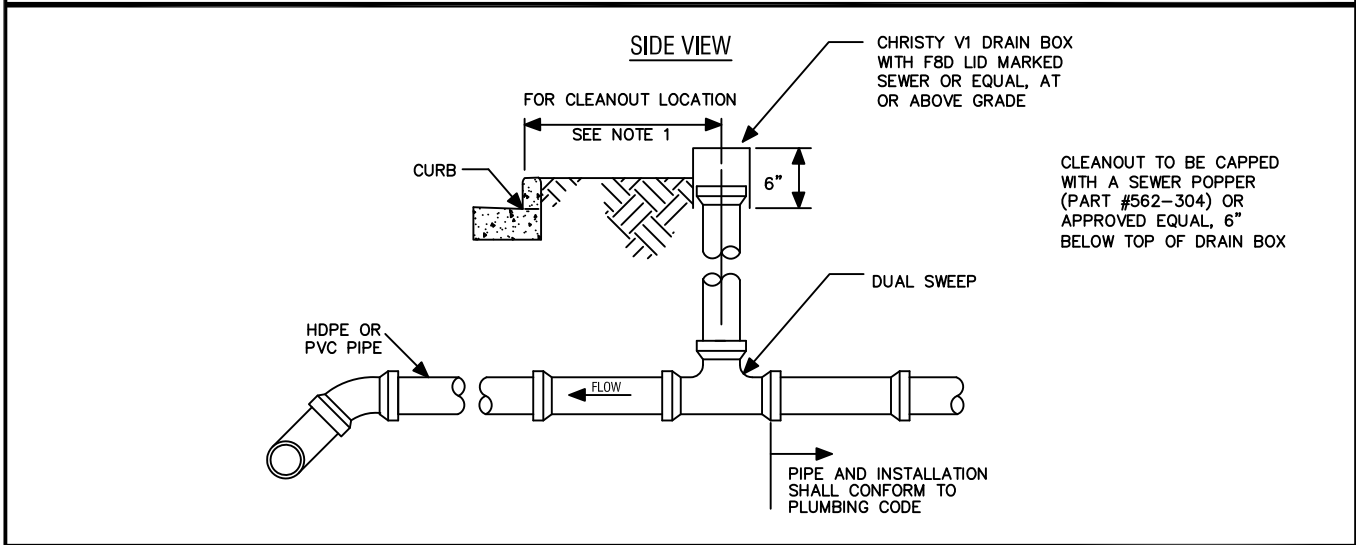
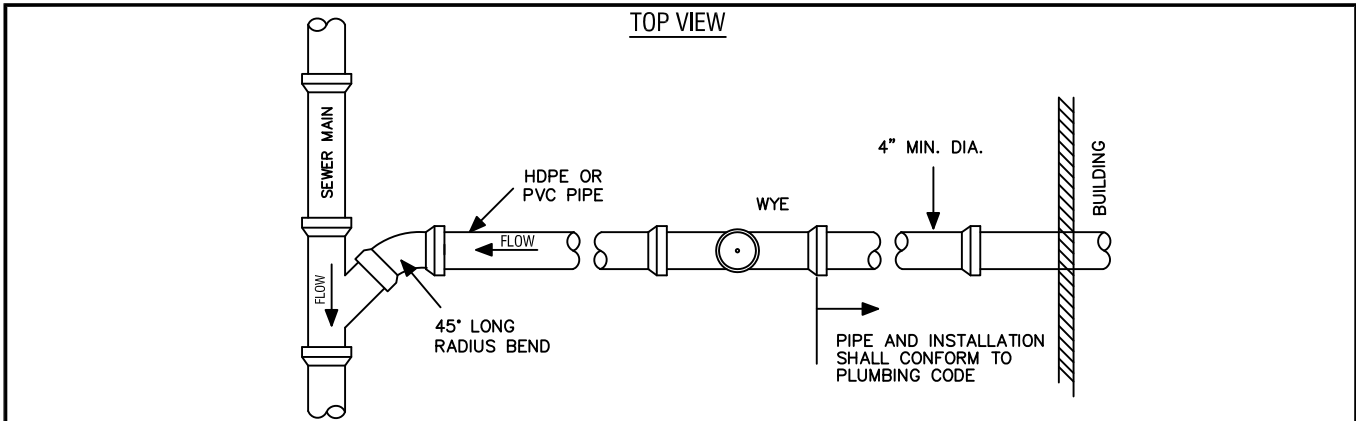


