PALMDALE WATER DISTRICT

A CENTURY OF SERVICE

October 6, 2021

AGENDA FOR REGULAR MEETING OF THE BOARD OF DIRECTORS OF THE PALMDALE WATER DISTRICT TO BE HELD AT 2029 EAST AVENUE Q, PALMDALE OR VIA TELECONFERENCE

FOR THE PUBLIC: VIA TELECONFERENCE ONLY

DIAL-IN NUMBER: 571-748-4021 ATTENDEE PIN: 672-419-141#

Submit Public Comments at: https://www.gomeet.com/672-419-141

MONDAY, OCTOBER 11, 2021

6:00 p.m.

NOTES: To comply with the Americans with Disabilities Act, to participate in any Board meeting please contact Dawn Deans at 661-947-4111 x1003 at least 48 hours prior to a Board meeting to inform us of your needs and to determine if accommodation is feasible.

Additionally, an interpreter will be made available to assist the public in making **comments** under Agenda Item No. 4 and any action items where public input is offered during the meeting if requested at least 48 hours before the meeting. Please call Dawn Deans at 661-947-4111 x1003 with your request. (PWD Rules and Regulations Section 4.03.1 (c))

Adicionalmente, un intérprete estará disponible para ayudar al público a hacer **comentarios** bajo la sección No. 4 en la agenda y cualquier elemento de acción donde se ofrece comentarios al público durante la reunión, siempre y cuando se solicite con 48 horas de anticipación de la junta directiva. Por favor de llamar Dawn Deans al 661-947-4111 x1003 con su solicitud. (PWD reglas y reglamentos sección 4.03.1 (c))

Agenda item materials, as well as materials related to agenda items submitted after distribution of the agenda packets, are available for public review at the District's office located at 2029 East Avenue Q, Palmdale (Government Code Section 54957.5). Please call Dawn Deans at 661-947-4111 x1003 for public review of materials.

PUBLIC COMMENT GUIDELINES: **The prescribed time limit per speaker is three-minutes. Please refrain from public displays or outbursts such as unsolicited applause, comments, or cheering. Any disruptive activities that substantially interfere with the ability of the District to carry out its meeting will not be permitted, and offenders will be requested to leave the meeting. (PWD Rules and Regulations, Appendix DD, Sec. IV.A.)**

Each item on the agenda shall be deemed to include any appropriate motion, resolution, or ordinance to take action on any item.

1) Pledge of Allegiance/Moment of Silence.

2) Roll Call.

3) Adoption of Agenda.

4) Public comments for non-agenda items.

5) Presentations:

5.1) None at this time.

6) Action Items - Consent Calendar (The public shall have an opportunity to comment on any action item on the Consent Calendar as the Consent Calendar is considered collectively by the Board of Directors prior to action being taken.)

6.1) Approval of minutes of Regular Board Meeting held September 27, 2021.

6.2) Payment of bills for October 11, 2021.

7) Action Items - Action Calendar (The public shall have an opportunity to comment on any action item as each item is considered by the Board of Directors prior to action being taken.)

7.1) Consideration and possible action on authorizing the General Manager to execute Change Order No. 2 to the contract with Christensen Brothers General Engineering, Inc. for the Water Main Replacement in Sierra Highway for additional costs related to unplanned utilities and additional pavement sections. ($127,278.49 – Budgeted – Budget Item - Specification No. 20-605 – Engineering/Grant Manager Rogers)

7.2) Consideration and possible action to approve an extension of milestones and minimum usage, or payment, contained in County Sanitation District Contract No. 5001 with Palmdale Water District and authorize General Manager LaMoreaux to finalize and execute said extension. (No Budget Impact – Engineering/Grant Manager Rogers)

7.3) Consideration and possible action on approval of Resolution No. 21-19 being a Resolution of the Board of Directors of the Palmdale Water District Approving Waiver of District Procurement and Purchasing Policy for Well No. 36. (No Budget Impact – Assistant General Manager Ly)

7.4) Consideration and possible action on a recommendation to update the District's Standard Specifications for Water Distribution System Construction. (No Budget Impact– Engineering/Grant Manager Rogers)

7.5) Consideration and possible action on a recommendation to adopt Palmdale Water District Development Services Procedural Guidelines. (No Budget Impact – Engineering/Grant Manager Rogers)

7.6) Consideration and possible action on authorization of the following conferences, seminars, and training sessions for Board and staff attendance within budget amounts previously approved in the 2021 Budget:

a) None at this time.

8) Information Items:

8.1) Reports of Directors:

a) Standing Committees; Organization Appointments; Agency Liaisons:

1) Antelope Valley East Kern Water Agency-AVEK-September 28. (Director Dino/Director Mac Laren-Gomez, Alternate)

b) General Meetings Reports of Directors.

8.2) Report of General Manager.

8.3) Report of General Counsel.

9) Board members' requests for future agenda items.

10) Adjournment.

DENNIS D. LaMOREAUX,
General Manager

DDL/dd

P A L M D A L E W A T E R D I S T R I C T

B O A R D M E M O R A N D U M

DATE: October 5, 2021 **October 11, 2021**

TO: Board of Directors **Board Meeting**

FROM: Mr. Scott Rogers, Engineering/Grant Manager

VIA: Mr. Adam Ly, Assistant General Manager
Mr. Dennis LaMoreaux, General Manager

RE: ***AGENDA ITEM NO. 7.1 – CONSIDERATION AND POSSIBLE ACTION ON AUTHORIZING THE GENERAL MANAGER TO EXECUTE CHANGE ORDER NO. 2 TO THE CONTRACT WITH CHRISTENSEN BROTHERS GENERAL ENGINEERING, INC. FOR THE WATER MAIN REPLACEMENT IN SIERRA HIGHWAY FOR ADDITIONAL COSTS RELATED TO UNPLANNED UTILITIES AND ADDITIONAL PAVEMENT SECTIONS. ($127,278.49 – BUDGETED – BUDGET ITEM - SPECIFICATION NO. 20-605 – ENGINEERING/GRANT MANAGER ROGERS)***

Recommendation:

Staff recommends that the Board approve and authorize the General Manager to execute Change Order No. 2 in the not-to-exceed amount of $127,278.49 to the contract with Christensen Brothers General Engineering, Inc.

Alternative Options:

There is no alternative option.

Impact of Taking No Action:

Financial harm to the contractor would result from taking no action.

Background:

Christensen Brothers General Engineering, Inc. required additional equipment, labor, and materials in the construction of the water main replacement in Sierra Highway (Specification 20-605) project based on unplanned utilities and additional pavement sections on Harold 1st Street, Harold Ash Avenue, and Sierra Highway.

Change Order No. 1 was previously executed by the General Manager on October 4, 2021. Change Order No. 1 included labor, materials, and equipment necessary to remove and dispose of additional pavement sections in Sierra Highway. The District worked with the City of Palmdale to ensure proper replacement of trench sections that met their standard and maintained the existing pavement's structural integrity.

Change Order No. 2 includes labor, materials, and equipment necessary to complete the remaining work in Sierra Highway, such as placing additional 3" (AC) asphalt concrete and additional 16" of base to meet the City of Palmdale's standard. In addition, Change Order No. 2 includes labor, materials, and equipment necessary to realign the water main in Harold 1st Street and Harold Ash Avenue due to unplanned utilities. Additional fittings were needed to avoid and maintain clearance from the existing utilities.

Summary of Change Orders:

20-605 Water Main Replacement in Sierra Highway Summary of Costs	
Items	Cost
Original Contract Amount	$447,036.60
Change Order #1	$95,571.07
*Changer Order #2	$127,278.49
Contract Price with Approved Change Orders:	$669,886.16

Strategic Plan Initiative/Mission Statement:

This item is under Strategic Initiative No. 1- Water Resource Reliability.
This item directly relates to the District's Mission Statement.

Budget:

This item is under Specification 20-605.

Supporting Documents:

- Change Order No. 1 (Executed)
- Change Order No. 2
- Christensen Brothers General Engineering, Inc. Change Order Request dated September 30, 2021.

CHANGE ORDER NO. 1

DATE OF ISSUANCE	September 30, 2021
EFFECTIVE DATE	Upon Execution
OWNER's Contract No.	Specification No. 20-605
CONTRACTOR:	Christensen Brothers General Engineering, Inc.
OWNER:	Palmdale Water District
ENGINEER:	Scott Rogers/Jaron Hollida

Contractor is directed to make the following changes in the Contract Documents.

Description: *Water Main Replacement in Sierra Highway Project (20-605)*

Reason for Change Order: *Concrete/Asphalt removal and disposal in Sierra Highway.*

Attachments: *Contractor's Cost Proposals dated 09/30/2021.*

CHANGE IN CONTRACT PRICE: Original Contract Price	CHANGE IN CONTRACT TIMES: Original Contract Times
$447,036.60	**90 Days**
Net Changes from previous Change Orders	Net Changes from previous Change Orders
$0	**0 days**
Contract Price prior to this Change Order	Contract Times prior to this Change order
$447,036.60	**90 days**
Contract Price prior to this Change Order:	Contract Times prior to this Change order
$447,036.60	**90 days**
Net Increase (decrease of this Change Order)	Net Increase (decrease of this Change Order)
$95,571.07	**62 days**
Contract Price with all approved Change Orders	Contract Times with all approved Change Orders
$542,607.67	**152 days**

RECOMMENDED

By: Scott Rogers

Engineering Manager

Date: 9/30/2021

APPROVED

By: Dennis LaMoreaux

PWD, General Manager

Date: 10/4/21

ACCEPTED

By: Caleb Christensen

Contractor, President

Date: 10/4/2021

Signature: Caleb Christensen
Caleb Christensen (Oct 5, 2021 08:41 PDT)

Email: zach@christensenbrothers.net

doc00971620211004065944

Final Audit Report 2021-10-05

Created:	2021-10-04
By:	Jennifer Villa (jv@palmdalewater.org)
Status:	Signed
Transaction ID:	CBJCHBCAABAAaE31GwD738zosP23I2aelbxEDWCzWwJ2

"doc00971620211004065944" History

Document created by Jennifer Villa (jv@palmdalewater.org)
2021-10-04 - 2:07:55 PM GMT

Document emailed to Caleb Christensen (zach@christensenbrothers.net) for signature
2021-10-04 - 2:08:39 PM GMT

Email viewed by Caleb Christensen (zach@christensenbrothers.net)
2021-10-04 - 2:09:06 PM GMT- IP address: 137.27.247.94

Document e-signed by Caleb Christensen (zach@christensenbrothers.net)
Signature Date: 2021-10-05 - 3:41:25 PM GMT - Time Source: server- IP address: 137.27.247.94

Agreement completed.
2021-10-05 - 3:41:25 PM GMT

CHANGE ORDER NO. 2

DATE OF ISSUANCE	October 5, 2021
EFFECTIVE DATE	Upon Execution
OWNER's Contract No.	Specification No. 20-605
CONTRACTOR:	Christensen Brothers General Engineering, Inc.
OWNER:	Palmdale Water District
ENGINEER:	Scott Rogers/Jaron Hollida

Contractor is directed to make the following changes in the Contract Documents.

Description: *Water Main Replacement in Sierra Highway Project (20-605)*

Reason for Change Order: *Additional materials due to unplanned utilities, additional trench section materials, and materials for existing pipe conditions.*

Attachments: *Contractor's Cost Proposals dated 09/30/2021.*

CHANGE IN CONTRACT PRICE: Original Contract Price	CHANGE IN CONTRACT TIMES: Original Contract Times
$447,036.60	**90 Days**
Net Changes from previous Change Orders	Net Changes from previous Change Orders
$95,571.07	**62 days**
Contract Price prior to this Change Order	Contract Times prior to this Change order
$542,607.67	**152 days**
Contract Price prior to this Change Order:	Contract Times prior to this Change order
$542,607.67	**152 days**
Net Increase (decrease of this Change Order)	Net Increase (decrease of this Change Order)
$127,278.49	**0 days**
Contract Price with all approved Change Orders	Contract Times with all approved Change Orders
$669,886.16	**152 days**

RECOMMENDED	APPROVED	ACCEPTED
By:_____	By:_____	By:_____
Engineering Manager	PWD, General Manager	Contractor, President
Date:_____	Date:_____	Date:_____

Christensen Brothers

General Engineering Inc.

P.O. Box 1286, Apple Valley, CA 92307

Phone: FAX: (760) 961-2307

Lic. No. 893188 From: Caleb Christensen Date: 9/30/2021

To: Palmdale Water District

Quote No : 1767
Fax No :
Phone : (760) 246-2300

We propose to furnish you labor and material in strict accordance with the plans and specifications as follows:

Sierra Hwy Water Main Replacement (Changes)

Palmdale

Item No.	Description	Quantity	U/M	Unit Price	Total Price
1	COR 1 T&M	1	LS	$17,386.66	$17,386.660
	Total for COR 1:				**$17,386.660**
2	COR 2 Additional Potholes Unplanned Utilities	1	EA	$16,262.38	$16,262.380
	Total for COR 2:				**$16,262.380**
3C	COR 3C Place Additional 3" AC Section	6,000	SF	$5.49	$32,940.000
3D	COR 3D Place Additional 16" Base Section	6,000	SF	$7.98	$47,880.000
	Remaining Total for COR 3:				**$80,820.000**
4	COR 4 Existing Conditions Harold 1St	1	LS	$12,809.45	$12,809.450
	Total for COR 4:				**$12,809.450**
	Total Proposal Price:				**$127,278.49**

Details Report For : Sierra Hwy Water Main Replacement (Changes)

Caleb Christensen 09/30/2021

Ph. 03 Schedule 3	Quantity	U/M	Unit Cost	Total Cost	Margin%	Unit Price	Total Price
Item 1	1.00	LS	$17,386.66	$17,386.66	0.00	$17,386.66	$17,386.66
Description COR 1 T&M							

Activity 9/13/2021 **Crew** Miscellanious Crew **Activity Qty** 1.00 LS

Rate:
Day: 1.00 LS
Hour: 0.13 LS

Days:
Labor 1.00
Equipment 1.00
Actual: 1.00

Total Cost: $14,480.21
Unit Cost: $14,480.21

Labor		Quantity	Hours	Days	Unit Cost	
FORE	Foreman	1.00	8.50 HR	1.00	111.26	$945.74
OP8	Operator DIR	2.00	6.25 HR	1.00	108.05	$1,350.64
PL4	Pipelayer LB4 DIR	2.00	8.50 HR	1.00	85.50	$1,453.45
LB1	Laborer LB1 DIR	3.00	7.00 HR	1.00	79.45	$1,668.43
MU	15% Mark up	1.00	1.00 HR	1.00	822.87	$822.87
	The total contains overtime cost of:		67.57		Total	$6,308.70

Equipment		Quantity	Hours	Days	Unit Cost	
CT	Crew Truck (1 Ton)	1.00	8.50 HR	1.00	39.38	$334.73
EX140	140 Excavator	1.00	8.50 HR	1.00	55.00	$467.50
LDR950	950 Wheel Loader & Forks	1.00	8.50 HR	1.00	83.32	$708.22
WT4000	Water Truck 4000 Gallon	1.00	2.00 HR	1.00	46.88	$93.76
BH410	Backhoe 84-113HP	1.00	4.00 HR	1.00	50.04	$200.16
MU	15% Mark up	1.00	1.00 HR	1.00	270.65	$270.65
					Total	$2,075.02

