

City of Watsonville

PUBLIC IMPROVEMENT STANDARDS



CITY OF
WATSONVILLE

CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT

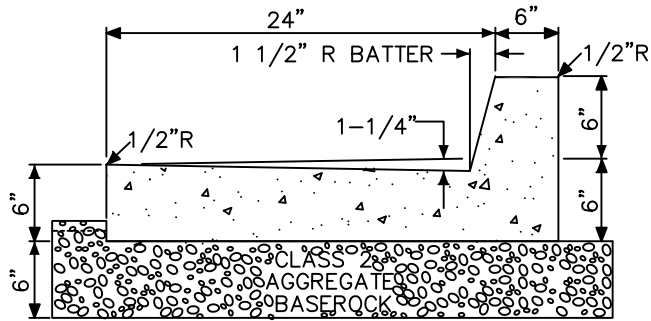
MAY 28, 2013
RESOLUTION 76-13 (CM)

TABLE OF CONTENTS

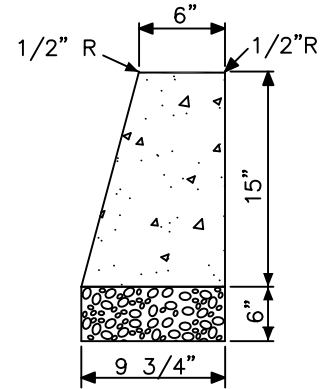
CURB, GUTTER, & SIDEWALK.....	S-101
CURB, GUTTER, & SEPARATED SIDEWALK.....	S-102
4' STANDARD CROSS-GUTTER.....	S-103
CURB RAMP.....	S-104
DRIVEWAY APPROACH.....	S-105
WATER, SANITARY SEWER, & STORM SEWER PIPING.....	S-201
STANDARD MANHOLE.....	S-202
STANDARD MANHOLE FRAME AND COVER.....	S-203
STORM DRAIN MANHOLE <32" COVER.....	S-204
DROP INLET, TYPE "D".....	S-205
DROP INLET, TYPE "F".....	S-206
STORM DRAIN MARKER INSTALLATION.....	S-207
STANDARD CURB DRAINS.....	S-208
SEWER LATERAL: NEW DEVELOPMENT.....	S-209a
SEWER LATERAL: RETROFIT & REPAIR.....	S-209b
STANDARD STREET BARRICADE.....	S-301
STANDARD TRENCH BACKFILL SECTION.....	S-401
ELECTROLIER.....	S-501
DOWNTOWN STREET LIGHT.....	S-502
RESIDENTIAL STREET LIGHT.....	S-503
TYPICAL TREE PLANTING & STAKING.....	S-504
STANDARD MASONRY RETAINING WALL.....	S-601a
STANDARD MASONRY RETAINING WALL.....	S-601b
TRASH AND RECYCLE ENCLOSURE.....	S-602
DROP BOX & COMPACTOR.....	S-603
RAINFALL I.D.F. CURVES.....	S-701
STREET BIORETENTION FACILITY.....	LID-001
CURB CUT INLET WITH GRAVEL ENERGY DISSIPATION.....	LID-002
OVERFLOW STRUCTURE WITH BEEHIVE GRATE.....	LID-003
LID RECOMMENDED PLANT LIST (TREES AND SHRUBS).....	LID-004A
LID RECOMMENDED PLANT LIST (GROUND COVER AND VINES).....	LID-004B

TABLE OF CONTENTS

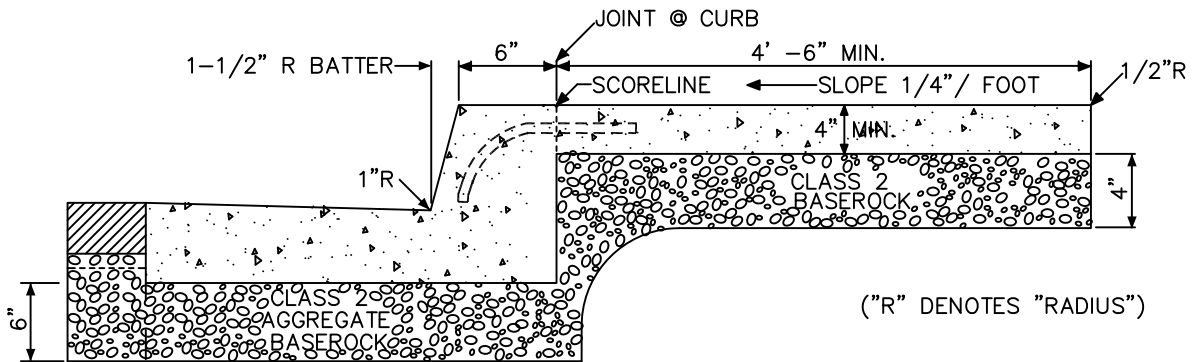
STANDARD WATER SERVICE CONNECTION.....	W01
TYPICAL SERVICE CONNECTION TO WATER MAIN.....	W02
NEW HYDRANT INSTALLATION.....	W03
NEW 2" & 4" BLOW-OFF (FLUSH-OUT) ASSEMBLY.....	W04
STANDARD THRUST BLOCKING.....	W05
COMBINATION DOMESTIC AND FIRE SERVICE DETAIL.....	W06
COMBINATION AIR VALVE ASSEMBLY.....	W07
TWIN 5/8" & 3/4" WATER METERS IN SINGLE BOX.....	W08
2" AND SMALLER BACKFLOW PREVENTION ASSEMBLY INSTALLATION.....	W09
4" & LARGER FIRE SERVICE ASSEMBLY.....	W10



GUTTER AND CURB



CLASS B CURB



("R" DENOTES "RADIUS")

COMBINATION CURB, GUTTER & SIDEWALK

NOTES:

1. ALL CONCRETE SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE TO THE PROVISIONS OF SECTION 73, "CONCRETE CURBS AND SIDEWALKS" OF THE CALTRANS STANDARD SPECIFICATIONS.
2. RELATIVE COMPACTION OF NOT LESS THAN 95% SHALL BE OBTAINED FOR SUBGRADE SOILS AND CLASS 2 AGGREGATE BASE BELOW CURBS AND GUTTERS. RELATIVE COMPACTION OF NOT LESS THAN 90% SHALL BE OBTAINED FOR SUBGRADE SOILS AND CLASS 2 AGGREGATE BASE BELOW SIDEWALKS.
3. LIMITS OF REMOVAL OF ALL CURBS, GUTTERS, SIDEWALKS AND APPROACHES SHALL BE SAWED ALONG EXISTING JOINTS AND SCORE LINES.
4. NEW CONCRETE IMPROVEMENTS SHALL BE JOINED TO EXISTING BY DOWELLING #4 REBAR 6" INTO EXISTING CONCRETE AND 12" INTO NEW CONCRETE EVERY 2'.
5. CONCRETE WHICH HAS BEEN MARKED OR SCRATCHED SHALL BE REMOVED AND REPLACED.
6. USE 1/4" RADIUS JOINTER FOR ALL SCORELINES. LINES SHALL BE STRAIGHT, TRUE TO ALIGNMENT AND DEPTH. PLACE 1/2" SCORELINES EVERY 4', WITH EVERY OTHER SCORELINE BEING A 3/4" DEEP SCORE.
7. 3/4" DEEP SCORE RUNS CONTINUOUSLY THROUGH SIDEWALK AND CURB AND GUTTER.
8. SCORELINES FOR SIDEWALKS WIDER THAN 5' SHALL INCLUDE A 1/2" LONGITUDINAL CENTERED SCORELINE.
9. PLACE EXPANSION JOINTS EVERY 60'.

CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT

NOT TO SCALE

DRAWN BY:
P.A.C.

CHECKED BY:
T.S.



STANDARD DRAWING FOR
CURB, GUTTER &
SIDEWALK

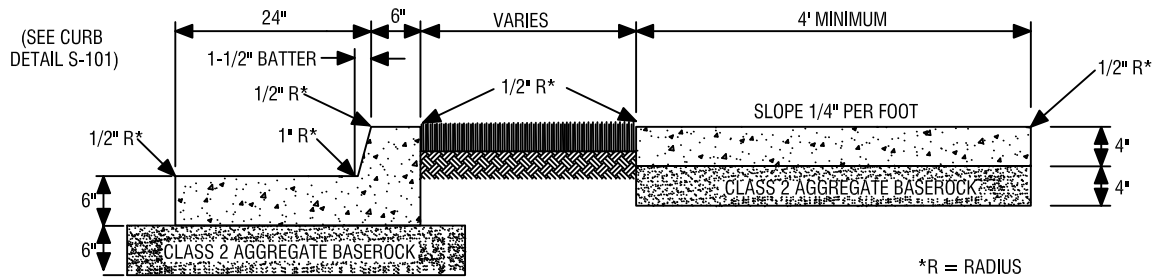
MARIA ESTHER RODRIGUEZ, CITY ENGINEER

DRAWN:
6/97

REV.:
12/12

RESOLUTION No.
76-13 (CM)

DRAWING No.
S-101



CURB & GUTTER WITH DETACHED SIDEWALK

NOTES:

1. ALL CONCRETE SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE TO THE PROVISIONS OF SECTION 73, "CONCRETE CURBS AND SIDEWALKS", OF THE CALTRANS STANDARD SPECIFICATIONS.
2. RELATIVE COMPACTION OF NOT LESS THAN 95% SHALL BE OBTAINED FOR SUBGRADE SOILS AND CLASS 2 AGGREGATE BASE BELOW CURBS AND GUTTERS. RELATIVE COMPACTION OF NOT LESS THAN 90% SHALL BE OBTAINED FOR SUBGRADE SOILS AND CLASS 2 AGGREGATE BASE BELOW SIDEWALKS.
3. LIMITS OF REMOVAL OF ALL CURBS, GUTTERS, SIDEWALKS AND APPROACHES SHALL BE SAWED ALONG EXISTING JOINTS AND SCORE LINES.
4. CONCRETE WHICH HAS BEEN MARKED OR SCRATCHED SHALL BE REMOVED AND REPLACED.
5. SEE PUBLIC IMPROVEMENT STANDARD S-101 FOR SCORING AND JOINTING REQUIREMENTS.

CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT

NOT TO SCALE



STANDARD DRAWING FOR
**CURB, GUTTER AND
SEPARATED SIDEWALK**

Maria Esther Rodriguez
MARIA ESTHER RODRIGUEZ, CITY ENGINEER

DRAWN:
6/97

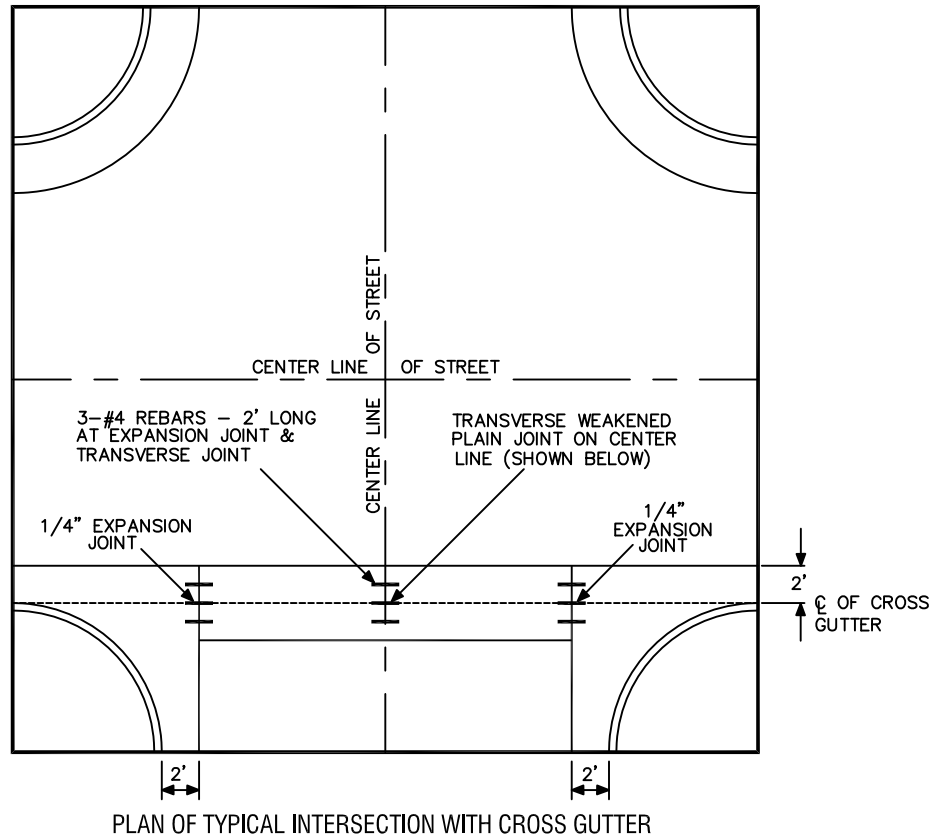
REV.:
12/12

RESOLUTION No.
76-13 (CM)

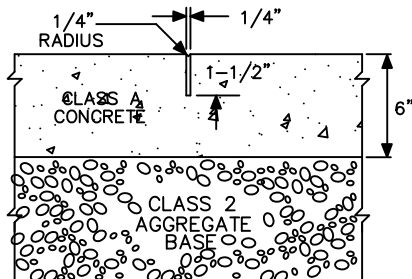
DRAWING No.
S-102

DRAWN BY:
P.A.C.

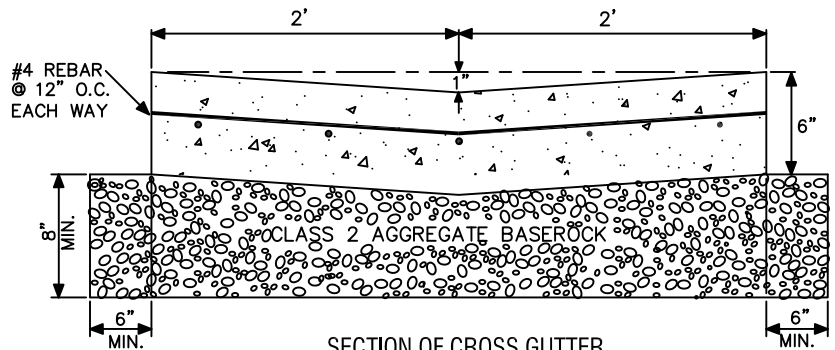
CHECKED BY:
T.S.



PLAN OF TYPICAL INTERSECTION WITH CROSS GUTTER



SECTION OF TRANSVERSE GROOVE JOINT



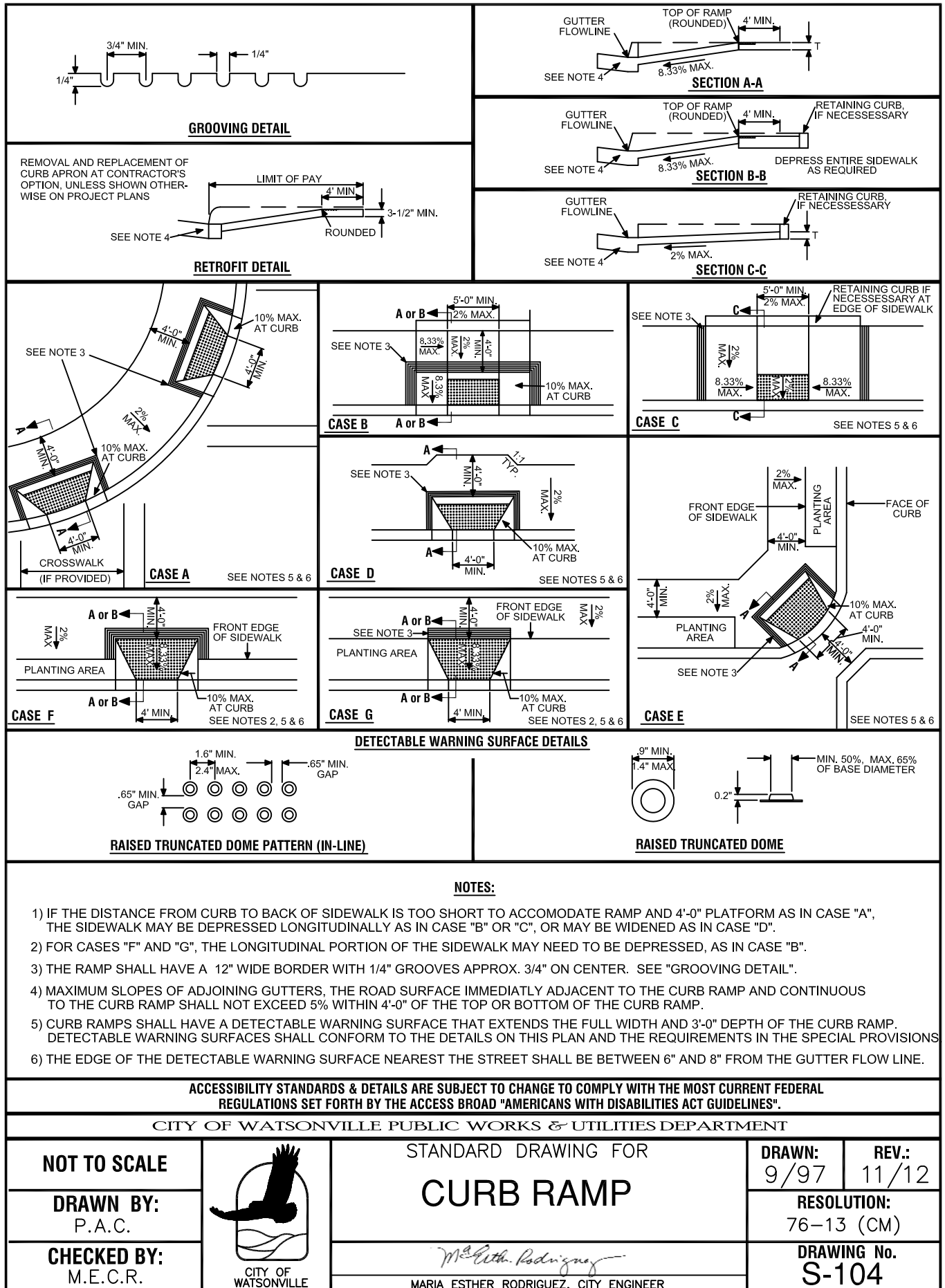
SECTION OF CROSS GUTTER

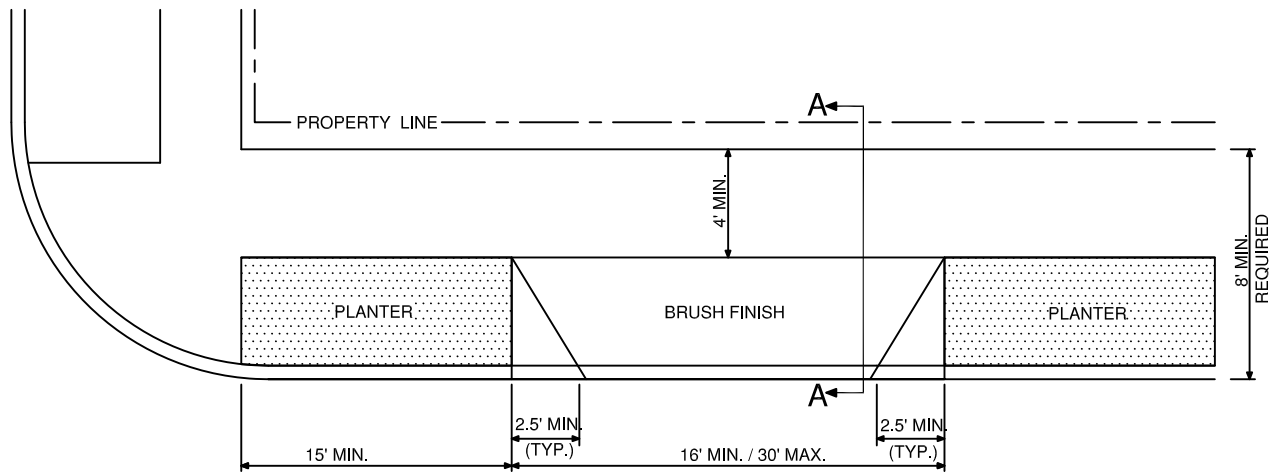
NOTES:

1. ALL CONCRETE SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE TO THE PROVISIONS OF SECTION 73, "CONCRETE CURBS AND SIDEWALKS", OF THE CALTRANS STANDARD SPECIFICATIONS.
2. RELATIVE COMPACTION OF NOT LESS THAN 95% SHALL BE OBTAINED FOR SUBGRADE SOILS AND CLASS 2 AGGREGATE BASE BELOW THE CROSS GUTTER.
3. NEW CONCRETE IMPROVEMENTS SHALL BE JOINED TO EXISTING BY DOWELLING #4 REBAR 6" INTO EXISTING CONCRETE AND 12" INTO NEW CONCRETE EVERY 2'.
4. CONCRETE WHICH HAS BEEN MARKED OR SCRATCHED SHALL BE REMOVED AND REPLACED.
5. WEAKENED PLANE JOINTS CONSTRUCTED AT 20' SPACING.

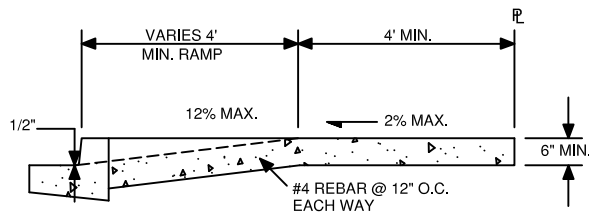
CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT STANDARD DRAWING

NOT TO SCALE	 <p>CITY OF WATSONVILLE</p>	<p>STANDARD DRAWING FOR 4' STANDARD CROSS GUTTER</p>	DRAWN: 7/97	REV.: 12/12
DRAWN BY: P.A.C.			RESOLUTION 76-13 (CM)	
CHECKED BY: T.S.		 MARIA ESTHER RODRIGUEZ, CITY ENGINEER	DRAWING No. S-103	

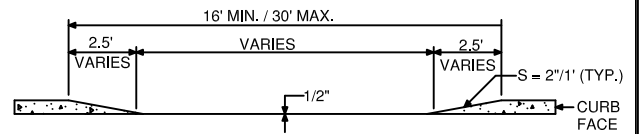




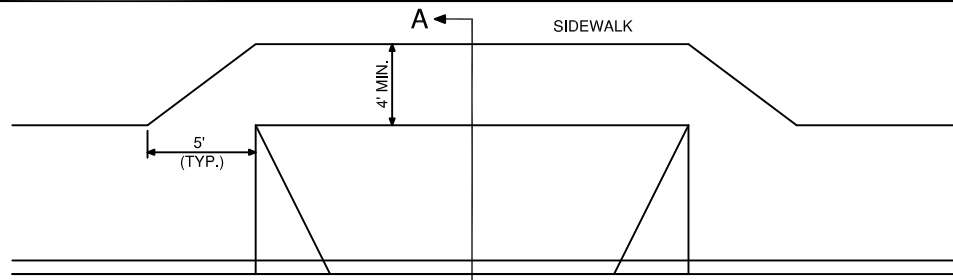
PLAN
TYPE "A" DRIVEWAY WITH PLANTER STRIP
AND 8' OR WIDER SIDEWALK



SECTION A-A



TYPICAL ELEVATION
TYPE "A" & "B" DRIVEWAY



PLAN
TYPE "B" DRIVEWAY

NOTES:

- 1) ALL CONCRETE SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE TO THE PROVISIONS OF SECTION 73, "CONCRETE CURBS AND SIDEWALKS" OF THE CALTRANS STANDARD SPECIFICATIONS.
- 2) CURBS, GUTTERS AND SIDEWALK APPROACHES SHALL BE UNDERLAIN WITH 6" CLASS 2 AGGREGATE BASE.
- 3) RELATIVE COMPACTION OF NOT LESS THAN 95% SHALL BE OBTAINED FOR SUBGRADE SOILS AND CLASS 2 AGGREGATE BASE BELOW CURBS, GUTTERS AND DRIVEWAY APPROACHES.
- 4) THE DRIVEWAY APPROACH SHALL BE REINFORCED WITH #4 REBAR PLACED AT 12" ON CENTER EACH WAY.
- 5) LIMITS OF REMOVAL OF ALL CURBS, GUTTERS, SIDEWALKS AND APPROACHES SHALL BE SAWED ALONG EXISTING JOINTS AND SCORELINES.
- 6) CONCRETE WHICH HAS BEEN MARKED OR SCRATCHED SHALL BE REMOVED AND REPLACED.
- 7) SEE PUBLIC IMPROVEMENT STANDARD S-101 FOR SCORING AND JOINTING REQUIREMENTS.

CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT

NOT TO SCALE

DRAWN BY:
P.A.C.

CHECKED BY:
M.E.C.R.



STANDARD DRAWING FOR DRIVEWAY APPROACH

Maria Esther Rodriguez
MARIA ESTHER RODRIGUEZ, CITY ENGINEER

DRAWN:
8/11

REV.:
12/12

RESOLUTION:
76-13 (CM)

DRAWING No.
S-105

WATER MAIN

WATER MAINS SHALL BE DUCTILE IRON PIPE, CLASS 52, CONFORMING TO ANSI/AWWA SPECIFICATION C15/A.21.51. PIPES SHALL BE COATED WITH BITUMINOUS SEAL AND CEMENT MORTAR LINING CONFORMING TO ANSI/AWWA SPECIFICATION C104/A21.4. THE COATING SHALL BE 1/16" THICK. JOINTS SHALL BE TYTON OR EQUAL RUBBER GASKET TYPE CONFORMING TO ANSI/AWWA SPECIFICATION C111/A21.11. CONTRACTOR SHALL ENCASE ALL NEW WATER MAINS WITH POLYWRAP MEETING AWWA C105-10.

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;

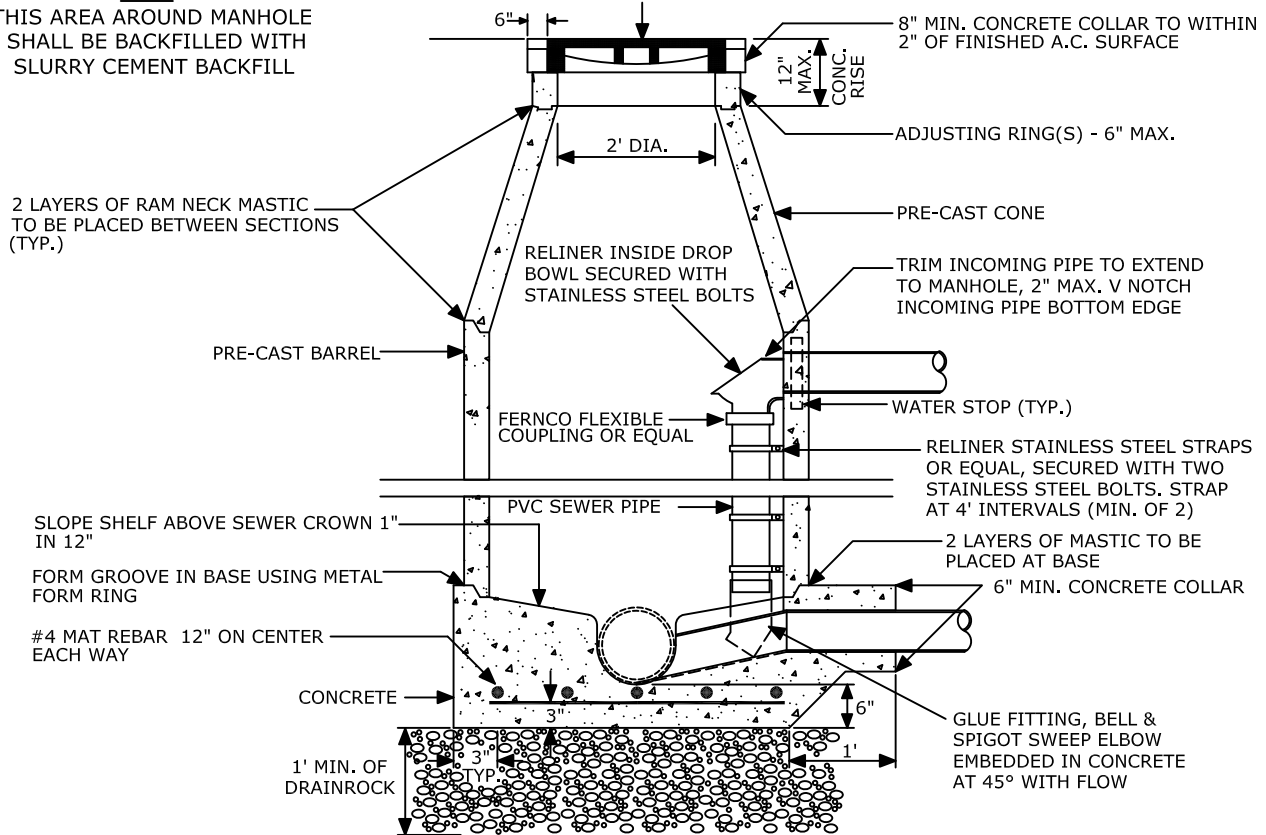
- CLASS III REINFORCED CONCRETE PIPE (RCP) WITH RUBBER ISOPRENE GASKETS
- PVC SDR-26 PIPE OR LESS.
- HIGH DENSITY POLYETHYLENE (HDPE) CORRUGATED PIPE WITH SMOOTH INTERIOR WALLS (TYPE "S"), WITH RUBBER GASKETTED, WATER-TIGHT JOINTS MEETING THE REQUIREMENTS OF ASTM 3212 (ADS N12 OR APPROVED EQUAL).

CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT

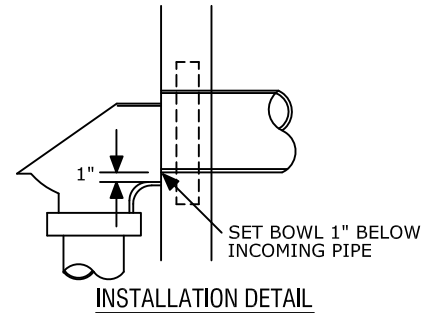
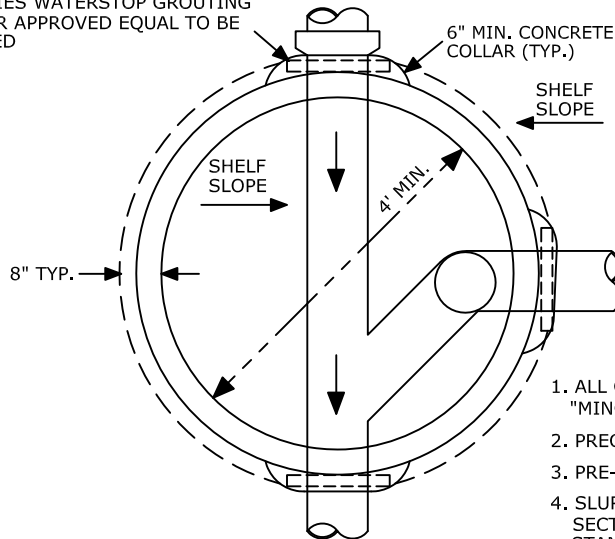
NOT TO SCALE	 CITY OF WATSONVILLE	STANDARD DRAWING FOR WATER, SANITARY SEWER & STORM SEWER PIPING	DRAWN: 12/02	REV.: 12/12
DRAWN BY: P.A.C.			RESOLUTION: 76-13 (CM)	
CHECKED BY: T.S.		 MARIA ESTHER RODRIGUEZ, CITY ENGINEER	DRAWING No. S-201	

NOTE:
THIS AREA AROUND MANHOLE SHALL BE BACKFILLED WITH SLURRY CEMENT BACKFILL

MANHOLE FRAME AND COVER SHALL BE No. P-1090 AS MANUFACTURED BY PHONIX IRON WORKS OR EQUAL



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



NOTES:

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.

CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT

NOT TO SCALE

DRAWN BY:
P.A.C.

CHECKED BY:
T.S.



STANDARD DRAWING FOR

STANDARD MANHOLE

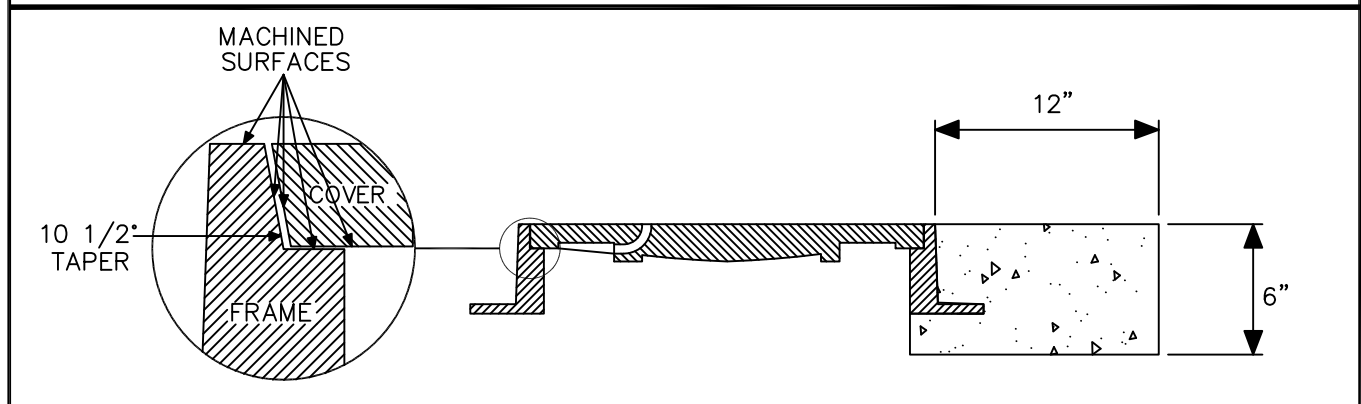
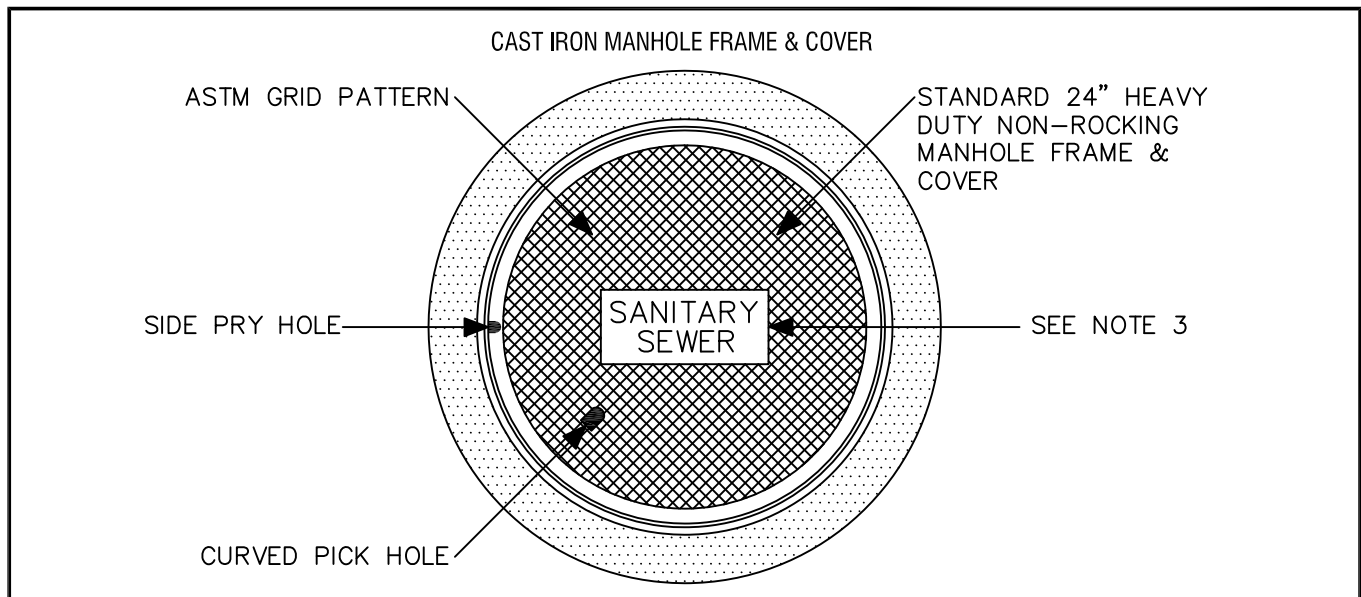
MARIA ESTHER RODRIGUEZ, CITY ENGINEER

DRAWN:
11/10

REV.:
8/12

RESOLUTION:
76-13 (CM)

DRAWING No.
S-202



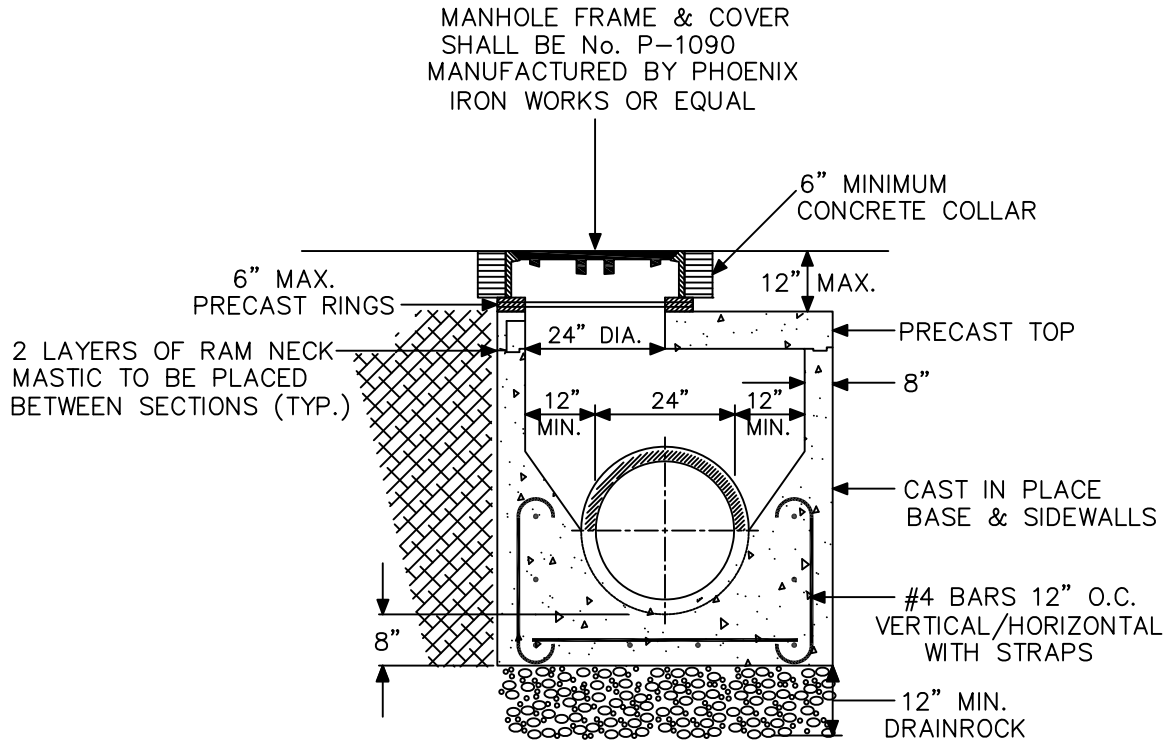
NOTES:

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	 CITY OF WATSONVILLE	STANDARD DRAWING FOR STANDARD MANHOLE FRAME & COVER	DRAWN: 10/98	REV.: 10/11
DRAWN BY: P.A.C.			RESOLUTION: 76-13 (CM)	
CHECKED BY: T.S.		 MARIA ESTHER RODRIGUEZ, CITY ENGINEER	DRAWING No. S-203	

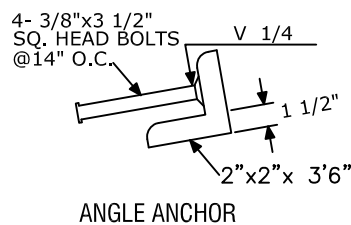
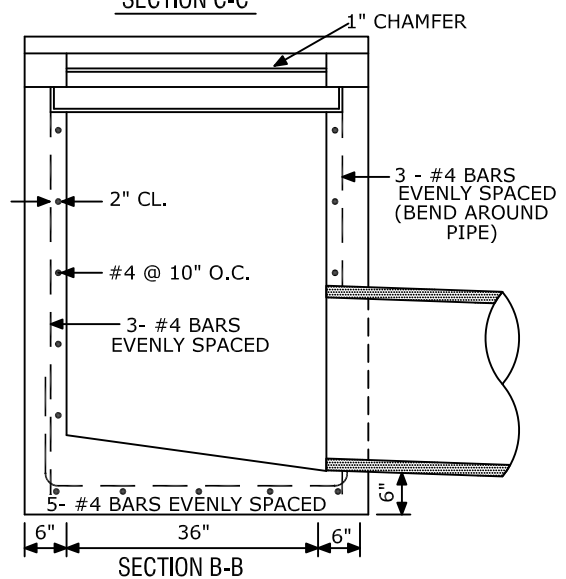
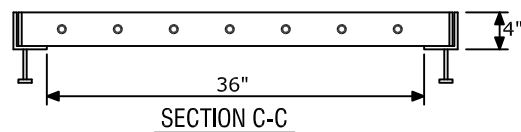
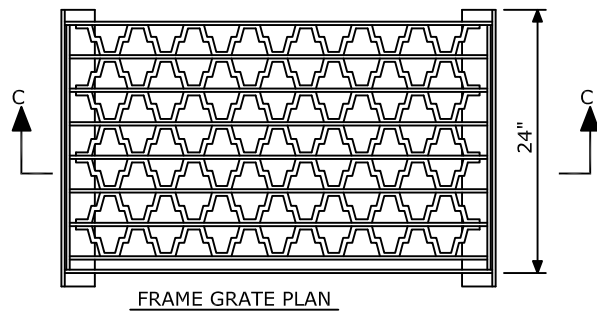
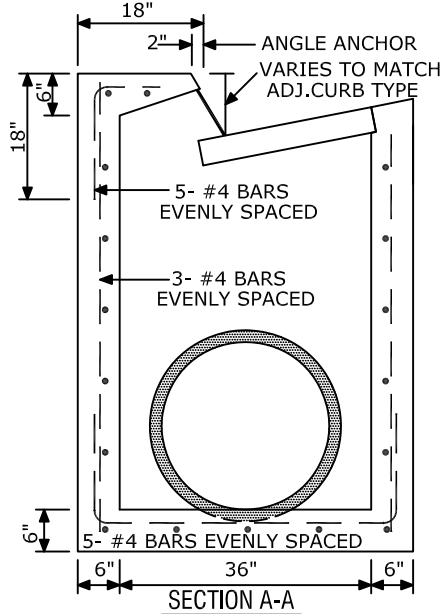
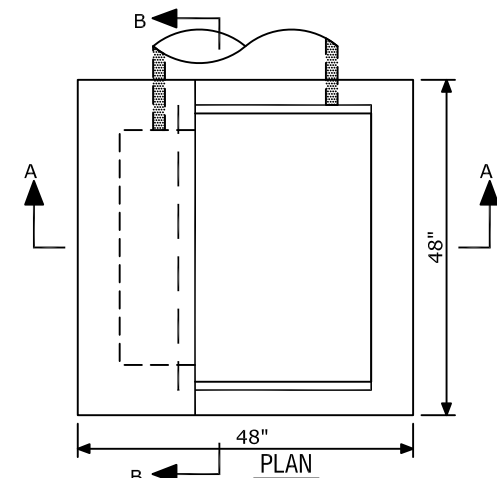


NOTES:

- 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

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

DRAWN BY:
P.A.C.

CHECKED BY:
T.S.



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

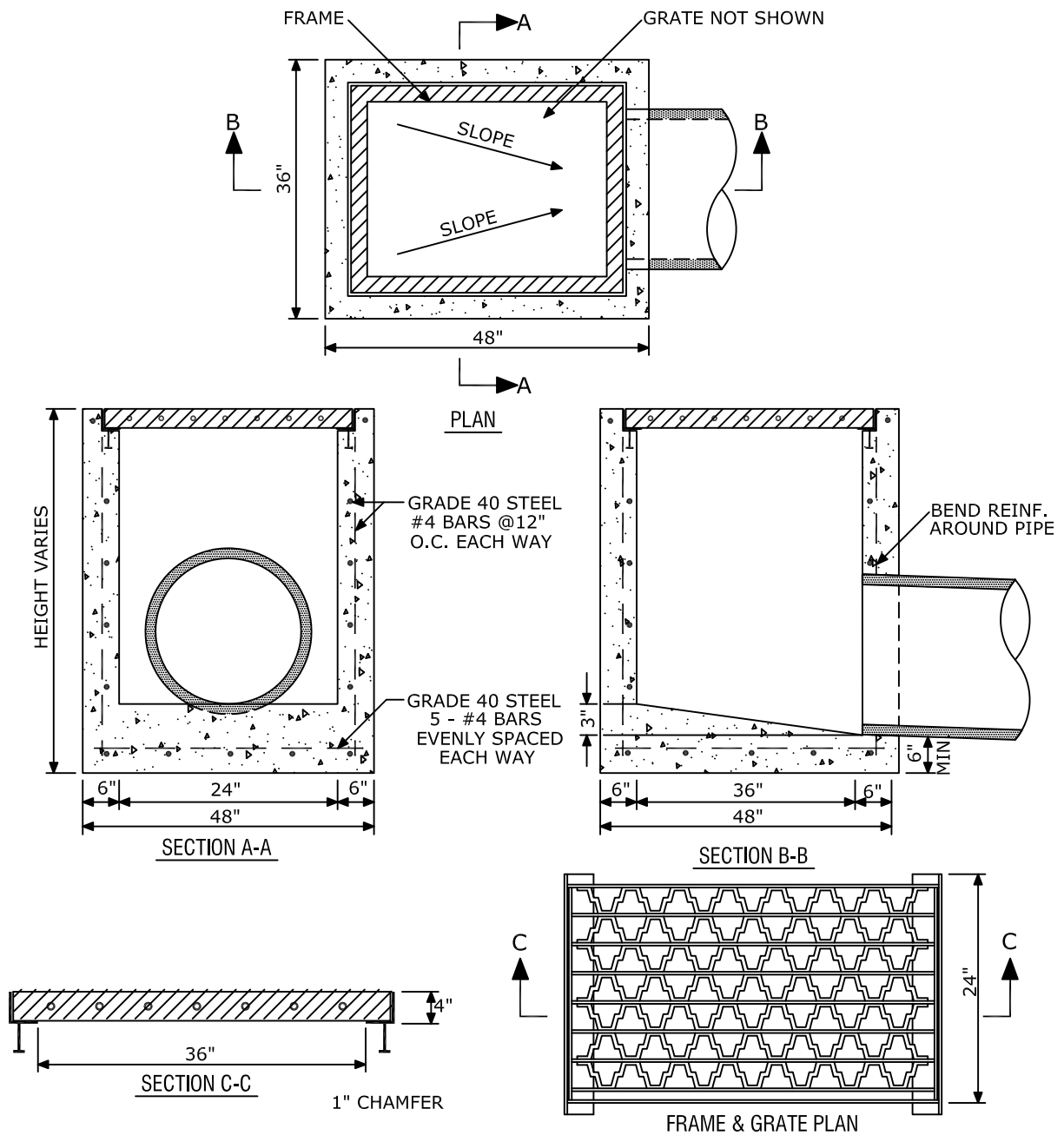
Maria Esther Rodriguez
MARIA ESTHER RODRIGUEZ, CITY ENGINEER

DRAWN:
9/11

REV.:
5/13

RESOLUTION:
76-13 (CM)

DRAWING No.
S-205



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"**

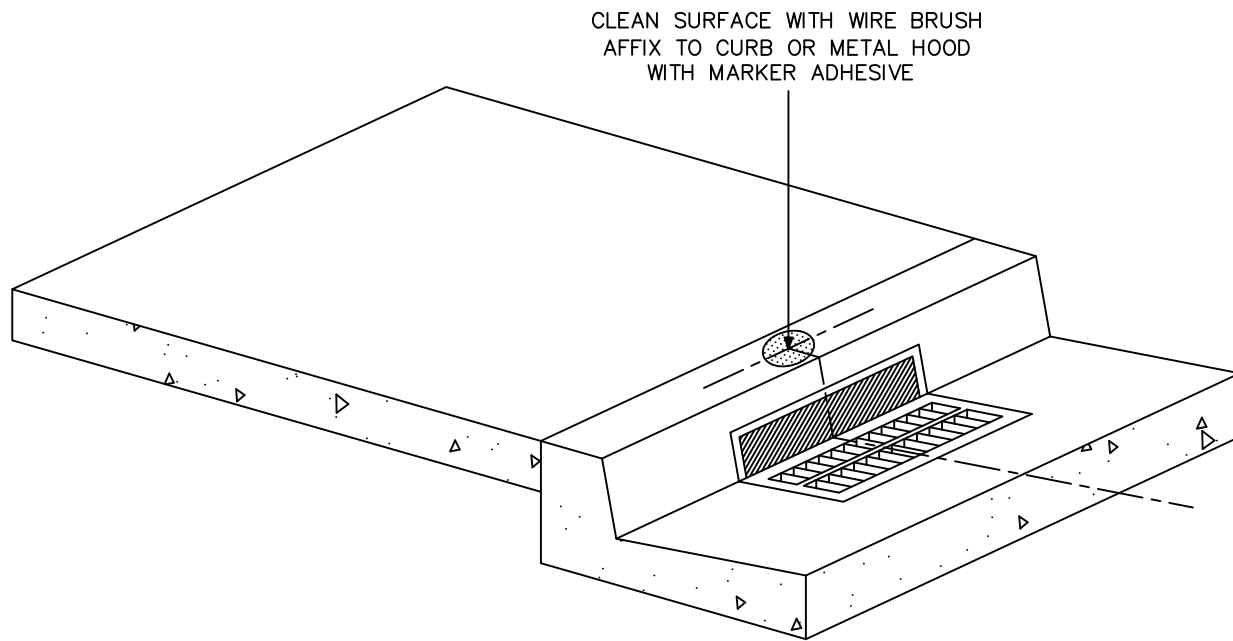
Maria Esther Rodriguez
MARIA ESTHER RODRIGUEZ, CITY ENGINEER

DRAWN:
9/11

REV.:
5/13

RESOLUTION:
76-13 (CM)

DRAWING No.
S-206



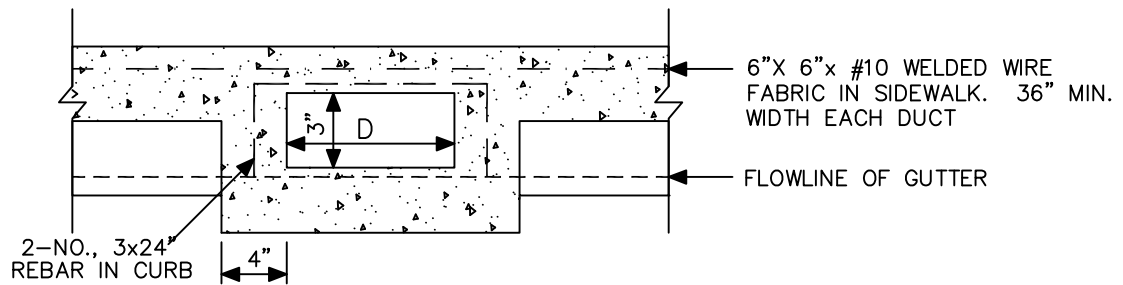
STORM DRAIN MARKER DETAIL

NOTES:

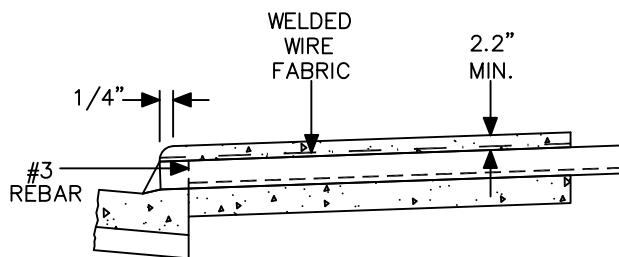
- 1) THE STORM DRAIN MARKER SHALL BE CENTERED ABOVE THE STORM DRAIN CATCH BASIN AS SHOWN.
- 2) STAINLESS STEEL STORM DRAIN MARKER SHALL BE ALMETEK STORM DRAIN MARKER, WITH FISH READING "DRAINS TO WATERWAY".

CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT

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



METAL DUCT SECTION



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

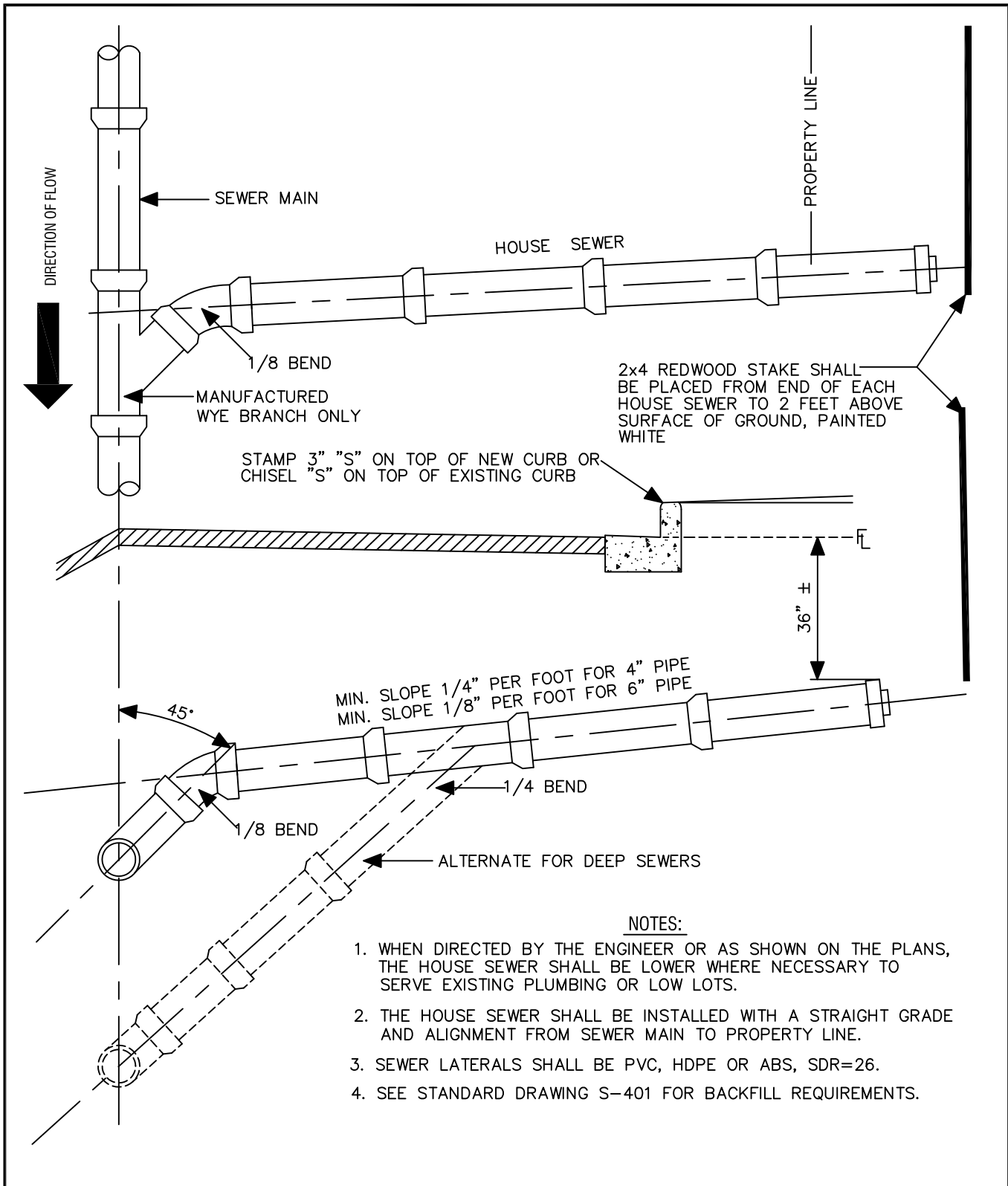
TYP. METALLIC DUCT: LONGITUDINAL SECTION

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.

