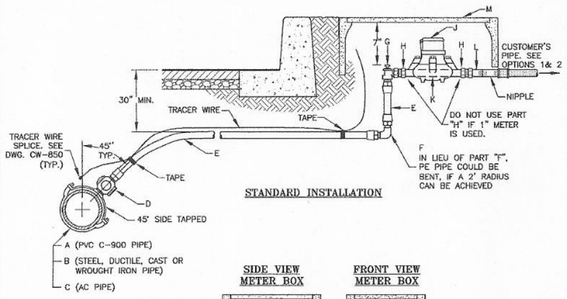
NOTES:

1. ALL PE PLASTIC PIPE REQUIRES TRACER WIRE TAPED TO PE PIPE AND EXTENDED INTO METER BOX PER LATEST REVISION OF DWG. CW-850 AND AS SPECIFIED IN CWS CO. MATERIAL SPECIFICATIONS DWG. CW-832.
2. SADDLES ARE REQUIRED ON ALL PVC C-900, AC, STEEL, OR WROUGHT IRON PIPE.
3. INSERT STIFFNERS SHALL BE USED ON ALL PE PIPE WITH COMPRESSION CONNECTIONS.
4. WHEN USING MUELLER INSTA-TITE, BEVEL THE PE PIPE WITH MUELLER'S BEVELING TOOL PER MANUFACTURER'S SPECIFICATIONS.
5. RESPONSIBILITY FOR SERVICE MAINTENANCE BY CWS CO. ENDS AT DOWNSTREAM METER COUPLING (OR LEFT TO DISTRICT'S DISCRETION).
6. ALL PIPE FITTINGS IN CONTACT WITH WATER SHALL BE LEAD FREE (< 0.25% LEAD) AND COMPLIANT TO NSF-61/SECTION 8.

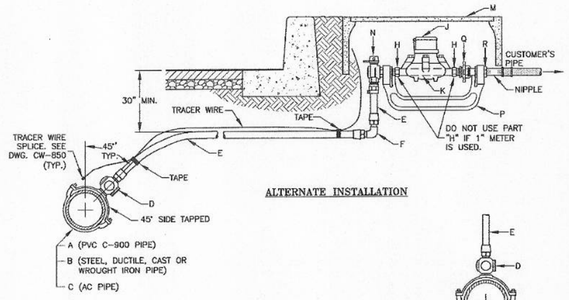
OPTIONS: THESE OPTIONS MAY BE REQUIRED BY CWS CO.

1. EXTEND CUSTOMER'S PIPING ±12" BEYOND METER BOX WITH TWO 12" NIPPLES & TWO 90° ELLS, BRASS (OR GALVANIZED IF PREFERRED BY CWS). SEE NOTE 5.
2. INSTALL BALL VALVE DOWNSTREAM FROM METER WHEN CUSTOMER'S PIPING IS UPHILL FROM METER OR CUSTOMER'S VALVE IS A GREAT DISTANCE FROM METER.
3. INSTALL 1" COPPER TUBING, TYPE K SOFT, INSTEAD OF PE WHEN CWS REPRESENTATIVE DETERMINES THAT CONDITIONS ARE UNFAVORABLE TO PE.