Material		Quantity	Unit Cost	
MAT1	Material Only 1	1.00	5,301.30	$5,301.30
MU	15% Mark up	1.00	795.19	$795.19
			Total	$6,096.49

Act Note:

Activity 9/16/2021 **Crew** Miscellanious Crew **Activity Qty** 1.00 LS

Rate:
Day: 1.00 LS
Hour: 0.00 LS

Days:
Labor 1.00
Equipment 1.00
Actual: 1.00

Total Cost: $346.47
Unit Cost: $346.47

Labor		Quantity	Hours	Days	Unit Cost	
FORE	Foreman	1.00	2.00 HR	1.00	111.26	$222.53
MU	15% Mark up	1.00	1.00 HR	1.00	33.37	$33.37
	The total contains overtime cost of:		0.00		Total	$255.90

Equipment		Quantity	Hours	Days	Unit Cost	
CT	Crew Truck (1 Ton)	1.00	2.00 HR	1.00	39.38	$78.76
MU	15% Mark up	1.00	1.00 HR	1.00	11.81	$11.81
					Total	$90.57

Act Note:

CHRISTENSEN BROTHERS GENERAL ENG. INC

PO BOX 1286
APPLE VALLEY, CA 92307
Phone: (760)240-5236
Fax:760-961-2307

P.O No. 521-2021-02

PURCHASE ORDER

To: Southland Pipe Corporation
Atten: Clayton Douglass Phone: 909-873-3820

DATE: Thursday August 26, 2021
DELIVERY:

PROJECT : Sierra Hwy Water Main Replacement

PROJECT #: 521

Item	Description	Qty	Unit	Unit Price	Total
1	8" STD 45 BEND 150#FLGXFLG, CMLXCMC.	4	EA	370	$ 1,480.00
2	8" X 173"LG .250"WALL STEEL SPOOL 150#FLGXFLG, CMLXCMC	1	EA	1110	$ 1,110.00
3	8" X 17 3/4"LG .250"WALL STEEL SPOOL 150#FLGXFLG, CMLXCMC.	1	EA	420	$ 420.00
4	8" X 117 9/16"LG .250"WALL STEEL SPOOL 150#FLGXFLG, CMLXCMC	1	EA	870	$ 870.00
5	8" X 13 1/2"LG .250"WALL STEEL SPOOL 150#FLGXFLG, CMLXCMC.	1	EA	405	$ 405.00
6	8" X 66"LG .250"WALL STEEL SPOOL 150#FLGXFLG WITH	1	EA	635	$ 635.00
	(1)2"THREADED OUTLET 43" FROM ONE END, CMLXCMC.				$
					$
					$
					$ -
					$ -
					$ -
					$ -
					$ -
					$ -
					$ -
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					$ -
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					$ -
					$ -
					$ -
					$ -
					$ -
					$ -
					$ -
					$ -
					$ -
				Subtotal	$ 4,920.00
				Tax	$ 381.30
				Total	$ 5,301.30

Signature Zachary Hisey

Caleb Christensen 09/30/2021

Ph. 03 Schedule 3	Quantity	U/M	Unit Cost	Total Cost	Margin%	Unit Price	Total Price
Item 1	1.00	LS	$17,386.66	$17,386.66	0.00	$17,386.66	$17,386.66

Description COR 1 T&M

Activity 9/20/2021 ***Crew*** Miscellanious Crew ***Activity Qty*** 1.00 LS

Rate: ***Days:***

Day: 1.00 LS Labor 1.00 ***Total Cost:*** $2,559.98

Hour: 0.00 LS Equipment 1.00 ***Unit Cost:*** $2,559.98

Actual: 1.00

Labor		Quantity	Hours		Days	Unit Cost	
FORE	Foreman	1.00	4.00	HR	1.00	111.26	$445.06
PL4	Pipelayer LB4 DIR	1.00	4.00	HR	1.00	85.50	$341.99
LB1	Laborer LB1 DIR	2.00	4.00	HR	1.00	79.45	$635.59
MU	15% Mark up	1.00	1.00	HR	1.00	213.39	$213.39
	The total contains overtime cost of:		0.00			Total	$1,636.03

Equipment		Quantity	Hours		Days	Unit Cost	
CT	Crew Truck (1 Ton)	1.00	4.00	HR	1.00	39.38	$157.52
BH410	Backhoe 84-113HP	1.00	4.00	HR	1.00	50.04	$200.16
WT4000	Water Truck 4000 Gallon	1.00	4.00	HR	1.00	46.88	$187.52
MU	15% Mark up	1.00	1.00	HR	1.00	81.78	$81.78
						Total	$626.98

Material		Quantity	Unit Cost	
MAT1	Material Only 1	1.00	258.24	$258.24
MU	15% Mark up	1.00	38.73	$38.73
			Total	$296.97

Act Note:

WESTERN WATER WORKS
SUPPLY COMPANY
12247 LAKELAND RD SANTA FE SPRINGS, CA - 90670
PHONE: (909)597-7000 | FAX: (626)579-1389

PROPOSAL

PROPOSAL ID	QUOTE NO.	DATE
PALMDALE QUOTE	67920	09/27/21

LN#	PRODUCT AND DESCRIPTION	QTY	UM	PRICE	TOTAL
1	**PALMDALE**				
2	BGV-100 1 BRZ GATE VLV	1	EA	21.40	21.40
3	BRL90-01 1 BRZ 90	1	EA	8.83	8.83
4	KS60-100 1 K SOFT COPPER TUBING 60FT COIL	14	FT	7.93	111.02
5	BRN-0106 1X6 BRZ NIPPLE	1	EA	10.73	10.73
6	BRN-0120# 1X20 BRZ NIPPLE	1	EA	44.31	44.31
7	SCH40-08 8 SCH40 PVC PIPE BE	5	FT	12.39	61.95
8			**SUBTOTAL**		**258.24**
9			**BID TOTAL**		**258.24**

NOTE: THIS PROPOSAL DOES NOT INCLUDE SALES TAX.

Smooth Running Jobs

Caleb Christensen 09/30/2021

Ph. 03	Schedule 3	Quantity	U/M	Unit Cost	Total Cost	Margin%	Unit Price	Total Price
Item 3		1.00	EA	$16,262.38	$16,262.38	0.00	$16,262.38	$16,262.38

Description COR 2 Additional Potholes Unplanned Utilities

Activity 8/10/21 ***Crew*** Miscellanious Crew ***Activity Qty*** 1.00 EA

Rate: ***Days:***

Day: 1.00 EA Labor 1.00 ***Total Cost:*** $926.61

Hour: 0.00 EA Equipment 1.00 ***Unit Cost:*** $926.61

Actual: 1.00

Labor		Quantity	Hours	Days	Unit Cost	
FORE	Foreman	1.00	2.00 HR	1.00	111.26	$222.53
OP8	Operator DIR	1.00	2.00 HR	1.00	108.05	$216.10
LB1	Laborer LB1 DIR	1.00	2.00 HR	1.00	79.45	$158.90
MU	15% Mark up	1.00	1.00	1.00	89.77	$89.77
	The total contains overtime cost of:		0.00		Total	$687.30

Equipment		Quantity	Hours	Days	Unit Cost	
CT	Crew Truck (1 Ton)	1.00	2.00 HR	1.00	39.38	$78.76
BH410	Backhoe 84-113HP	1.00	2.00 HR	1.00	50.04	$100.08
CONES	Cones (Reflective 100 Ea)	1.00	2.00 HR	1.00	14.63	$29.26
MU	15% Mark up	1.00	1.00 HR	1.00	31.21	$31.21
					Total	$239.31

Act
Note:

Activity 8/11/21 ***Crew*** Miscellanious Crew ***Activity Qty*** 1.00 EA

Rate: ***Days:***

Day: 1.00 EA Labor 1.00 ***Total Cost:*** $3,486.20

Hour: 0.00 EA Equipment 1.00 ***Unit Cost:*** $3,486.20

Actual: 1.00

Labor		Quantity	Hours	Days	Unit Cost	
FORE	Foreman	1.00	4.50 HR	1.00	111.26	$500.69
OP8	Operator DIR	2.00	4.50 HR	1.00	108.05	$972.46
LB1	Laborer LB1 DIR	2.00	4.50 HR	1.00	79.45	$715.04
MU	15% Mark up	1.00	1.00	1.00	328.37	$328.37
	The total contains overtime cost of:		0.00		Total	$2,516.56

Equipment		Quantity	Hours	Days	Unit Cost	
CT	Crew Truck (1 Ton)	1.00	4.50 HR	1.00	39.38	$177.21
BH410	Backhoe 84-113HP	1.00	4.50 HR	1.00	50.04	$225.18
LDR950	950 Wheel Loader & Forks	1.00	4.50 HR	1.00	83.32	$374.94
CONES	Cones (Reflective 100 Ea)	1.00	4.50 HR	1.00	14.63	$65.84
MU	15% Mark up	1.00	1.00 HR	1.00	126.47	$126.47
					Total	$969.64

Act
Note:

Caleb Christensen 09/30/2021

Ph. 03	Schedule 3	Quantity	U/M	Unit Cost	Total Cost	Margin%	Unit Price	Total Price
Item 3		1.00	EA	$16,262.38	$16,262.38	0.00	$16,262.38	$16,262.38

Description COR 2 Additional Potholes Unplanned Utilities

Activity 8/16/21 ***Crew*** Miscellanious Crew ***Activity Qty*** 1.00 EA

Rate: ***Days:***

Day: 1.00 EA Labor 1.00 ***Total Cost:*** $5,520.81

Hour: 0.00 EA Equipment 1.00 ***Unit Cost:*** $5,520.81

Actual: 1.00

Labor		Quantity	Hours	Days	Unit Cost	
FORE	Foreman	1.00	6.00 HR	1.00	111.26	$667.58
OP8	Operator DIR	1.00	6.00 HR	1.00	108.05	$648.31
PL4	Pipelayer LB4 DIR	1.00	6.00 HR	1.00	85.50	$512.98
LB1	Laborer LB1 DIR	4.00	6.00 HR	1.00	79.45	$1,906.78
MU	15% Mark up	1.00	1.00	1.00	561.24	$561.24

The total contains overtime cost of: 0.00 Total $4,296.89

Equipment		Quantity	Hours	Days	Unit Cost	
CT	Crew Truck (1 Ton)	1.00	6.00 HR	1.00	39.38	$236.28
AZP400	Asphalt Zipper 400	1.00	6.00 HR	1.00	40.05	$240.30
LDR950	950 Wheel Loader & Forks	1.00	6.00 HR	1.00	83.32	$499.92
CONES	Cones (Reflective 100 Ea)	1.00	6.00 HR	1.00	14.63	$87.78
MU	15% Mark up	1.00	1.00 HR	1.00	159.64	$159.64

Total $1,223.92

Act Note:

Activity 8/17/21 ***Crew*** Miscellanious Crew ***Activity Qty*** 1.00 EA

Rate: ***Days:***

Day: 1.00 EA Labor 1.00 ***Total Cost:*** $634.89

Hour: 0.00 EA Equipment 1.00 ***Unit Cost:*** $634.89

Actual: 1.00

Labor		Quantity	Hours	Days	Unit Cost	
FORE	Foreman	1.00	1.00 HR	1.00	111.26	$111.26
OP8	Operator DIR	1.00	1.00 HR	1.00	108.05	$108.05
PL4	Pipelayer LB4 DIR	1.00	1.00 HR	1.00	85.50	$85.50
LB1	Laborer LB1 DIR	1.00	1.00 HR	1.00	79.45	$79.45
MU	15% Mark up	1.00	1.00	1.00	57.78	$57.78

The total contains overtime cost of: 0.00 Total $442.04

Equipment		Quantity	Hours	Days	Unit Cost	
CT	Crew Truck (1 Ton)	1.00	1.00 HR	1.00	39.38	$39.38
EX85M	85 Mid Mini Excavator	1.00	1.00 HR	1.00	45.00	$45.00
LDR950	950 Wheel Loader & Forks	1.00	1.00 HR	1.00	83.32	$83.32
MU	15% Mark up	1.00	1.00 HR	1.00	25.15	$25.15

Total $192.85

Act Note:

Caleb Christensen 09/30/2021

Ph. 03	Schedule 3	Quantity	U/M	Unit Cost	Total Cost	Margin%	Unit Price	Total Price
Item 3		1.00	EA	$16,262.38	$16,262.38	0.00	$16,262.38	$16,262.38

Description COR 2 Additional Potholes Unplanned Utilities

Activity 9/2/2021 ***Crew*** Miscellanious Crew ***Activity Qty*** 1.00 EA

Rate: ***Days:***

Day: 1.00 EA Labor 1.00 ***Total Cost:*** $1,958.83

Hour: 0.00 EA Equipment 1.00 ***Unit Cost:*** $1,958.83

Actual: 1.00

Labor		Quantity	Hours	Days	Unit Cost	
FORE	Foreman	1.00	1.75 HR	1.00	111.26	$194.71
OP8	Operator DIR	2.00	2.00 HR	1.00	108.05	$432.20
PL4	Pipelayer LB4 DIR	2.00	2.00 HR	1.00	85.50	$341.99
LB1	Laborer LB1 DIR	3.00	2.25 HR	1.00	79.45	$536.28
MU	15% Mark up	1.00	1.00	1.00	225.92	$225.92

The total contains overtime cost of: 0.00 Total $1,731.10

Equipment		Quantity	Hours	Days	Unit Cost	
CT	Crew Truck (1 Ton)	1.00	2.25 HR	1.00	39.38	$88.61
VACTLR	Vaccuume Trailer	1.00	2.25 HR	1.00	29.00	$65.25
CONES	Cones (Reflective 100 Ea)	1.00	2.25 HR	1.00	14.63	$32.92
TCSGN	TC Sign / Stand Combo	5.00	2.25 HR	1.00	1.00	$11.25
MU	15% Mark up	1.00	1.00 HR	1.00	29.70	$29.70

Total $227.73

Act Note:

Activity 9/9/2021 ***Crew*** Miscellanious Crew ***Activity Qty*** 1.00 EA

Rate: ***Days:***

Day: 1.00 EA Labor 1.00 ***Total Cost:*** $3,735.04

Hour: 0.00 EA Equipment 1.00 ***Unit Cost:*** $3,735.04

Actual: 1.00

Labor		Quantity	Hours	Days	Unit Cost	
FORE	Foreman	1.00	3.50 HR	1.00	111.26	$389.42
OP8	Operator DIR	2.00	3.50 HR	1.00	108.05	$756.36
PL4	Pipelayer LB4 DIR	2.00	3.50 HR	1.00	85.50	$598.48
LB1	Laborer LB1 DIR	3.00	3.50 HR	1.00	79.45	$834.21
MU	15% Mark up	1.00	1.00	1.00	386.92	$386.92