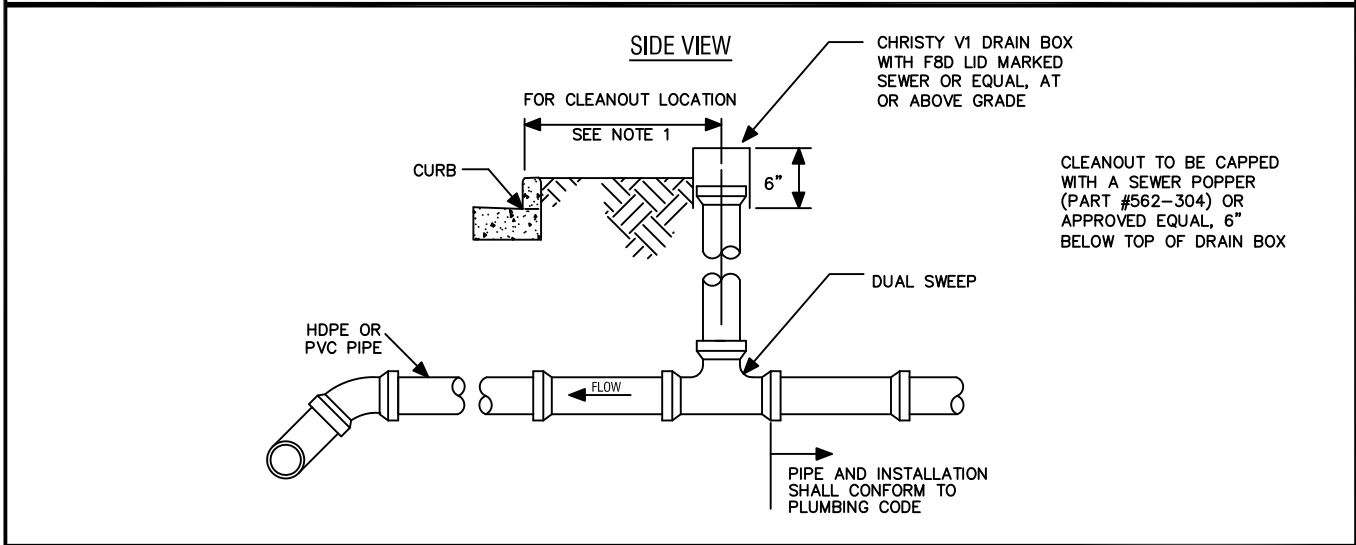
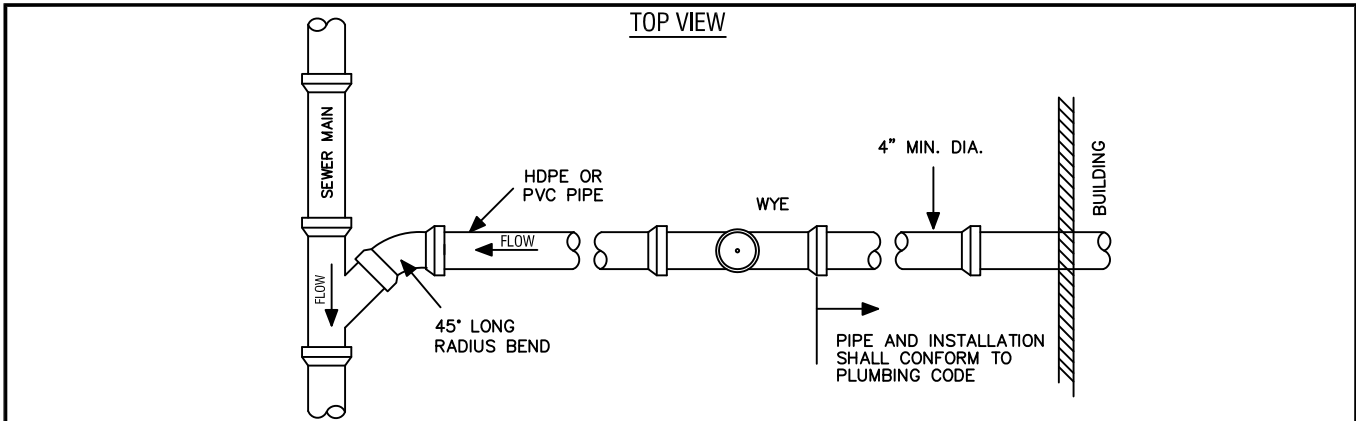
CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT

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.		 MARIA ESTHER RODRIGUEZ, CITY ENGINEER	DRAWING No. S-208	



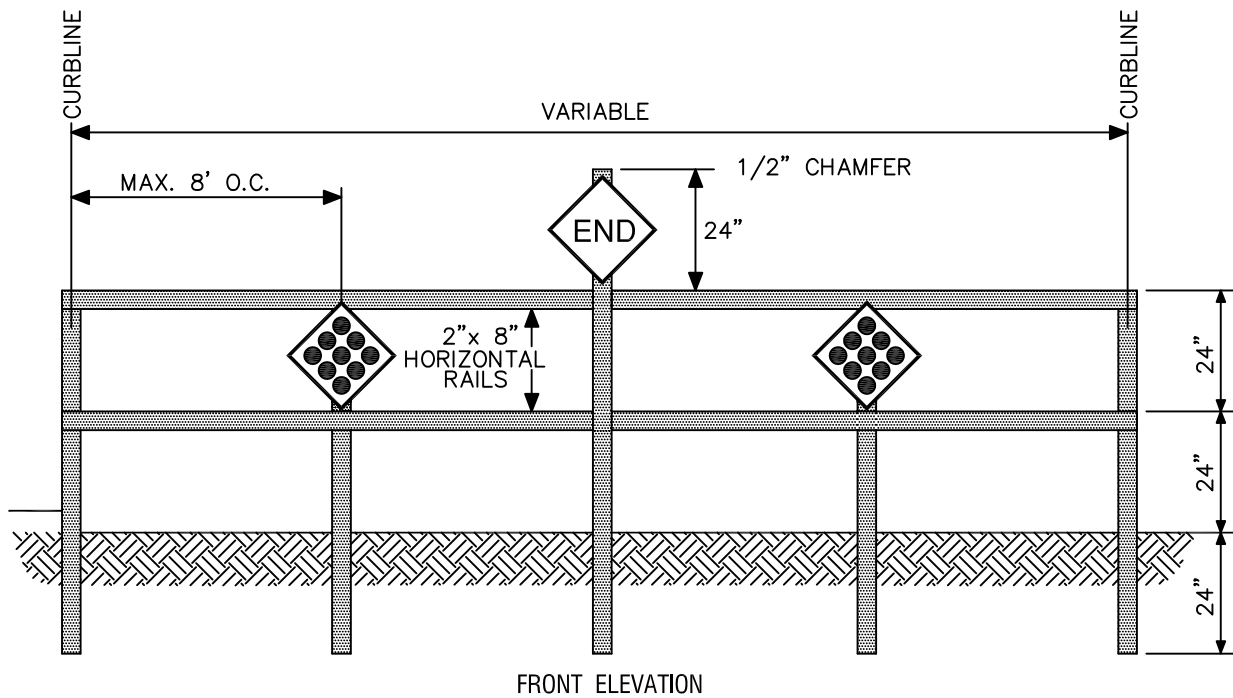
CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT

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



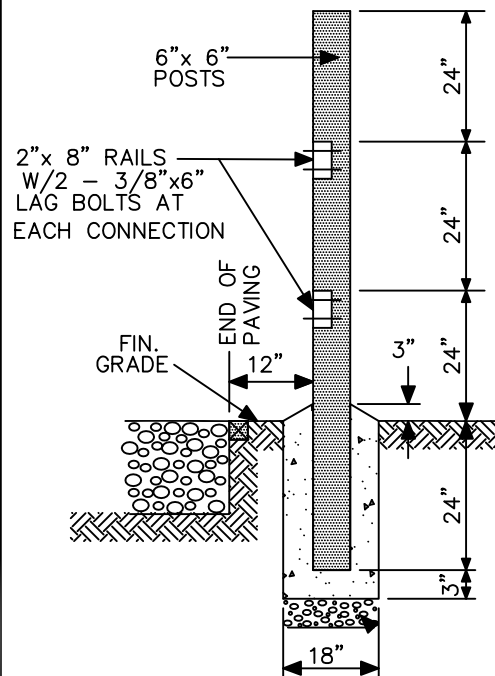
- NOTES
1. LOCATE CLEANOUT BOX IN SIDEWALK OR DRIVEWAY, IF THERE IS NO SIDEWALK. LOCATE CLEANOUT 10" TO 12" BEHIND FACE OF CURB. IF LOCATED IN A DRIVEWAY, BOX SHALL HAVE A TRAFFIC RATED LID.
 2. LATERAL CONNECTIONS:
 - A) LATERAL CONNECTION TO 6" PIPELINE: REPLACE A PORTION OF MAIN WITH A MANUFACTURED 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 DRAWN BY: P.A.C. CHECKED BY: T.S.	 CITY OF WATSONVILLE	STANDARD DRAWING FOR SEWER LATERAL: RETROFIT & REPAIR	DRAWN: 1/12	REV.:
		 MARIA ESTHER RODRIGUEZ, CITY ENGINEER	RESOLUTION: 76-13 (CM)	
			DRAWING No. S-209b	




NOTES:

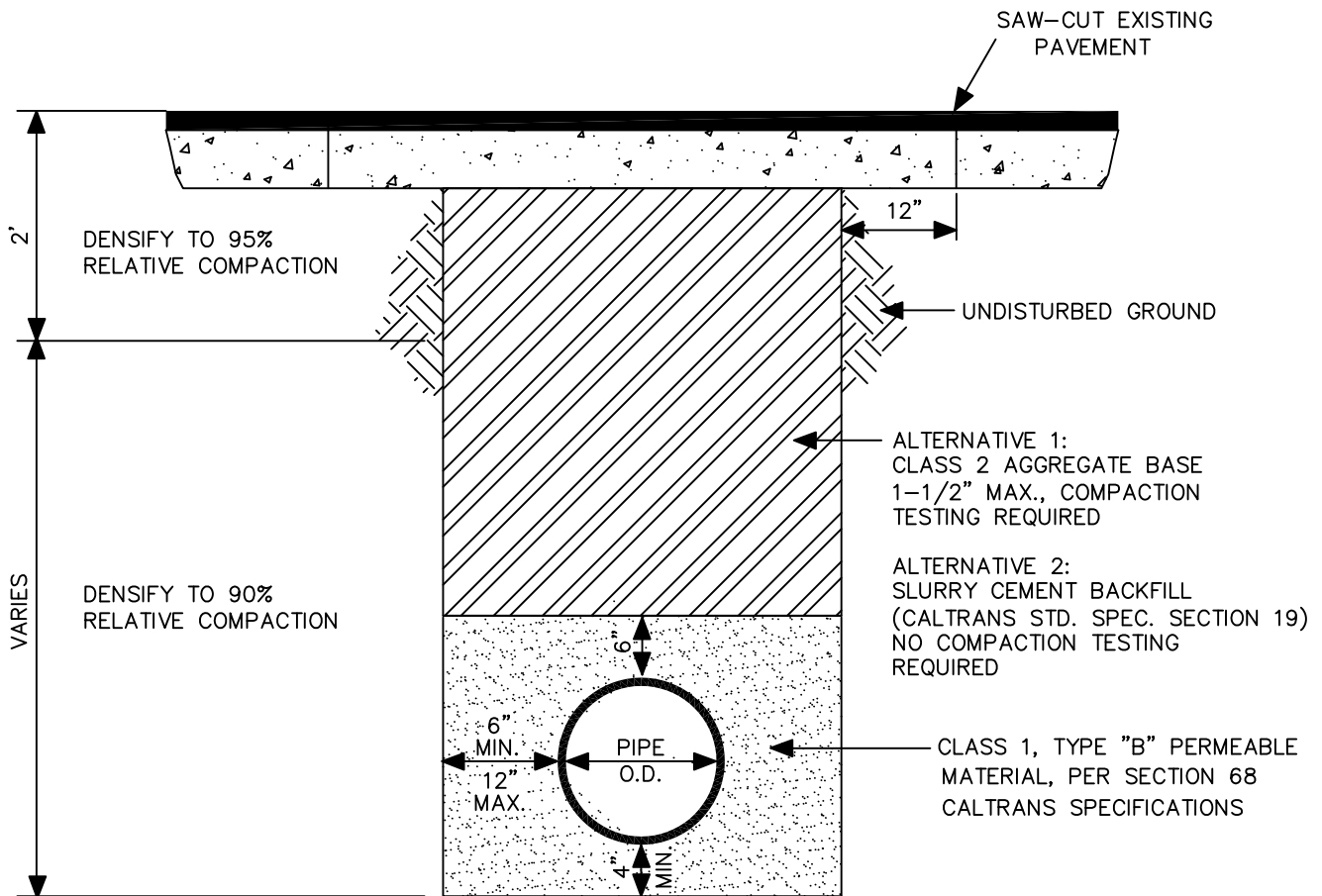
1. POSTS SHALL BE 6"x6" PRESSURE TREATED DOUGLAS FIR (40 ACZA) AND BE SET IN 2' CONCRETE.
2. POSTS SHALL BE SET ADJACENT TO PAVED AREA.
3. RAILS SHALL BE S4S D.F. AND DOUBLE-NAILED AT ENDS AND POSTS. SPLICE ONLY AT POSTS.
4. BARRICADE SHALL BE PAINTED WITH ONE COAT OF PRIMER AND ONE COAT OF WHITE ENAMEL 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	 CITY OF WATSONVILLE	STANDARD DRAWING FOR STANDARD STREET BARRICADE	DRAWN: 9/97	REV.: 7/12
DRAWN BY: P.A.C.			RESOLUTION: 76-13 (CM)	
CHECKED BY: T.S.			DRAWING No. S-301	

Maria Esther Rodriguez
MARIA ESTHER RODRIGUEZ, CITY ENGINEER



NOTES:

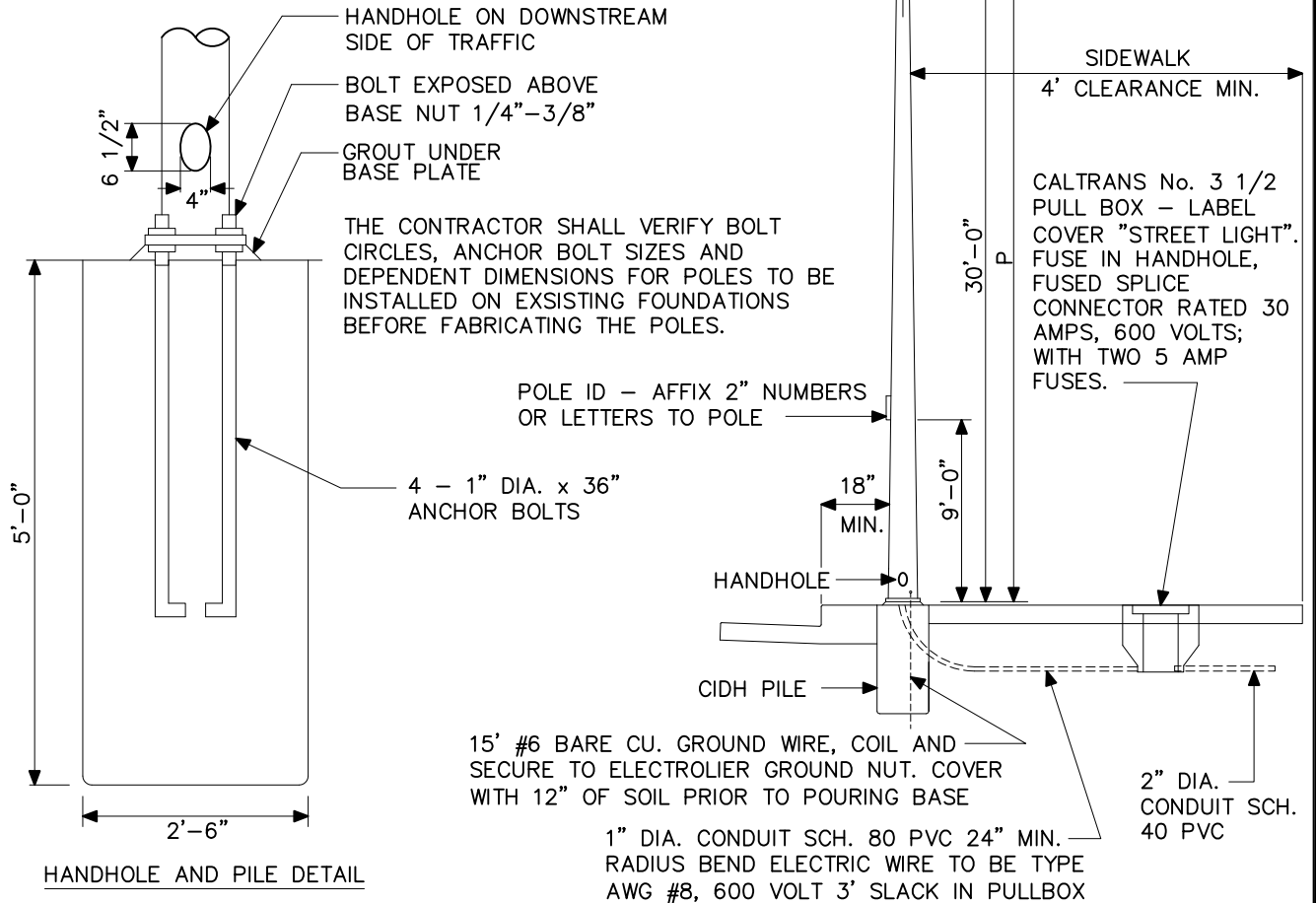
1. TRENCHES SHALL BE EXCAVATED IN A NEAT & WORKMANLIKE MANNER AT THE STREET SURFACE AND THE SHAPE SHALL BE RECTANGULAR.
2. SHOVEL SLICE PIPE ZONE BEDDING UNDER HAUNCHES OF PIPE. THE MINIMUM PAVEMENT RESTORATION SHALL BE 4" OF TYPE "A" ASPHALT CONCRETE OVER THE TRENCH AREA AND 4" OF TYPE "A" ASPHALT CONCRETE 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

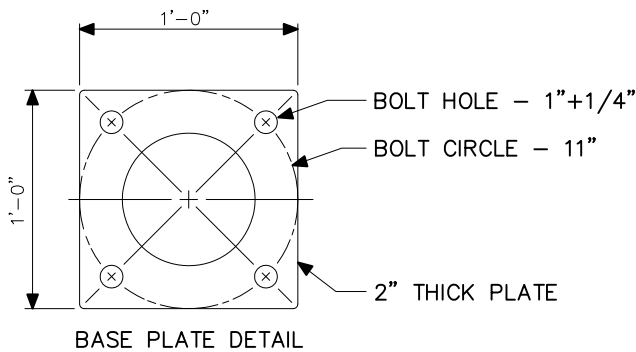
NOT TO SCALE	 CITY OF WATSONVILLE	STANDARD TRENCH BACKFILL SECTION	DRAWN: 9/12	REV.: 5/13
DRAWN BY: P.A.C.			RESOLUTION: 76-13 (CM)	
CHECKED BY: T.S.		 MARIA ESTHER RODRIGUEZ, CITY ENGINEER	DRAWING NO. S-401	

INTEGRAL P.E.C.
(FISHER PIERCE
6690B OR EQUAL)

LED STREET LIGHT DIMMABLE, TYPE III
DISTRIBUTION. LEOTEK CAT No.
GC1-20E-MV-NW-3-GY-530-FDC-WL,
UNLESS OTHERWISE NOTED ON PLANS.



HANDHOLE AND PILE DETAIL



CALTRANS TYPE 15 POLE

NOTE:

SEE CALTRANS STANDARD DETAILS FOR ADDITIONAL TYPE 15 POLE INFO.

LUMINAIRE ARM DATA				
M PROJECTED LENGTH	N RISE	MIN. O.D. AT POLE	NOMINAL THICKNESS	P TYPE 15
6'-0"	2'-0"±	3 1/4"	0.1196"	31'-6"±
8'-0"	2'-6"±	3 1/2"	0.1196"	32'-0"±
10'-0"	3'-3"±	3 7/8"	0.1196"	32'-9"±
12'-0"	4'-3"±	3 7/8"	0.1196"	33'-9"±
15'-0"	4'-9"±	4 1/4"	0.1196"	34'-3"±

CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT

NOT TO SCALE

DRAWN BY:
M.P.

CHECKED BY:
T.S.



STANDARD DRAWING FOR

ELECTROLIER

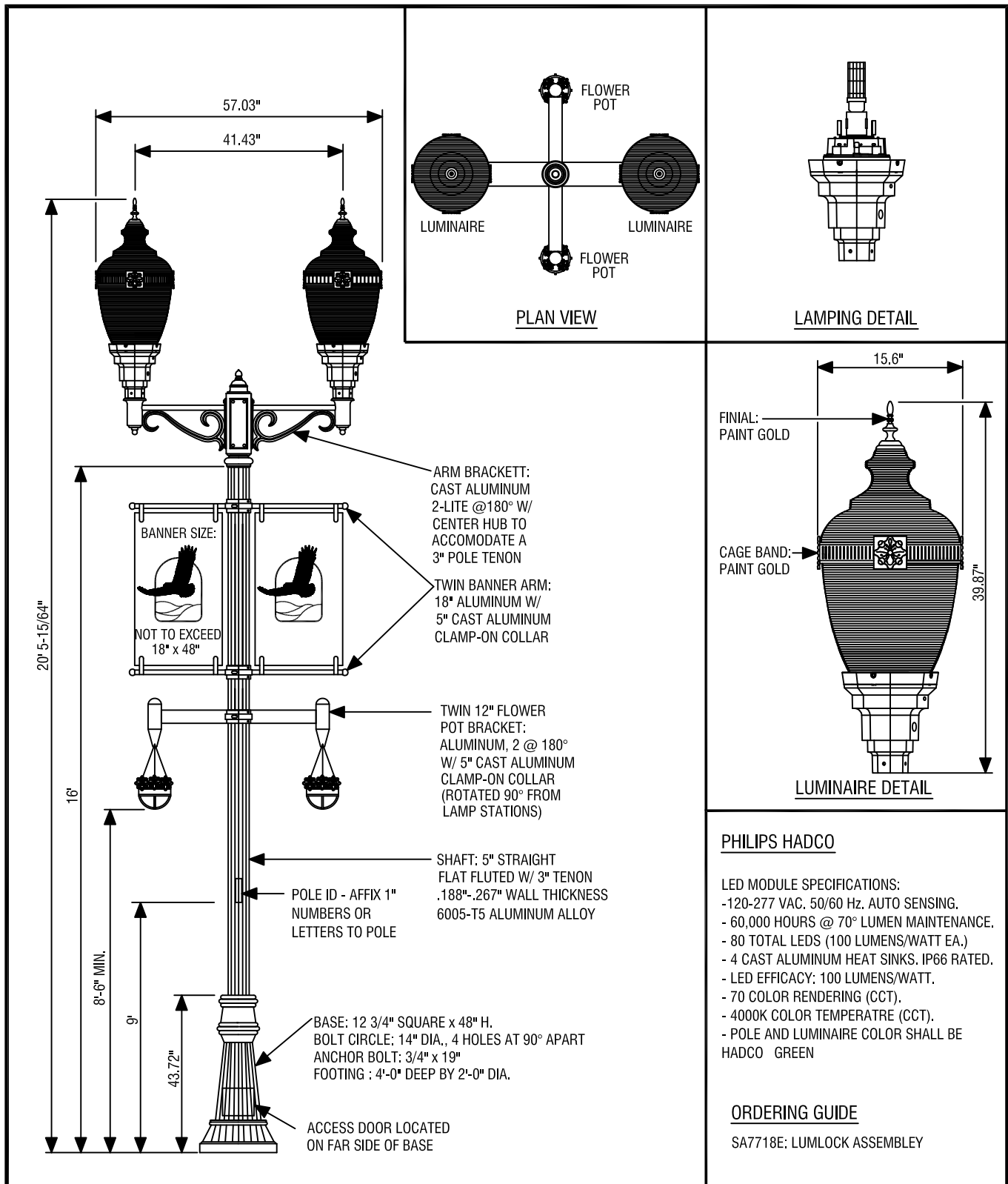
MARIA ESTHER RODRIGUEZ, CITY ENGINEER

DRAWN:
6/98

REV.:
2/13

RESOLUTION:
76-13 (CM)

DRAWING No.
S-501



CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT

NOT TO SCALE

DRAWN BY:
P.C.

CHECKED BY:
C.M.



STANDARD DRAWING FOR
**DOWNTOWN CORRIDOR
STREET LIGHT STANDARD**

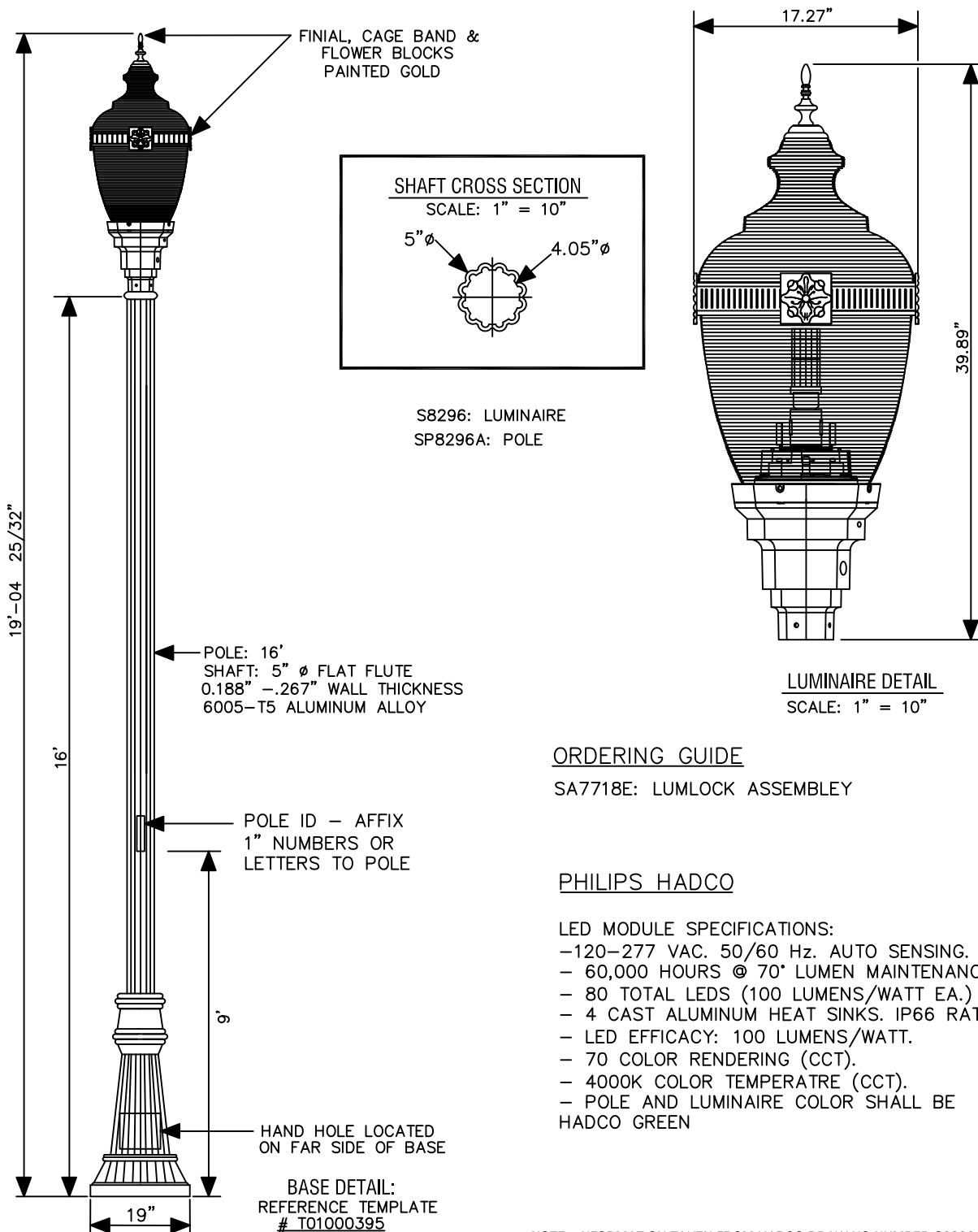
Maria Esther Rodriguez
MARIA ESTHER RODRIGUEZ, CITY ENGINEER

DRAWN:
4/99

REV.:
5/13

RESOLUTION:
76-13 (CM)

DRAWING No.
S-502



ORDERING GUIDE

SA7718E: LUMLOCK ASSEMBLY

PHILIPS HADCO

LED MODULE SPECIFICATIONS:

- 120-277 VAC. 50/60 Hz. AUTO SENSING.
- 60,000 HOURS @ 70° LUMEN MAINTENANCE.
- 80 TOTAL LEDS (100 LUMENS/WATT EA.)
- 4 CAST ALUMINUM HEAT SINKS. IP66 RATED.
- LED EFFICACY: 100 LUMENS/WATT.
- 70 COLOR RENDERING (CCT).
- 4000K COLOR TEMPERATURE (CCT).
- POLE AND LUMINAIRE COLOR SHALL BE HADCO GREEN

NOTE: INFORMATION TAKEN FROM HADCO DRAWING NUMBER S8296A
HADCO PHONE: (717) 359-7131

CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT

NOT TO SCALE

DRAWN BY:
P.A.C.

CHECKED BY:
C.M.