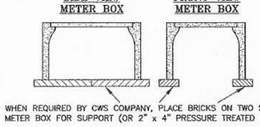
PART LETTER	PART NAME	PART SIZE	MUELLER INSTA-TITE/ MUELLER PACK-JOINT	FORD ULTRA-TITE/ FORD PACK JOINT	A.Y. McDONALD	CAMBRIDGE BRASS	SMITH-BLAIR	APAC
A	SERVICE SADDLE ALL BRONZE	NOMINAL MAIN SIZE x 1" CC	H-13400 SERIES	S90 SERIES	3805 SERIES	800 SERIES	393 SERIES	------
B	SERVICE SADDLE DUCTILE IRON	NOMINAL MAIN SIZE x 1" CC	DR 2A SERIES	F202 SERIES	------	------	313 SERIES	102 SERIES
C	SERVICE SADDLE ALL BRONZE	NOMINAL MAIN SIZE x 1" CC	BR 2B SERIES	202B SERIES	3825 SERIES	810 SERIES	323 SERIES	------
D	CORPORATION STOP (BALL)	1" CC x 1" MFG. F/PE IPS	B-2996N + H15456N	FB1001-4-U-ANWT-NL /FB1001-4-NL	74701B-33 1"	301NL-A4PE4	------	------
E	1" PE PLASTIC PIPE	1" PE PLASTIC PIPE IPS	HIGH DENSITY POLYETHYLENE PIPE, IRON PIPE SIZE, AWWA STANDARD C901, PE 4710, PC 200, SIDR7					------
F	1" 90° ELBOW	1" MFG F/PE IPS	H-15464N	L66-44-U-NL/ L66-44-NL	74761-3Q 1"	105NL-PE4PE4	------	------
G	ANGLE METER STOP (BALL)	1" F/PE IPS x 1" METER SWIVEL NUT	B-24266N/E-24259N	BA63-444W-U-ANWT-NL /BA63-444W-NL	74602B-33 1"	210NL-PE4T4	------	------
H	METER ADAPTER	1" METER TO 5/8" x 3/4" METER	H-10879N	A24-NL	710J24	440NL-N4R2	------	------
J	METER	BY CWS COMPANY: 5/8" x 3/4" METER (USE FOR LOT SIZE < 10,000 SQ. FT.) LENGTH 7 1/2". 1" METER (USE FOR LOT SIZE 10,000 SQ. FT. OR LARGER OF IF REQ'D TO MEET CITY'S FIRE SPRINKLER ORDINANCE) LENGTH 10"						
K	METER SPACER	DEVELOPER'S CONTRACTOR SHALL INSTALL SCH. 80 PVC NIPPLE IN PLACE OF METER: 1-1/4" DIAMETER, 11" LONG WITH PIT					------	------
L	METER COUPLING	1" METER SWIVEL NUT x M.I.P.	H-10890N	C38-44-2-625-NL	74624	417NL-T4M4	------	------
M	METER BOX – BROOKS #37 BOX W/ CAST IRON COVER OR CHRISTY #812 BOX W/ CAST IRON COVER. IF OUTSIDE FULL TRAFFIC AREAS, USE CHRISTY FL12 BOX W/ STN1125 LID. CWS OPTION: 1-PIECE COVER FL12D OR ARMORCAST P6000465-ROTOCAST BOX W/ A6000484DO COVER & DROP-IN LID A6000487. CWS OPTION: 1-PIECE COVER A6000464	12" x 20" x 12"	------	------	------	------	------	------
N	ANGLE BALL VALVE	1" PEP x 1" LOCKNUT	H-15429N+B-2437BN/ E-15429N+B-2427BN	BA96-444W-U-ANWT-NL /BA96-444W-NL	------	------	------	------
P	IRON YOKE PIECE	------	H-5040	Y504P	------	------	------	------
Q	EXPANSION CONNECTION	------	H-14234N	EC-4-NL	------	------	------	------
R	YOKE COUPLING	LOCKNUT x FIP	H-14219N	C91-44-NL	------	------	------	------



STANDARD INSTALLATION



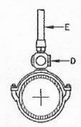
ALTERNATE INSTALLATION



SIDE VIEW METER BOX

FRONT VIEW METER BOX

WHEN REQUIRED BY CWS COMPANY, PLACE BRICKS ON TWO SIDES OF METER BOX FOR SUPPORT (OR 2" x 4" PRESSURE TREATED LUMBER)



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USE THIS INSTALLATION ONLY WHEN METER BOX IS LOCATED DIRECTLY ABOVE THE MAIN

CW 555R15 — STANDARD 1" SERVICE CONNECTION FOR 5/8" X 3/4" METER AND 1" METER

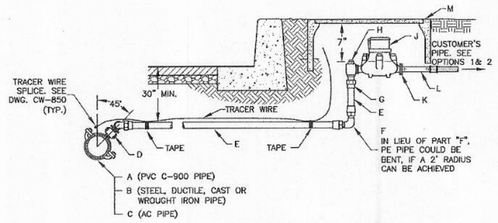
NOTES:

1. 2" SERVICE SHALL BE INSTALLED FOR ALL 1-1/2" METERS.
2. A SADDLE SHALL BE USED FOR ALL 2" SERVICES.
3. ALL PE PLASTIC PIPE REQUIRES TRACER WIRE TAPED TO PE PIPE AND EXTENDED INTO METER BOX PER LATEST REVISION OF DWG. CW-850 AND AS SPECIFIED IN CWS CO. MATERIAL SPECIFICATIONS DWG: CW-832.
4. INSERT STIFFNERS SHALL BE USED ON ALL PE PIPE WITH COMPRESSION CONNECTIONS.
5. RESPONSIBILITY FOR SERVICE MAINTENANCE BY CWS CO. ENDS AT DOWNSTREAM METER COUPLING (OR LEFT TO DISTRICT'S DISCRETION).
6. ALL PIPE FITTINGS IN CONTACT WITH DRINKING WATER SHALL BE LEAD FREE (< 0.25% LEAD) AND COMPLIANT TO NSF-61/SECTION 8.

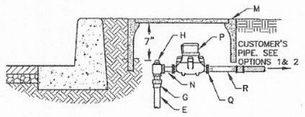
OPTIONS: THESE OPTIONS MAY BE REQUIRED BY CWS CO.

1. EXTEND CUSTOMER'S PIPING ±12" BEYOND METER BOX WITH TWO 12" NIPPLES & TWO 90° ELLS, BRASS (OR GALVANIZED IF PREFERRED BY CWS). SEE NOTE 5.
2. INSTALL BALL VALVE DOWNSTREAM FROM METER WHEN CUSTOMER'S PIPING IS UPHILL FROM METER OR CUSTOMER'S VALVE IS A GREAT DISTANCE FROM METER.
3. INSTALL 2" COPPER TUBING, TYPE K SOFT, INSTEAD OF PE WHEN CWS REPRESENTATIVE DETERMINES THAT CONDITIONS ARE UNFAVORABLE TO PE. REFER TO LATEST REVISION OF DWG# CW1020.
4. WHEN REQUIRED BY CWS COMPANY, PLACE BRICKS ON TWO SIDES OF METER BOX FOR SUPPORT (OR 2" x 4" PRESSURE TREATED LUMBER).

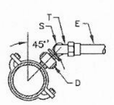
PART LETTER	PART NAME	MUELLER	FORD	A.Y. McDONALD	CAMBRIDGE BRASS	SMITH-BLAIR	APAC
A	SERVICE SADDLE, ALL BRASS WITH 2" AWWA CC THREAD	H-13400	S90 SERIES	3805 SERIES	800 SERIES	393 SERIES	------
B	SERVICE SADDLE, DUCTILE IRON BODY, DOUBLE STEEL STRAP WITH 2" AWWA CC THREAD	DR2A	F202 SERIES	4825A	------	313 SERIES	102 SERIES
C	SERVICE SADDLE, BRASS BODY, DOUBLE BRONZE STRAP WITH 2" AWWA CC THREAD	BR2B	202B SERIES	3825 SERIES	810 SERIES	323 SERIES	------
D	2" CORPORATION STOP – AWWA CC THREAD X MIP	B-2996N	FB400-7-NL	73128B	301NL-A7M7	------	------
E	2" HDPE PIPE	HIGH DENSITY POLYETHYLENE PIPE, IRON PIPE SIZE, AWWA STANDARD C901, PE 4710, PC 200, SIDR7					
F	2" 90° ELL COUPLING – PEP X PEP	------	L66-77-IDR7-NL	74761-33	105NL-PE7PE7	------	------
G	2" STRAIGHT COUPLING – PEP X MIP	E-15429N	C86-77-IDR7-NL	74753-33	117NL-PE7M7	------	------
H	2" BALL ANGLE METER VALVE – F.I.P. X METER FLANGE	B-24286N-3	BFA13-777WR-NL	74604B	210NL-F7MF7	------	------
J	2" METER, (BY CWS COMPANY) LENGTH 17" NOTE: DEVELOPER'S CONTRACTOR SHALL INSTALL SPACER IN PLACE OF METER PER CWS CO'S DIRECTION	------	------	------	------	------	------
K	2" METER FLANGE – FLG. X F.I.P; BRONZE WITH FULL FACE GASKET AND #304 STAINLESS STEEL BOLTS & NUTS	------	CF31-77-NL	7610F	421NL-7S/S	------	------
L	2" NIPPLE – LEAD FREE BRASS	------	------	------	------	------	------
M	17" X 28" METER BOX–BROOKS CONCRETE #65 BOX W/ #65S CONCRETE COVER & LID OR CHRISTY CONCRETE B65 BOX W/ B65E CONCRETE COVER & LID NOTE: CAST IRON COVERS REQUIRED IN TRAFFIC AREAS	------	------	------	------	------	------
N	ADAPTER – 2" METER FLG. X 1-1/2" MET FLG.	------	A67-NL	710J67	------	------	------
P	1-1/2" METER, (BY CWS COMPANY) LENGTH 13" NOTE: DEVELOPER'S CONTRACTOR SHALL INSTALL SPACER IN PLACE OF METER PER CWS CO'S DIRECTION	------	------	------	------	------	------
Q	1-1/2" METER FLANGE – FLG. X F.I.P.; BRONZE WITH FULL FACE GASKET AND #304 STAINLESS STEEL BOLTS & NUTS	------	CF31-66-NL	7610F	421NL-6S/S	------	------
R	1-1/2" NIPPLE – LEAD FREE BRASS	------	------	------	------	------	------
S	2" 90° ELL, LEAD FREE BRASS – FIP X FIP	------	------	------	------	------	------
T	2" 90° ELL COUPLING – MIP X PEP	------	L86-77-IDR7-NL	74779M-33	105NL-B7M7	------	------