The total contains overtime cost of: 0.00 Total $2,965.39

Equipment		Quantity	Hours	Days	Unit Cost	
CT	Crew Truck (1 Ton)	1.00	3.50 HR	1.00	39.38	$137.83
BH710	Backhoe 97-130 HP	1.00	3.50 HR	1.00	75.82	$265.37
VACTLR	Vaccuume Trailer	1.00	3.50 HR	1.00	29.00	$101.50
MU	15% Mark up	1.00	3.50 HR	1.00	75.70	$264.95

Total $769.65

Act Note:

Caleb Christensen 09/30/2021

Ph. 03	Schedule 3	Quantity	U/M	Unit Cost	Total Cost	Margin%	Unit Price	Total Price
Item 6		6,000.00	SF	$5.49	$32,945.36	-0.02	$5.49	$32,940.00

Description COR 3C Place Additional 3" AC Section

Activity Asphalt Paving Crew ***Crew*** Asphalt Paving Crew ***Activity Qty*** 120.00 TON

Rate:

Day: 24.00 TON

Hour: 12.00 TON

Days:

Labor 5.00

Equipment 5.00

Actual: 5.00

Total Cost: $32,945.36

Unit Cost: $274.54

Labor		Quantity	Hours		Days	Unit Cost	
FORE	Foreman	1.00	2.00	HR	5.00	111.26	$1,112.64
OP8	Operator DIR	3.00	2.00	HR	5.00	104.96	$3,148.92
DR4	Teamster DR4	2.00	2.00	HR	5.00	84.77	$1,695.32
PL4	Pipelayer LB4 DIR	1.00	2.00	HR	5.00	82.79	$827.88
LB1	Laborer LB1 DIR	1.00	2.00	HR	5.00	79.45	$794.49
MU	15% Mark up	1.00	1.00		1.00	1,137.03	$1,137.03
	The total contains overtime cost of:		0.00			Total	$8,716.28

Equipment		Quantity	Hours		Days	Unit Cost	
CT	Crew Truck (1 Ton)	2.00	2.00	HR	5.00	39.38	$787.60
LBOYPVR	Lee Boy Paving Machine	1.00	2.00	HR	5.00	110.00	$1,100.00
RLR3-4	36"-48" Roller Double Smooth	2.00	2.00	HR	5.00	34.10	$682.00
SKP210	Skip Loader 210	1.00	2.00	HR	5.00	37.15	$371.50
TKPOT	Tack Pot Trailer	1.00	2.00	HR	5.00	5.00	$50.00
SWPRTR	Sweeper Truck BARE	1.00	2.00	HR	5.00	41.72	$417.20
W120F	Wrighten Grinder	1.00	2.00	HR	5.00	300.00	$3,000.00
RST	Rental Superten	6.00	2.00	HR	5.00	95.00	$5,700.00
SKDSTR	Skid Steer	1.00	2.00	HR	5.00	32.95	$329.50
SKDACH	Skid Steer Attachments	1.00	2.00	HR	5.00	16.09	$160.90
LDR950	950 Wheel Loader & Forks	1.00	2.00	HR	5.00	83.32	$833.20
MU	15% Mark up	1.00	1.00	HR	1.00	2,014.78	$2,014.78
						Total	$15,446.68

Material		Quantity	Unit Cost	
ACHM	ACHM - Vulcan Materials Company	120.00	61.23	$7,347.60
TACK	TACK - Vulcan Materials Company	200.00	0.14	$28.40
MU	15% Mark up	1.00	1,106.40	$1,106.40
			Total	$8,482.40

Other		Quantity	Unit Cost	
DUMP 2	Dump Fee LA	1.00	170.00	$170.00
			Total	$170.00

Act Note:

Quotation

Vulcan Materials Company and Subsidiaries

Attn: ZACH

CHRISTENSEN BROTHERS GEN ENG
21834 BEAR VALLEY RD
APPLE VALLEY, CA 92308
Acct#: 218835

Quote Name: SIERRA HWY WATER MAIN REPLACEMENT /
Quote #: 897823

SIERRA HWY & BARRELL SPRINGS RD / PAL

PALMDALE, CA 93550

Date:	Thursday, April 29, 2021
Quote Created:	Wednesday, April 28, 2021
Effective From:	Thursday, April 29, 2021
Quote Expiration:	Friday, May 28, 2021
Price Expiration:	Thursday, September 30, 2021

Sales Rep : Joelle Donaldson
16013 Foothill Blvd
IRWINDALE, CA 91702
Phone: 951-316-4069
Fax :
Email: donaldsonj@vmcmail.com

Special Instructions:

** No Specifications have been submitted; quoting conventional mix with RAP and 70-10 oil.

**Due to the natural effects of segregation and the effects of post-delivery handling, Vulcan Materials Company guarantees that its aggregate products will meet the specifications on our submittal AT THE POINT OF DELIVERY ONLY, and when sampled in accordance with ASTM D75.

SAND & GRAVEL

					FOB	Estimated	Haul	Delivered *Estimated*
[redacted]								

ASPHALT

Plant	Product Name	Product #	Qty	U/M	FOB Plant	Estimated Tax	Haul Rate	Delivered *Estimated Tax Included*
PALMDALE HMA	203 B PG70-10	201501	100	Tons	$49.45	$5.07	6.71	$61.23
		Truck Type	STD FRT RATE					
[redacted]								
PALMDALE HMA	COLD MIX 3/8 SC8	457301	100	Tons	$82.50	$8.46	6.71	$97.67
		Truck Type	STD FRT RATE					
[redacted]								

MyVulcan Your account. Anytime. Anywhere. www.MyVulcan.com

Caleb Christensen 09/30/2021

Ph. 03	Schedule 3	Quantity	U/M	Unit Cost	Total Cost	Margin%	Unit Price	Total Price
Item 7		6,000.00	SF	$7.98	$47,899.06	-0.04	$7.98	$47,880.00

Description COR 3D Place Additional 16" Base Section

Activity Light Grading Crew ***Crew*** Grading Light ***Activity Qty*** 6,000.00 SF

Rate: ***Days:***

Day: 2,000.00 SF Labor 3.00 ***Total Cost:*** $47,899.06

Hour: 250.00 SF Equipment 3.00 ***Unit Cost:*** $7.98

Actual: 3.00

Labor		Quantity	Hours		Days	Unit Cost	
FORE	Foreman	1.00	8.00	HR	3.00	111.26	$2,670.24
OP8	Operator DIR	2.00	8.00	HR	3.00	108.05	$5,186.40
PL4	Pipelayer LB4 DIR	1.00	8.00	HR	3.00	85.50	$2,052.00
DR4	Teamster DR4	1.00	8.00	HR	3.00	87.32	$2,095.68
MU	15% Mark up	1.00	1.00		1.00	1,800.79	$1,800.79
	The total contains overtime cost of:		0.00			Total	$13,805.11

Equipment		Quantity	Hours		Days	Unit Cost	
CT	Crew Truck (1 Ton)	1.00	8.00	HR	3.00	39.38	$945.12
WT4000	Water Truck 4000 Gallon	1.00	8.00	HR	3.00	46.88	$1,125.12
LDR950	950 Wheel Loader & Forks	2.00	8.00	HR	3.00	83.32	$3,999.36
SKP210	Skip Loader 210	1.00	8.00	HR	3.00	37.15	$891.60
RLR3-4	36"-48" Roller Double Smooth Rental	2.00	8.00	HR	3.00	34.10	$1,636.80
RST	Superten	4.00	8.00	HR	3.00	95.00	$9,120.00
MU	15% Mark up	1.00	1.00	HR	1.00	2,657.70	$2,657.70
						Total	$20,375.70

Material		Quantity	Unit Cost	
CL2	Class 2 Base	375.00	21.00	$7,875.00
MU	15% Mark up	1.00	1,181.25	$1,181.25
			Total	$9,056.25

Sub		Quantity	Unit Cost	
COMPT	Compaction Testing	24.00	185.00	$4,440.00
MU	5% Mark up	1.00	222.00	$222.00
			Total	$4,662.00

Act Note:

Materials Group - Southern California

Inland Empire, High Desert & Inland Valley Locations

Oro Grande - 19409 National Trails Hwy, Oro Grande; **(760) 269-1118**

Mojave - 9350 Oak Creek Road, Mojave; **(760) 269-1118**

Scheerer - 18400 Falchion Road, Apple Valley; **(760) 895-6890**

Kevin Raleigh, Sales Representative

Phone: (760) 694-5159; email: *kraleigh@calportland.com*

Material Price Quotation

Date: 7/15/21 **Prepared By: SA**

Customer: **CHRISTENSEN BROTHERS .** Attn: **ZACHARY HISEY**

Acct #: **1026202** Phone: **(760) 240-5236**

Email: ZACH@CHRISTENSENBROTHERS.NET

Job Address: **Water Main Replacement in Sierra Hwy**

Sierra Hwy & Barrell Springs Rd

City: **Palmdale, 93550** Map Page: Zone: **DC-56**

Quantity (Tons)	Product Code	Product Description	FOB Material Per Ton		Haul Rate Transfers	Haul Rate Bottoms	Material & Delivery Per Ton Price Transfers	Material & Delivery Per Ton Price Bottoms	Plant Location
200	90001253	CLASS II BASE	$6.50		$14.50		$21.00		SQ

Comments: **Delivery price is based on 25 ton load minimum.** Environmental Fee: $.18 per ton

Price Expires On: **December 31, 2021**

All applicable sales tax will be added to above price. Waiting and unloading time is $115.00 per hour, (15 minutes allowed).

Prices quoted above are net, and material is subject to availability. Haul rates subject to change without notice.

CONDITIONS

1) Quotation is based upon the most reasonably direct route to delivery site.

2) Supplier will not be responsible for street cleaning in the vicinity of the disposal site.

3) Prices are based upon delivery during regular hours on normal work days to readily accessible points on the jobsite.

4) Any agreement made or contract accepted is subject to contingencies of manufacture, strikes, embargoes, fire, governmental regulations, delays in transit or any other contingencies beyond our control.

5) Supplier will have no equipment at the job site except trucks making deliveries.

6) Materials to be delivered to the site shall be designated and tested at suppliers plant prior to delivery.

Payment terms are net 10th of the month following. All applicable sales taxes will be added to price. All invoices are due and payable within 30 days of the original billing date. A Finance Charge of 1% per month on a pro-rated portion thereof (12% Annual Percentage Rate) will be charged upon all balances not paid within 30 days or first appearance on a Statement.

TESTING: Any tests required to confirm material acceptance for a given application shall be the sole responsibility of the Purchaser. Samples will be collected from the material point of origin which will be the designated point of acceptance.

The materials quoted are not warranted to be acceptable for any particular use, purpose or application, nor are they warranted to be acceptable for use in any particular environment or in conjunction with any particular soil conditions. Buyer's selection of the quoted materials unless otherwise acknowledged in writing by CalPortland Co., will be deemed without the advice, consultation, recommendation or suggestion of CalPortland Co. and buyer assumes all risk related to the selection of quoted product for any particular application.

Accepted By: Date:

Caleb Christensen 09/30/2021

Ph. 05	Schedule 5	Quantity	U/M	Unit Cost	Total Cost	Margin%	Unit Price	Total Price
Item 1		1.00	LS	$12,809.45	$12,809.45	0.00	$12,809.45	$12,809.45

Description COR 4 Existing Conditions Harold 1St

Activity 9/14/2021 ***Crew*** Miscellanious Crew ***Activity Qty*** 1.00 LS

Rate: ***Days:***

Day: 1.00 LS Labor 1.00 ***Total Cost:*** $3,986.56

Hour: 0.00 LS Equipment 1.00 ***Unit Cost:*** $3,986.56

Actual: 1.00

Labor		Quantity	Hours		Days	Unit Cost	
FORE	Foreman	1.00	3.50	HR	1.00	111.26	$389.42
OP8	Operator DIR	1.00	3.50	HR	1.00	108.05	$378.18
PL4	Pipelayer LB4 DIR	2.00	3.50	HR	1.00	85.50	$598.48
LB1	Laborer LB1 DIR	1.00	3.50	HR	1.00	79.45	$278.07
MU	15% Mark up	1.00	1.00		1.00	246.77	$246.77
	The total contains overtime cost of:		0.00			Total	$1,890.92

Equipment		Quantity	Hours		Days	Unit Cost	
CT	Crew Truck (1 Ton)	1.00	3.50	HR	1.00	39.38	$137.83
BH410	Backhoe 84-113HP	1.00	3.50	HR	1.00	50.04	$175.14
MU	15% Mark up	1.00	1.00	HR	1.00	46.94	$46.94
						Total	$359.91

Material		Quantity	Unit Cost	
MAT1	Material Only 1	1.00	838.46	$838.46
MU	15% Mark up	1.00	75.74	$75.74
			Total	$914.20

Sub		Quantity	Unit Cost	
WELD	Welding Sub Contractor	8.00	137.50	$1,100.00
MU	5% Mark up	1.00	55.00	$55.00
			Total	$1,155.00

Act Note:

Ticket No. _____

Christensen Brothers General Engineering Inc.

21834 Bear Valley Road P.O. Box 1286 Apple Valley, CA. 92307

Phone: (760) 240-5236 Fax: (760) 961-2307 Lic. No.893188

EXTRA WORK ORDER

Day & Date Work Performed:	Sep/14/2021	**Weather:**	Hot
To:	Palmdale water district	**Job No.**	521
ATTN:		**Project:**	Sierra highway

What agency is financially responsible to Christensen Brothers for this extra work:

REPORT: (Make sure your report is complete as possible, include such items; Itemization of work done, station No.'s, soil conditions, trench depths, utilities crossings, traffic control, ETC).

1. Around 11:40 i see water coming from the ground on the connection point at the sta 4+13.23 .
"Yesterday I connect the new 8" cml to the existing tee 8"x6" C.I. "
2. I dig and find the tee broke on the top because it's old and rust.

3. I dig bag 30" and cut the existing 8"cml and welding a flange ton put a temporary blow off just to keep the House on the corner whit water "1120 Harold ash ave Palmdale ca 93550"

LABOR

Labor Class	Employee Name	Reg Hrs.	OT Hrs.	SB
Foreman operator	Jorge J Avila	3.5		
Pipelayer	Cesar Arana	3.5		
Pipelayer	Oscar Arambula	3.5		
Labor	Hector Mendez	3.5		
Operator	Jesus Serrano	3.5		

EQUIPMENT

Equipment	Hrs.	SB
410 JD backhoe	3.5	
Tool truck	3.5	

Material Supplied by Christensen Brothers

Qty	Description
1	8" welding flange

Material Supplied by Others

Vendor	Ticket No.	Description

Owner Operator / Contract Labor / Rental Equipment

Vendor	Ticket No.	Description
Jk wdelder		Weld 8" flange on existing cml

Signature verifies time, labor, equipment & material to be correct. Payment for this extra work will be established when a document authorizing the extra work has been executed by the owner or their authorized agent. Signature also verifies that the extra work was completed and that this report was received.

Owners Representative.