STANDARD DRAWING FOR RESIDENTIAL STREET LIGHT

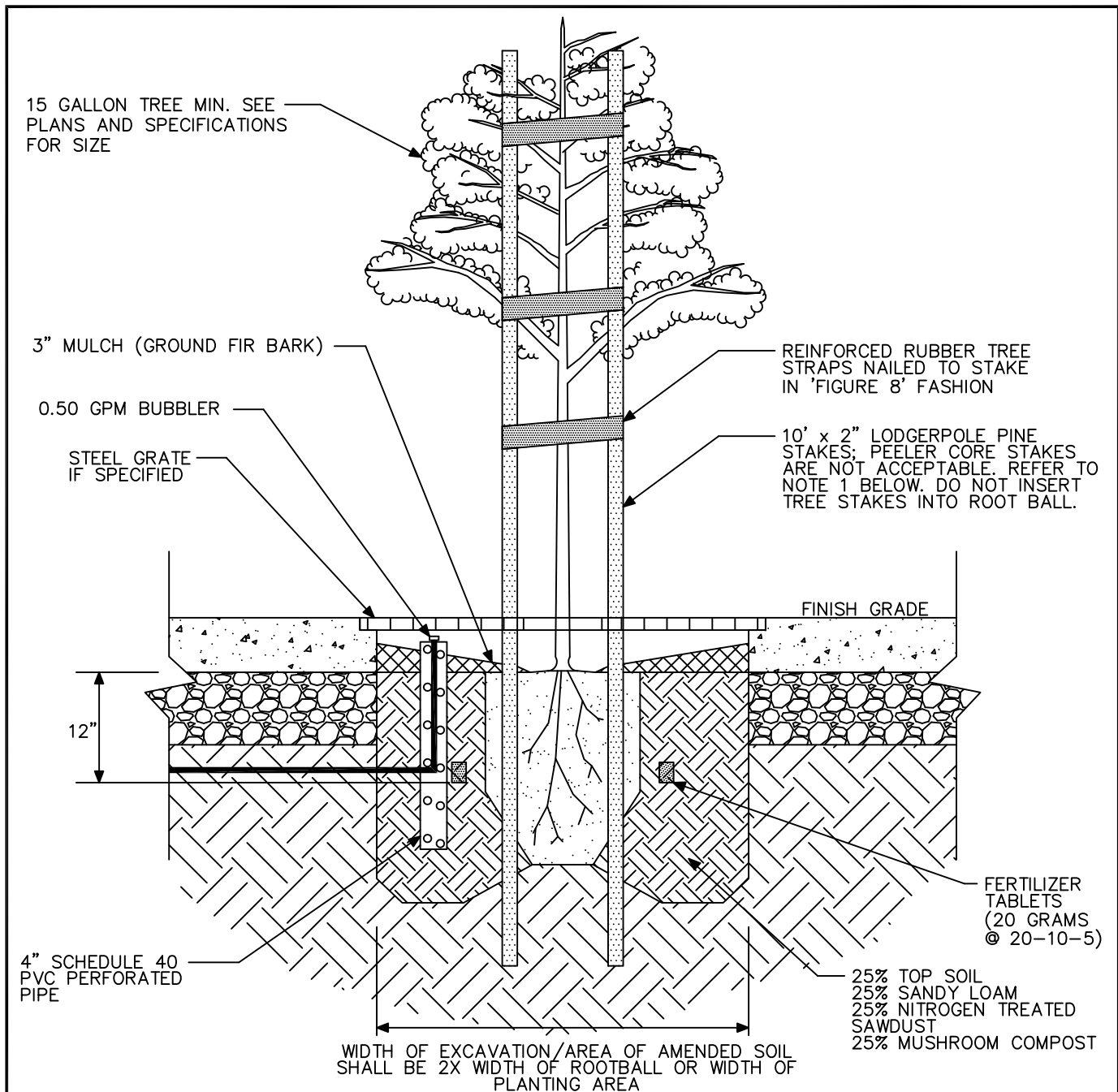
MARIA ESTHER RODRIGUEZ, CITY ENGINEER

DRAWN:
10/03

REV.:
5/13

RESOLUTION:
76-13 (CM)

DRAWING No.
S-503

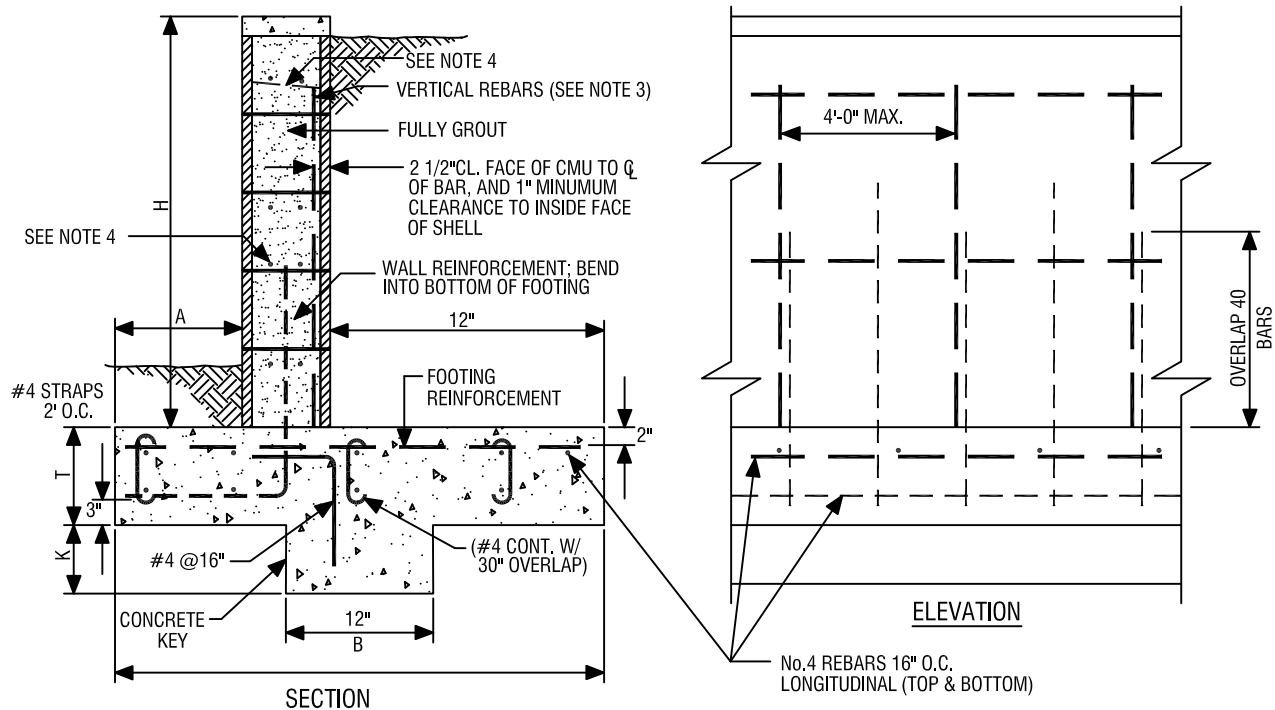


NOTES:

1. CONTRACTOR SHALL REMOVE NURSERY STAKE(S) AND TAGS FROM TREES UPON COMPLETION OF STAKING.
2. AS DIRECTED BY THE CITY, TREE GRATE SHALL BE A CAST IRON NEENAH FOUNDRY CO. NO. R-8706-1 (48"x48") WITH U-FRAME AND ACCESS HOLE.

CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT

NOT TO SCALE	 <p>CITY OF WATSONVILLE</p>	STANDARD DRAWING FOR TYPICAL TREE PLANTING & STAKING	DRAWN: 10/97	REV.: 4/13
DRAWN BY: M.P.		 MARIA ESTHER RODRIGUEZ, CITY ENGINEER	RESOLUTION: 76-13 (CM)	
CHECKED BY: T.S.			DRAWING No. S-504	




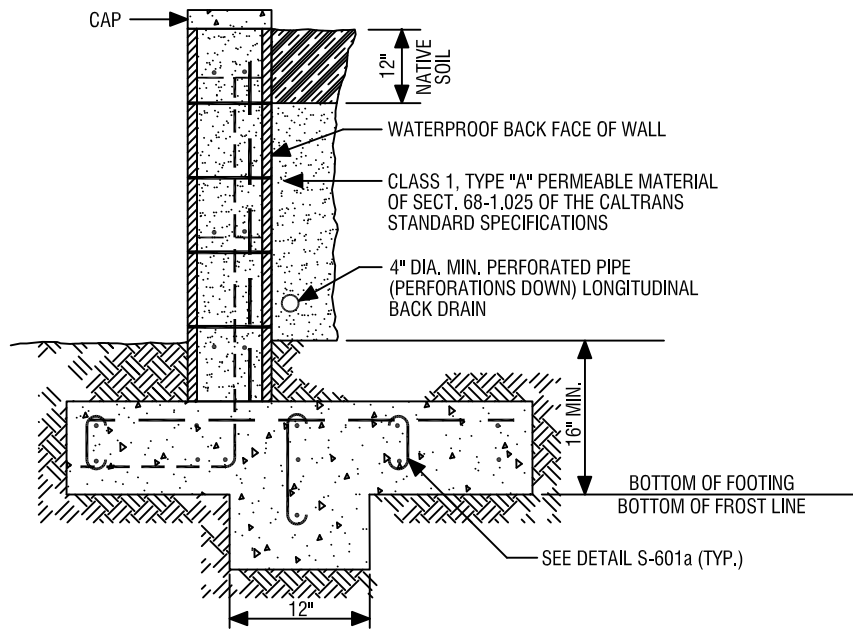
BLOCK WIDTH	H	A	B	T	WALL REINFORCEMENT	FOOTING REINFORCEMENT	K
8"	3'-4"	1'-0"	2'-8"	12"	#4 @ 24" O.C.	#4 @ 24" O.C.	12"
	4'-0"	1'-4"	3'-0"		#4 @ 24" O.C.	#4 @ 24" O.C.	15"
	4'-8"	1'-7"	3'-3"		#4 @ 16" O.C.	#4 @ 24" O.C.	16"
	5'-4"	2'-0"	3'-8"		#5 @ 8" O.C.	#4 @ 16" O.C.	16"
12"	3'-4"	0'-8"	2'-8"	12"	#4 @ 24" O.C.	#4 @ 24" O.C.	12"
	4'-0"	1'-0"	3'-0"		#4 @ 24" O.C.	#4 @ 24" O.C.	15"
	4'-8"	1'-3"	3'-3"		#4 @ 24" O.C.	#4 @ 24" O.C.	16"
	5'-4"	1'-8"	3'-8"		#4 @ 24" O.C.	#4 @ 16" O.C.	16"
	6'-0"	2'-2"	4'-2"		#4 @ 16" O.C.	#5 @ 16" O.C.	18"
	6'-8"	2'-6"	4'-6"		#5 @ 16" O.C.	#5 @ 16" O.C.	20"
	7'-4"	3'-0"	5'-0"		#5 @ 8" O.C.	#5 @ 8" O.C.	24"
	8'-0"	3'-4"	5'-6"		#8 @ 8" O.C.	#5 @ 8" O.C.	24"

NOTES:

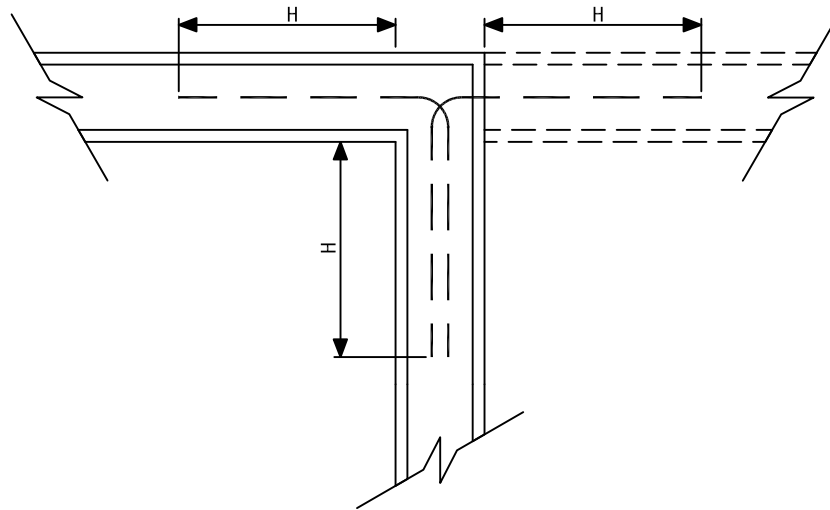
- ALL RETAINING WALLS SHALL BE MASONRY.
- EDGE OF ROADWAY, DRIVEWAY & FOUNDATIONS SHALL BE AT LEAST 2 x HEIGHT OF WALL FROM BACK OF WALL
- REINFORCING BARS SHOULD HAVE STANDARD DEFORMATION AND A YIELD STRENGTH OF 40,000 PSI
- ALTERNATE VERTICAL REINFORCING BARS MAY BE TERMINATED AT THE UPPER THIRD-POINT OF THE WALL HEIGHT
- ALL RETAINING WALLS SHALL HAVE A HORIZONTAL BOND BEAM W/ TWO No.4 BARS EVERY 16".
- WEIGHT OF ASSUMED SOIL BACKFILL (GRANULAR SOIL WITH CONSPICUOUS CLAY CONTENT) IS 100 PCF AND EQUIVALENT FLUID PRESSURE IS 45 PCF. THE WALL IS NOT DESIGNED TO BE SURCHARGED, AND THE MAXIMUM SOIL BEARING PRESSURE IS 1,000 P.S.F.
- THE LAST 30" OF GROUT SHALL BE CONSOLIDATED BY A HIGH-FREQUENCY INTERNAL VIBRATOR WITHIN 5 MINUTES OF POURING INTO BLOCK. THE VIBRATOR SHALL NOT BE ATTACHED TO OR HELD AGAINST THE BLOCK OR REINFORCING STEEL.
- GROUT SHALL BE PLACED IN ALL CELLS. GROUT SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF 2,500 PSI.
- SEE SHEET S-601b FOR BACKFILL DETAIL.
- MASONRY UNITS SHALL BE GRADE "N".
- WET SETTING OF THE BLOCKS INTO THE CONCRETE IS FORBIDDEN
- ALL CONCRETE FOOTINGS & KEYS SHALL HAVE A 28 DAY COMPRESSIVE STRENGTH OF 2,500 PSI.

CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT

NOT TO SCALE	 <p>CITY OF WATSONVILLE</p>	<p>STANDARD DRAWING FOR</p> <h2>STANDARD MASONRY RETAINING WALL</h2> <p><i>Maria Esther Rodriguez</i></p> <p>MARIA ESTHER RODRIGUEZ, CITY ENGINEER</p>	DRAWN: 10/97	REV.: 4/13
DRAWN BY: P.A.C.			RESOLUTION: 76-13 (CM)	
CHECKED BY: P.T.			DRAWING No. S-601a	



NOTE:
BACKFILL FOR RETAINING WALLS SHOULD BE MOISTURE CONDITIONED TO NEAR OPTIMUM (OPTIMUM + 3% OR HIGHER FOR CLAY BACKFILL), PLACED IN TWO 6" LIFTS & COMPACTED TO 90% OF THE MAXIMUM DENSITY DETERMINED IN ACCORDANCE WITH CAL IMPACT METHOD #216. HEAVY COMPACTION EQUIPMENT SHOULD NOT BE USED IMMEDIATELY ADJACENT TO THE RETAINING WALL.



REINFORCING AT CORNERS

NOTES:

1. 8" CMU: #4 @ 16" O.C. HORIZONTAL IN BOND BEAM UNIT (CENTERED).
2. 12" CMU: (2) #4 @ 8" O.C. HORIZONTAL (ONE EA. SIDE) IN BOND BEAM UNIT.
3. REINFORCING SHALL BE CONTINUOUS AROUND CORNER FOR MINIMUM DISTANCE OF "H" (HEIGHT OF WALL).
4. CORNER REINFORCEMENT IS IN ADDITION TO REQUIRED HORIZONTAL REINFORCEMENT PER S-601a

CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT

NOT TO SCALE

DRAWN BY:
P.A.C.

CHECKED BY:
P.T.



STANDARD DRAWING FOR STANDARD MASONRY RETAINING WALL

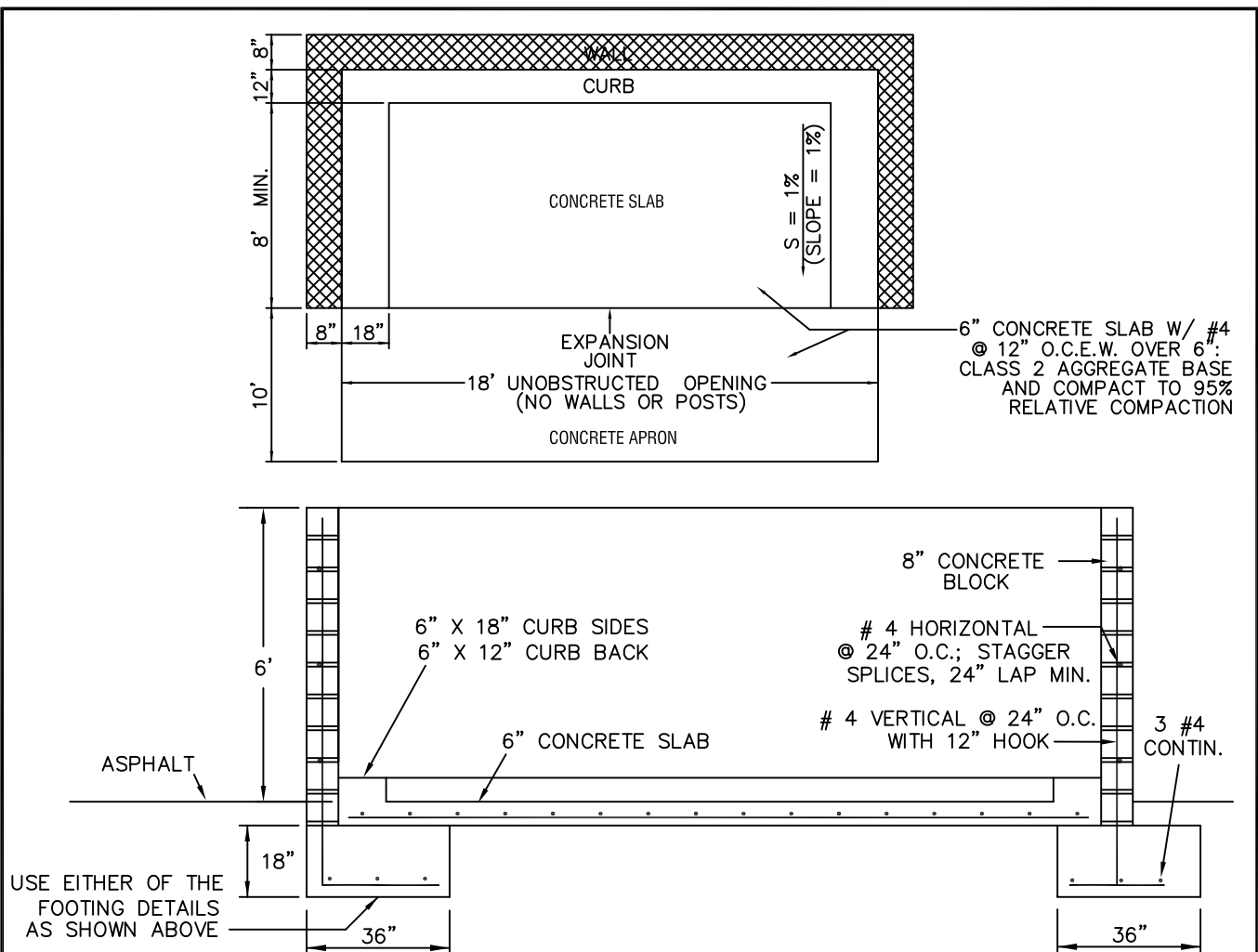
Maria Esther Rodriguez
MARIA ESTHER RODRIGUEZ, CITY ENGINEER


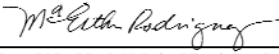
DRAWN:
10/97

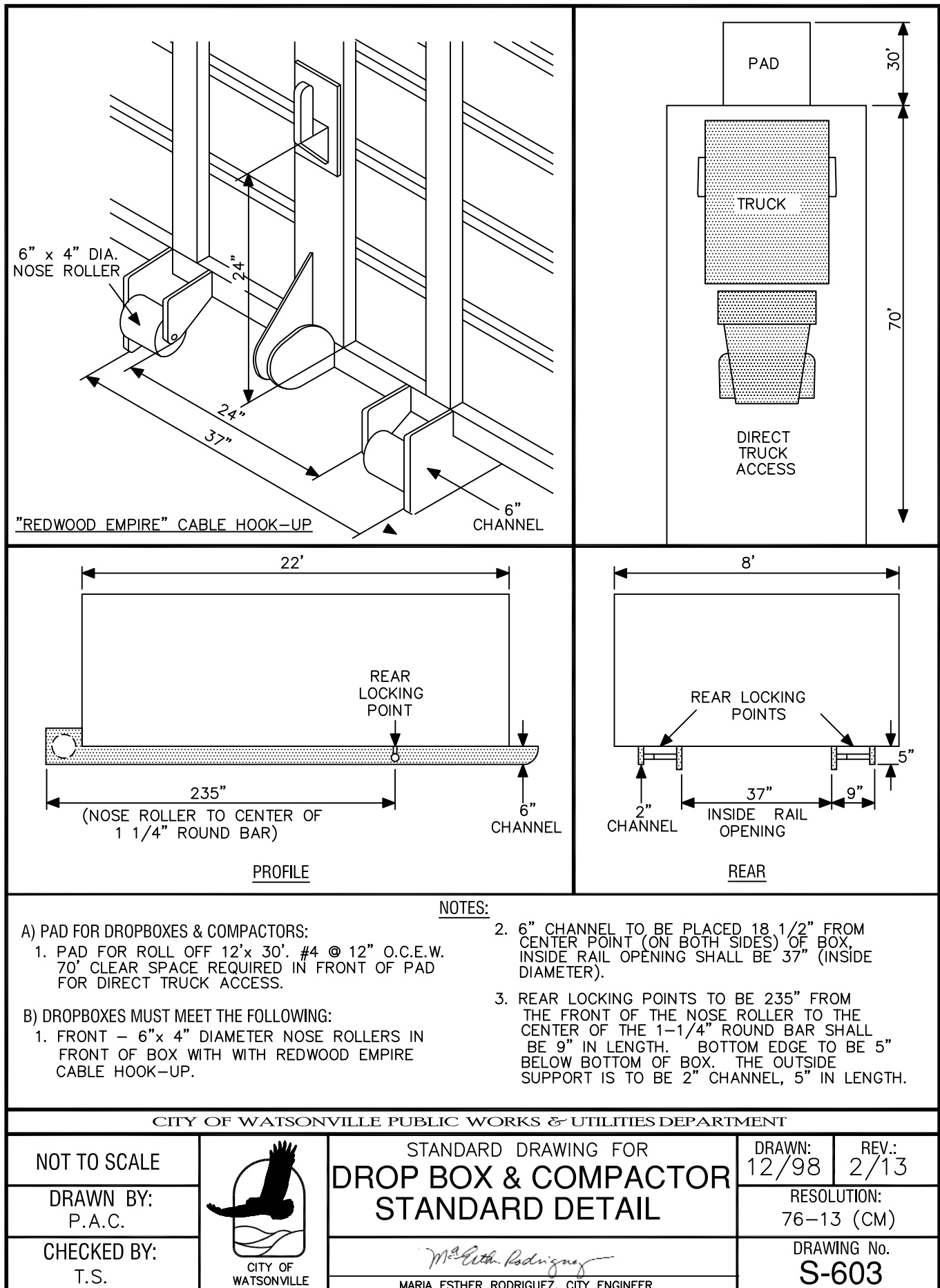
REV.:
4/13

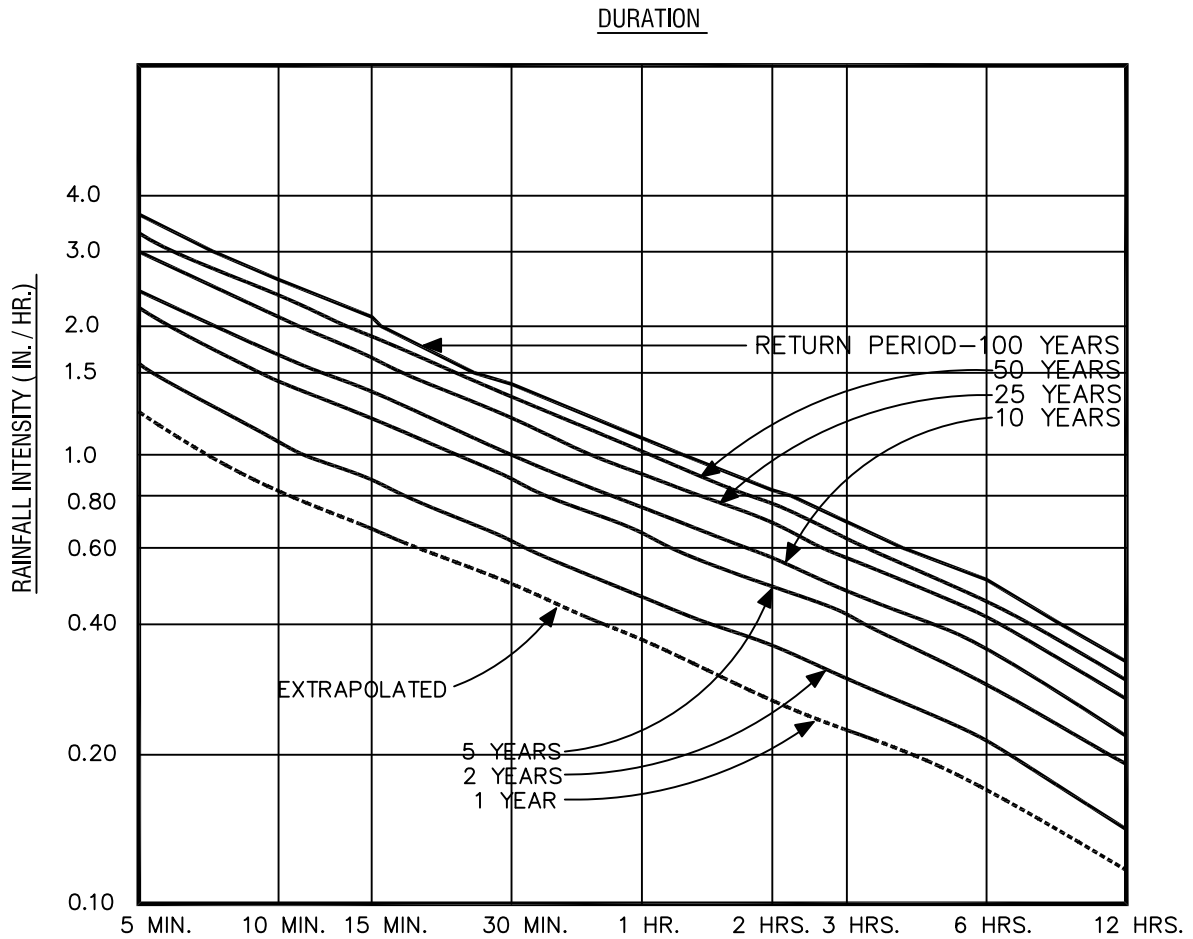
RESOLUTION:
76-13 (CM)

DRAWING No.
S-601b



CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT				
NOT TO SCALE		STANDARD DRAWING FOR TRASH AND RECYCLE ENCLOSURE	DRAWN:	REV.:
			12/98	2/13
			RESOLUTION: 76-13 (CM)	
DRAWN BY: P.A.C.	CITY OF WATSONVILLE	 MARIA ESTHER RODRIGUEZ, CITY ENGINEER	DRAWING No.	
CHECKED BY: T.S.			S-602	





CITY OF WATSONVILLE RAINFALL DATA FROM
THE CENTRAL COAST WATER BOARD:

85TH PERCENTILE RAINFALL DEPTH — 0.8"
95TH PERCENTILE RAINFALL DEPTH — 1.3"

CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT

NOT TO SCALE

DRAWN BY:
P.A.C.

CHECKED BY:
G.K.S.