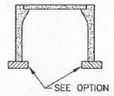
2" SERVICE WITH 2" METER



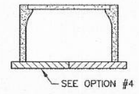
2" SERVICE WITH 1-1/2" METER



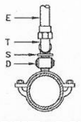
45° SIDE TAPPED CONNECTION



FRONT VIEW METER BOX



SIDE VIEW METER BOX



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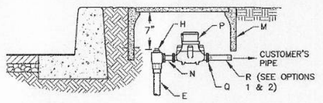
USE THIS INSTALLATION ONLY FOR SERVICES LOCATED DIRECTLY ABOVE THE MAIN

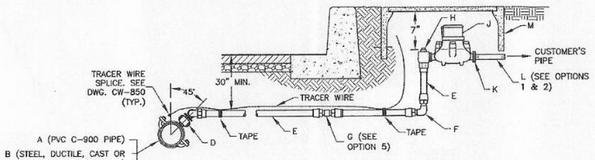
CW 436R9 — STANDARD 2" SERVICE CONNECTION FOR 2" METER OR 1-1/2" METER [POLYETHYLENE INSTALLATION]

PART LETTER	PART NAME	MUELLER	FORD	A.Y. McDONALD	CAMBRIDGE BRASS	SMITH-BLAIR	APAC
A	SERVICE SADDLE	H-13400	S90 SERIES	3805 SERIES	800 SERIES	393 SERIES	------
B	SERVICE SADDLE	DR2A	F202 SERIES	4825A	------	313 SERIES	102 SERIES
C	SERVICE SADDLE	BR2B	202B SERIES	3825 SERIES	810 SERIES	323 SERIES	------
D	2" CORPORATION STOP – AWWA TAPER THREAD INLET X MIP	B-2996N	FB600-7-NL	73128B	301NL-A7M7	------	------
E	2" COPPER	TYPE K SOFT PER LATEST REVISION OF ASTM SPECIFICATION B88					
F	2" 90° ELL COUPLING – CTS X CTS	P15526-N(P)/H15526-N(Q)	L44-77-NL(P)/L44-77-Q-NL(Q)	74761-22(P)/74761Q-2(Q)	105NL-B7B7(P)/105NL-H7H7(Q)	------	------
G	2" STRAIGHT COUPLING – CTS X CTS (SEE OPTION 5)	P15403-N(P)/H15403-N(Q)	C44-77-NL(P)/C44-77-Q-NL(Q)	74758-22(P)/74758Q-2(Q)	118NL-B7B7(P)/118NL-H7H7(Q)	------	------
H	2" BALL ANGLE METER VALVE – CTS X METER FLANGE – FULL PORT	P24276-N(P)/B24276-N(Q)	BFA13-777W-NL(P)/BFA43-777W-Q-NL(Q)	74602B-22(P)/74602BQ-2(Q)	210NL-B7MF7(P)/210NL-H7MF7(Q)	------	------
J	2" METER	------	------	------	------	------	------
K	2" METER FLANGE – FLG. X F.I.P; BRONZE WITH FULL FACE GASKET AND #304 STAINLESS STEEL BOLTS & NUTS	------	CF31-77-NL	7610F	421NL-7S/S	------	------
L	2" NIPPLE	------	------	------	------	------	------
M	METER BOX – BROOKS CONCRETE #65 BOX W/ #65S CONCRETE COVER & LID OR CHRISTY CONCRETE B65 BOX W/ B65E CONCRETE COVER & LID NOTE: CAST IRON COVERS REQUIRED IN TRAFFIC AREAS	------	------	------	------	------	------
N	ADAPTER – 2" METER FLG. X 1-1/2" MET FLG.	------	A67-NL	710J67	------	------	------
P	1-1/2" METER	------	------	------	------	------	------
Q	1-1/2" METER FLANGE – FLG. X F.I.P.; BRONZE WITH FULL FACE GASKET AND #304 STAINLESS STEEL BOLTS & NUTS	------	CF31-66-NL	7610F	421NL-6S/S	------	------
R	1-1/2" NIPPLE STD. LEAD-FREE BRASS	------	------	------	------	------	------
S	2" 90° ELL, FIP X FIP	------	------	------	------	------	------
T	2" 90° ELL – MIP X CTS	P15531-N(P)/H15531-N(Q)	L84-77-NL(P)/L84-77-Q-NL(Q)	74779M-22 2(P)/74779MQ-2(Q)	105NL-B7M7(P)/105NL-H7M7(Q)	------	------