Signature Date

Foreman

Signature Date

CHRISTENSEN BROTHERS GENERAL ENG. INC

PO BOX 1286
APPLE VALLEY, CA 92307
Phone: (760)240-5236
Fax:760-961-2307

P.O No. 521-2021-03

PURCHASE ORDER

To: Southland Pipe Corporation
Atten: Clayton Douglass Phone: 909-873-3820

DATE: Thursday September 30, 2021
DELIVERY:

PROJECT : Sierra Hwy Water Main Replacement

PROJECT #: 521

Item	Description	Qty	Unit	Unit Price	Total
1	8" 150# SLIP ON Weld Flanges	4	EA	45	$ 180.00
2	8"x6" CML Tee PLAIN ENDS	1	EA	195	$ 195.00
3	8" STEEL PIPE PEXPE CML X BARE	3	LF	58.33	$ 174.99
4	6" STEEL PIPE PEXPE CML X BARE	3	LF	46.66	$ 139.98
5	6" 150# SLIP ON Weld Flanges	3	EA	30	$ 90.00
					$
					$
					$
					$
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					$ -
					$ -
					$ -
					$ -
					$ -
				Subtotal	$ 779.97
				Tax	$ 58.49
				Total	$ 838.46

Signature Zachary Hisey

PERAZZO'S WELDING
Lic# 1029871
DIR# 1000051985

HOURLY RATE -

$ 137.50 PER. HR MONDAY THRU FRIDAY 8 HRS PER DAY

$ 162.50 PER HR OVERTIME RATES APPLY AFTER 8 HRS., NIGHT WORK AND ALL DAY SATURDAY.

$ 187.50 PER HR. DOUBLETIME RATE AFTER 12 HRS. SUNDAYS, AND HOLIDAYS

TRAVEL TIME OF 1 HR CHARGER FOR EACH DAY WORKED

THERE IS A 6 HR LABOR MIN. PER DAY.

Aluminum & Stainless welding is an additional $ 25.00 per hr.

There will be a $ 2.50 per hr increase on July 1, 2020 due to laborers predetermined increases.

PO Box 310569 | Fontana, CA 92331
P. 909-226-1371 | perazzoswelding inc@yahoo.com

Caleb Christensen 09/30/2021

Ph. 05	Schedule 5	Quantity	U/M	Unit Cost	Total Cost	Margin%	Unit Price	Total Price
Item 1		1.00	LS	$12,809.45	$12,809.45	0.00	$12,809.45	$12,809.45

Description COR 4 Existing Conditions Harold 1St

Activity 9/15/2021 ***Crew*** Miscellanious Crew ***Activity Qty*** 1.00 LS

Rate: ***Days:***

Day: 1.00 LS Labor 1.00 ***Total Cost:*** $4,432.31

Hour: 0.00 LS Equipment 1.00 ***Unit Cost:*** $4,432.31

Actual: 1.00

Labor		Quantity	Hours	Days	Unit Cost	
FORE	Foreman	1.00	4.00 HR	1.00	111.26	$445.06
OP8	Operator DIR	1.00	4.00 HR	1.00	108.05	$432.20
PL4	Pipelayer LB4 DIR	2.00	4.00 HR	1.00	85.50	$683.98
LB1	Laborer LB1 DIR	2.00	4.00 HR	1.00	79.45	$635.59
MU	15% Mark up	1.00	1.00	1.00	329.67	$329.67
	The total contains overtime cost of:		0.00		Total	$2,526.50

Equipment		Quantity	Hours	Days	Unit Cost	
CT	Crew Truck (1 Ton)	1.00	4.00 HR	1.00	39.38	$157.52
BH410	Backhoe 84-113HP	1.00	4.00 HR	1.00	50.04	$200.16
WT4000	Water Truck 4000 Gallon	1.00	1.00 HR	1.00	46.88	$46.88
MU	15% Mark up	1.00	1.00 HR	1.00	81.78	$81.78
					Total	$486.34

Material		Quantity	Unit Cost	
MAT1	Material Only 1	1.00	229.98	$229.98
MU	15% Mark up	1.00	34.49	$34.49
			Total	$264.47

Sub		Quantity	Unit Cost	
WELD	Welding Sub Contractor	8.00	137.50	$1,100.00
MU	15% Mark up	1.00	55.00	$55.00
			Total	$1,155.00

Act Note:

Ticket No. _____

Christensen Brothers General Engineering Inc.

21834 Bear Valley Road P.O. Box 1286 Apple Valley, CA. 92307

Phone: (760) 240-5236 Fax: (760) 961-2307 Lic. No.893188

EXTRA WORK ORDER

Day & Date Work Performed:	Sep/15/2021	**Weather:**	Hot
To:	Palmdale water district	**Job No.**	521
ATTN:		**Project:**	Sierra highway

What agency is financially responsible to Christensen Brothers for this extra work:

REPORT: (Make sure your report is complete as possible, include such items; Itemization of work done, station No.'s, soil conditions, trench depths, utilities crossings, traffic control, ETC).

1. Dig and expose the existing tee again to install a new tee and gate valve.

2. Install a new tee cml and this tee its long so i need to cut the line again and welding 3 more flanges to make Work.

3. Make a spool 30" long new 6" gate valve and its late and I don't have time to finish because the existing 6" cml for the FH it's on bud condition to welding another flange.

LABOR / **EQUIPMENT**

Labor Class	Employee Name	Reg Hrs.	OT Hrs.	SB	Equipment	Hrs.	SB
Foreman /operator	Jorge J Avila	4			Tool truck 454	4	
Pipelayer	Cesar Arana	4			410 JD BACKHOE	4	
Pipelayer	Oscar Arambula	4			Water truck	1	
Operator	Jesus Serrano	4					
Labor	Manuel Becerra	4					
Labor	Hector Mendez	4					

Material Supplied by Christensen Brothers

Qty	Description
3	8" welding flanges
1	8"x6" cml tee
3'	Cml pipe

Material Supplied by Others

Vendor	Ticket No.	Description

Owner Operator / Contract Labor / Rental Equipment

Vendor	Ticket No.	Description
Jk welder 3 hr		Weld 3 flanges

Signature verifies time, labor, equipment & material to be correct. Payment for this extra work will be established when a document authorizing the extra work has been executed by the owner or their authorized agent. Signature also verifies that the extra work was completed and that this report was received.

Owners Representative.

_____ _____

Signature Date

Foreman

_____ _____

Signature Date

Caleb Christensen 09/30/2021

Ph. 05	Schedule 5	Quantity	U/M	Unit Cost	Total Cost	Margin%	Unit Price	Total Price
Item 1		1.00	LS	$12,809.45	$12,809.45	0.00	$12,809.45	$12,809.45

Description COR 4 Existing Conditions Harold 1St

Activity 9/20/2021 ***Crew*** Miscellanious Crew ***Activity Qty*** 1.00 LS

Rate: ***Days:***

Day: 1.00 LS Labor 1.00 ***Total Cost:*** $4,390.58

Hour: 0.00 LS Equipment 1.00 ***Unit Cost:*** $4,390.58

Actual: 1.00

Labor		Quantity	Hours	Days	Unit Cost	
FORE	Foreman	1.00	4.00 HR	1.00	111.26	$445.06
OP8	Operator DIR	1.00	4.00 HR	1.00	108.05	$432.20
PL4	Pipelayer LB4 DIR	2.00	4.00 HR	1.00	85.50	$683.98
LB1	Laborer LB1 DIR	2.00	4.00 HR	1.00	79.45	$635.59
MU	15% Mark up	1.00	1.00	1.00	330.12	$330.12
	The total contains overtime cost of:		0.00		Total	$2,526.95

Equipment		Quantity	Hours	Days	Unit Cost	
CT	Crew Truck (1 Ton)	1.00	4.00 HR	1.00	39.38	$157.52
BH410	Backhoe 84-113HP	1.00	4.00 HR	1.00	50.04	$200.16
LDR950	950 Wheel Loader & Forks	1.00	2.00 HR	1.00	83.32	$166.64
WT4000	Water Truck 4000 Gallon	1.00	1.00 HR	1.00	46.88	$46.88
MU	15% Mark up	1.00	1.00 HR	1.00	85.68	$85.68
					Total	$656.88

Material		Quantity	Unit Cost	
MAT1	Material Only 1	1.00	45.00	$45.00
MU	15% Mark up	1.00	6.75	$6.75
			Total	$51.75

Sub		Quantity	Unit Cost	
WELD	Welding Sub Contractor	8.00	137.50	$1,100.00
MU	5% Mark up	1.00	55.00	$55.00
			Total	$1,155.00

Act Note:

Ticket No. _____

Christensen Brothers General Engineering Inc.

21834 Bear Valley Road P.O. Box 1286 Apple Valley, CA. 92307
Phone: (760) 240-5236 Fax: (760) 961-2307 Lic. No.893188

EXTRA WORK ORDER

Day & Date Work Performed:	Sep/20/2021	**Weather:**	Hot
To:	Palmdale water district	**Job No.**	521
ATTN:		**Project:**	Sierra highway

What agency is financially responsible to Christensen Brothers for this extra work:

REPORT: (Make sure your report is complete as possible, include such items; Itemization of work done, station No.'s, soil conditions, trench depths, utilities crossings, traffic control, ETC).

1. Set up traffic control to Dig the existing hydrant on the sta 4+13.23.

2. Dig and. And cut 3' to the south to weld another flange on the existing 6" cml and make spool 3' long to tiee in the fire hydrant

Back pour the trust block and backfill the hole clean the area.

LABOR

Labor Class	Employee Name	Reg Hrs.	OT Hrs.	SB
Foreman/operator	Jorge J Avila	4		
Pipelayer	Cesar Arana	4		
Pipelayer	Oscar Arambula	4		
Operator	Jesus Serrano	4		
Labor I	Hector Mendez	4		
Labor	Manuel Becerra	4		

EQUIPMENT

Equipment	Hrs.	SB
410 JD BACKHOE	4	
454 TOOL TRUCK	4	
WATER TRUCK	1	
LOADER CAT	2	

Material Supplied by Christensen Brothers

Qty	Description
3'	3' off 6" cml pipe
3	6" welding flanges

Material Supplied by Others

Vendor	Ticket No.	Description

Owner Operator / Contract Labor / Rental Equipment

Vendor	Ticket No.	Description
JK welding		Weld 3 6"flanges

Signature verifies time, labor, equipment & material to be correct. Payment for this extra work will be established when a document authorizing the extra work has been executed by the owner or their authorized agent. Signature also verifies that the extra work was completed and that this report was received.

Owners Representative.

Signature Date

Foreman

Signature Date

P A L M D A L E W A T E R D I S T R I C T

B O A R D M E M O R A N D U M

DATE: October 5, 2021 **October 11, 2021**

TO: Board of Directors **Board Meeting**

FROM: Mr. Scott Rogers, Engineering/Grant Manager

VIA: Mr. Adam Ly, Assistant General Manager
Mr. Dennis LaMoreaux, General Manager

RE: ***AGENDA ITEM NO. 7.2 – CONSIDERATION AND POSSIBLE ACTION TO APPROVE AN EXTENSION OF MILESTONES AND MINIMUM USAGE, OR PAYMENT, CONTAINED IN COUNTY SANITATION DISTRICT CONTRACT NO. 5001 WITH PALMDALE WATER DISTRICT AND AUTHORIZE GENERAL MANAGER LaMOREAUX TO FINALIZE AND EXECUTE SAID EXTENSION. (NO BUDGET IMPACT – ENGINEERING/GRANT MANAGER ROGERS)***

Recommendation:

Staff recommends that the Board approve an extension of milestones and minimum usage, or payment, contained in County Sanitation District Contract No. 5001 with the Palmdale Water District and authorize General Manager LaMoreaux to finalize and execute said extension.

Alternative Options:

The Board can choose to not approve the extension.

Impact of Taking No Action:

County Sanitation District Contract No. 5001 with the Palmdale Water District will expire.

Background:

On October 16, 2016, the County Sanitation District No. 20 and the District entered into an Agreement for the purchase and sale of recycled water with the mutual goal of developing projects that will put all recycled water to beneficial use. Projects for this use are being implemented through the Palmdale Water District and the Palmdale Recycled Water Authority. An amendment was approved for extension in September 2019 by both Boards. Most recently, a letter was sent to the Sanitation Districts outlining delays in implementing recycled water projects and requesting an extension of the milestones for Contract No. 5001 (attached). The Sanitation Districts are considering the contract extension at their October 14, 2021 Board meeting.

Strategic Plan Initiative/Mission Statement:

This item is under Strategic Initiative No. 1- Water Resource Reliability.
This item directly relates to the District's Mission Statement.

BOARD OF DIRECTORS
PALMDALE WATER DISTRICT
VIA: Mr. Adam Ly, Assistant General Manager
Mr. Dennis LaMoreaux, General Manager October 5, 2021

Budget:

This item will not affect the budget.

Supporting Documents:

- PWD March 22, 2016 letter to Sanitation Districts regarding "contract for recycled water produced by the Palmdale Water Reclamation Plant (LACSD District No. 20)"

- PWD September 20, 2021 letter to Sanitation Districts regarding "request for extension of milestones for County Sanitation District (CSD) Contract Amendment No. 5001A dated September 23, 2019 (amendment)"

- Contract No. 5001 and Amendment No. 5001A with Sanitation Districts

- Amendment No. 5001B: Second Amendment to Agreement for Purchase and Sale of Recycled Water with Sanitation Districts

Since 1918

PALMDALE WATER DISTRICT

2029 East Avenue Q • Palmdale, California 93550 • Telephone (661) 947-4111
Fax (661) 947-8604
www.palmdalewater.org
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Twitter: @palmdaleH2O

March 22, 2016

Mr. Raymond Tremblay
Facilities Planning, Department Head
Sanitation Districts of Los Angeles County
1955 Workman Mill Road
Whittier, CA 90601-1400

RE: CONTRACT FOR RECYCLED WATER PRODUCED BY THE PALMDALE WATER RECLAMATION PLANT (LACSD DISTRICT NO. 20)

Dear Mr. Tremblay:

Palmdale Water District (PWD) is eager to negotiate a new agreement with Sanitation Districts of Los Angeles County (District 20) to accomplish our mutual goal of developing projects that will put all recycled water to beneficial use. As you are aware, there are several agreements and MOU's either approved or under development between local agencies related to the purchase, distribution, and operation of recycled water within the Antelope Valley (AV). This includes a long-term effort to reallocate recycled water in the AV to best serve the communities that generate it. It appears that process for the full reallocation will continue indefinitely. This process is now endangering projects that can put the recycled water to beneficial use. Therefore, PWD requests the negotiation and approval of a contract with Sanitation Districts of Los Angeles County (District 20) to commit all (100%) of the recycled water produced from the District 20 Palmdale Water Reclamation Plant to PWD. The request is being made per Sections 2.4 and 2.5 of the existing agreement dated January 23, 2008 entitled "Agreement for purchase and sale of recycled water and related facilities – Lancaster Water Reclamation Plant and Palmdale Water Reclamation Plant" between County Sanitation Districts 14 and 20 of Los Angeles County and Los Angeles County Waterworks District 40.

The projects that are planned to put recycled water to beneficial use are being implemented through PWD and the Palmdale Recycled Water Authority (PRWA). As you are aware, PRWA is a joint powers agency formed by the City of Palmdale and PWD. They will use recycled water both directly for urban irrigation and construction water and as an indirect potable water resource for PWD customers. Attached is a summary of the status of the projects. As can be seen, they are

either currently operating, direct use for McAdam Park and construction water, or have progressed through preliminary design and the CEQA process. These projects also have received approval from the State of California (State) for planning grants and potentially design and construction grants and low interest loans. The lack of progress of the full reallocation of recycled water is jeopardizing this assistance from the State and, therefore, the viability of the projects. This request is critical to the LASD expressed intent to not only manage recycled water in the AV, but to see it gets used in a beneficial way.