**NOTES:**

1. WHEN DIRECTED BY THE ENGINEER OR AS SHOWN ON THE PLANS, THE HOUSE SEWER SHALL BE LOWER WHERE NECESSARY TO SERVE EXISTING PLUMBING OR LOW LOTS.
2. THE HOUSE SEWER SHALL BE INSTALLED WITH A STRAIGHT GRADE AND ALIGNMENT FROM SEWER MAIN TO PROPERTY LINE.
3. SEWER LATERALS SHALL BE PVC, HDPE OR ABS, SDR=26.
4. SEE STANDARD DRAWING S-401 FOR BACKFILL REQUIREMENTS.

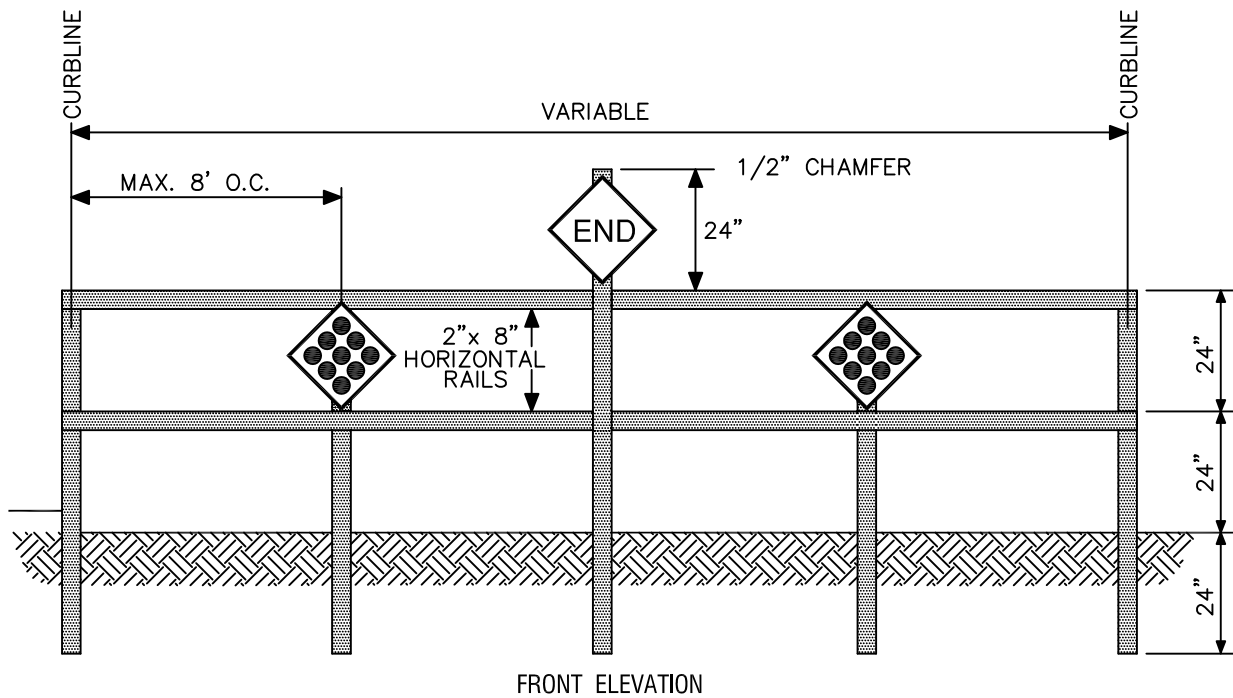
CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT

|                     |   |   |                              |                |
|---------------------|---|---|------------------------------|----------------|
| NOT TO SCALE        | <br>CITY OF<br>WATSONVILLE | STANDARD DRAWING FOR<br><b>SEWER LATERAL:<br/>NEW DEVELOPMENT</b>   | DRAWN:<br>6/98               | REV.:<br>12/11 |
| DRAWN BY:<br>P.A.C. |   |   | RESOLUTION:<br>76-13 (CM)    |                |
| CHECKED BY:<br>T.S. |   | <br>MARIA ESTHER RODRIGUEZ, CITY ENGINEER | DRAWING No.<br><b>S-209a</b> |                |