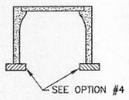
NOTE: P– PACK JOINT; Q– QUICK JOINT



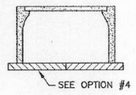
2" SERVICE WITH 1-1/2" METER



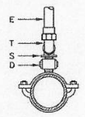
2" SERVICE WITH 2" METER



FRONT VIEW METER BOX



SIDE VIEW METER BOX



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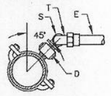
USE THIS INSTALLATION ONLY FOR SERVICES LOCATED DIRECTLY ABOVE THE MAIN



45° SIDE TAPPED CONNECTION

CW 1020 — STANDARD 2" SERVICE CONNECTION FOR 2" OR 1- 1/2" METER [COPPER INSTALLATION]

NOTES:
1. 2" SERVICE SHALL BE INSTALLED FOR ALL 1-1/2" METERS.
2. A SADDLE SHALL BE USED FOR ALL 2" SERVICES.
3. RESPONSIBILITY FOR SERVICE MAINTENANCE BY CWS CO. ENDS AT DOWNSTREAM METER COUPLING (OR LEFT TO DISTRICT'S DISCRETION).
4. ALL PIPE FITTINGS IN CONTACT WITH DRINKING WATER SHALL BE LEAD FREE (< 0.25% LEAD) AND COMPLIANT TO NSF-61/SECTION 8.

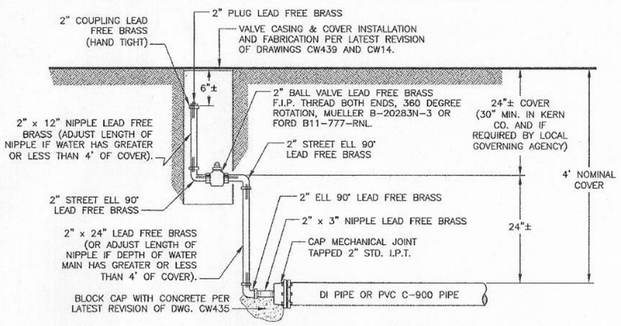
OPTIONS:
THESE OPTIONS MAY BE REQUIRED BY CWS CO.

1. EXTEND CUSTOMER'S PIPING ±12" BEYOND METER BOX WITH TWO 12" NIPPLES & TWO 90° ELLS, BRASS (OR GALVANIZED IF PREFERRED BY CWS). SEE NOTE 3.
2. INSTALL BALL VALVE DOWNSTREAM FROM METER WHEN CUSTOMER'S PIPING IS UPHILL FROM METER OR CUSTOMER'S VALVE IS A GREAT DISTANCE FROM METER.
3. INSTALL 2" HDPE, INSTEAD OF COPPER WHEN CWS REPRESENTATIVE DETERMINES THAT CONDITIONS ARE UNFAVORABLE TO COPPER. REFER TO THE LATEST REVISION OF DWG# CW-436.
4. WHEN REQUIRED BY CWS COMPANY, PLACE BRICKS ON TWO SIDES OF METER BOX FOR SUPPORT (OR 2" x 4" PRESSURE TREATED LUMBER)
5. AT THE DIRECTIVE OF CWS REPRESENTATIVE, LEAD-FREE SOLDER JOINT COPPER FITTINGS MAY BE USED IN LIEU OF COMPRESSION FITTINGS FOR PART 'G'. INSTALLATION OF A SOLDERED FITTINGS SHALL CONFORM TO THE LATEST REVISION OF ASTM B828. ALL MATERIAL USED FOR SOLDERING SHALL BE LEAD-FREE.