It is vital that PWD have an agreement for all of the recycled water produced from District 20, Palmdale Reclamation Plant. Said agreement will provide PWD with the assurance that the recycled water is available to properly plan, commit resources, pursue funding, and implement the projects summarized in the attachment. The transfer is also crucial for the accurate reporting of future water supplies as part of our 2015 Urban Water Management Plan Update. The requested agreement will provide PWD with the assurance to accurately report recycled water supplies in our UWMP, and continue with the implementation of water supply projects that utilize recycled water. The California Water Code (CWC) Section 10620(a) requires urban water suppliers to prepare and adopt a UWMP consistent with CWC Section 10640. The UWMP must be adopted by the PWD Board and submitted to DWR by July 1, 2016.

PWD would like to thank the Sanitation Districts of Los Angeles County staff for diligently and professionally working with PWD on the implementation of these exciting recycled water reuse projects. I am confident that you and your staff appreciate the effort and commitment PWD has dedicated to develop these projects, which supports the need for this commitment request. PWD staff is available to meet and discuss the process with you at any time. Please feel free to contact me at (661) 456-1017 or dlamoreaux@palmdalewater.org if you should have any questions.

Very truly yours,

DENNIS D. LaMOREAUX,
General Manager

DDL/MRK/dd

cc: Mr. Matthew Knudson, Palmdale Water District, Assistant General Manager
Mr. Mike Mischel, City of Palmdale, Director of Public Works, PRWA Assistant Executive Director

PWD and PRWA Recycled Water Projects Summary

The following is a summary and status of the various recycled water projects actively being developed by Palmdale Water District:

Project Title: **Palmdale Regional Groundwater Recharge and Recovery Project**

Project Description: The Palmdale Regional Groundwater Recharge and Recovery Project (PRGRRP) will utilize recycled water for groundwater banking, storage and extraction to meet future municipal water demands. The California State Water Project (SWP) water and the recycled water will be blended together and then recharged to the Antelope Valley Groundwater Aquifer. The project would be constructed in Phases:

Cost:

Phase 1a:	$55,000,000
Phase 1b:	$15,000,000
Phase 2:	$15,000,000

Recycled Water Supply:

Phase	Time Period	Recycled Water	Groundwater Underflow	SWP (blend water)
Phase 1a	2019 to 2021	2,000 AFY	1,690	8,000
Phase 1a	2022 to 2038	4,000–6,000 AFY	1,690	6,000 – 8000
Phase 1b	2039 to 2059	7,000 AFY	1,690	9,000
Phase 2	2059 to 2068	TBD	1,690	8,000

Planning Grants: Received Proposition 1 Planning Grant of $75,000

Phase 1a Construction Grant: $15,000,000 (apply summer 2016)

Phase 1a Construction Loan: $40,000,000 (apply summer 2016)

Schedule:

Feasibility Study	Completed in early 2015
Preliminary Design Report	Completed in November 2015
Draft EIR	Completed in November 2015
Public Comment Period	November 25, 2015 to January 11, 2016
Final EIR	Schedule for June 2016
Title 22 Engineering Report	Draft Completed in March 2016 and submitted to SWRCB
Final Design	2017
Construction	2017 to 2018
Start Operation	2019

In addition to the PRGRRP, the PRWA is progressing with the implementation of Direct-Reuse of recycled water for the following projects. The following is a summary of the direct-use projects being implemented by the PRWA:

Project Title: **Direct Reuse**

Project Description:

Phase 2 – Water Line (2017 to 2018)

The Recycled Water Line Phase 2 project would directly reuse 500 acre-feet of recycled water from District No. 20's Palmdale Tertiary Wastewater Treatment Plant. The sponsoring entity is the Palmdale Recycled Water Authority which is comprised of the Palmdale Water District and the City of Palmdale. The proposed project would deliver tertiary-treated

recycled water to two categories of end uses: irrigation for Schools, Parks, and Others (SPO); irrigation for Landscape Maintenance Districts (LMDs) that are common landscaped areas irrigated from a single connection in residential areas.

Future Phases of Direct Use Water Lines (2018 to 2025)

Remaining 1,200 acre-feet of direct reuse water would serve other schools, parks and outdoor landscaping in the Palmdale area.

Cost: Phase 2: $7,500,000
Future Phases: $15,000,000

Water:

Phase	Time Period	Recycled Water	State Water Project (blend water)
Phase 2 – Direct Use	2017 to 2018	500 AFY	n/a
Future Direct Use	2018 to 2025	1,200 AFY	n/a

Planning Grants: Received Proposition 1 Planning Grant of $75,000
Phase 2 Construction Grant: $2,600,000 (apply late spring or early summer 2016)
Phase 2 Construction Loan: $4,900,000 (apply late spring or early summer 2016)
Schedule:

Preliminary Design Report	Completed in January 2014
Mitigated Negative Declaration	Completed in November 2015
Final Design	Currently 75% design completed
Construction	Late 2016 to Late 2017
Start Operation	2018

Project Title: **Recycled Water for Construction Activity**

Project Description:

During the drought period, there was an increase in demand for recycled water for dust control during and other construction project activity. PWD and PRWA will continue to encourage the use of recycled water for construction activity within the PRWA service area.

PALMDALE WATER DISTRICT
A CENTURY OF SERVICE

BOARD OF DIRECTORS

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DENNIS D. LaMOREAUX
General Manager

ALESHIRE & WYNDER LLP
Attorneys

ACWA
PROUD MEMBER

September 20, 2021

Mr. Robert C. Ferrante
Chief Engineer/General Manager
Sanitation Districts of Los Angeles County
1955 Workman Mill Road
Whittier, CA 90601

RE: REQUEST FOR EXTENSION OF MILESTONES FOR COUNTY SANITATION DISTRICT (CSD) CONTRACT AMENDMENT NO. 5001A, DATED SEPTEMBER 23, 2019 (AMENDMENT)

Dear Mr. Ferrante:

On October 16, 2016, the County Sanitation District No. 20 of Los Angeles County (CSD) and Palmdale Water District (PWD) entered into an Agreement (Contract No. 5001) for purchase and sale of recycled water. On September 23, 2019, the first amendment (Contract 5001A) was executed extending the milestones for the Palmdale Regional Groundwater Recharge and Recovery and Purple Pipe projects and the Mandatory Minimum Annual Payment schedule.

This letter provides updates to the status of the two projects, funding requests and delays in their progress, which are considered beyond the control of the PWD. In addition, this letter includes requests for the extension of the associated milestones and adjustment of the Mandatory Minimum Annual Payment schedule. PWD intends to meet and confer with CSD to discuss the status and progress of the two projects in the coming months as project details are further determined.

STATUS OF PROJECTS:

Palmdale Regional Groundwater Recharge and Recovery Project (PRGRRP)

Below is a summary of the tasks completed and updates for the PRGRRP project.

Test Well at Recharge Basin Area – PWD completed a test well in December 2020/January 2021 and discovered an impermeable highly compressed decomposed granite (like bedrock) at a depth of 300 feet. The material encountered in the test well location was similar to what was discovered during the drilling of the monitoring wells, which are approximately 1,000 feet to the north of the test well location, back in 2017. The test well was drilled in the location of the recharge basin area to collect more information on the geology and determine the recovery well extraction rate. The groundwater modeling was performed again using this information, and the results showed a reduced recharge volume of 5,000 acre-feet per year (AFY). This is substantially less than the project goals of 24,000 AFY and makes the site infeasible for the proposed project. The test well was converted to a monitoring well, and the recharge and recovery project was put on hold.

Upon determining the lower recharge capacity of the site, PWD staff developed a scope of work for determining the feasibility of implementing a water augmentation alternative to the recharge and recovery project.

Groundwater and Surface Water Augmentation Feasibility Study – PWD hired an engineering firm to determine the feasibility of utilizing tertiary recycled water through an advanced water treatment plant to implement either direct groundwater injection or surface water augmentation versus the previously pursued surface spreading groundwater recharge and recovery. The feasibility report was completed in April 2021.

Implementation of the Project – PWD is currently working on a request for proposals to hire a consulting firm to perform the preliminary engineering, permitting, and construction of a demonstration facility for the water augmentation project. The preliminary schedule for the overall project indicates six to 10 years for the project to be fully completed and operational.

- Preliminary Engineering 1.5 years
- Permitting 2 years
- Demonstration Facility 2 years
- Design 1.5 years
- Construction 3 years

Amount of Funding Required – The project is currently estimated to require a range of $74 to $100 million for construction of the advanced treatment plant and infrastructure for water augmentation project.

Grant/Loan Applications – Due to the changes to the project, new funding applications will be submitted to secure funding before the project can be constructed. As of the date of this letter, PWD is looking at the various funding options to implement the overall project. However, PWD has funding for the preliminary engineering, permitting, and demonstration facility.

Purple Pipe (Recycled Water Line Phase 2)

Final Design - 100% design is completed.

Initial Study/Mitigated Negative Declaration - This environmental impact report was certified in January 2015 by the Palmdale Recycled Water Authority (PRWA or Authority).

Amount of Funding Required - $7,500,000 is needed for construction of the Project. As of the date of this letter, PRWA has not secured the required funding for the project. The funding efforts are detailed below.

Grant/Loan Applications - PRWA did apply for a combination grant and loan from the SWRCB's State Revolving Fund Program in 2016 for the full cost of the Project and was not considered for funding. In 2020, the application progressed to the point of financial review and funding before the PRWA Board suspended work on the Project. Staff then notified the SWRCB, and the Project was moved to the comprehensive list.

In October 2019, the Authority prepared an application to the State of California Division of Financial Assistance for a grant of $881,208 under the Proposition 1 – Integrated Regional Water Management (IRWM) Program and awarded in March 2020. The PRWA Board declined to accept the funding and suspended the Recycled Water Master Plan for 2021.

Status – The PRWA Board of Directors voted to suspend the Recycled Water Master Plan and Recycled Water Phase 2 for 2021 at a regular meeting held April 19, 2021. Once the suspension is removed, staff will move forward.

NEW SCHEDULE AND MILESTONE REQUESTS:

PRGRRP

Under Section 5.8.A. (Milestone 1 – Funding for First Phase Using Recycled Water) of the Amendment of September 23, 2019, the PWD was required to secure financing for the Palmdale Groundwater Recharge and Recovery Project by October 26, 2021. For reasons noted above, the PWD requests that the requirement for financing be delayed to account for the completion of preliminary engineering, permitting, and demonstration facility activities.

Purple Pipe (Recycled Water Line Phase 2)

Under Section 5.11.A. (Milestone 1 – Award of Phase 2 Contracts) of the Amendment of September 23, 2019, the PWD was required to have awarded all contracts for construction of the

Recycled Water Line Phase 2 Project by October 26, 2021. Due to delays beyond the control of the PWD, it is requested that this milestone requirement be moved to October 26, 2023.

Section 5.15. Mandatory Minimum Annual Payment

Request that the schedule for mandatory minimum annual payment as shown in Section 5.15 of the CSD Contract No. 5001A, dated September 23, 2019 (Amendment) needs to be adjusted a minimum of two years to account for the projects' delays.

Thank you for considering this request. Please feel free to contact me if you have any questions.

Very truly yours,

DENNIS D. LaMOREAUX,
General Manager

DDL/dd

cc: Adam Ly, PWD Assistant General Manager
Scott Rogers, PWD Engineering Manager

SANITATION DISTRICTS OF LOS ANGELES COUNTY

AGREEMENT FOR PURCHASE AND SALE OF RECYCLED WATER

between

COUNTY SANITATION DISTRICT No. 20 OF LOS ANGELES COUNTY

and

PALMDALE WATER DISTRICT

CSD CONTRACT No. 5001

October , 2016

TABLE OF CONTENTS

EXHIBITS

AGREEMENT FOR PURCHASE AND SALE OF RECYCLED WATER

This Agreement for Purchase and Sale of Recycled Water ("**Agreement**") is dated October __, 2016 ("**Effective Date**") and is between County Sanitation District No. 20 of Los Angeles County (the "**Sanitation District**") and the Palmdale Water District ("**PWD**"). The Sanitation District and PWD are referred to in this Agreement individually as a "**Party**" and collectively as the "**Parties.**"

A. The Sanitation District. The Sanitation District is a county sanitation district organized and existing under the County Sanitation District Act, Chapter 3, Part 3, Division 5 of the Health and Safety Code, Section 4700 *et seq.* This Agreement exercises authority conferred by law including but not limited to the County Sanitation District Act and Section 1210 and Division 7 (Chapters 7 and 7.5) of the California Water Code.

B. Palmdale Plant. The Sanitation District owns and operates a water reclamation plant in the City of Palmdale known as the Palmdale Water Reclamation Plant ("**Plant**").

C. Legal Authority to Sell Recycled Water. Under California Water Code Section 1210, the Sanitation District has the exclusive right to all recycled water produced by its water reclamation plant. The Sanitation District is authorized under Health & Safety Code Sections 4744 and 4745 to sell or beneficially use any recycled water recovered from the operation of the Plant.

D. Recycled Water Ordinance. The District Recycled Water Ordinance establishes requirements for all users of the Sanitation District's recycled water, including the requirement that all users execute a user agreement. This Agreement constitutes the user agreement required by the Ordinance.

E. PWD's Recharge Project. PWD is an irrigation district formed underDivision 11 of the California Water Code. PWD is pursuing a project, the Palmdale Regional Groundwater Recharge and Recovery Project ("**Recharge Project**"), which is intended to recharge groundwater by surface spreading a blend of recycled water and imported water at a site in northeast Palmdale, a portion of which site is located on Sanitation District property. The construction and operation of the Recharge Project is subject to regulatory approval.

F. PWD's Intended Recharge Use. PWD intends to progressively increase the proportion of recycled water in its blend of recycled water and imported water during the first ten years of the Recharge Project, pending approval by the State and the California Regional Water Quality Control Board, Lahontan Region ("**Regional Board**"). Specifically, PWD proposes to use 2,000 AFY for the first three years of the project, 3,000 AFY for the next two years, and 4,000 AFY for the following five years. Additional flows are proposed, but actual usage will be contingent upon regulatory approval and the availability of imported water to blend. Separate agreements between the Sanitation District and PWD may be necessary in the future to address requirements for the use of recycled water for groundwater recharge, such as source control or monitoring and reporting requirements that will put in place once the groundwater recharge permit has been issued.

G. Authority's Purple Pipe Project. PWD, together with the City of Palmdale, has formed and is a member of the Palmdale Recycled Water Authority ("**Authority**"). The Authority, a joint powers authority, plans to extend an existing "purple pipe" recycled water distribution system for direct reuse ("**Purple Pipe Project**") in the City of Palmdale. The phased extension is described in Table 1 of Section 5.2 of the Authority's Recycled Water Facilities Plan Initial Study/Mitigated Negative Declaration ("**MND**"). A separate agreement between PWD and the Authority will address the use of recycled water allotted under this Agreement for Purple Pipe purposes.