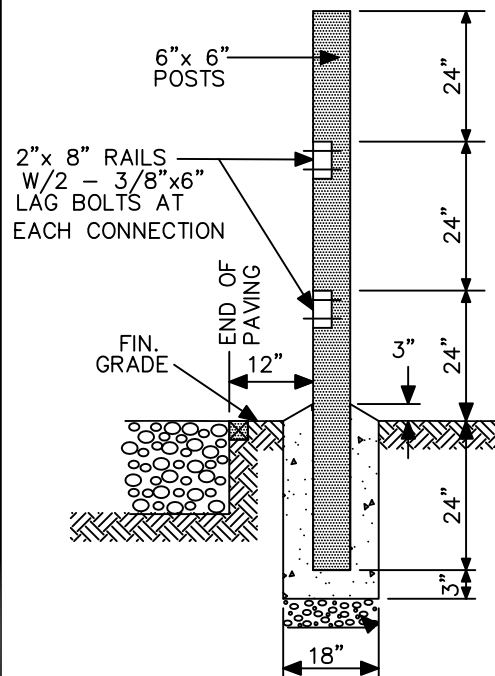
- NOTES
1. LOCATE CLEANOUT BOX IN SIDEWALK OR DRIVEWAY, IF THERE IS NO SIDEWALK. LOCATE CLEANOUT 10" TO 12" BEHIND FACE OF CURB. IF LOCATED IN A DRIVEWAY, BOX SHALL HAVE A TRAFFIC RATED LID.
  2. LATERAL CONNECTIONS:
    - A) LATERAL CONNECTION TO 6" PIPELINE: REPLACE A PORTION OF MAIN WITH A MANUFACTURED WYE.
    - B) LATERAL CONNECTION TO 8" & 10" PIPELINE: CORE DRILL AND USE A ROMAC "CB" SEWER SADDLE OR USE AN NDS FLEXIBLE SADDLE WHEN RECONNECTING AT EXISTING LATERAL CONNECTION LOCATION.
  3. PIPE COUPLING SHALL BE FERNCO SHEER BAND WITH 24 GAUGE STAINLESS STEEL BANDS AND SHEAR BAND OR APPROVED EQUAL.
  4. PIPE:
    - A) HDPE – SOLID WALL SDR 26 OR
    - B) PVC SDR26 GASKET SEWER PIPE ASTM 3034, OR C) ABS SDR 26.
  5. PROVIDE THREE FEET OF COVER UNLESS PROPER SLOPE TO SEWER DICTATES LESS COVER.
  6. LATERALS 8' DEEP OR GREATER SHALL CONNECT WITH A CHIMNEY CONNECTION 3' FROM THE MAIN AND BACKFILLED WITH CEMENT SLURRY BACKFILL.
  7. SLOPE SHALL NOT BE LESS THAN 1/4" PER FOOT.
  8. BEDDING AND BACKFILL SHALL BE IN ACCORDANCE WITH PUBLIC IMPROVEMENT STANDARD S-401.
  9. IF THE FINISH FLOOR ELEVATION OF THE BUILDING IS BELOW THE ELEVATION OF THE NEXT UPSTREAM SEWER MANHOLE RIM ELEVATION, A BACKWATER VALVE IS REQUIRED. THE VALVE SHALL BE LOCATED BETWEEN THE BUILDING AND THE CLEANOUT. USE "CLEAN CHECK" BACKFLOW PREVENTION DEVICE OR APPROVED EQUAL.
  10. ALL PIPES REHABILITATED WITH THE LINING PROCESS SHALL BE TELEVIEWED TO SHOW THE FULL LENGTH OF LINING AND THE CONNECTION AT THE MAIN. INSPECTION SHALL BE PERFORMED WHILE THE PUBLIC WORKS INSPECTOR IS ON-SITE, OR A TAPE OR DVD SHALL BE PROVIDED TO THE INSPECTOR FOR REVIEW

| CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT            |   |   |                              |       |
|--|---|---|------------------------------|-------|
| NOT TO SCALE<br><br>DRAWN BY:<br>P.A.C.<br><br>CHECKED BY:<br>T.S. | <br>CITY OF<br>WATSONVILLE | STANDARD DRAWING FOR<br><b>SEWER LATERAL:<br/>RETROFIT &amp; REPAIR</b>   | DRAWN:<br>1/12               | REV.: |
|  |   | <br>MARIA ESTHER RODRIGUEZ, CITY ENGINEER | RESOLUTION:<br>76-13 (CM)    |       |
|  |   |   | DRAWING No.<br><b>S-209b</b> |       |




NOTES:

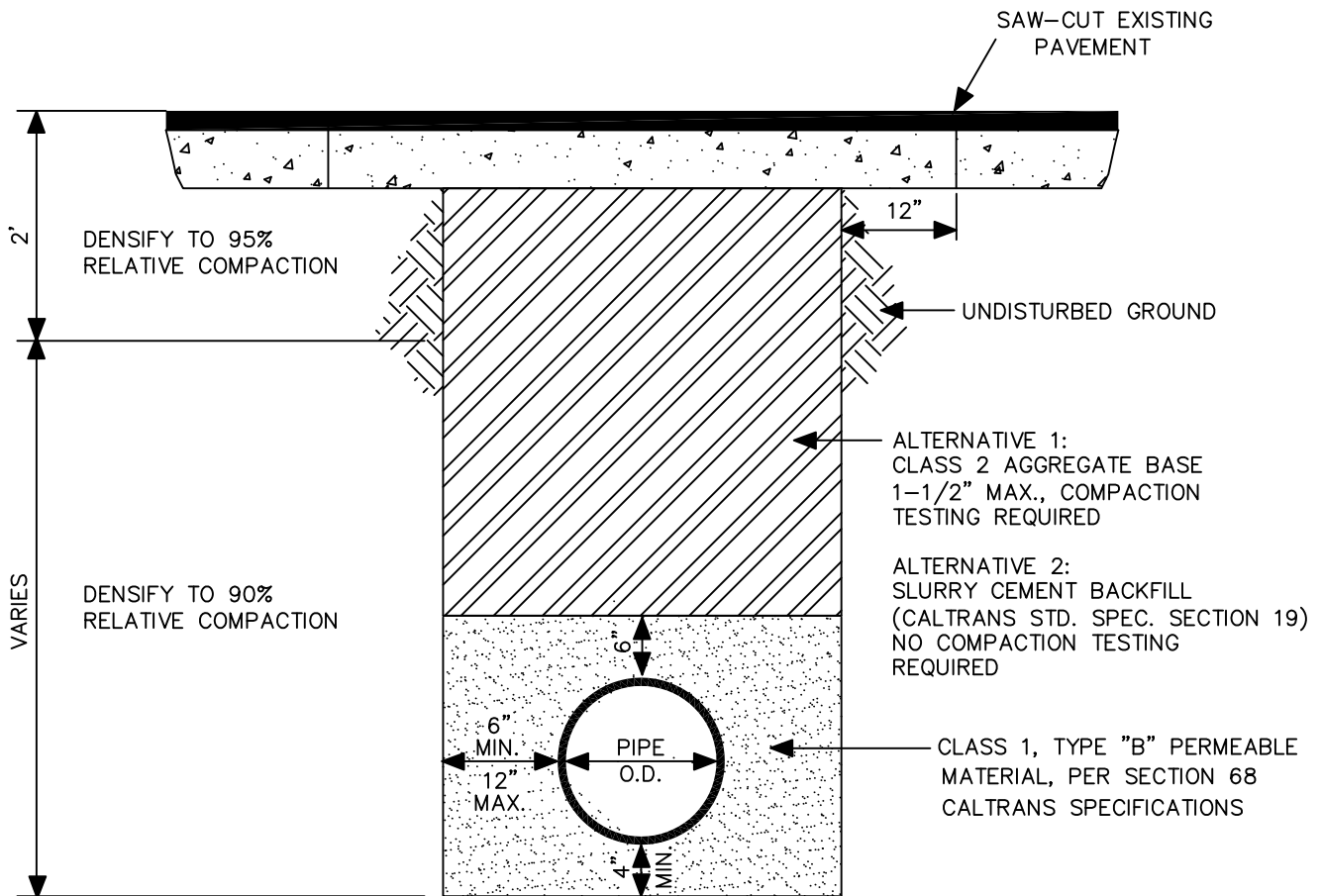
1. POSTS SHALL BE 6"x6" PRESSURE TREATED DOUGLAS FIR (40 ACZA) AND BE SET IN 2' CONCRETE.
2. POSTS SHALL BE SET ADJACENT TO PAVED AREA.
3. RAILS SHALL BE S4S D.F. AND DOUBLE-NAILED AT ENDS AND POSTS. SPLICE ONLY AT POSTS.
4. BARRICADE SHALL BE PAINTED WITH ONE COAT OF PRIMER AND ONE COAT OF WHITE ENAMEL FULLERS OR EQUAL.
5. TWO 18"x 18" W21R CAL. STD. REFLECTOR SIGNS. EACH SHALL BE MOUNTED ON A 6"x6"x6' POST WITH THE SIGN CENTERED BETWEEN THE HORIZONTAL RAILS.
6. A 24"x24" W 31 R YELLOW DIAMOND "END" SIGN SHALL BE MOUNTED ON A 6"x 6"x 8' S4S POST WITH THE BOTTOM OF THE SIGN AT THE LEVEL OF THE HORIZONTAL RAIL.



CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT

|                     |   |  |                             |               |
|---------------------|---|--|-----------------------------|---------------|
| NOT TO SCALE        | <br>CITY OF<br>WATSONVILLE | STANDARD DRAWING FOR<br><b>STANDARD STREET<br/>BARRICADE</b> | DRAWN:<br>9/97              | REV.:<br>7/12 |
| DRAWN BY:<br>P.A.C. |   |  | RESOLUTION:<br>76-13 (CM)   |               |
| CHECKED BY:<br>T.S. |   |  | DRAWING No.<br><b>S-301</b> |               |

*Maria Esther Rodriguez*  
MARIA ESTHER RODRIGUEZ, CITY ENGINEER



**NOTES:**

1. TRENCHES SHALL BE EXCAVATED IN A NEAT & WORKMANLIKE MANNER AT THE STREET SURFACE AND THE SHAPE SHALL BE RECTANGULAR.
2. SHOVEL SLICE PIPE ZONE BEDDING UNDER HAUNCHES OF PIPE. THE MINIMUM PAVEMENT RESTORATION SHALL BE 4" OF TYPE "A" ASPHALT CONCRETE OVER THE TRENCH AREA AND 4" OF TYPE "A" ASPHALT CONCRETE OVER 12" OF CLASS 2 AGGREGATE BASE. IF THE EXISTING PAVEMENT SECTION IS THICKER THAN 4" AC OVER 12" AB, THE RESTORATION PAVEMENT SECTION SHALL BE AS DIRECTED BY THE ENGINEER.
3. A CONCRETE CAP 6" THICK AND THE WIDTH OF THE TRENCH TO PIPE SPRINGLINE SHALL BE CONSTRUCTED FOR ANY PIPE WITH LESS THAN 24" COVER. CONCRETE SHALL CONFORM TO THE PROVISIONS OF SECTION 90-2, "MINOR CONCRETE", OF THE CALTRANS STANDARD SPECIFICATIONS.

CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT

|                     |  |   |                             |               |
|---------------------|--|---|-----------------------------|---------------|
| NOT TO SCALE        |  <p>CITY OF<br/>WATSONVILLE</p> | <p><b>STANDARD TRENCH<br/>BACKFILL SECTION</b></p>  | DRAWN:<br>9/12              | REV.:<br>5/13 |
| DRAWN BY:<br>P.A.C. |  |   | RESOLUTION:<br>76-13 (CM)   |               |
| CHECKED BY:<br>T.S. |  | <br>MARIA ESTHER RODRIGUEZ, CITY ENGINEER | DRAWING NO.<br><b>S-401</b> |               |