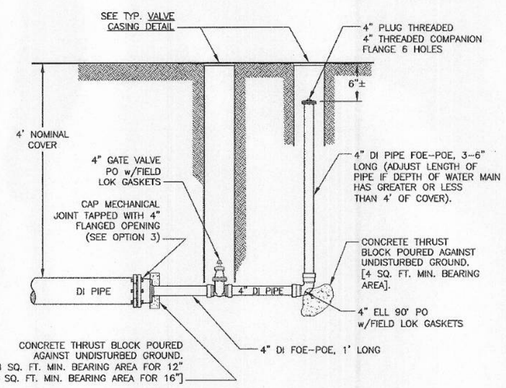
NOTE:
1. ALL PIPE FITTINGS IN CONTACT WITH WATER SHALL BE LEAD FREE (<0.25% LEAD) AND COMPLIANT TO NSF-61/SECTION 8.

OPTIONS: THESE OPTIONS MAY BE REQUIRED BY CWS CO. AT THEIR DISCRETION.

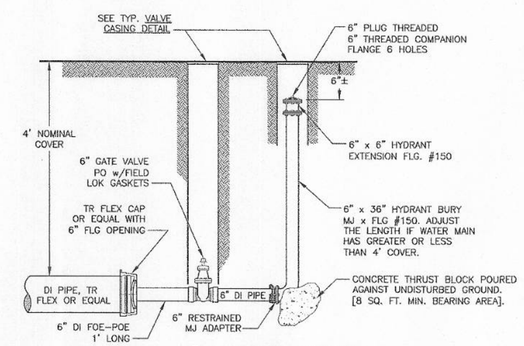
1. FOR 2" BLOW OFFS LOCATED OUTSIDE TRAVELED WAYS OR WHERE STREET RECONSTRUCTION IS NOT A CONCERN, THE BALL VALVE MAY BE PLACED CLOSER TO FINISHED GRADE (+/-12") WITH SHORTER OR NO PERMANENT RISER. SWING JOINT (ONE STREET ELL) MAY BE ADDED AS AN OFFSET TO PROPERLY LOCATE THE BALL VALVE.
2. IN LIEU OF NOTCHING VALVE CASING FOR 2" PIPE, CASING MAY BE SET ON BRICKS OR PRESSURE TREATED LUMBER SO CASING IS JUST ABOVE 2" PIPE.
3. IN LIEU OF CAP WITH FLANGED OPENING FOR 12" PIPE, 12" x 4" REDUCER PO WITH FIELD LOK GASKETS MAY BE USED.



2" BLOW-OFF ASSEMBLY FOR 6" AND SMALLER PIPE
N.T.S.



4" BLOW-OFF ASSEMBLY FOR 12" TO 16" PIPE
N.T.S.



6" BLOW-OFF ASSEMBLY FOR 18" AND LARGER PIPE
N.T.S.

CW 122R5 — STANDARD BLOW OFF ASSEMBLY

ENGINEERING DEPARTMENT

CALIFORNIA WATER SERVICE CO.

REVISIONS:

	DATE:	INIT.
DISTRIBUTION MAP		
PLAT SHEET		
SYSTEM SCHEMATIC		
STATION SCHEMATIC		
ZONE MAP		
VALVE RECORD		

PLAT SHEET NO.:

SCALE: N.T.S.

DRAWN BY: M. FONG

DESIGNED BY:

CHECKED BY: DATE:

APPROVED BY: DATE: 8/14/13

TITLE: CALIFORNIA WATER SERVICE COMPANY STANDARD DRAWINGS

DISTRICT: ALL

DATE: 8-14-13

PROJECT ID.:

DRAWING NO.: CWDWGS

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