H. Other Regional Recycled Water Commitments. The Sanitation District has previously entered into several contracts in which the Sanitation District committed to make a portion of recycled water from the Plant available to Los Angeles County Waterworks District No. 40 ("**Waterworks**"), the City of Palmdale, and the City of Lancaster. The Sanitation District also manages the remaining recycled water produced at the Plant by delivering that water to property leased from Los Angeles World Airports ("**LAWA**") for agricultural irrigation purposes. Because recycled water demands vary daily and seasonally, the Sanitation District delivers initially unused recycled water to its storage reservoir facilities for later use. The varying demands from these recycled water contracts necessitate that the Sanitation District remain sufficiently informed of customers' planned recycled water use and require that all recycled water deliveries are subject to withdrawal rate limits.

I. Allocations Among Other Users. Since 2013, the Sanitation District, Waterworks, the City of Palmdale, and the City of Lancaster have been and are continuing to negotiate an allocation of rights between the agencies to purchase recycled water produced by the Sanitation District at the Plant and by County Sanitation District No. 14 of Los Angeles County at its Lancaster Water Reclamation Plant. Because the City of Palmdale intends to eventually transfer the majority of its proposed allotment of recycled water produced at the Plant to the Authority (with the exception of 400 AFY for a proposed Power Plant in the City of Palmdale), the City of Palmdale's allotment will be reduced by the quantity of recycled water under this Agreement once the negotiations are finalized.

J. PWD's Intent. By entering into this Agreement, PWD intends to provide the Sanitation District with assurance that PWD will use the recycled water for beneficial reuse purposes and will properly plan, commit resources, pursue funding, and implement the Recharge Project and Purple Pipe Project.

K. Parties' Intent. The Parties intend by this Agreement to provide for the conditions under which the Sanitation District will supply recycled water to PWD for the purpose of the Recharge Project and the Purple Pipe Project.

The Parties therefore agree as follows:

1. **Definitions.** For the purposes of this Agreement, the terms below have the following definitions:

   1.1. "**AFY**" means acre-feet per year.

1.2. "**Alternative Water**" means PWD's potable water supply which may include groundwater, imported water, or other water sources.

1.3. "**Chief Engineer**" means the Chief Engineer and General Manager of the District or his or her authorized designee.

1.4. "**Recycled Water Ordinance**" means the *Ordinance Providing for the Establishment and Enforcement of Regulations Pursuant to the Water Recycling Requirements for Recycled Water Users*, adopted February 28, 2007, as may be amended from time to time, which is attached as Exhibit B.

1.5. "**Fiscal Year**" means the District's fiscal year, beginning on July 1 of any given year, and continuing through June 30 of the following calendar year.

1.6. **"Permit"** means any WDR, WRR, or other permit issued by the Regional Board to the Sanitation District relating to the use of recycled water.

1.7. "**Regional Board**" means the applicable California Regional Water Quality Control Board.

1.8. "**Reuse Site**" means an authorized location at which recycled water provided by PWD is used.

1.9. "**Regulations**" means the Sanitation District's "Requirements for Recycled Water Users," which is attached as Exhibit C.

1.10. **"Requirements"** means the disinfected tertiary recycled water standard as defined in Section 60301.230 of the July 16, 2015 version of Title 22, Division 4, Chapter 3 of the California Code of Regulations.

1.11. "**State Board**" means the California State Water Resources Control Board.

1.12. "**WRR**" means Waste Discharge Requirements or Water Recycling Requirements established for the Plant by the Regional Board (currently Board Order R6V 2012-0002) as may be amended from time to time.

2. **Duration.** The duration of this Agreement is 30 years from the Effective Date. The duration of the Agreement may be extended pursuant to the conditions of Section 13.

3. **Principal Duties and Privileges of the Parties.**

3.1. PWD shall purchase recycled water from the Sanitation District under the terms set forth in this Agreement.

3.2. The Sanitation District shall sell to PWD up to 5,325 AFY of recycled water from the Plant subject to availability and the conditions described in Section 5.

3.3. PWD shall not draw in excess of the volumes specified in Section 5. PWD may draw from the Sanitation District only the volume of recycled water that the PWD can put to beneficial use.

3.4. PWD shall comply with the Regulations, the Sanitation District's Recycled Water Ordinance, and all relevant federal, state, regional, and local laws and regulations regarding conveyance and use of recycled water. PWD acknowledges that any violation of this Agreement constitutes a violation of the Sanitation District's Recycled Water Ordinance.

4. **Facilities for Delivery and Distribution of Recycled Water**

4.1. The Sanitation District shall determine the location of and provide to PWD up to two mutually acceptable points of connection (each a "**Point of Connection**"), one along the existing offsite effluent pipeline and one on the site of the Plant from which PWD may draw recycled water. The Chief Engineer or her authorized designee may from time to time change the location of a Point of Connection, and following an opportunity to meet and confer, will provide reasonable notice (no less than 18 months) to PWD to relocate a Point of Connection. PWD shall bear all costs if a Point of Connection location is changed.

4.2. PWD shall be responsible for all costs to construct any and all additional facilities required to deliver and distribute the recycled water purchased by PWD, including pumps, pipelines, meters, controls, and other facilities. PWD shall bear all operation and maintenance costs related to any PWD delivery and distribution facilities.

4.3. The Chief Engineer, in her sole discretion, may permit some of PWD delivery facilities to be located on the site of the Plant as a matter of convenience. Following construction of any PWD facilities on District property, the Chief Engineer may require relocation and PWD shall bear all costs arising out of or relating to that relocation. All PWD facilities located on Sanitation District property will be subject to the approval of the Chief Engineer and execution of a separate agreement, including payment of any reasonable costs, fees, or rent.

4.4. PWD shall reimburse the Sanitation District for any operational and maintenance costs incurred by the Sanitation District in connection with PWD's facilities.

5. **Recycled Water Quantity**. The quantity of water subject to this Agreement is as follows:

5.1. Allotment. The Sanitation District shall make available to PWD certain amounts of recycled water produced at the Plant from which PWD may draw ("**Allotment**"). PWD shall not draw more than:

A. 4,000 AFY for the Recharge Allotment ("**Recharge Allotment**"); and

B. 1,325 AFY for the Purple Pipe Allotment ("**Purple Pipe Allotment**").

5.2. Assignment. PWD may assign its Allotment, or any portion of the Allotment, to the Authority upon the execution of an assignment agreement in a form approved by the Chief Engineer and Sanitation District's counsel and subject to the terms of this Agreement.

5.3. Additional Temporary Supply. The Chief Engineer may, from time to time, notify PWD of the temporary availability of additional volumes of recycled water in excess of the Allotment. However, PWD's temporary receipt of any volume in excess of its Allotment will not permanently increase PWD's Allotment.

5.4. Permanent Increases to Allotment. The Chief Engineer will notify PWD if additional permanent supplies of recycled water become available at the Plant. PWD may request an increased allotment pursuant to the terms contained in that notice.

5.5. Mandatory Reductions. PWD acknowledges that circumstances beyond the control of the Sanitation District may result in a temporary or permanent decrease in the volume of recycled water available to PWD. Further, some water stored in reservoirs will be lost to evaporation. In the event of a decrease in availability, the Chief Engineer shall promptly notify PWD and allocate the available supply of recycled water from the Plant in the following manner:

A. The Chief Engineer shall first ensure that the Sanitation District receives an adequate supply to meet Sanitation District needs at the Plant and at any other Sanitation District-owned or Sanitation District-operated facilities.

B. The Chief Engineer shall next allocate recycled water to any environmental use, or other use required of the Sanitation District by state or federal law or regulation.

C. The Chief Engineer shall then allocate the remaining supply of recycled water among PWD and other recycled water users in proportion to their actual use during the previous fiscal year.

D. If the allocated recycled water is less than the minimum payment equivalent, then PWD shall be responsible only for payment for the portion of allotment made available during that fiscal year.

5.6. Withdrawal Restrictions. Recycled water provided to PWD by the Sanitation District will be subject to withdrawal restrictions on a gallon per minute and/or daily maximum withdrawal rate, which will be periodically set by the Sanitation District. The Sanitation District shall notify PWD of the current maximum withdrawal rate. The determination of maximum withdrawal rates are based on the following: (1) Plant operational needs; (2) other Sanitation District operational needs; (3) the needs of the Sanitation District's agricultural operation; (4) the needs of other recycled water customers; (5) seasonal trends in influent flow to the Plant; and (6) the withdrawal location.

5.7. Allotment Transfer. If, after the 10-year anniversary of the Effective Date of this Agreement, PWD has not or is not using some or all of its Allotment, then a portion or all of the unused Allotment is subject to transfer to other parties as follows:

A. If another allotment holder requests to acquire additional recycled water above its allotment and has a viable project that will be completed within three years as determined by the Sanitation District, the Parties shall meet and confer within 45 days of the Sanitation District requesting a meeting regarding the allotment change. The Sanitation District shall not enter into an agreement for the transfer of recycled water allotment that reduces PWD's Allotment if PWD can demonstrate to the Sanitation District (at the sole discretion of the Sanitation District) that PWD has a viable project in progress that will be completed within three years and that would be negatively affected by the proposed reduction in allotment.

B. If a third party (not holding an allotment) within Los Angeles County wishes to purchase recycled water, the Sanitation District will first direct the third party to pursue purchasing recycled water from an allotment holder. If none of the allotment holders will accommodate the demand and the third party has a viable project that can be completed within three years as determined by the Sanitation District, the Sanitation District will consider sale of recycled water to the third party and a reduction in allotments. If the Sanitation District proposes to reduce PWD's Allotment, the Parties shall meet and confer within 45 days of the Sanitation District requesting a meeting regarding the allotment change. The Sanitation District shall not enter into an agreement for the transfer of recycled water allotment that reduces PWD's Allotment if PWD can demonstrate to the Sanitation District (at sole discretion of the Sanitation District) that PWD has a viable project in progress that will be completed within three years and that would be affected by the proposed reduction in allotment.

C. If the Sanitation District reduces PWD's Allotment under this Section 5.7, the reduction will apply for the remaining duration of the Agreement, subject to the other allotment reduction provisions of this Agreement.

5.8. Recharge Project Milestones. PWD must meet certain milestones toward the completion of its Recharge Project in order to continue to receive its Recharge Allotment. The Recharge Project milestones are as follows:

A. Milestone 1 (Funding for First Phase Using Recycled Water): Within three years after the execution of this Agreement, PWD must secure and present the Sanitation District with records demonstrating that PWD has secured sufficient project funding to construct the first phase of the Recharge Project that will use recycled water under this Agreement.

B. Milestone 2 (Award of Contracts): Within three years after securing sufficient funding for the first phase of the Recharge Project that will use recycled water, PWD must award all of the contracts necessary to complete construction of a phase of the Recharge Project that will use recycled water under this Agreement.

C. Milestone 3 (Operation): Within one year after completing construction of a phase of the Recharge Project that will use recycled water, PWD must begin operation of the Recharge Project using recycled water from the Plant.

5.9. Recharge Abandonment and Milestones Deadlines. If the Recharge Project is abandoned or if PWD fails to meet any of the milestones by the dates listed in Section 5.8, then PWD's Recharge Allotment will be automatically reduced as of the date of the unmet milestone, to the higher of (i) PWD's highest use over the prior 3 fiscal years or (ii) the amount of PWD's minimum payment equivalent. The Chief Engineer, at her sole discretion, may extend PWD's Recharge milestones deadlines upon proof of a project delay not caused by, or within the control of, PWD.

5.10. Other Recharge Allotment Reductions. The Recharge Allotment will be reduced upon the occurrence of any of the following events:

A. If PWD's Board approves any Recharge Project documents (including but not limited to the EIR, engineering reports, groundwater discharge applications and permits, and design documents) indicating that the Recharge Project will use less than 4,000 AFY of the recycled water supplied under this Agreement by the 15th fiscal year after the Effective Date of this Agreement, then the Recharge Allotment will be automatically reduced by the difference between indicated usage and the Recharge Allotment.

B. If after five years of operation, the Recharge Project is not using at least 2,000 AFY of the recycled water supplied under this Agreement, then the Recharge Allotment will be automatically reduced by the difference between the maximum annual usage over the 5-year period and 2,000 AFY of the Recharge Allotment.

C. If after ten years of operation the Recharge Project is not using at least 4,000 AFY of the recycled water supplied under this Agreement, then the Recharge Allotment will be automatically reduced by the difference between the maximum annual usage over the 10-year period and 4,000 AFY of the Recharge Allotment.

D. If PWD's volume of blending water (imported water from the State Water Project) for the Recharge Project limits the amount of recycled water permitted for groundwater recharge in the Recharge Project, the Chief Engineer may, at her sole discretion, extend the deadline(s) of this Section 5.10.

5.11. Purple Pipe Milestones. PWD must meet certain milestones toward the completion of the Purple Pipe Project in order to continue to receive its Purple Pipe Allotment. The Purple Pipe milestones are as follows:

A. Milestone 1 (Award of Phase 2 Contracts): Within three years after the Effective Date of this Agreement, PWD must award all contracts necessary to complete construction of Phase 2 of the Purple Pipe Project and PWD must connect to at least one end user.

B. Milestone 2 (Operation of Phase 2): Within three years after PWD awards all of the contracts necessary to complete construction of Phase 2 of the Purple Pipe Project, PWD must begin operation of Phase 2 of the Purple Pipe Project by delivering Plant recycled water to an end user.

C. Milestone 3 (Award of Phase 3 Contracts): Within 3 years after operation of Phase 2 of the Purple Pipe Project, PWD must award all contracts necessary to complete construction of the next phase of the Purple Pipe Project.

D. Milestone 4 (Operation of Phase 3): Within 3 years after completing construction of the next phase of the Purple Pipe Project, PWD must begin operating the next phase of the Purple Pipe Project by delivering recycled water from the Plant to an end user.

5.12. Purple Pipe Abandonment and Milestones Deadlines. If any phase of the Purple Pipe Project is abandoned or if PWD fails to meet any of the milestones listed in Section 5.11, then PWD's Purple Pipe Allotment will be automatically reduced, as of the date of the unmet milestone, to the higher of (i) PWD's use in the prior fiscal year, or (ii) the amount of PWD's minimum payment equivalent. The Chief Engineer, at her sole discretion, may extend PWD's Purple Pipe milestones deadlines based on upon proof of a project delay not caused by, or within the control of, PWD.

5.13. Purple Pipe Allotment Reduction. The Purple Pipe Allotment will be reduced as follows:

A. If PWD's Board or any other board having authority over the Purple Pipe Project approves any Purple Pipe Project documents (including but not limited to the EIR, engineering reports, groundwater discharge applications and permits, and design documents) indicating that Purple Pipe Project will use less than 1,325 AFY, then PWD's allotment will be automatically reduced by the difference between the indicated usage and the Purple Pipe Allotment.

B. If after ten years of Phase 2 Purple Pipe operation, the Purple Pipe is not delivering at least 1,325 AFY of recycled water, then the Purple Pipe Allotment will automatically be reduced by the difference between the Purple Pipe usage during the prior fiscal year and the Purple Pipe Allotment.