STANDARD DRAWING FOR
**RAINFALL I.D.F.
CURVES**

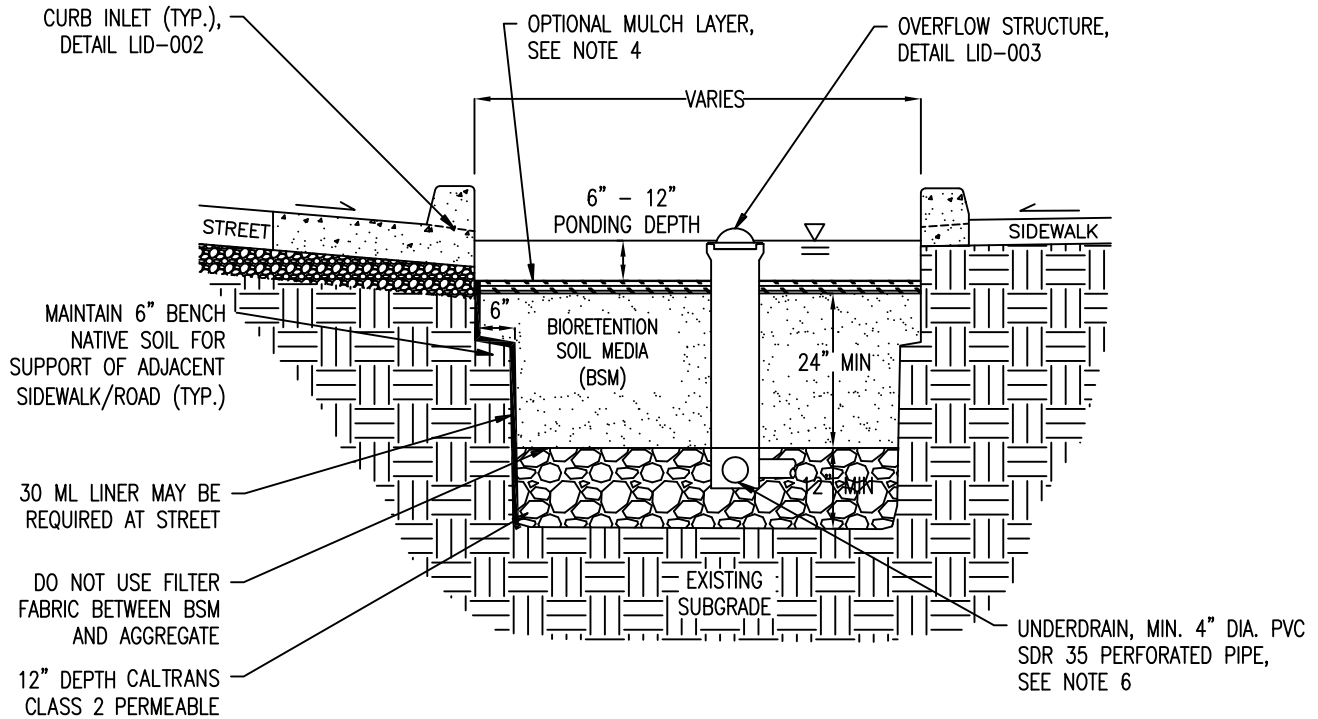
Maria Esther Rodriguez
MARIA ESTHER RODRIGUEZ, CITY ENGINEER

DRAWN:
11/97

REV.:
5/13

RESOLUTION:
76-13 (CM)


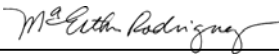
DRAWING No.
S-701

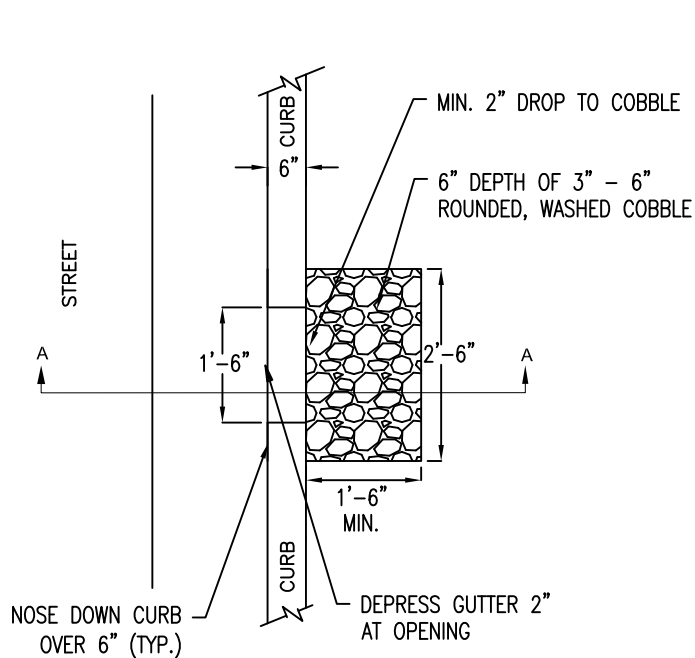


NOTES

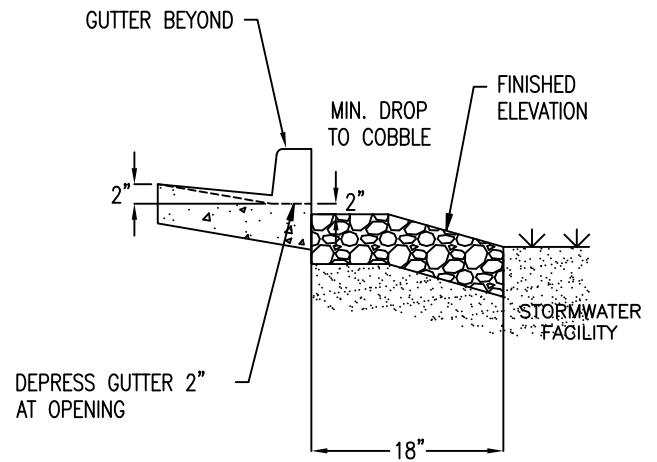
1. PROVIDE CAPPED, THREADED PVC CLEANOUT FOR UNDERDRAIN, 4" MIN. DIA. WITH SWEEP BEND.
2. BIORETENTION SOIL MEDIA (BSM) PER BASMAA SPECIFICATION OF SOILS FOR BIOTREATMENT OR BIORETENTION FACILITIES.
3. PLANT SELECTION PER DETAIL LID-004A,B.
4. OPTIONAL MULCH LAYER SHALL BE 2"-3" OF AGED, STABILIZED, AND NON-FLOATING MULCH.
5. SCARIFY SUBGRADE BEFORE INSTALLING BIORETENTION AREA AGGREGATE AND BSM.
6. INSTALL UNDERDRAIN WITH HOLES FACING DOWN. UNDERDRAIN DISCHARGE ELEVATION SHALL BE NEAR TOP OF AGGREGATE LAYER. UNDERDRAIN SLOPE MAY BE FLAT.
7. COMPACT BSM IN 6" LIFTS WITH LANDSCAPE ROLLER OR BY LIGHTLY WETTING.
8. A 3:1 MAX. SLOPE SHALL BE USED FOR BIORETENTION FACILITIES WITH SLOPED SIDES.

CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT

NOT TO SCALE	 <p>CITY OF WATSONVILLE</p>	<p>LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS</p> <p>STREET BIORETENTION FACILITY (FLAT/PLANTER, NO ON-STREET PARKING SIDEWALK, WITH UNDERDRAIN)</p>	DRAWN: 4/13	REV.:
DRAWN BY: M.P.		 <p>MARIA ESTHER RODRIGUEZ, CITY ENGINEER</p>	RESOLUTION No. 76-13 (CM)	
CHECKED BY: T.S.			DRAWING No. LID-001	



PLAN VIEW



SECTION A-A

NOTES

1. FOR USE WITH STORMWATER FACILITIES WITH SLOPED SIDES OR FLAT BOTTOMS.
2. WHERE INLET FLOW VELOCITY IS HIGH, EXTEND COBBLE INTO FACILITY, BUT AVOID EXCESSIVE USE.
3. CURB CUT INLET SPACING SHALL BE 20 FEET. CURB CUT INLET SPACING FOR GUTTERS WITH A LONGITUDINAL SLOPE GREATER THAN 4% MUST BE APPROVED BY ENGINEER.

CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT

NOT TO SCALE

DRAWN BY:
MP

CHECKED BY:
TS



LOW IMPACT DEVELOPMENT
STORMWATER MANAGEMENT STANDARD DETAILS

CURB CUT INLET WITH GRAVEL ENERGY DISSIPATION

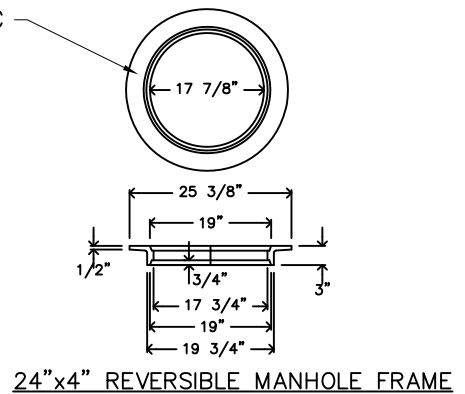
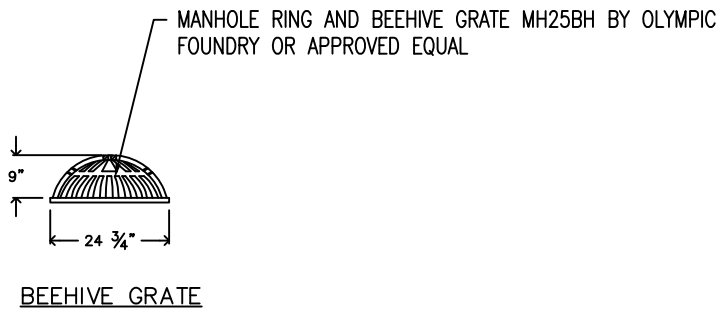
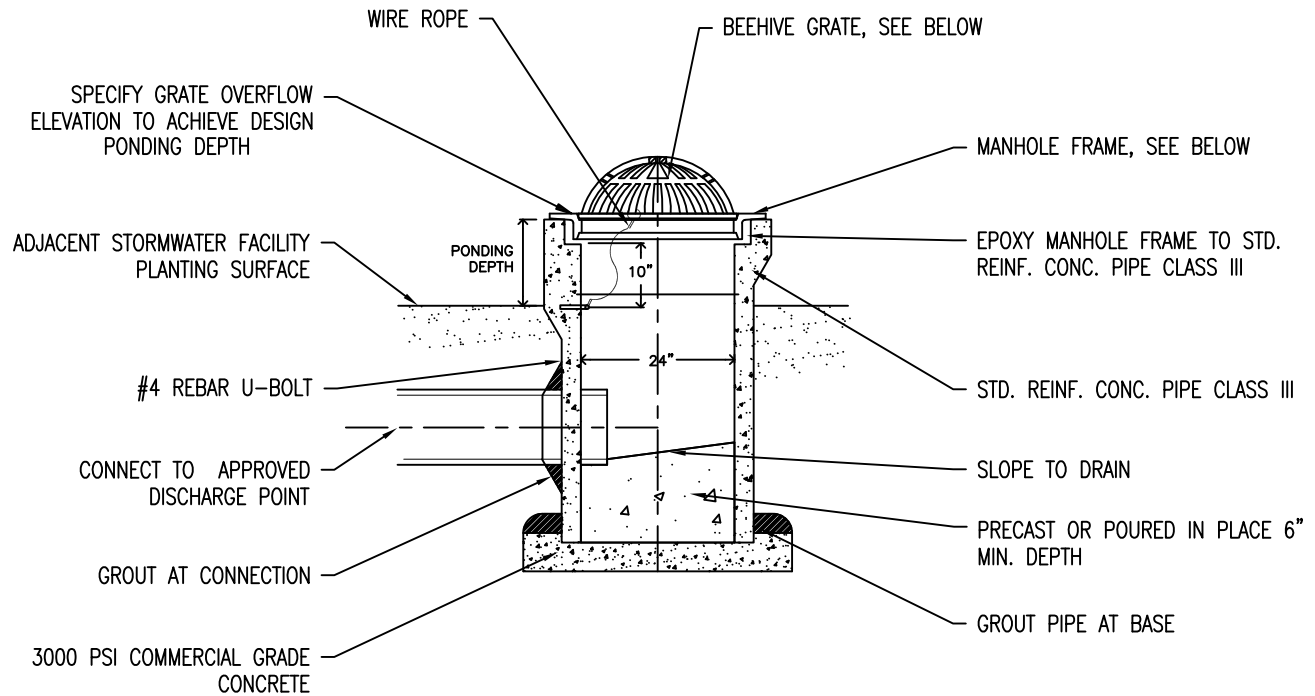
Maria Esther Rodriguez
MARIA ESTHER RODRIGUEZ, CITY ENGINEER

DRAWN:
4/13

REV.:

RESOLUTION No.
76-13 (CM)

DRAWING No.
LID-002



CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT

NOT TO SCALE

DRAWN BY:
MP

CHECKED BY:
TS



LOW IMPACT DEVELOPMENT
STORMWATER MANAGEMENT STANDARD DETAILS

OVERFLOW STRUCTURE
WITH BEEHIVE GRATE

Maria Esther Rodriguez
MARIA ESTHER RODRIGUEZ, CITY ENGINEER

DRAWN:
4/13

REV.:

RESOLUTION No.
76-13 (CM)

DRAWING No.
LID-003



TREES

Native	Scientific Name	Common Name	Planting Area	Height	Spread	Exposure	Type	Bioretention Characteristics								Notes
								Plant Inundation Zone A	Plant Inundation Zone B	Small Planting Strips (<5' wide)	Large Planting Strips (>5' wide)	Tolerates Periodic Inundation	Tolerates Prolonged Dry Periods	Requires Good Drainage	Wind Tolerant	
X	Cercis occidentalis	Western Redbud	Small	20'	20'	Full Sun	Deciduous		X	X		X	X			Small tree or large shrub, tolerates clay, winter wet, drought, flowers stronger with frosts
X	Chilopsis linearis	Desert Willow	Small	25'	30'	Full Sun	Deciduous		X		X	X	X		X	Tolerates alkaline soil, sand, clay, seasonal flooding and drought, not coastal conditional
X	Platanus racemosa	California Sycamore	Large	40'-80'	40'-70'	Full Sun	Deciduous		X							Tolerates sand and clay soils, seasonal flooding, needs space to grow, avoid underground water/sewer pipes
X	Quercus agrifolia	Coast Live Oak	Medium	25'-60'	40'-70'	Full Sun-Shade	Deciduous		X		X		X	X	X	Tolerates drought and winter wet conditions, mature trees produce significant litter limiting understory plantings, need space to grow

SHRUBS

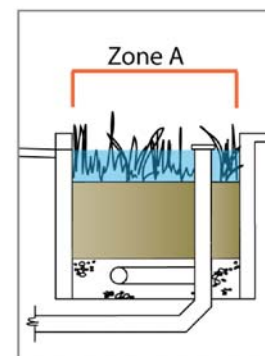
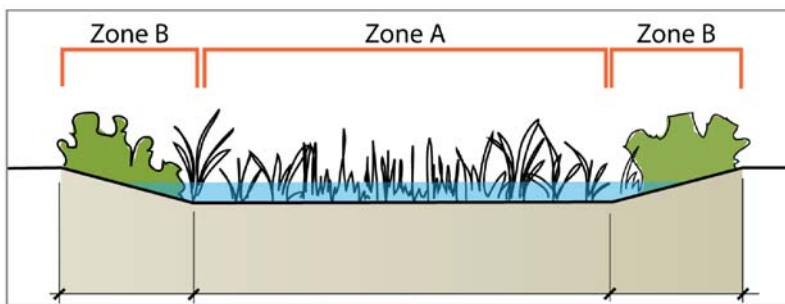
Native	Scientific Name	Common Name	Height	Spread	Exposure	Type	Bioretention Characteristics								Notes
							Plant Inundation Zone A	Plant Inundation Zone B	Small Planting Strips (<5' wide)	Large Planting Strips (>5' wide)	Tolerates Periodic Inundation	Tolerates Prolonged Dry Periods	Requires Good Drainage	Wind Tolerant	
X	Baccharis pilularis consanguinea	Coyote Brush	3'-6'	5'	Sun	Evergreen		X	X	X	X			X	Adaptable evergreen shrub, provides quick cover and bank stabilization, tolerant of coastal conditions, alkaline soil, sand, clay and seasonal wet
X	Heteromeles arbutifolia	Toyon, Christmas Berry	6'-10'	4'-5'	Sun	Evergreen		X		X	X			X	Tolerates sand, clay and serpentine soils, seasonal water with good drainage
X	Iris douglasiana	Douglas Iris	3'	1'-2'	Full Sun-Partial Shade	Grass		X	X		X				Tolerates sand, clay and serpentine soils, seasonal wet (but not soggy) soils and drought
X	Myrica californica	Pacific Wax Myrtle	15'	15'	Sun	Evergreen		X	X		X			X	Large shrub or small tree, tolerates coastal conditions, sand, clay and seasonal inundation
X	Rosa californica	California Rose	3'-6'	3'-5'	Sun-Partial Shade	Deciduous	X	X	X	X	X	X			Tolerates a wide variety of soils, seasonal flooding and some drought, spreads aggressively, avoid edges of walkways because of thorns
X	Sambucus mexicana	Mexican Elderberry	8'-12'	8'	Sun-Partial Shade	Deciduous		X		X	X			X	Large shrub to tree, tolerates clay, seasonal flooding and drought, good wildlife food source
X	Solidago californica	California Goldenrod	1'-4'	1'-4'	Full Sun-Partial Shade	Herbaceous Perennial		X	X	X	X	X			Tolerates poor soils, seasonal wet and drought, can spread aggressively if over irrigated

CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT



NOT TO SCALE DRAWN BY: MP CHECKED BY: TS	 CITY OF WATSONVILLE	LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS	DRAWN: 4/13	REV.:
		LID RECOMMENDED PLANT LIST (TREES AND SHRUBS)	RESOLUTION No. 76-13 (CM)	
		 MARIA ESTHER RODRIGUEZ, CITY ENGINEER	DRAWING No. LID-004A	

GROUND COVER AND VINES

Native	Scientific Name	Common Name	Height	Spread	Exposure	Type	Bioretention Characteristics						Notes
							Plant Inundation Zone A	Plant Inundation Zone B	Tolerates Periodic Inundation	Tolerates Prolonged Dry Periods	Requires Good Drainage	Tolerates Mowing	
	Carex divulsa	Berkeley Sedge, Grey Sedge	12"-18"	12"-18"	Full Sun-Partial Shade	Grass	X	X	X	X			Tolerates foot traffic, some drought and boggy soils
X	Carex pansa	California Meadow Sedge	6"-8"	N/A	Full Sun-Partial Shade	Grass	X	X	X		X		Good lawn substitute, tolerates wide range of growing conditions, seasonal inundation, drought, foot traffic and mowing
X	Carex praegracilis	Clustered Field Sedge	3'-4'	2'-3'	Full Sun-Partial Shade	Grass	X		X	X		X	Useful lawn substitute and bank stabilizer, good planted in masses, tolerates wide range of growing conditions, foot traffic and mowing, may look weedy when mixed with other plants
X	Carex spissa	San Diego Sedge	6"-8"	N/A	Full Sun-Partial Sun	Grass	X	X	X			X	A large grass, tolerates alkaline soil, clay, serpentine, seasonal inundation, and deer
	Chondropetalum tectorum	Small Cape Rush	2'-3'	3'-4'	Full Sun-Partial Sun	Grass	X	X	X	X		X	A tough, attractive reed-like plant, tolerates boggy or clay soils and drought once established, Chondropetalum elephantinum is a much larger species
X	Festuca rubra 'molate'	Molate Red Fescue	Up to 10"	4"-40"	Full Sun-Partial Shade	Evergreen Perennial	X	X	X			X	A tufted, spreading bunchgrass, good lawn substitute, provides erosion control, tolerates wet conditions, but looks best with regular water, tolerates drought once established
X	Juncus effusus	Soft Rush	1'-2'	1'-2'	Full Sun-Partial Shade	Grass	X		X				Tolerates poor drainage, heavy soils, needs more supplemental water than Juncus patens
X	Juncus patens	Wire Grass, Blue Rush	2'-3'	Running	Full Sun	Grass	X		X	X			Strong performance in bioretention ares, tolerates poor drainage, seasonal inundation, drought, shade
X	Leymus condensatus	Canyon Prince Wild Rye	1'-2'	N/A	Partial Shade	Grass		X	X	X			tolerates drought, wet, but not soggy soils, looks best with supplemental irrigation, spreads by rhizomes
X	Muhlenbergia rigens	Deer Grass	6'-8'	6'-8'	Full Sun-Partial Shade	Evergreen Shrub		X	X	X			A large grass, tolerates sandy and clay soils, seasonal inundation, best when cut back annually to remove old thatch



CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT

NOT TO SCALE	 CITY OF WATSONVILLE	LOW IMPACT DEVELOPMENT STORMWATER MANAGEMENT STANDARD DETAILS	DRAWN: 4/13	REV.:
DRAWN BY: MP		LID RECOMMENDED PLANT LIST (GROUND COVER AND VINES)	RESOLUTION No. 76-13 (CM)	
CHECKED BY: TS		 MARIA ESTHER RODRIGUEZ, CITY ENGINEER	DRAWING No. LID-004B	

City of Watsonville

PUBLIC IMPROVEMENT STANDARDS WATER SYSTEM



CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT

**JUNE 26, 2018
RESOLUTION 98-18 (CM)**

CITY OF WATSONVILLE WATER SYSTEM

STANDARD SPECIFICATIONS

GENERAL

ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE CITY OF WATSONVILLE WATER SYSTEM STANDARD SPECIFICATIONS, THE LATEST EDITIONS OF THE AMERICAN WATER WORKS ASSOCIATION STANDARDS (AWWA), THE AMERICAN SOCIETY FOR TESTING AND MATERIAL (ASTM), AND THE CALIFORNIA PLUMBING CODE, EXCEPT AS MODIFIED HEREIN.

SUBMITTAL REQUIREMENTS

1. APPLICANT SHALL SUBMIT WATER SYSTEM PLANS AND CALCULATIONS FOR ENGINEER REVIEW AND APPROVAL FOR TENANT IMPROVEMENTS, DEVELOPMENT, AND RE-DEVELOPMENTS WHICH REQUIRE NEW WATER SERVICE AND/OR CHANGE OF AN EXISTING SERVICE. PLANS SHALL SHOW THE SIZE, TYPE AND LOCATION OF INFRASTRUCTURE TO BE INSTALLED.
2. TWO WEEKS PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL SUBMIT CUT SHEETS AND SPECIFICATIONS FOR ALL PROPOSED MATERIAL TO BE USED IN THE CONSTRUCTION OF THE PROJECT OF WHICH WILL BECOME THE PROPERTY OF THE CITY. NO CONSTRUCTION TO BE ALLOWED UNTIL THE SUBMITTAL PACKAGE IS APPROVED BY THE PUBLIC WORKS ENGINEER.



PERMITTING

1. THE CONTRACTOR SHALL OBTAIN ALL APPLICABLE PERMITS FOR CONSTRUCTION OF THE NEW WATER SYSTEM AND SERVICES.
2. ALL CONTRACTORS SHALL SUBMIT A CONTRACTOR EVALUATION APPLICATION FORM 1, FOR CITY APPROVAL, TO WORK ON CITY MAINS AND SERVICES.
3. ALL WATER SYSTEM WORK SHALL BE SUBJECT TO CITY INSPECTION. THE CONTRACTOR SHALL NOTIFY THE INSPECTOR NO LESS THAN 48 HOURS PRIOR TO COMMENCEMENT OF WORK. THE CONTRACTOR SHALL KEEP THE INSPECTOR INFORMED OF THE WORK SCHEDULE AND ALERT THE INSPECTOR OF ANY CHANGES.
4. THERE SHALL BE NO WORK ON WEEKENDS AND HOLIDAYS OBSERVED BY THE CITY.
5. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL SUBMIT A HARD COPY SET AND A PDF FILE OF THE AS-BUILT PLANS OF COMPLETED WORK TO THE PUBLIC WORKS ENGINEER.

TABLE OF CONTENTS

W-A	GENERAL NOTES
W-B	MATERIAL SPECIFICATIONS
W-C	CLEANING AND TESTING
W-01	STANDARD SERVICE CONNECTION
W-02	1-INCH COMBINATION METER
W-03	MULTIPLE BRANCH METERS CONFIGURATION
W-04	2-INCH AND SMALLER STAND-ALONE SERVICE
W-05	NEW FIRE HYDRANT INSTALLATION
W-06	BLOW-OFF ASSEMBLY
W-07	STANDARD THRUST BLOCK
W-08	STANDARD WATER TRENCH DETAIL
W-09	COMBINATION AIR VALVE ASSEMBLY
W-10	2-INCH AND SMALLER BACKFLOW SERVICE
W-11	3-INCH AND LARGER DOMESTIC BACKFLOW SERVICE
W-12A	4-INCH AND LARGER BACKFLOW SERVICE
W-12B	4-INCH AND LARGER COMPACT FIRE SERVICE BACKFLOW
W-13	STANDARD GATE VALVE
FORM 1	CONTRACTOR APPLICATION
FORM 2	APPROVED CONTRACTOR LIST



CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT

SCALE: NTS		WATER DIVISION STANDARD DRAWING	DRAWN: MAY 2018	REV:
DRAWN BY: STAFF		GENERAL NOTES	RESOLUTION: 98-18 (CM)	
CHECKED BY: TC		 MARIA ESTHER RODRIGUEZ, CITY ENGINEER	DWG NO. W-A	

MATERIAL SPECIFICATIONS

1. WATER MAINS: ALL WATER MAINS SHALL BE EPOXY ZINC COATED DUCTILE IRON PIPE (CLASS 52) OR APPROVED EQUAL MEETING AWWA C151.
 - a. ZINC COATING SHALL ACHIEVE A LAYER OF 200 g/m² MEETING ISO 8179-1.
 - b. EPOXY PROTECTIVE COATING SHALL COLORED BLUE AND APPLIED WITH 3mm THICK OVER THE ZINC CORROSION PROTECTIVE LAYER.
 - c. WATER MAINS SHALL HAVE A CEMENT-MORTAR LINING MEETING AWWA C104.
2. WATER SERVICES: ALL WATER SERVICES 2" AND SMALLER SHALL BE TYPE "K" POLY-WRAP COPPER PIPE MEETING ASTM B 88.
3. FITTINGS: DUCTILE IRON FITTINGS SHALL CONFORM TO AWWA C110 OR C153. JOINTS SHALL BE PUSH-ON, MECHANICAL, OR FLANGED RUBBER GASKET JOINTS CONFORMING TO AWWA C111. RUBBER GASKETS AND GASKET LUBRICANTS SHALL BE CERTIFIED BY AN ANSI ACCREDITED ORGANIZATION TO BE IN COMPLIANCE WITH NSF/ANSI 61 AND SHALL NOT IMPART TASTE OR ODOR TO THE WATER.
4. RESTRAINED JOINTS: PIPE JOINTS SHALL BE RESTRAINED AT ALL FITTINGS AND VALVES. ALL JOINT RESTRAINT HARDWARE SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. IN ADDITION TO RESTRAINING THE JOINTS, THE CONTRACTOR SHALL INSTALL CONCRETE THRUST BLOCKS OR REVERSE ANCHORS IN ACCORDANCE WITH THE STANDARD DETAILS.
5. POLYETHYLENE ENCASEMENT: WHERE POLY-WRAP IS REQUIRED TO WRAP NON-ZINC COATED PIPES, VALVES, AND FITTINGS, POLY-WRAP SHALL BE 8-mil MINIMUM MEETING AWWA C105.
6. VALVES
 - a. BRASS VALVES SHALL CONFORM TO AWWA C800 AND THESE SPECIFICATIONS. BRASS VALVES SHALL BE CERTIFIED BY AN ANSI ACCREDITED ORGANIZATION TO BE IN COMPLIANCE WITH NSF/ANSI 61. BRASS VALVES SHALL CONSIST OF BRASS ALLOY HAVING A LEAD CONTENT NOT MORE THAN 0.25 PERCENT BY WEIGHT AND SHALL BEAR A MARK FROM THE MANUFACTURER INDICATING THAT THE FITTING IS COMPOSED OF NO-LEAD ALLOY.
 - b. ALL GATE VALVES SHALL MEET THE STANDARDS OF AWWA C509. THE VALVES SHALL HAVE ENDS DESIGNED TO JOIN DIRECTLY WITH THE TYPE OF PIPE OR FITTING BEING USED OR WITH ENDS CALLED FOR ON THE PLANS. INTERIOR CORROSION PREVENTION COATINGS SHALL MEET THE REQUIREMENTS OF AWWA C550. ALL VALVES SHALL BE "OPEN LEFT" RESILIENT WEDGE, NON-RISING STEM AND DOUBLE O-RING EQUIPPED. BUTTERFLY VALVES SHALL BE USED UPON THE DISCRETION OR APPROVAL OF THE PUBLIC WORKS ENGINEER AND SHALL MEET THE REQUIREMENT OF AWWA C504.
7. BACKFLOW PREVENTION: ALL BACKFLOW ASSEMBLIES SHALL BE USC-APPROVED AND LEAD-FREE. REDUCED PRESSURE PRINCIPLE DEVICES SHALL BE USED ON DOMESTIC AND IRRIGATION SYSTEMS.
8. MECHANICAL BOLTS AND NUTS SHALL BE HIGH STRENGTH LOW CARBON STEEL IN ACCORDANCE WITH AWWA C111.
9. FLANGED BOLTS AND NUTS SHALL MEET ASTM A307 AND A563 IN ACCORDANCE WITH THE PROVISIONS OF AWWA C110. BOLTS AND NUTS SHALL BE FABRICATED OF LOW CARBON STEEL CONFORMING WITH ASTM A307 GALVANIZED AFTER FABRICATION.
10. FIRE HYDRANTS: SEE STANDARD DETAIL W05.
11. ALL CONCRETE SHALL BE COMPOSED OF TYPE II OR V PORTLAND CEMENT CONFORMING TO ASTM C150, FINE AND COARSE AGGREGATES, WATER AND ADMIXTURES. THE CONCRETE MIX DESIGN SHALL HAVE MAXIMUM AGGREGATE SIZE OF NO GREATER THAN 1" MESH AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI AT 28 DAYS.
12. REINFORCING STEEL REBAR SHALL CONFORM TO ASTM A615.

CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT

SCALE: NTS		WATER DIVISION STANDARD DRAWING MATERIAL SPECIFICATIONS	DRAWN: MAY 2018	REV:
DRAWN BY: STAFF			RESOLUTION: 98-18 (CM)	
CHECKED BY: TC			DWG NO. W-B	
		 MARIA ESTHER RODRIGUEZ, CITY ENGINEER		

CLEANING & PRESSURE TESTING

1. AFTER INSTALLATION AND PRIOR TO SERVICE, WATER MAINS AND SERVICES SHALL BE FLUSHED BY THE CONTRACTOR WITH POTABLE WATER. ONLY THE CITY OF WATSONVILLE WATER SERVICE PERSONNEL SHALL OPEN VALVES TO THE CITY'S WATER SYSTEM.
2. ALL WATER LINES SHALL BE TESTED AFTER THE PIPE HAS BEEN LAID AND BACKFILLED AND SHALL NOT BE PERFORMED UNTIL 72 HOURS HAVE ELAPSED SINCE THE LAST THRUST BLOCK HAS BEEN POURED.
3. WATER LINES SHALL BE TESTED FOR TIGHTNESS AT THE LOWER END OF THE LINE UNDER A HYDROSTATIC PRESSURE OF 160 PSI, OR 2.5 TIMES ABOVE NORMAL OPERATING PRESSURE, WHICHEVER IS GREATER. THE CONTRACTOR SHALL FURNISH ALL NECESSARY EQUIPMENT, LABOR AND MATERIALS NEEDED FOR THE TEST. TESTING SHALL CONFORM TO AWWA C600 SECTION 4 AND BE CONDUCTED FOR AT LEAST 2 HOURS.
4. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING ADDITIONAL VALVES AND TAPS IN ORDER TO EXPEL ALL AIR FROM THE PIPE FOR THE CLEANING AND TESTING.
5. NO TESTING SHALL BE DONE UNTIL ALL SERVICES, BRANCHES, AND HYDRANTS HAVE BEEN INSTALLED.



DISINFECTION

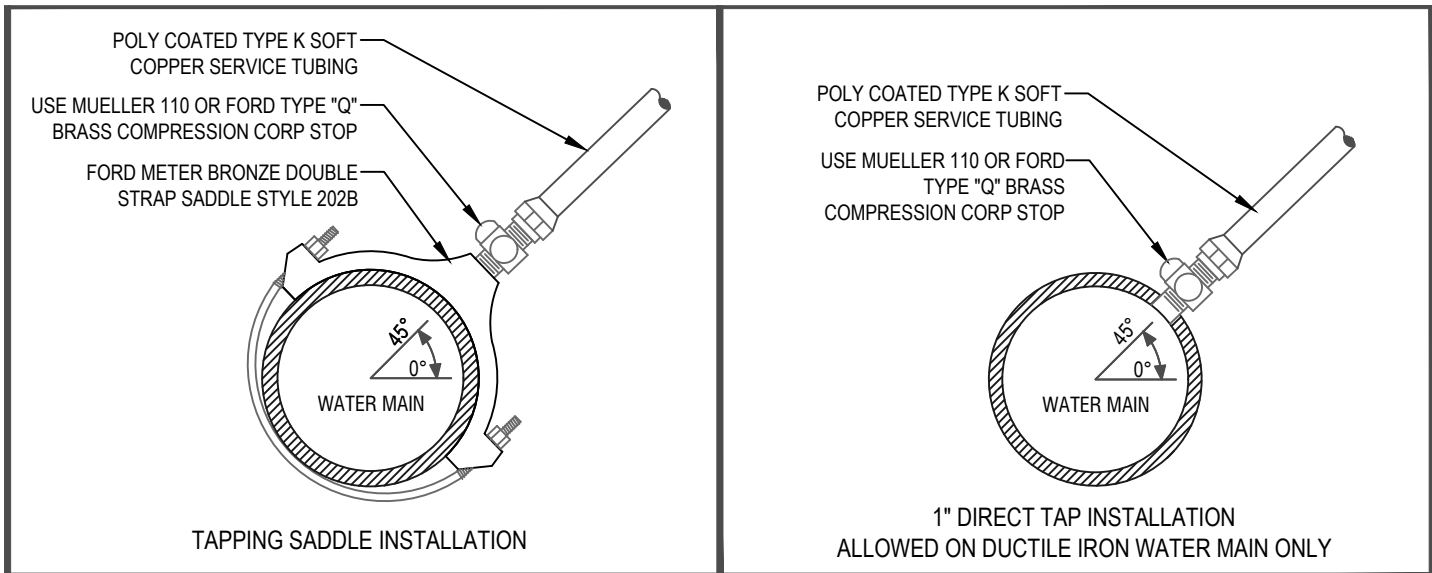
1. AFTER PRESSURE TESTING, AND BEFORE PUTTING INTO SERVICE, ALL WATER LINES SHALL BE CHLORINATED BY THE CONTRACTOR IN ACCORDANCE WITH AWWA C651 OR AS DIRECTED BY THE PUBLIC WORKS ENGINEER.
2. THE CONTRACTOR SHALL FURNISH ALL NECESSARY EQUIPMENT, LABOR AND MATERIAL NEEDED FOR THE TEST. CHLORINE IS FURNISHED BY THE CONTRACTOR AND CHLORINATION SHALL BE SUPERVISED BY THE CITY INSPECTOR. NO TABLETS SHALL BE USED FOR STERILIZATION.

MICROBIOLOGICAL TESTING

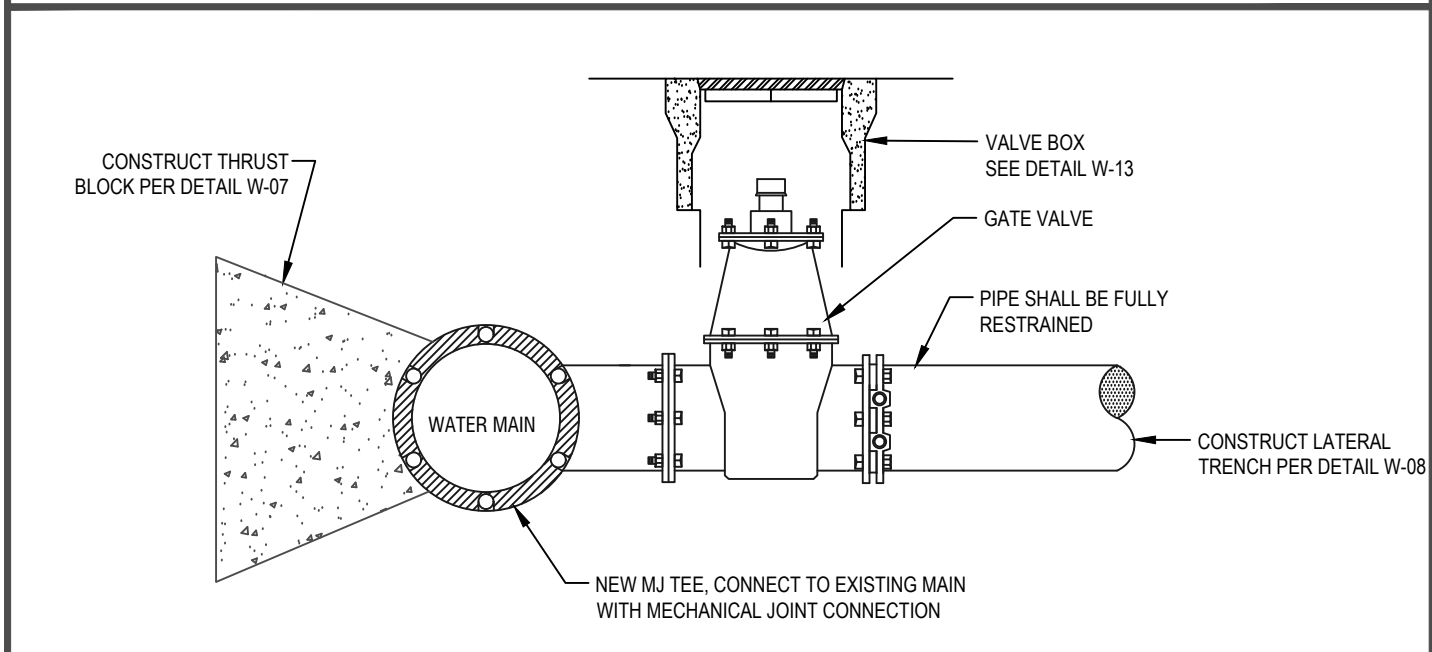
1. SAMPLES SHALL BE GATHERED AND TESTS SHALL BE CONDUCTED BY THE CITY. THE CONTRACTOR SHALL NOTIFY THE CITY 48 HOURS IN ADVANCE FOR SAMPLES TO BE COLLECTED AND TESTS TO BE CONDUCTED.
2. NEW FACILITIES SHALL REMAIN ISOLATED AND OUT OF SERVICE UNTIL SATISFACTORY TEST RESULTS HAVE BEEN OBTAINED WHICH MEET THE CITY OF WATSONVILLE LABORATORY REQUIREMENTS AND THE ENGINEER HAS ACCEPTED THE RESULTS AS INDICATIVE OF THE BACTERIOLOGICAL CONDITIONS OF THE FACILITY.
3. IF UNSATISFACTORY OR DOUBTFUL RESULTS ARE OBTAINED FROM THE INITIAL SAMPLING, THE DISINFECTION PROCESS SHALL BE REPEATED UNTIL ACCEPTABLE TEST RESULTS ARE OBTAINED.

CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT

SCALE: NTS		WATER DIVISION STANDARD DRAWING CLEANING AND TESTING	DRAWN: MAY 2018	REV:
DRAWN BY: STAFF			RESOLUTION: 98-18 (CM)	
CHECKED BY: TC			DWG NO. W-C	
		 MARIA ESTHER RODRIGUEZ, CITY ENGINEER		



2" AND SMALLER



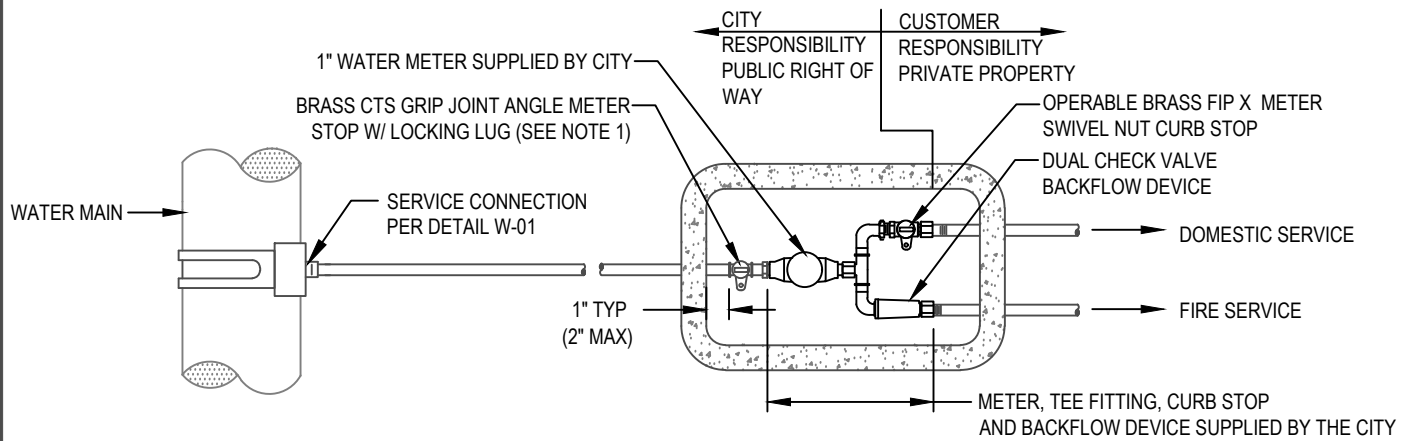
LARGER THAN 2"

NOTES:

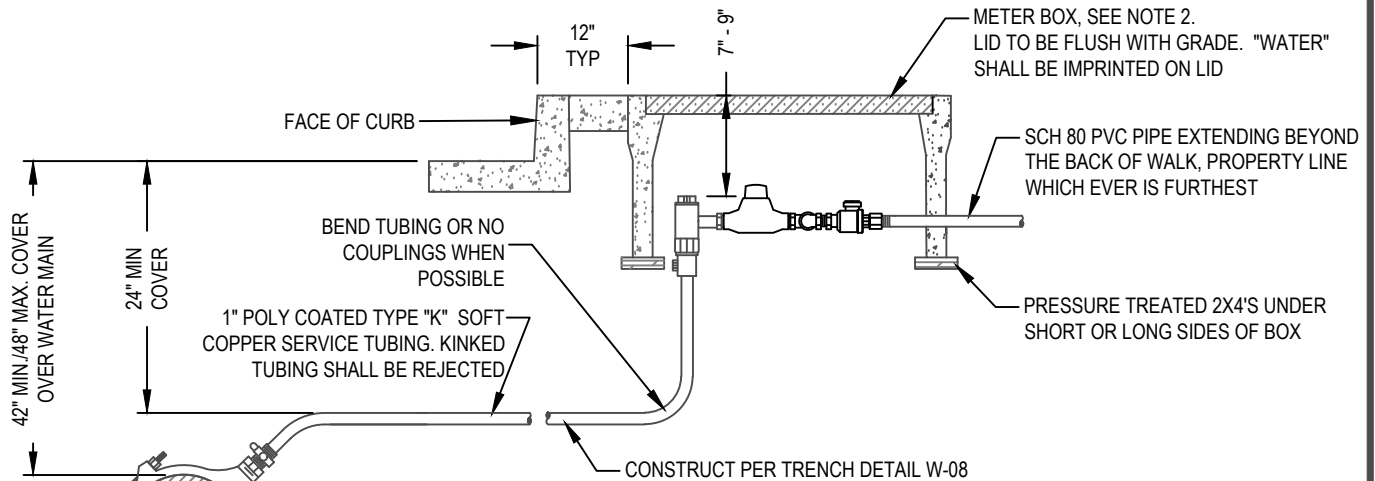
1. ALL HOT TAP CONNECTIONS (4" AND LARGER) AND AIR TESTS SHALL BE MADE IN THE PRESENCE OF THE PUBLIC WORKS ENGINEER OR INSPECTOR.
2. ALL HOT TAP CONNECTIONS SHALL BE AT LEAST 24" AWAY FROM ANY JOINT OR FITTING AND 18" AWAY FROM ANY OTHER TAP.
3. FOR DIRECT TAP ONLY CONTRACTOR SHALL APPLY TWO LAYERS OF ADHESIVE TAPE COMPLETELY AROUND PIPE AT TAPPING LOCATION PRIOR TO TAPPING.
4. CONTRACTOR SHALL ENCASE TAPPING SADDLE, ALL FASTENERS, ALL PIPE FITTINGS, AND SERVICE LINE WITHIN WITH POLYWRAP.
5. COUPON OR "COOKIE" SHALL BE RETAINED AND DELIVERED TO THE WATER SERVICES DIVISION.

CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT

SCALE: NTS		<p style="text-align: center;">WATER DIVISION STANDARD DRAWING</p> <p style="text-align: center;">STANDARD SERVICE CONNECTION</p> <p style="text-align: center;"><i>Maria Esther Rodriguez</i></p> <p style="text-align: center;">MARIA ESTHER RODRIGUEZ, CITY ENGINEER</p>	DRAWN: MAY 2018	REV:
DRAWN BY: STAFF			RESOLUTION: 98-18 (CM)	
CHECKED BY: TC			DWG NO.	W-01



PLAN



ELEVATION

RECONNECTION DETAIL

NOTES:

1. BALL ANGLE CURB METER VALVES: MUELLER #110 COMPRESSION TYPE 3/4" B-24258, MUELLER #110 COMPRESSION TYPE 1" B-24258, FORD COMPRESSION TYPE "Q", OR CITY APPROVED EQUAL 3/4" BA-43-33WQ, 1" BA-43-444WQ
2. METER BOX: CHRISTY B-36 W/ N36RP R-COMPOSITE LID NON TRAFFIC, B-1730 BOX W/ B1730-51GH STEEL CHECKER PLATE LID FOR TRAFFIC. ALL LIDS SHALL HAVE A PORT ACCEPTING THE WIRELESS METER READER.
3. ALL CORPORATION STOPS, ANGLE METER STOPS, COUPLINGS AND CONNECTIONS SHALL BE MUELLER 110, OR FORD TYPE "Q" COMPRESSION TYPE FITTINGS WITH CC THREAD, OR CITY APPROVED EQUAL.
4. ALL PRIVATE INSTALLATION SHALL COMPLY WITH CITY ORDINANCE NO. 503-80 AS AMENDED REGARDING "WATER SERVICES AND CHARGES". DOMESTIC AND FIRE SERVICE LINE SHALL BE SIZED PER CALIFORNIA PLUMBING AND FIRE CODES.
5. THE CUSTOMER SHALL INSTALL SUITABLE CONTROL VALVES ON EACH PRIVATE SERVICE LINE ON THE RISER TO EACH BUILDING OR A MAXIMUM OF 50 FEET FROM THE METER. THE VALVES SHALL CONTROL THE ENTIRE WATER SUPPLY FROM THE SURFACE.

CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT

SCALE: NTS

DRAWN BY: STAFF

CHECKED BY: TC



WATER DIVISION STANDARD DRAWING
**1-INCH
COMBINATION METER**

Maria Esther Rodriguez
MARIA ESTHER RODRIGUEZ, CITY ENGINEER

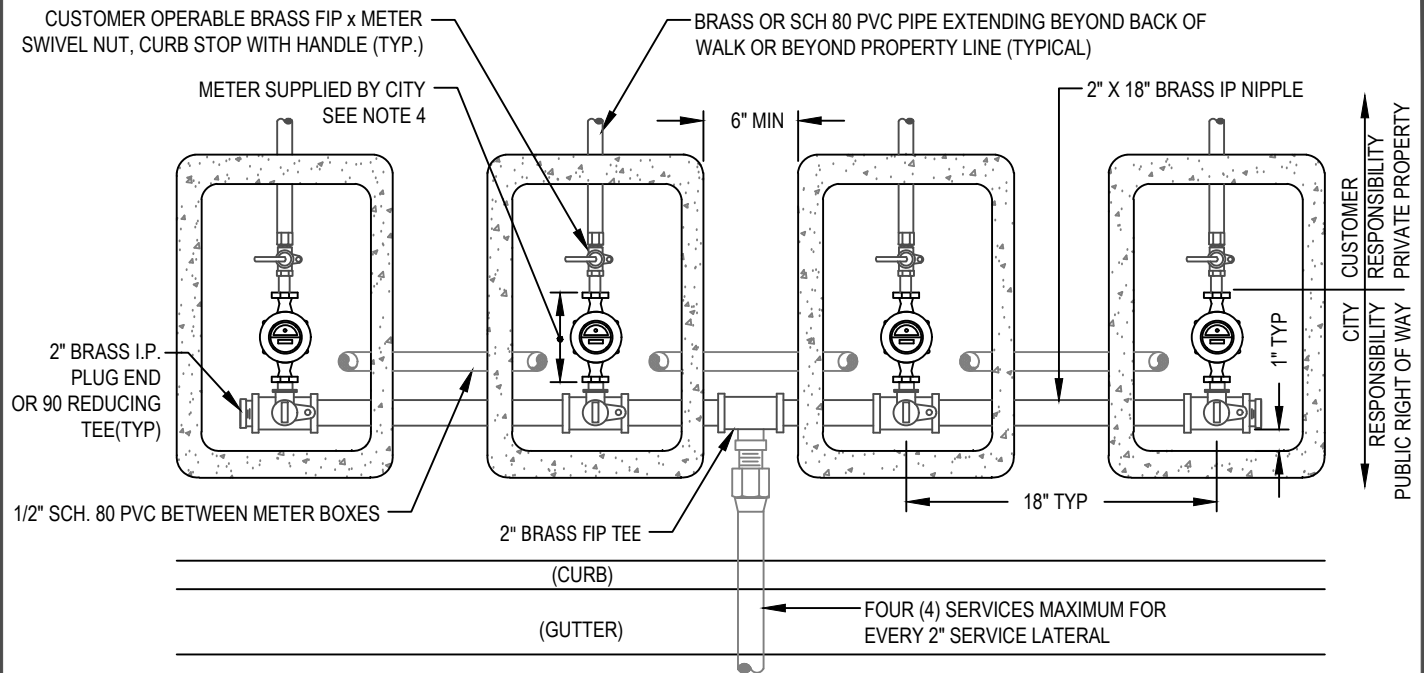
DRAWN:
MAY 2018

REV:

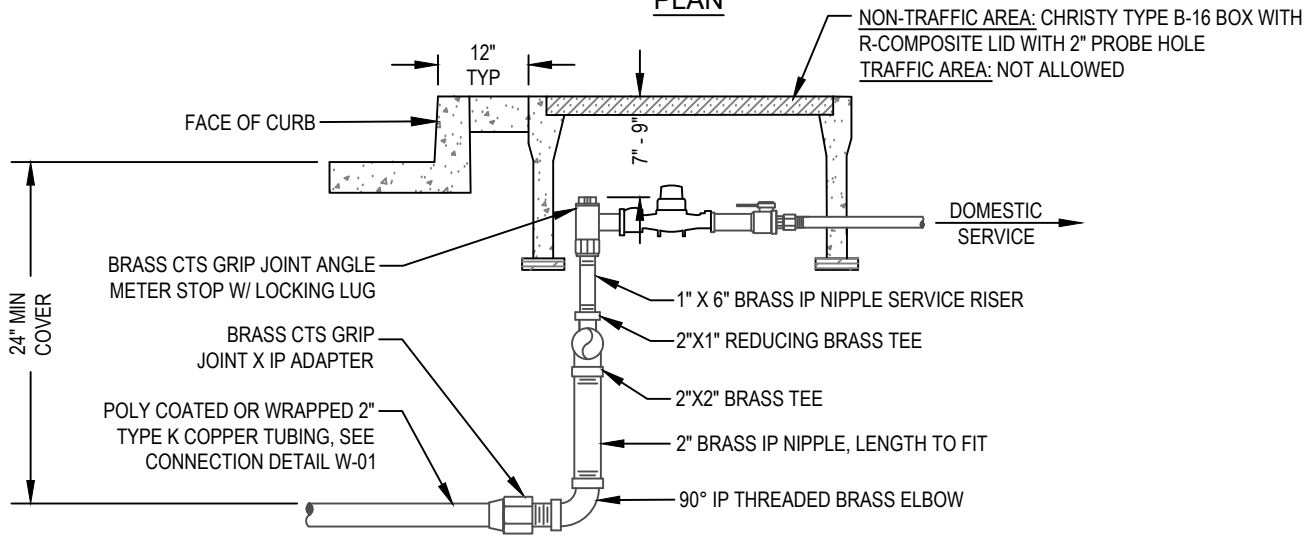
RESOLUTION: 98-18 (CM)

DWG NO.

W-02



PLAN



ELEVATION

NOTES:

1. REFER TO DRAWINGS W01 & W02 FOR TYPICAL SERVICE CONNECTION INFORMATION. THIS DETAIL IS FOR MULTI-FAMILY RESIDENCES WITH SEPARATE FIRE SERVICE.
2. FOR MULTIPLE BOX INSTALLATIONS, INSTALL 1/2" SCH. 80 PVC CONDUIT BETWEEN WATER METER BOXES WITH 90 SWEEPS INSIDE (TAPE HOLES SHUT).
3. SET BOX ON TOP OF 2"x4" PRESSURE TREATED DOUGLAS FIR.
4. WATER METER SIZE MAY VARY PER ENGINEERING SIZING CALCULATIONS. 1" METER SIZE MAXIMUM IN THIS CONFIGURATION WITH A COMBINATION OF 4 SERVICES MAXIMUM.
5. ALL BRASS FITTINGS BELOW THE ANGLE STOP SHALL BE POLY-WRAPPED MEETING ASTM D1248. BRASS FITTINGS, VALVES AND PIPE SHALL CONSIST OF LOW-LEAD BRASS ALLOY AND SHALL HAVE A MINIMUM WORKING PRESSURE OF 150 PSI.

CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT

SCALE: NTS

DRAWN BY: STAFF

CHECKED BY: TC



WATER DIVISION STANDARD DRAWING
**MULTIPLE BRANCH
METER CONFIGURATION**

MARIA ESTHER RODRIGUEZ, CITY ENGINEER

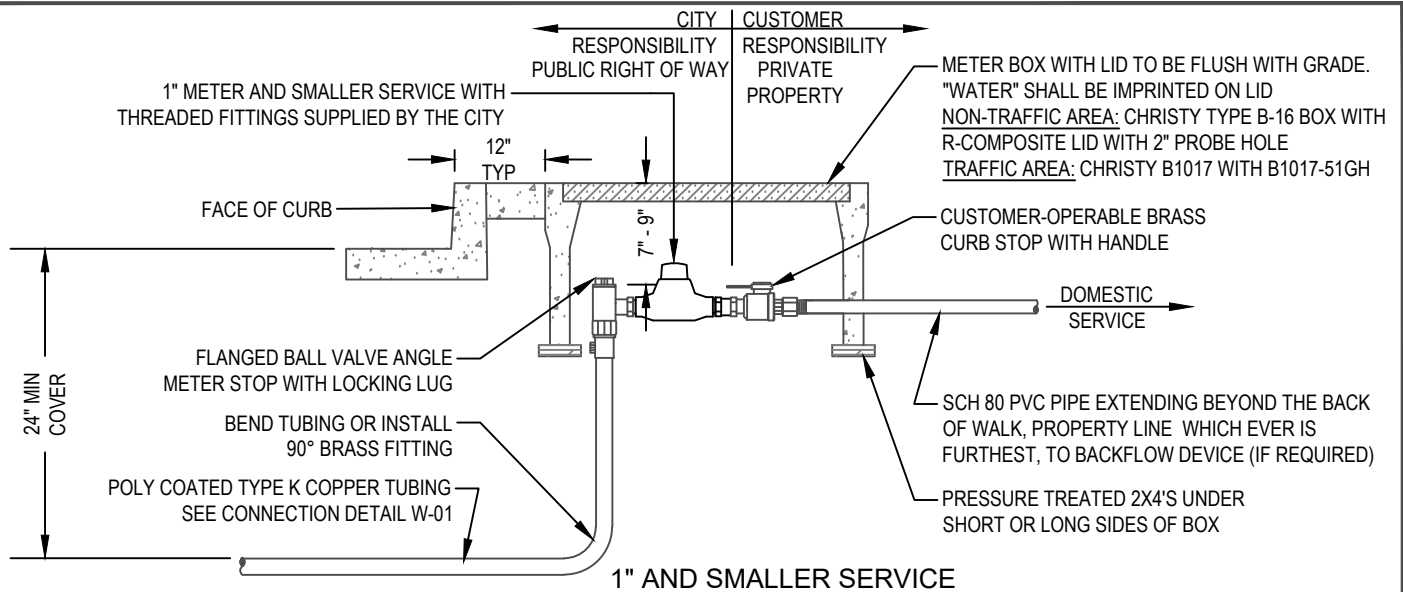
DRAWN:
MAY 2018

REV:

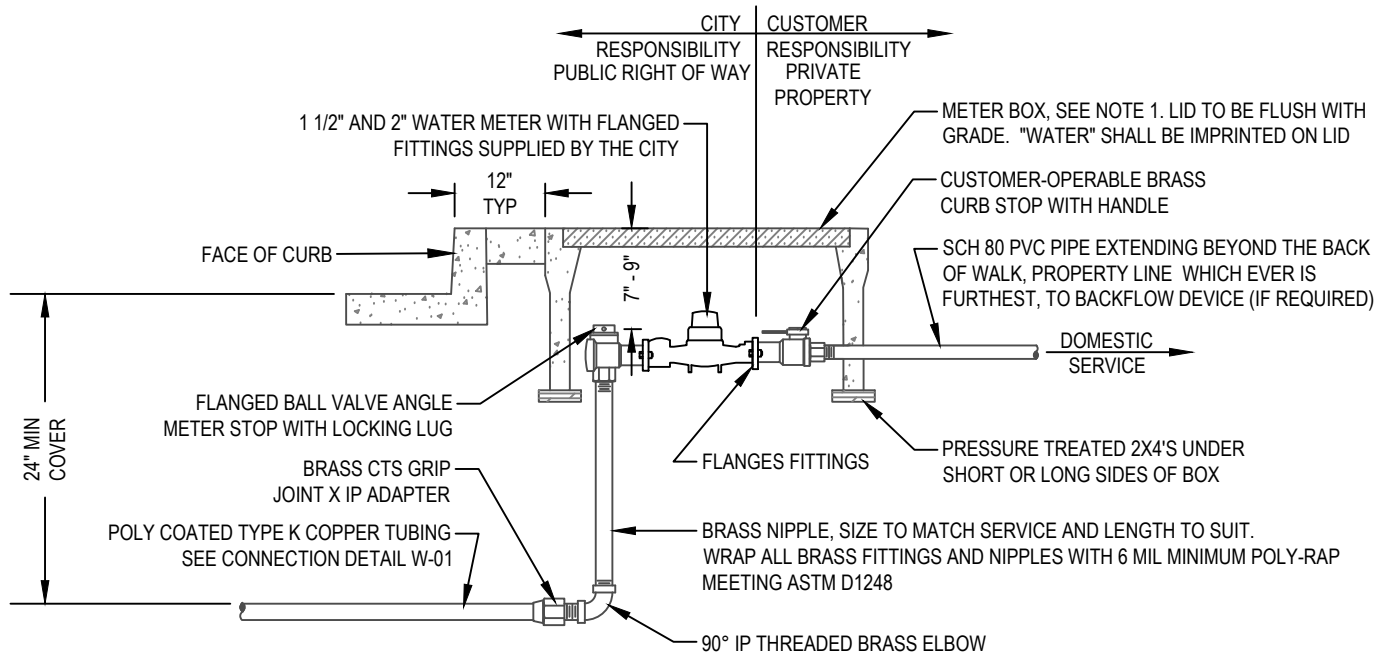
RESOLUTION: 98-18 (CM)

DWG NO.