5.14. Use Estimate. No later than July 1 of each year, PWD shall submit to the Sanitation District a written use estimate for the following calendar year for planning purposes.

5.15. Mandatory Minimum Annual Payment. There is no mandatory minimum volume that PWD must withdraw from the Plant. However, in order to maintain the allotments established under this Agreement, PWD must pay the Sanitation District a minimum payment each year whether or not recycled water is drawn by or delivered to PWD. The minimum payment will be equivalent to the payment that would be due for the following volumes each fiscal year as follows:

Year of Contract	Minimum Payment Equivalent (in AFY)
1	0
2	0
3	100
4	300
5	1200
6	2100
7	2900
8	3250
9	3600
10	3950
11	4325
12	4575
13	4825
14	5075
15+	5325

A. If PWD's Allotment is reduced below the minimum payment equivalent pursuant to the schedule above, the Allotment volume will become the basis for the minimum payment amount in that year.

B. The Sanitation District may, at its sole discretion, temporarily reduce the minimum payment amount if PWD's receipt of blending water is reduced to a level that limits the amount of recycled water PWD is permitted to use for groundwater recharge.

C. If PWD obtains an increased allotment under Section 5.4, then beginning 5 years after the increased allotment is effective, the minimum payment will be increased by an amount equal to 50 percent of the portion of the increased allotment that exceeds the prior minimum payment amount.

D. If PWD fails to pay the full amount of any minimum payment within 90 days after mailing of the annual invoice, the Sanitation District may, after five business days prior written notice, disconnect facilities at the Point of Connection and may remove all of PWD's facilities located on Sanitation District property, at PWD's cost.

5.16. Disclosure Regarding Limits to Availability.

A. Excess Supply. The Sanitation District will only make available excess volumes of recycled water from the Plant. As used here, "excess volumes" means any recycled water actually produced by the Plant and not otherwise needed for Sanitation District purposes, environmental uses, or to meet regulatory requirements imposed on the Sanitation District.

B. Other Contracts. The Sanitation District may enter into contracts to sell recycled water from the Plant to other buyers in volumes that will not cumulatively exceed the Plant's production.

C. Emergency & Shortage Conditions. Situations of emergency or shortage may reduce the volume of recycled water produced by the Plant.

D. Normal Variations in Availability. The volume of water available for draw from the Plant is not necessarily constant and may vary throughout each 24-hour period, throughout each calendar week, and throughout each calendar year depending on weather conditions and seasonal changes in water use.

5.17. Release and Waiver Regarding Limits to Availability. PWD acknowledges the limits to availability described above and releases the Sanitation District from any past, current, and future claims arising out of or related to the volume of water furnished under this Agreement.

6. **Records and Reports.**

6.1. Monthly Reports. Within thirty days after the end of the calendar month, PWD shall inform the Sanitation District of the volume of recycled water used at each site during that month. PWD shall transmit any data needed for the Sanitation District's recycled water program and its preparation of reports to be submitted to the Regional Board.

6.2. Records and Additional Reporting. PWD shall keep records and make reports in writing to the District as required by any permit in effect at that time, including any requirements of the Sanitation District's Recycled Water Ordinance. Typical reporting parameters include quantity of and uses for recycled water.

6.3. Sanitation District's Right of Entry and Examination. The Sanitation District or its representative has the right to enter any of PWD's property and any reuse site at which the Sanitation District's recycled water is used for the purpose of verifying the volume or type of use of recycled water and to verify conformance with all water reuse laws and regulations. In addition, immediately upon request by the Sanitation District, the PWD shall provide full access to any of PWD's meters and to any records that measure, register, record, or reflect recycled water flow, delivery, or distribution volumes.

7. **Quality of Recycled Water.**

7.1. Applicable Water Reclamation Requirements.

A. The Sanitation District shall make available to PWD recycled water that conforms to the disinfected tertiary recycled water standard as defined in Section 60301.230 of the July 16, 2015 version of Title 22, Division 4, Chapter 3 of the California Code of Regulations (the "**Requirements**"). The Plant currently uses a nitrification/denitrification treatment process to reduce total nitrogen levels in the recycled water.

7.2. More Stringent Water Reclamation Requirements.

A. PWD may undertake steps to meet more stringent requirements at its discretion and expense.

B. If the Regional Board imposes more stringent requirements for use of the recycled water than agreed upon in this Agreement, then PWD may, at its discretion and expense, undertake steps to meet those requirements. If PWD is unwilling to meet the more stringent requirements, then either Party may terminate this Agreement by giving written notice to the other Party.

7.3. Point of Compliance of Water Quality. The point of compliance for determining whether the recycled water provided by the Sanitation District meets the Requirements will be immediately after the final treatment process at the Plant. Recycled water used for surface spreading must meet requirements in Title 22, Division 4, Chapter 3, Article 5.1: Indirect Potable Reuse: Groundwater Replenishment-Surface Application, and requirements identified in the groundwater recharge permit to be issued by the Regional Board.

7.4. Interruption of Service.

A. PWD acknowledges that factors beyond the control of the Sanitation District could cause operational difficulties or other constraints at the Plant resulting in the production of recycled water that does not meet the Requirements, WRRs, or successor permits. In such case, the Chief Engineer may temporarily limit availability of recycled water from the Plant.

B. The Sanitation District will not be liable for any costs or damages incurred by PWD arising out of or relating to any interruption in service or limitation of availability due to an inability of the Sanitation District to meet the WRRs or Requirements. PWD acknowledges that a standby water supply may be necessary to prevent any damages that might result from an interruption in the supply of recycled water from the Plant. PWD hereby releases the District from any and all claims and actions arising out of an interruption in service.

8. **Price of Recycled Water.**

8.1. Pricing Policy. The Sanitation District has adopted a standard recycled water pricing policy.

8.2. Pricing Plan. The annual unit price for each acre-foot of recycled water drawn by PWD under this Agreement will be the greater of (A) or (B), but not to exceed (C) below.

A. Minimum Recycled Water Cost. 30% of the Sanitation District's unit cost of operation and maintenance of the Plant, as defined in Section 8.4.A, during the fiscal year in which the recycled water was drawn, rounded to the nearest cent; or

B. Shared Savings. One-half of the result determined by subtracting

i. PWD's costs associated with the use of recycled water, as defined Section 8.4.B, during the fiscal year divided by the total amount of recycled water, in acre-feet, drawn from the Plant during the fiscal year, from

ii. the water rate ("**Water Rate**"), as defined in Section 8.4.C

C. Maximum Recycled Water Cost. 100% of the Sanitation District's unit cost of operation and maintenance ("**O&M**") of the Plant, as defined in Section 8.4.A, during the fiscal year in which the recycled water was drawn rounded to the nearest cent.

8.3. Carryover. In the event that the total price determined by the calculation in Section 8.2.B above is less than the total price determined by Section 8.2.A, then the difference between Sections 8.2.B and 8.2.A. shall be carried over and subtracted in the price determination of Section 8.2.B., in the next fiscal year.

8.4. Method of Price Determination. A sample determination of the price of recycled water is attached as Exhibit A. The numbers contained in Exhibit A are for illustrative purposes only and are not to be construed as representing actual values.

A. Sanitation District O&M Costs. The Sanitation District's unit cost of O&M of the Plant will be determined on the basis of the Sanitation District's accounting and other regularly maintained records and information. It is calculated on a fiscal year basis by taking the total O&M costs of the System, and dividing it by the number of acre-feet of treated effluent discharged from the Plant.

B. PWD Use Costs. PWD's costs associated with the use of recycled water means all costs incurred by PWD, properly allowable under the Sanitation District's accounting principles, attributable to PWD's recycled water distribution system, including but not limited to: capital costs incurred subsequent to the date of this contract (excluding depreciation); right of way acquisition costs; reasonable administration and special program costs related to the use of recycled water; pump station construction; reservoir and pipeline replacement; operation and maintenance costs, including those incurred by the Sanitation District and charged to PWD; and energy costs, and reduced or offset by all economic benefits realized through low interest loans, investment earnings on debt service funds, rebates, grants, and other subsidies obtained by PWD from external sources to defray the cost of providing recycled water or constructing reclamation facilities. PWD shall supply this information to the Sanitation District in writing within 45 days after the end of each Sanitation District fiscal year.

C. Water Rate. The Water Rate means 90% multiplied by the lowest priced water that is (1) suitable for the purposes described in this Agreement and (2) available in quantities commensurate with those provided for under this Agreement.

8.5. Right to Audit Other Party's Books. The Sanitation District may audit PWD's books, accounts and records during normal business hours upon at least 48 hours prior notice to PWD. PWD may audit the relevant books, accounts and records of the Sanitation District during normal business hours upon at least 48 hours prior notice to the Sanitation District.

9. **Invoice and Payment.**

9.1. Quarterly Estimated Invoices. Within 60 days after the end of each of the first three quarters of each fiscal year, the Sanitation District will invoice PWD for the estimated price of the recycled water drawn by PWD during that period. The estimated price included in the Quarterly Invoices will consist of two amounts:

A. Recycled Water Costs. The amount of recycled water delivered during each quarter multiplied by the unit cost of recycled water charged by the Sanitation District to PWD during the preceding fiscal year.

B. Operation and Maintenance Costs. One-fourth of the previous fiscal year costs associated with the operation and maintenance of the recycled water delivery system incurred by the Sanitation District and attributable to PWD.

9.2. Annual Reconciliation Invoice. Within 90 days after the close of each fiscal year, the Sanitation District will provide a reconciliation invoice to PWD that will include:

A. Recycled Water Costs. The total amount of recycled water delivered during the current fiscal year multiplied by the unit price of recycled water as specified under Section 8.4.

B. Operation and Maintenance Costs. The total amount associated with the operation and maintenance of the recycled water delivery system incurred by the Sanitation District and attributable to PWD during the current fiscal year.

The Annual Reconciliation Invoice shall add the total amounts calculated from Sections 9.2.A and 9.2.B and subtract the totals of that fiscal year's three Quarterly Estimated Invoices as calculated from Section 9.1.

9.3. Payment. PWD shall pay the full amount of each invoice within 45 days after the date of the invoice from the Sanitation District.

9.4. Failure to Timely Pay. Interest will accrue at the rate of 10% per year for all invoices that remain unpaid after 45 days. If PWD fails to pay the full amount of any invoice within 60 days after mailing of that invoice, the Chief Engineer may, within five business days following written notice, disconnect PWD's facilities at the point of connection. This remedy is in addition to all other remedies provided by law.

10. **Distribution and Delivery.**

10.1. PWD may resell some or all of the recycled water purchased under this Agreement to a third party user within Los Angeles County.

10.2. The Authority may act as an operator of the Purple Pipe facilities. PWD shall enter into an agreement or agreements with the Authority that address the operations and management of the recycled water distribution facilities and administration of the direct reuse program. PWD shall provide the Sanitation District with the opportunity to review and comment on the agreement(s) prior to execution.

11. **Use of Recycled Water.**

11.1. Legal and Regulatory Responsibility. PWD shall bear all legal and regulatory responsibility associated with the use of the recycled water it draws from the Plant. PWD bears all responsibility from and after the Point of Connection.

11.2. Permissible Uses. PWD acknowledges that recycled water has limited uses. PWD shall ensure that the recycled water drawn from the Plant is only used for those uses or purposes that are legally permissible.

11.3. Compliance with District Regulations. PWD shall comply with, and shall cause all reuse sites to which it or any other entity distributes or delivers recycled water obtained under this Agreement to comply with appropriate state and regulatory criteria and, the Regulations, and the Recycled Water Ordinance.

11.4. Recharge Project Compliance.

A. PWD shall apply for and comply with the permits required to use recycled water for groundwater recharge at the Recharge Project.

B. PWD shall develop an operations plan for use of recycled water at the Recharge Project to ensure compliance with all requirements. PWD shall submit to the Sanitation District the operations plan for review.

C. The Sanitation District shall have the right to review and approve all engineering studies, permit applications, and regulatory correspondence regarding the use of recycled water produced by the Sanitation District.

11.5. Reuse Sites.

A. PWD must submit an Application for Recycled Water Use to the Sanitation District for any new reuse site that proposes to use recycled water from the Plant.

B. PWD shall periodically inspect the reuse sites, as required by the appropriate regulatory agency. In addition, under Water Code Section 13523.1(b)(5) and the Regulations, PWD shall ensure that the Sanitation District or its representative(s)

shall be permitted to enter upon any reuse site at any time for purposes of verifying compliance with reuse requirements.

C. PWD shall provide a copy of the effective Permits, the Recycled Water Ordinance, and Regulations to the site supervisors of the reuse sites.

11.6. Noncompliance. In the event that reuse does not comply with applicable rules and regulations, the Sanitation District shall not bear any legal or financial responsibility for enforcement actions or remediation efforts. PWD shall promptly notify the Sanitation District of any pending or final enforcement activities involving non-compliant use of recycled water.

11.7. Spills. PWD shall notify the Sanitation District of any spills of recycled water in accordance with criteria established in the Regulations and the Recycled Water Ordinance.

12. Duplication of Service

12.1. PWD acknowledges that the Sanitation District currently has contracts with Waterworks, Edwards Air Force Base, and the Cities of Palmdale and Lancaster for provision of recycled water. The Sanitation District shall not sell any recycled water from the Plant on a retail basis within PWD's service area. Nothing in this Agreement restricts the Sanitation District from making recycled water available to its own facilities, or to third parties that are authorized to sell or otherwise transfer recycled water within the Antelope Valley region either directly or by contract.

12.2. PWD acknowledges that it has reviewed the Service Duplication Law of the State of California embodied in Chapter 8.5 of Part 1, Division 1 of the Public Utilities Code (Section 1501, et seq.) and believes that the rights and responsibilities conferred by those statutes do not pertain to this Agreement. PWD recognizes, however, that the Sanitation District would be reluctant to enter into this Agreement without PWD's waiver and indemnity set forth in Section 12.3.

12.3. PWD waives and relinquishes any rights it may have against the Sanitation District pursuant to the Service Duplication Law and further agrees to indemnify, defend, and hold harmless the Sanitation District, its officers, agents and employees, from and against any and all claims, liabilities, losses, costs, damages, actions, causes of action (whether legal, equitable or administrative), fees of attorneys, and other expenses which the Sanitation District may sustain or incur by reason of or in consequence of the assertion by others, whether successful or not, of rights expressed in the Service Duplication Laws of the State of California, Chapter 8.5 of Part 1, Division 1 of the Public Utilities Code (Section 1501, et seq.) or similar laws, with regard to the sale of recycled water to PWD under this Agreement. The Sanitation District shall promptly notify PWD in writing of any such assertion of rights and is granted the right to direct or otherwise participate in any defense of such claim. The foregoing indemnity extends to the Service Duplication Law and any similar law which may be enacted after the date of this Agreement, to any amendments to the Service Duplication Law

enacted after the date of this Agreement, and to any recodification of the Service Duplication Law, irrespective of form, which may subject the Sanitation District to liability to any privately owned public utility or any other person, association, corporation, or political subdivision because of the sale of recycled water to PWD.