W-03



1" AND SMALLER SERVICE



1 1/2" AND 2" SERVICE

NOTES:

1. METER BOX: CHRISTY B-36 W/ FL36DFIBRELYTE LID NON TRAFFIC, B-1730 BOX W/ B1730-51GH STEEL CHECKER PLATE LID FOR TRAFFIC. ALL LIDS SHALL HAVE A PORT ACCEPTING THE WIRELESS METER READER.
2. ALL PRIVATE INSTALLATION SHALL COMPLY WITH CITY ORDINANCE WMC 6-3.4 AS AMENDED REGARDING "WATER SERVICES AND CHARGES". DOMESTIC AND FIRE SERVICE LINE SHALL BE SIZED PER CALIFORNIA PLUMBING AND FIRE CODES.
3. THE CUSTOMER SHALL INSTALL SUITABLE CONTROL VALVES ON EACH PRIVATE SERVICE LINE ON THE RISER TO EACH BUILDING OR A MAXIMUM OF 50 FEET FROM THE METER. THE VALVES SHALL CONTROL THE ENTIRE WATER SUPPLY FROM THE SURFACE.
4. ALL CORPORATION STOPS, ANGLE METER STOPS, COUPLINGS AND CONNECTIONS SHALL BE BRASS FITTINGS LEAD-FREE COMPLIANCE AND HAVE A MINIMUM WORKING PRESSURE OF 150 PSI.

CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT

SCALE: NTS

DRAWN BY: STAFF

CHECKED BY: TC



WATER DIVISION STANDARD DRAWING
**2" AND SMALLER
STAND-ALONE SERVICE**

MARIA ESTHER RODRIGUEZ, CITY ENGINEER

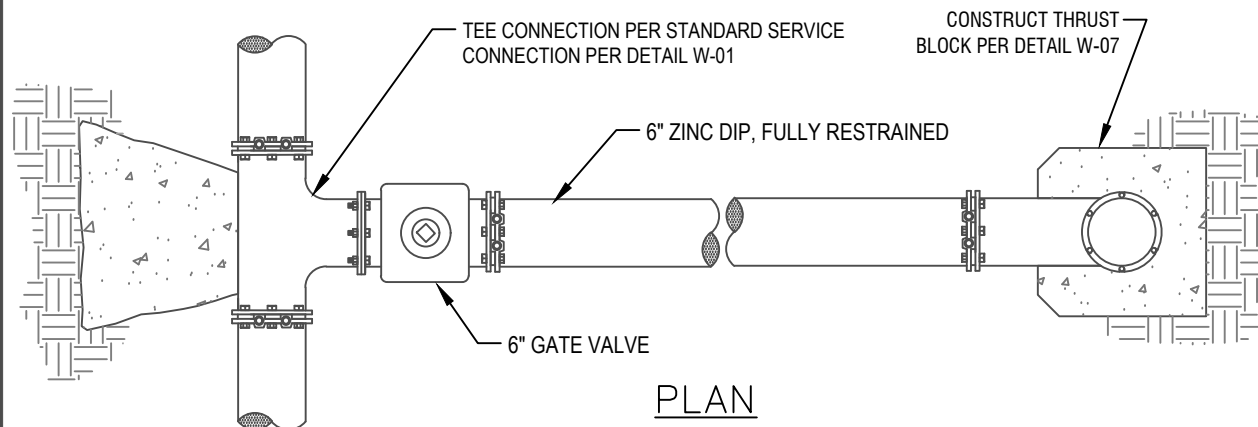
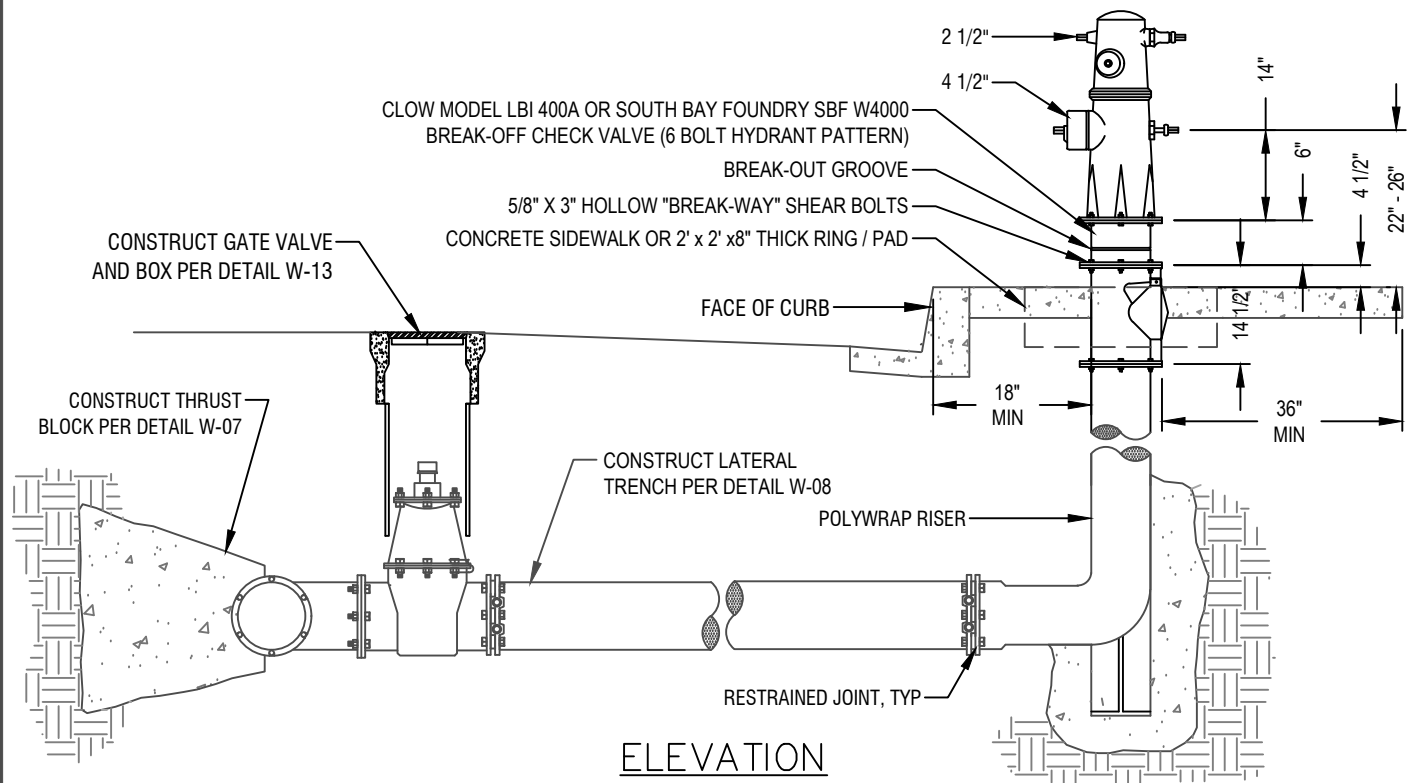
DRAWN:
MAY 2018

REV:

RESOLUTION: 98-18 (CM)

DWG NO.

W-04



NOTES:

1. CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF FIRE HYDRANT WITH THE ENGINEER.
2. ALL HYDRANTS TO BE SET TRUE AND PLUMB.
3. NO OBSTRUCTIONS SHALL BE WITHIN 36" OF FIRE HYDRANT.
4. PUBLIC HYDRANTS SHALL BE PAINTED CHROME YELLOW.
5. WITNESS HOLE MUST BE ABOVE CONCRETE SURFACE AND HAVE ADEQUATE CLEARANCE.

HYDRANT TYPES:

LOCATION:	JONES	CLOW
CITY RESIDENTIAL:	J-4040	850 DI
CITY COMMERCIAL:	J-4060	860 DI

CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT

SCALE: NTS

DRAWN BY: STAFF

CHECKED BY: TC



**WATER DIVISION STANDARD DRAWING
NEW FIRE HYDRANT
INSTALLATION**

Maria Esther Rodriguez
MARIA ESTHER RODRIGUEZ, CITY ENGINEER

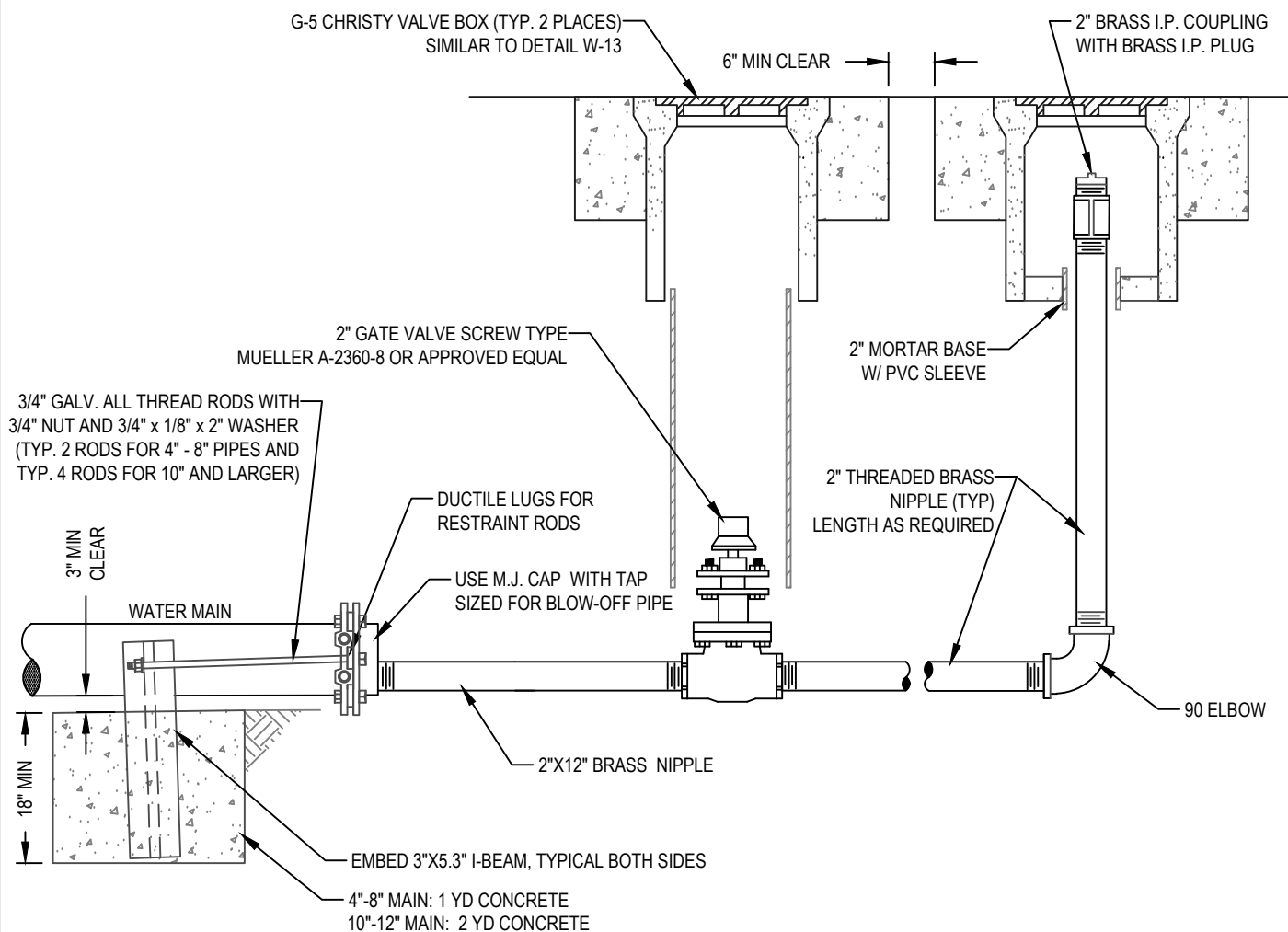
DRAWN:
MAY 2018

REV:

RESOLUTION: 98-18 (CM)

DWG NO.

W-05



PROFILE VIEW

NOTES:

1. WRAP ALL BRASS FITTINGS & PIPES WITH WRAP ALL BRASS FITTINGS AND NIPPLES WITH 6 MIL MINIMUM POLY-RAP MEETING ASTM D1248
2. POLY WRAP M.J. CAP AND GATE VALVE.
3. BRASS FITTINGS AND PIPE SHALL CONSIST OF LOW-LEAD BRASS ALLOY AND SHALL HAVE A MINIMUM WORKING PRESSURE OF 150 PSI.

CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT

SCALE: NTS

DRAWN BY: STAFF

CHECKED BY: TC



WATER DIVISION STANDARD DRAWING

**BLOW-OFF
ASSEMBLY**

Maria Esther Rodriguez
MARIA ESTHER RODRIGUEZ, CITY ENGINEER

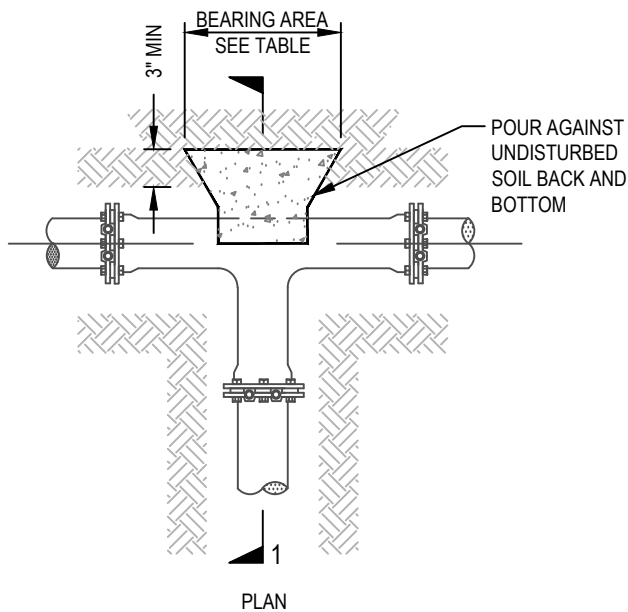
DRAWN:
MAY 2018

REV:

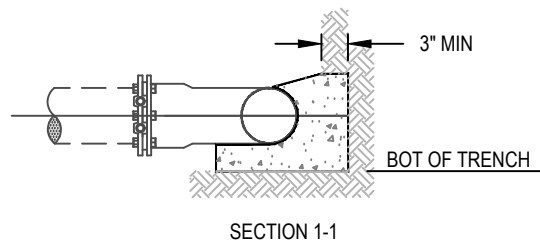
RESOLUTION: 98-18 (CM)

DWG NO.

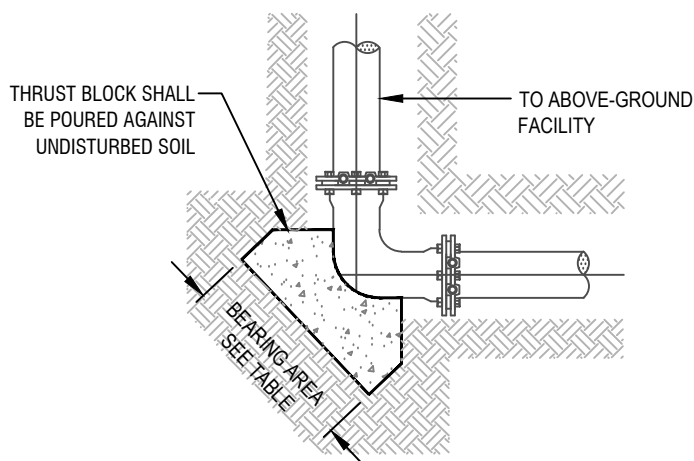
W-06



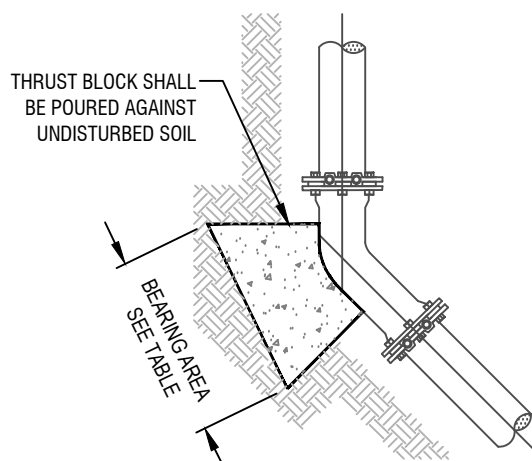
DETAIL A - TEE



DETAIL B - DOWNWARD VERTICAL BEND



DETAIL C - UPWARD VERTICAL BEND



DETAIL D - HORIZONTAL BEND

REQUIRED BEARING AREA IN SQUARE FEET				
PIPE DIA	TEE - A	DOWN VERT - B	UPWARD VERT - C	HRZ BEND - D
4"	2	2	2	2
6"	5	4	6	4
8"	8	7	11	7
10"	11	10	15	10
12"	17	16	24	16
14"	22	23	31	23
16"	30	30	42	30
18"	39	35	54	35

NOTES:

1. CONCRETE SHALL BE KEPT CLEAR OF ALL FLANGES AND LUGS.
2. ALL CONCRETE THRUST BLOCK SHALL HAVE A MINIMUM THICKNESS OF 12 INCHES.
3. BLOCKING IS BASED ON 150 PSI PRESSURE AND 1000 PSF SOIL BEARING.

CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT

SCALE: NTS

DRAWN BY: STAFF

CHECKED BY: TC



WATER DIVISION STANDARD DRAWING
**STANDARD
THRUST BLOCK**

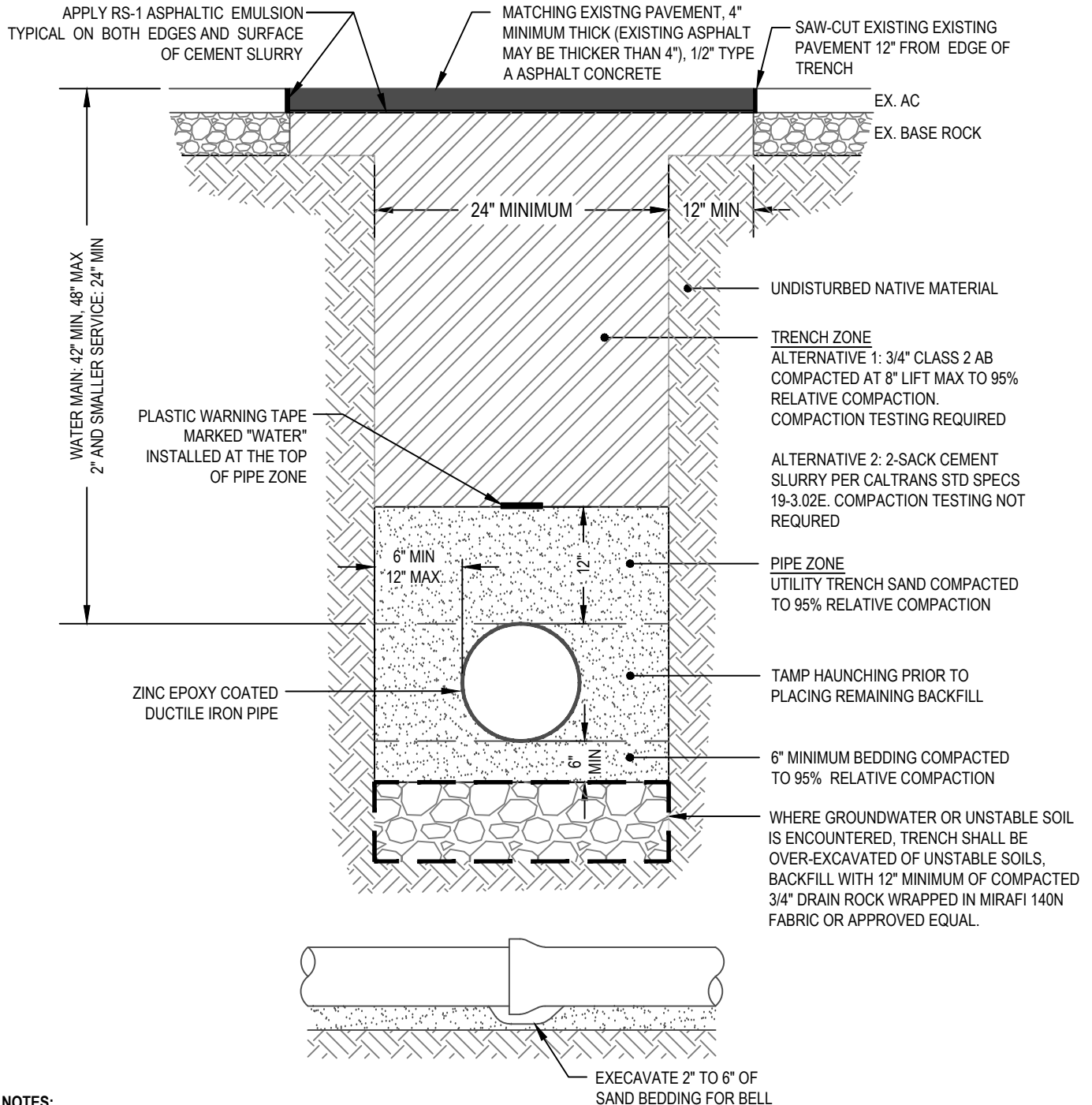
Maria Esther Rodriguez
MARIA ESTHER RODRIGUEZ, CITY ENGINEER

DRAWN:
MAY 2018

REV:

RESOLUTION: 98-18 (CM)

DWG NO. **W-07**



NOTES:

1. TRENCHES SHALL BE EXCAVATED IN A NEAT & WORKMANLIKE MANNER AT THE STREET SURFACE AND THE SHAPE SHALL BE RECTANGULAR.
2. THE MINIMUM PAVEMENT RESTORATION SHALL BE 4" OF TYPE "A" ASPHALT CONCRETE. IF THE EXISTING PAVEMENT SECTION IS THICKER THAN 4" AC, THE RESTORATION PAVEMENT SECTION SHALL MATCH THE EXISTING PAVEMENT THICKNESS.
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.

CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT

SCALE: NTS

DRAWN BY: STAFF

CHECKED BY: TC



WATER DIVISION STANDARD DRAWING
**STANDARD WATER
TRENCH DETAIL**

Maria Esther Rodriguez
MARIA ESTHER RODRIGUEZ, CITY ENGINEER

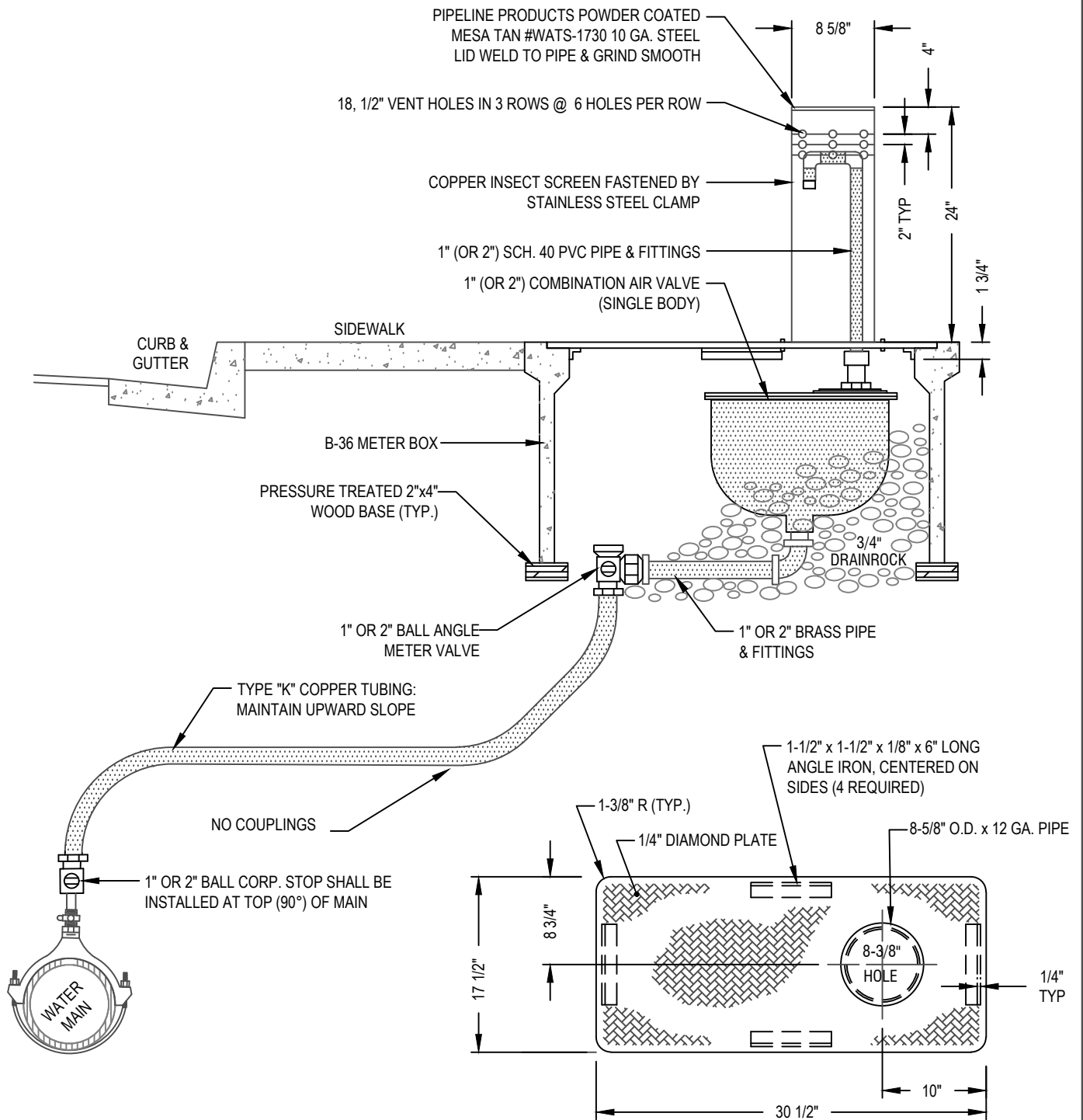
DRAWN:
MAY 2018

REV:

RESOLUTION: 98-18 (CM)

DWG NO.

W-08



CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT

SCALE: NTS

DRAWN BY: STAFF

CHECKED BY: TC



WATER DIVISION STANDARD DRAWING
**COMBINATION AIR
VALVE ASSEMBLY**

Maria Esther Rodriguez
MARIA ESTHER RODRIGUEZ, CITY ENGINEER

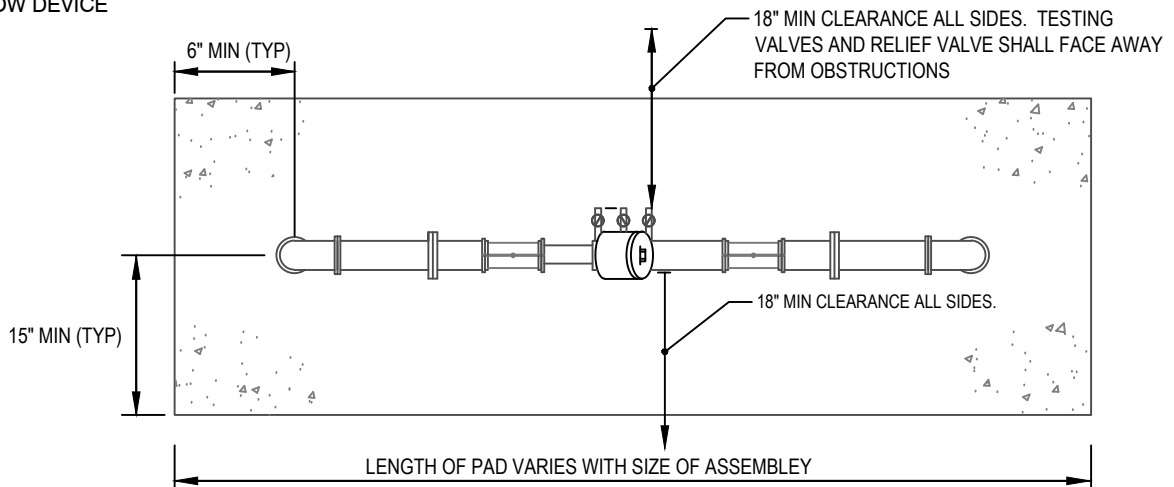
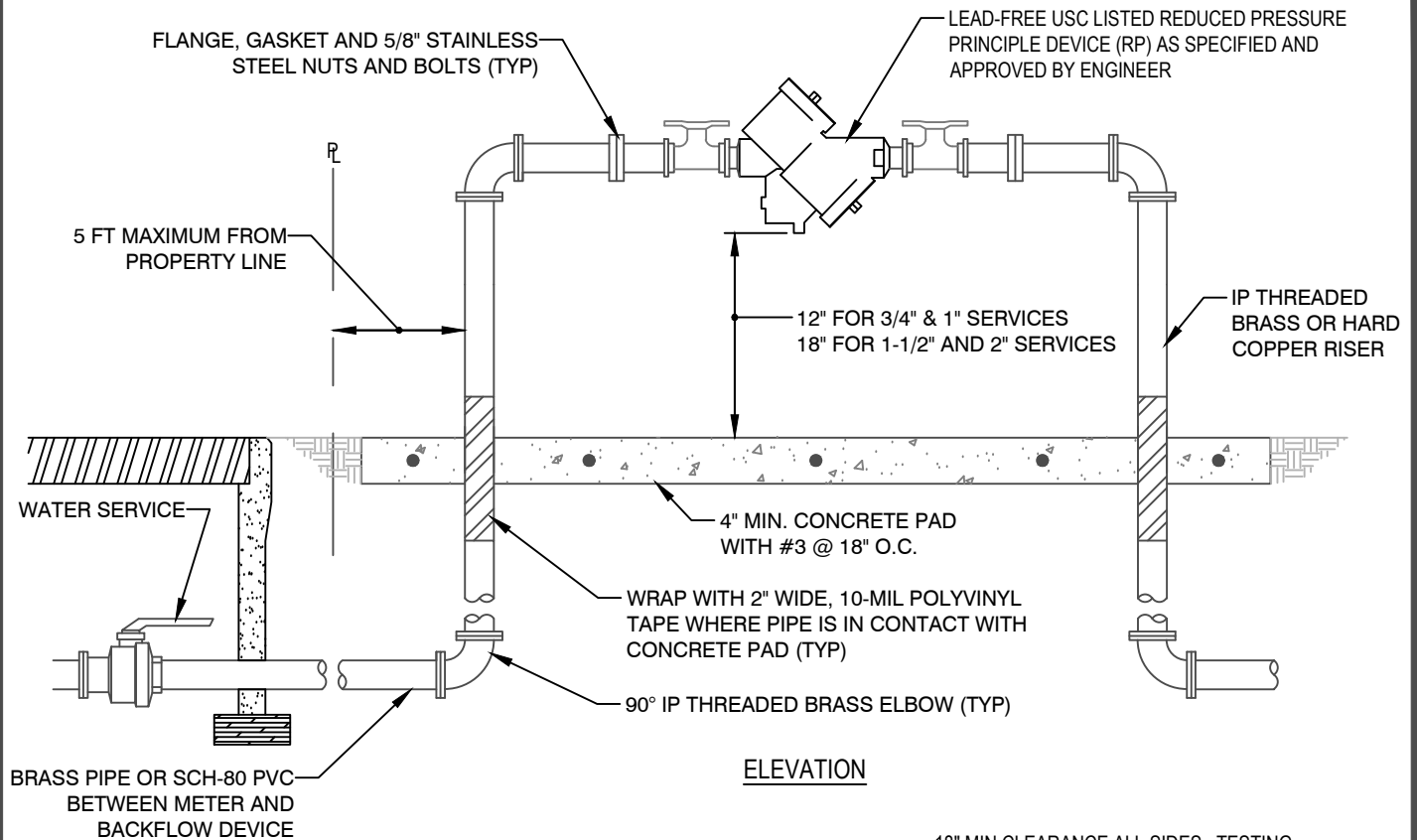
DRAWN:
MAY 2018

REV:

RESOLUTION: 98-18 (CM)

DWG NO.

W-09



NOTES:

1. APPROVED REDUCED PRESSURE PRINCIPLE BACKFLOW ASSEMBLY SHALL BE INSTALLED SUCH THAT IT IS READILY ACCESSIBLE FOR REPAIR AND INSPECTION.
2. BRASS FITTINGS, VALVES, AND PIPE SHALL CONSIST OF BRASS ALLOY AND SHALL HAVE A MINIMUM RATED WORKING PRESSURE OF 150 PSI.
3. BRASS OR PLASTIC PLUGS SHALL BE INSTALLED ON ALL TEST PORTS.
4. ALL ABOVE GROUND PIPE, FITTINGS, AND ASSEMBLY SHALL BE PAINTED WITH TWO COATS OF ENAMEL.
5. AN ENCLOSURE OR CAGE MAY BE INSTALLED AT THE OPTION OF THE PROPERTY OWNER.

CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT

SCALE: NTS

DRAWN BY: STAFF

CHECKED BY: TC



**WATER DIVISION STANDARD DRAWING
2" AND SMALLER
BACKFLOW SERVICE**

Maria Esther Rodriguez
MARIA ESTHER RODRIGUEZ, CITY ENGINEER

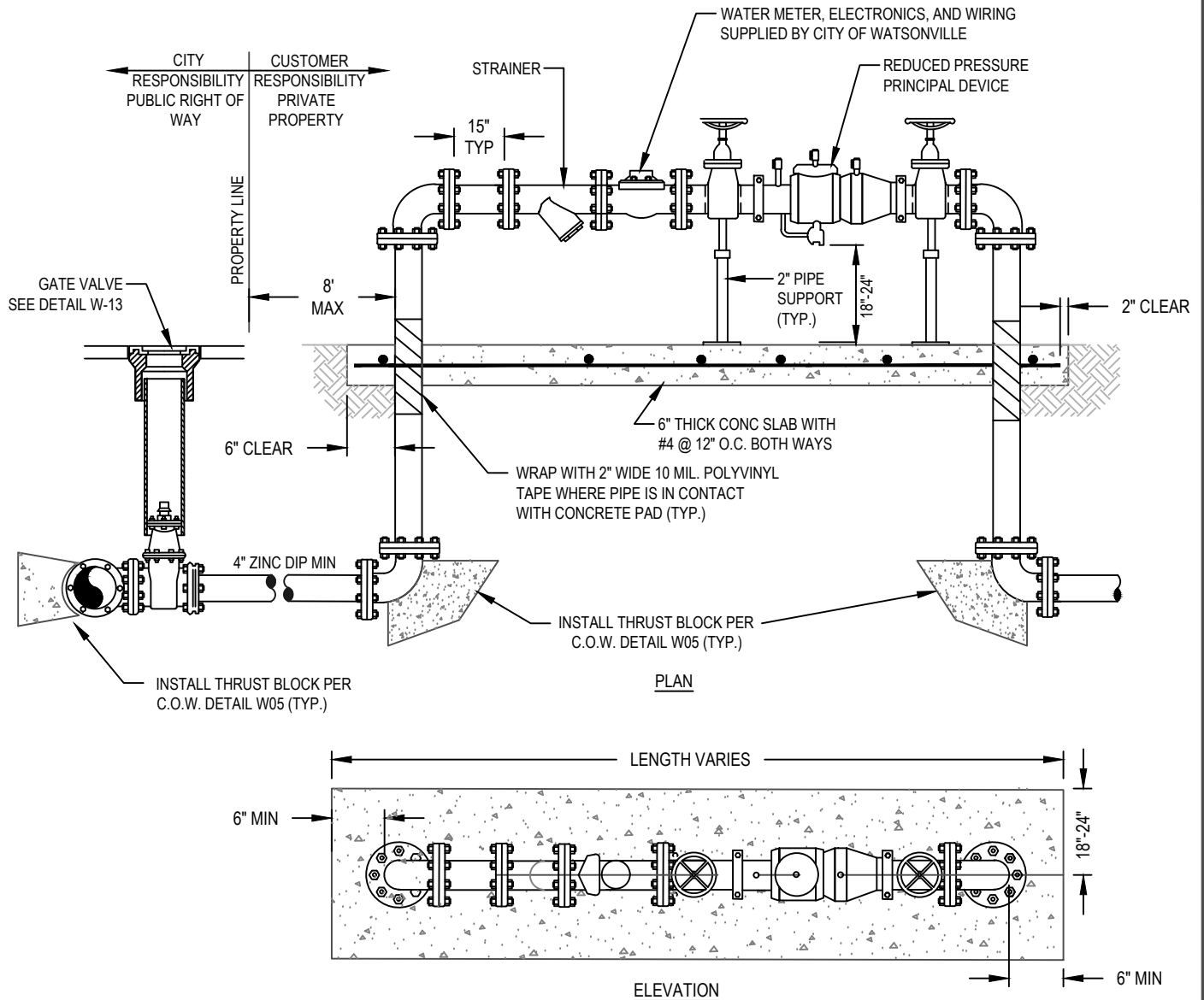
DRAWN:
MAY 2018

REV:

RESOLUTION: 98-18 (CM)

DWG NO.

W-10



NOTES:

1. ASSEMBLY SHALL HAVE A MINIMUM SIDE CLEARANCE OF 18" EXCEPT THAT A MINIMUM SIDE CLEARANCE OF 24" SHALL BE PROVIDED ON THE SIDE OF THE ASSEMBLY THAT CONTAINS THE TEST COCKS AND/OR RELIEF VALVE.
2. ASSEMBLIES REQUIRE PIPE SUPPORTS UNDER EACH GATE VALVE.
3. ALL PIPES AND FITTINGS BELOW GROUND, EXCEPT FOR ZINC COATED DUCTILE IRON PIPE, SHALL BE POLY WRAPPED.
4. INSTALLATION SHALL BE LOCATED ON THE PROPERTY SUCH THAT THE DETECTOR METER SHALL BE ACCESSIBLE AT ALL TIMES FOR READING & MAINTENANCE PURPOSES. LOCATION MUST BE APPROVED BY CITY WATER DIVISION PRIOR TO INSTALLATION.
5. IF DIRECTED TO DO SO BY THE CITY OF WATSONVILLE, INSTALL PROTECTIVE 4" DIA. STEEL PIPE BOLLARDS.

CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT

SCALE: NTS

DRAWN BY: STAFF

CHECKED BY: TC



**WATER DIVISION STANDARD DRAWING
3" & LARGER DOMESTIC
BACKFLOW SERVICE**

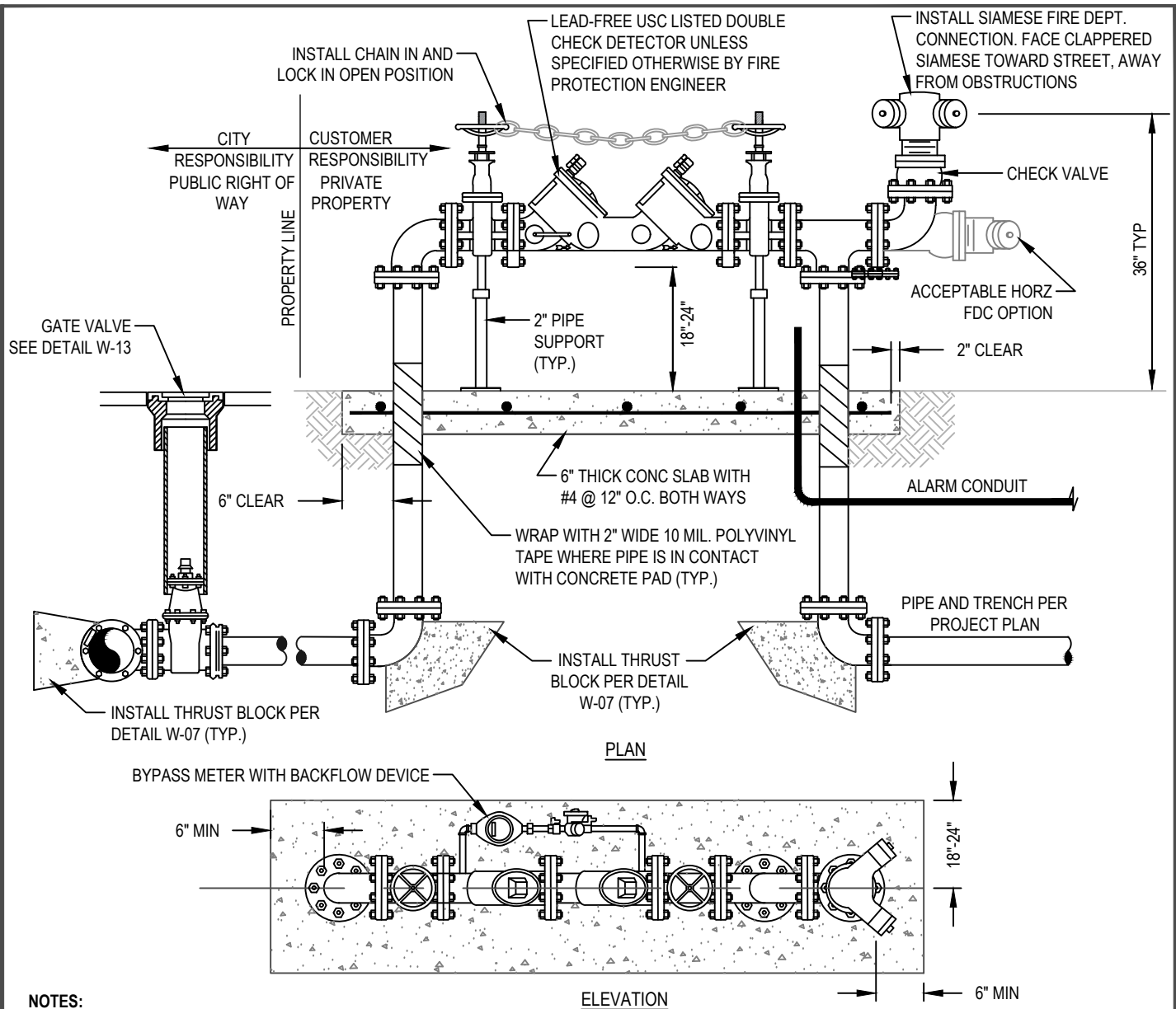
Maria Esther Rodriguez
MARIA ESTHER RODRIGUEZ, CITY ENGINEER

DRAWN:
MAY 2018

REV:

RESOLUTION: 98-18 (CM)


DWG NO. **W-11**



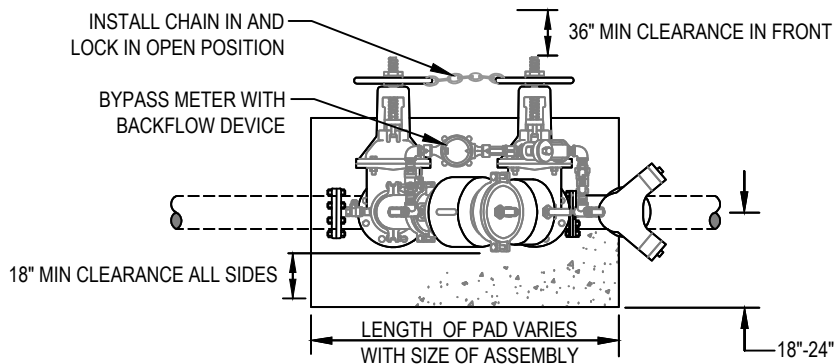
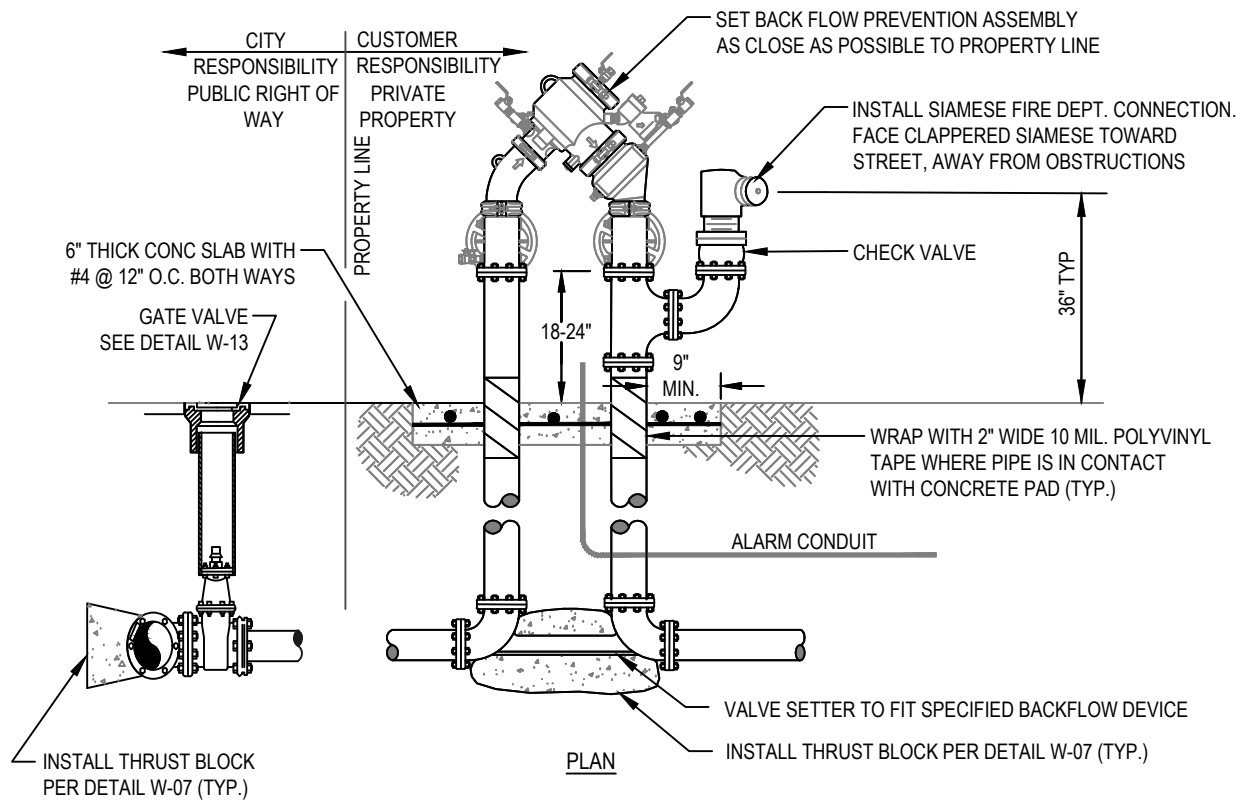
NOTES:

1. ASSEMBLY SHALL HAVE A MINIMUM SIDE CLEARANCE OF 18" EXCEPT THAT A MINIMUM SIDE CLEARANCE OF 24" SHALL BE PROVIDED ON THE SIDE OF THE ASSEMBLY THAT CONTAINS THE TEST COCKS AND/OR RELIEF VALVE.
2. ASSEMBLIES REQUIRE PIPE SUPPORTS UNDER EACH GATE VALVE.
3. INSTALLATION SHALL BE LOCATED ON THE PROPERTY SUCH THAT THE DETECTOR METER SHALL BE ACCESSIBLE AT ALL TIMES FOR READING & MAINTENANCE PURPOSES. LOCATION MUST BE APPROVED BY CITY WATER DIVISION PRIOR TO INSTALLATION.
4. BACKFLOW ASSEMBLY GATE VALVES SHALL BE O.S. & Y. TYPE, EQUIPED WITH TAMPER-PROOF ALARM DEVICES AND SHALL BE CHAINED AND LOCKED IN THE OPEN POSITION.
5. IF DIRECTED TO DO SO BY THE CITY OF WATSONVILLE, INSTALL PROTECTIVE 4" DIA. STEEL PIPE BOLLARDS.
6. OPENING AND CLOSING OF VALVES IS STRICTLY PROHIBITED: FIRE DEPT. APPROVAL REQUIRED.
7. ALL ABOVE GROUND PIPING SHALL BE PAINTED (COLOR TO BE SELECTED AT TIME OF INSTALLATION BY APPROPRIATE FIRE DEPARTMENT.)

CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT

SCALE: NTS		WATER DIVISION STANDARD DRAWING 4" AND LARGER FIRE BACKFLOW SERVICE	DRAWN: MAY 2018	REV:
DRAWN BY: STAFF			RESOLUTION: 98-18 (CM)	
CHECKED BY: TC			DWG NO. W-12A	

MARIA ESTHER RODRIGUEZ, CITY ENGINEER



NOTES:

1. REFER TO PROJECT CIVIL PLAN FOR REQUIRED TYPE OF DEVICE OR CALL PUBLIC WORKS & UTILITIES CUSTOMER SERVICE AT (831) 768-3133 FOR SPECIFIED TYPE PRIOR TO INSTALLATION.
2. INSTALLATION SHALL BE LOCATED ON THE PROPERTY SUCH THAT THE DETECTOR METER SHALL BE ACCESSIBLE AT ALL TIMES FOR READING & MAINTENANCE PURPOSES. LOCATION MUST BE APPROVED BY CITY WATER DIVISION PRIOR TO INSTALLATION.
3. BACKFLOW ASSEMBLY GATE VALVES SHALL BE O.S. & Y. TYPE, EQUIPPED WITH TAMPER-PROOF ALARM DEVICES AND SHALL BE CHAINED AND LOCKED IN THE OPEN POSITION.
4. IF DIRECTED TO DO SO BY THE CITY OF WATSONVILLE, INSTALL PROTECTIVE 4" DIA. STEEL PIPE BOLLARDS.
5. OPENING AND CLOSING OF VALVES IS STRICTLY PROHIBITED: FIRE DEPT. APPROVAL REQUIRED.
6. ALL ABOVE GROUND PIPING SHALL BE PAINTED (COLOR TO BE SELECTED AT TIME OF INSTALLATION BY APPROPRIATE FIRE DEPARTMENT.)

CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT

SCALE: NTS

DRAWN BY: STAFF

CHECKED BY: TC



WATER DIVISION STANDARD DRAWING 4" AND LARGER COMPACT FIRE BACKFLOW SERVICE

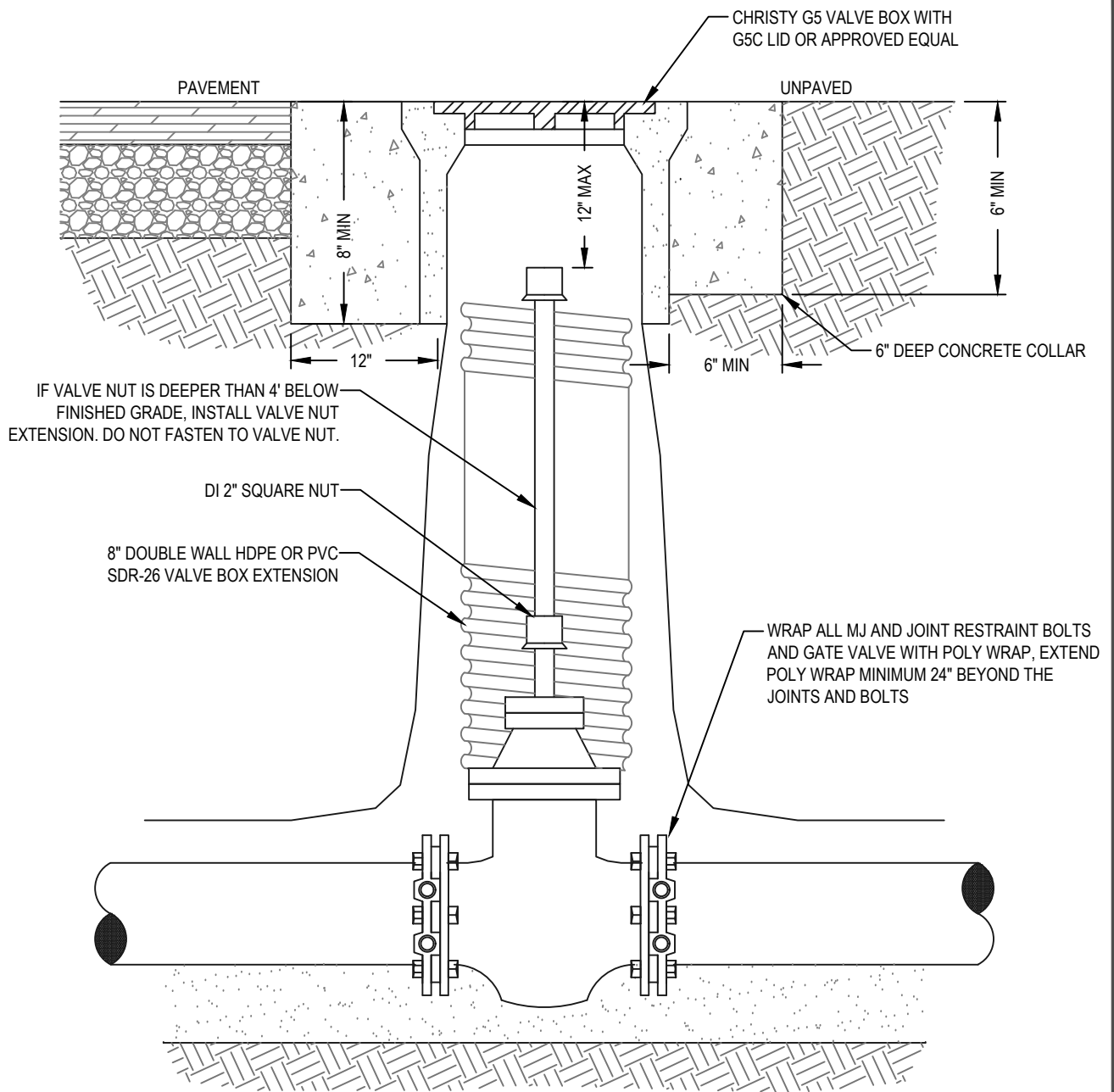
Maria Esther Rodriguez
MARIA ESTHER RODRIGUEZ, CITY ENGINEER

DRAWN:
MAY 2018

REV:

RESOLUTION: 98-18 (CM)

DWG NO. **W-12B**



NOTES:

1. VALVE BOX LID SHALL BE INSTALLED FLUSH WITH FINAL PAVING OR GROUND SURFACE.
2. INSTALL BLOCKING UNDER VALVE IF REQUIRED.

CITY OF WATSONVILLE PUBLIC WORKS & UTILITIES DEPARTMENT

SCALE: NTS

DRAWN BY: STAFF

CHECKED BY: TC



WATER DIVISION STANDARD DRAWING
**STANDARD
GATE VALVE**

Maria Esther Rodriguez
MARIA ESTHER RODRIGUEZ, CITY ENGINEER

DRAWN:
MAY 2018

REV:

RESOLUTION: 98-18 (CM)

DWG NO. **W-13**



City of Watsonville

"A Community of Opportunities"

Approved Installation Contractors Requirements

The City of Watsonville requires that water service applicants use contractors, approved by the City, for installation of new services. The names of such contractors are maintained on an "Approved Installation Contractors" list provided to water service applicants. To be considered for such approval and be included on the list, a contractor must meet the following requirements:

Eligibility Requirements for Approval:

1. Be licensed by the State of California as a General Engineering Contractor or a C34 Pipeline Contractor.
2. Have competently performed work similar to city water service installation, including working within a public street right-of-way, performing multiple "hot taps" and traffic control within the last five years.
3. Hold a City of Watsonville business license.
4. Hold insurance coverage that meets the City's requirements.

Approval Process:

1. Contractor submits the attached application, with all required documentation.
2. COW will review the application; contact references, and make a determination of approval within one month.
3. Initial approval, if granted, will be temporary status, until the contractor has completed a minimum of three (3) separate water service installations to the satisfaction of the COW and the customer.
4. Upon successful completion of three installations, the contractor's name and contact information will be placed on the approved list and provided directly to customers.

Requirements to Maintain Approval:

1. Must construct all facilities in conformance with the latest version of COW Standard.
2. Must comply with all instructions given in the field by the City's authorized representatives.
3. Must correct any deficiencies in its installations that are discovered within the one (1) year guarantee period.
4. Must maintain current copies of Certificates of Insurance and Watsonville business license on file with the COW.

Removal from List

A contractor may be removed from the "Approved Installation Contractors" list at anytime by the COW Public Works & Utilities if determined out of compliance with any of the requirements shown above, or in any other way presents a risk to the quality and efficiency of the City Water.



City of Watsonville

"A Community of Opportunities"

Contractors Application Form

Contractor Name: _____

Contractor Email: _____

Name of Company: _____

State License Type/Number: _____

Company Mailing Address: _____

Company Phone #'s:

Office: _____ Cell: _____ Fax: _____

The undersigned hereby attests to the following:

- 1) I have acquired, read and understand the latest revision of COW Standards, and agree to construct all City water facilities in conformance with those standards.
- 2) I have read and understand the Approved Installation Contractors Requirements and agree to comply with them.
- 3) I shall defend and hold the City of Watsonville, its officers, agents and employees, free and harmless from and against any and all loss, cost, attorney's fees, suits, claims, or demands arising out of or related to the installation of water services and appurtenances by my company, its agents or employees.

I have attached the following required documents to this application:

- ☐ A summary of relevant work experience.
- ☐ A minimum of three (3) references, including name of company and telephone number, contact person, project address, and a description of the work I performed within the last five (5) years.
- ☐ A current copy of City of Watsonville Business License to perform work inside the city limits.
- ☐ A current Certificate of Insurance that meets the City's Insurance Requirements for Approved Contractors.

Contractor's Signature: _____ Date: _____



City of Watsonville

"A Community of Opportunities"

Approved Water Service Installation Contractor List

Company Name	State License	Address	City	State	Zip	Office Ph.	FAX