13. **Indemnification.**

13.1. General Indemnities.

A. PWD shall indemnify the Sanitation District, and its officers, directors, agents, and employees ("**Sanitation District & Affiliates**") from and against any and all claims, actions, suits, causes of action (whether legal, equitable, or administrative), liabilities, losses, costs, demands, damages, attorneys' fees and other expenses (together "**Claims**"), which arise out of or are otherwise related to (i) PWD's or the Authority's use of recycled water from the Sanitation District that meets the quality standards contained in the Permits, as described in Section 7 of this Agreement, (ii) any claims for interruption of service to PWD or the Authority as provided in Section 7.4 of this Agreement, or (iii) PWD facilities (including connection points) located on Sanitation District property. This indemnity includes, but is not limited to, causes of action based on breach of warranty, dangerous condition of public property, inverse condemnation, trespass, and nuisance.

B. PWD acknowledges that the Sanitation District currently has recycled water contracts with Waterworks, Edwards Air Force Base, and the Cities of Palmdale and Lancaster. PWD acknowledges that its allotment under this Agreement results from the termination of an unused allotment to Waterworks that may be allocated to the City of Palmdale. The City of Palmdale has indicated that it intends to transfer the majority of its proposed allotment of recycled water produced at the Plant to the Authority. The Parties also understand that the quantity of recycled water subject to this Agreement will be subtracted from Palmdale's proposed allotment. PWD hereby indemnifies and agrees to defend the Sanitation District & Affiliates from any and all Claims that arise out of or relate to any claim by the Authority, Waterworks, the City of Palmdale, the City of Lancaster, Edwards Air Force Base, or any other party with respect to relative allotments of recycled water from the Plant.

13.2. Support of Sanitation District with Regional Board. PWD understands and agrees that any opposition by PWD, acting independently or as a member of any joint powers organization (including the Authority), to the Sanitation District's efforts of obtaining or complying with the Permits or any other Regional Board request, including but not limiting to any waste discharge requirements, water recycling requirements, monitoring and reporting programs or cleanup and/or abatement orders is a material breach of this Agreement that entitles the Sanitation District to immediately terminate this Agreement and obtain all costs (including attorneys fees) from PWD.

13.3. Regulatory Fines Indemnity.

A. PWD acknowledges that the Sanitation District, as the entity holding the Permits for the Plant, may be subject to monetary fines or penalties imposed by the Regional Board for violations of the Permits.

B. If the Sanitation District becomes the responsible party in an action resulting in a fine or penalty, the Sanitation District shall be financially responsible for the payment of that fine or penalty.

C. If after meeting and conferring with PWD the Chief Engineer finds upon substantial evidence that PWD or any user of recycled water received under this Agreement are responsible for any action resulting in a fine or penalty, then PWD shall reimburse the Sanitation District for the total amount within 5 business days after receiving notice of any such fine or penalty.

D. If the Chief Engineer finds that a third-party purchaser of recycled water from PWD is responsible for any action resulting in such a fine or penalty, PWD shall join with the Sanitation District in any legal or other effort to recover for the Sanitation District all or a part of the fine or penalty imposed against the Sanitation District by the Regional Board for such action.

14. **Option Period.**

14.1. The Sanitation District grants to PWD a one-time option to extend the duration of this Agreement for a period of up to 20 years (the "**Extended Period**") from the end of its original duration (the "**Expiration Date**"), as set forth in Section 1 above. To exercise this option, PWD must not be in default of any of the provisions of this Agreement and must notify the Chief Engineer of its intent to exercise this option not earlier than 2 years nor later than 1 year prior to the Expiration Date.

14.2. If PWD exercises its option to extend the duration of this Agreement, PWD will be subject to an immediate adjustment of its Allotment, not to exceed the average of its prior 5 years usage. PWD may maintain its adjusted allotment for the first 3 years of the Extended Period. The price of the recycled water charged to PWD shall conform to the Sanitation District's pricing policy in effect at the time PWD exercises its option. Any and all of the remaining terms and conditions of this Agreement will be subject to renegotiation and the consent of the Parties. The negotiations must be conducted reasonably and in good faith provided, however, that if the Parties fail to arrive at mutually agreed-upon terms by the Expiration Date, this option will expire.

15. **Assignments.** Except as stated in Section 5.2, PWD may not transfer or assign any of its rights or duties under this Agreement.

16. **Notices.** All notices, correspondence, reports, or other written documents exchanged between the Parties under this Agreement must be addressed to the Sanitation District or PWD as set forth below or as the Sanitation District or PWD may later designate in writing,

and shall be sent through the United States mail, nationally-recognized overnight carrier, or personal delivery, together with a courtesy copy by email.

16.1. TO DISTRICT

If by U.S. Mail:

Chief Engineer and General Manager
County Sanitation Districts of Los Angeles County
Post Office Box 4998
Whittier, CA 90607-4998
Attn: Technical Services Department

If by Overnight Carrier or Personal Delivery

Chief Engineer and General Manager
County Sanitation Districts of Los Angeles County
1955 Workman Mill Road
Whittier, CA 90601
Attn: Technical Services Department

Email: MTremblay@lacsd.org

16.2. TO PWD

General Manager
Palmdale Water District
2029 East Avenue Q
Palmdale, CA 93550

Email: dlamoreaux@palmdalewater.org

17. **General Provisions.**

17.1. Third Party Beneficiary. The Authority is an intended third party beneficiary of the provisions of this Agreement relating to the Purple Pipe Project.

17.2. Integration. This Agreement, including its Exhibits, supersedes any and all other agreements, either oral or in writing, between the Parties with respect to PWD's purchase and use of the Sanitation District's recycled water.

17.3. Modification. Any modification of the Agreement will be effective only if it is in writing and signed by all both Parties.

17.4. Interpretation. Each Party has received independent legal advice from its attorneys with respect to the advisability of executing this Agreement and the meaning of its provisions. This Agreement has been drafted through a joint effort of the Parties and

their counsel and therefore shall not be construed against either of the Parties, but instead in accordance with its fair meaning.

17.5. Choice of Law and Venue. This Agreement is governed by California law. Any legal action arising out of this Agreement must be brought in the Los Angeles County Superior Court, Central Division.

17.6. Counterparts. This Agreement will be executed in duplicate counterpart originals, one for each Party, and each duplicate original will be deemed to be an original, but all of which will constitute one and the same agreement.

17.7. Chief Engineer's Authority. The Chief Engineer is delegated the authority to take all actions on behalf of the Sanitation District in connection with any approvals, consents, or actions required of or by the Sanitation District under this Agreement and to approve and execute minor amendments to the terms of this Agreement.

The Parties are executing this Agreement to be effective as of the Effective Date.

PALMDALE WATER DISTRICT

By: _____
President,
Palmdale Water District

ATTEST

_____
Secretary of the Board of Directors

APPROVED AS TO FORM

By: _____
Palmdale Water District Counsel

COUNTY SANITATION DISTRICT
NO. 20 OF LOS ANGELES COUNTY

By: _____
Chairperson, Board of Directors
OCT 20 2016

ATTEST

_____
Secretary to the Board of Directors

APPROVED AS TO FORM:
Lewis Brisbois Bisgaard & Smith, LLP

By: _____
District Counsel

Exhibit A – Sample Recycled Water Price Calculations

Assumptions:

Flow-weighted average of O&M of Palmdale WRP = ... $500.00/AF

PWD's Recycled Water System Costs (RWSC) = ...$100,000.00

PWD's Alternative Water Cost = ... $400.00/AF

PWD's Recycled Water Use = ... 100.00 AF

Previous Fiscal Year Carry-Over (PFYCO) = ...$0

Calculations:

(A) Minimum Recycled Water Unit Price:

30% of flow-weighted O&M of Palmdale WRP = ... $150.00/AF

(B) Shared Savings Calculation:

Water Rate (90% of Alternative Water Cost) = $360.00/AF

$$\frac{1}{2}\times\left(Water\ Rate-\frac{RWSC+PFYCO}{Recycled\ Water\ Use}\right)=$$

$$\frac{1}{2}\times\left(\$360.00/AF-\frac{\$100{,}000.00+\$0}{100.00\ AF}\right)=$$ .....-$320.00/AF

(C) Maximum Recycled Water Unit Price:

100% of flow-weighted O&M of Palmdale WRP = ... $500.00/AF

Results:

Option A is the controlling value because it is greater than the Shared Savings calculation (Option B) and does not exceed the maximum price (Option C).

Annual Unit Price of Recycled Water = $150.00/AF

Note:

In the following year, carryover cost is included because the Shared Savings calculation (Option B) is less than the minimum recycled water price (Option A).

PFYCO for following year =

(Minimum Recycled Water Rate – Shared Savings Rate) × (Recycled Water Use) =

[$150.00/AF – (-$320.00/AF)] × (100AF) = $47,000.00

Exhibit B – Sanitation District Recycled Water Ordinance

ORDINANCE PROVIDING FOR THE ESTABLISHMENT AND ENFORCEMENT OF REGULATIONS PURSUANT TO WATER RECYCLING REQUIREMENTS FOR RECYCLED WATER USERS

The Board of Directors of County Sanitation District No. 20 of Los Angeles County (hereinafter "District") ordains as follows:

1. AUTHORITY

This Ordinance is enacted pursuant to authority contained in the County Sanitation District Act, California Health and Safety Code Sections 4700 *et seq.*, and exercises authority conferred by law including but not limited to Division 7, Chapter 7, Article 4, Sections 13520 *et seq.* of the Water Code.

2. SHORT TITLE

This Ordinance shall be known as the **District No. 20 Recycled Water Ordinance** and may be cited as such.

3. PURPOSE

The purpose of this Ordinance is to provide for the establishment and enforcement of regulations pertaining to the administration of waste discharge requirements ("WDRs") issued by the California Regional Water Quality Control Board, Lahontan Region ("Regional Board"), pursuant to Water Code Section 13263, water reclamation requirements ("WRRs") issued pursuant to Section 13523, or a master reclamation permit ("Master Permit") issued pursuant to Section 13523.1. This Ordinance will govern the use of recycled water in accordance with the Water Recycling Criteria established by the California Department of Health Services ("DHS") pursuant to Water Code Section 13521, and codified in Title 22, Division 4, Chapter 3 of the California Code of Regulations.

4. FINDINGS AND DETERMINATIONS

For over forty years, the County Sanitation Districts of Los Angeles County have owned and operated wastewater treatment plants capable of producing water that meets all requirements for recycled water, including but not limited to regulations and other directives issued by the DHS and the Regional Board.

No person may recycle water or use recycled water until a California Regional Water Quality Control Board either establishes WDRs, WRRs, or Master Permits (collectively, "Permits") or determines that no such Permits are necessary.[1] As the producer of recycled water, the District oversees the production and use of recycled water pursuant to Permits issued by the Regional Board.

[1] California Water Code § 13524.

5. APPLICATION

This Ordinance shall apply to any and all Users to whom the District distributes recycled water, either directly or through an intermediate party, including Purveyors that act as such intermediate parties in delivering recycled water to Users.

6. DEFINITIONS

For purposes of this Ordinance, the following definitions shall apply to the following terms:

a) **"Authorized Recycled Water Use Site"** is a site authorized for use of recycled water; the uses of recycled water and the site location must comply with Permits as issued by the Regional Board.
b) **"Chief Engineer"** is the Chief Engineer and General Manager of the District.
c) **"Master Reclamation Permit"** contains requirements established by the Regional Board pursuant to Water Code Section 13523.1.
d) **"Person"** is any individual, partnership, corporation, governmental subdivision or unit of a governmental subdivision, or public or private organization or entity of any character.
e) **"Purveyor"** is any public, private, investor-owned, or other water utility that is legally permitted to distribute water and that obtains recycled water from the District for distribution to Users.
f) **"Recycled water"** is water which, as a result of treatment of waste, is suitable for a direct beneficial use or a controlled use that would not otherwise occur, and is therefore considered a valuable resource.
g) **"Regulations"** are requirements established by the Chief Engineer that govern the design and construction of recycled water use facilities and the use of recycled water, in accordance with the Uniform Statewide Reclamation Criteria. These may also be called the District's "*Requirements for Recycled Water Users.*"
h) **"State Water Resources Control Board"** is an agency of the state of California created by the Legislature and exercising its powers pursuant to the Porter-Cologne Water Quality Control Act, Water Code Section 13000 *et seq.*
i) **"User"** is any person to whom the District distributes recycled water under the Permits issued to the District by the Regional Board, including end users to whom recycled water is conveyed through an intermediate party. User does not include persons who have been independently issued Permits from the Regional Board.
j) **"User Agreement"** is a contractual agreement between the User and/or Purveyor and the District that establishes the conditions for recycled water service and use.
k) **"Waste Discharge Requirements"** are requirements that are established by the Regional Board pursuant to Water Code Section 13263.
l) **"Water Recycling Criteria"** are the criteria established by the DHS generally dealing with the levels of constituents of recycled water, and the means for assurance of reliability under the design concept, which will result in safe recycled water from the standpoint of public health. The criteria are established pursuant to Water Code Section 13521, and are contained in the California Code of Regulations, Title 22, Division 4, Chapter 3; also referred to as the "Uniform Statewide Reclamation Criteria."
m) **"Water Recycling Requirements"** are requirements that are established by the Regional Board pursuant to Water Code section 13523.

7. ADMINISTRATION

The District shall administer this Ordinance so as to comply with the terms and conditions of Permits as issued by the Regional Board.

8. REQUIREMENTS

A. A User and/or Purveyor who receives the District's recycled water must comply with the terms of this Ordinance and with the following requirements:

1) Water Recycling Criteria, as established by the California Department of Health Services, Title 22, Division 4, Chapter 3 of the California Code of Regulations;
2) Requirements, rules, regulations, and/or restrictions established by the California State Water Resources Control Board;
3) Requirements, rules, regulations, and/or restrictions established by the Regional Board.
4) Permits issued by the Regional Board, which are incorporated herein and made a part hereof, to the extent that they are applicable to persons subject to this Ordinance;
5) Requirements, rules, regulations, and/or restrictions, pertaining to the quality of recycled water, adopted by any agency maintaining jurisdiction over any person subject to this Ordinance;
6) Regulations adopted by the Chief Engineer pursuant to Section 9 of this Ordinance.

A User and/or Purveyor must keep apprised of any changes to the foregoing requirements. A User and/or Purveyor must conform to any applicable changes to the requirements; a violation thereof is the User's and/or Purveyor's sole responsibility. A violation of any of the foregoing requirements will constitute a violation of this Ordinance.

B. A person seeking to operate a proposed Authorized Recycled Water Use Site ("Authorized Site"), and directly receive the District's recycled water, must comply with the following:

1) The person must file an application therefore with the District prior to using the recycled water. Persons who have already executed a User Agreement with the District are exempt from this requirement until such time as the Agreement is amended or revised.

2) The person must execute a User Agreement, which includes the District's terms and conditions for use of recycled water at the Authorized Site. Any violation of a User Agreement shall be a violation of this Ordinance and punishable as such. Any Person that has been a User for more than one year prior to the effective date of this Ordinance, and has otherwise been in conformance with all legal requirements and directives of the District, shall be exempt from this subparagraph (2) for a period of one year from said effective date.

A person seeking to operate a proposed Authorized Site, and receive the District's recycled water through a Purveyor, must file an application with the Purveyor prior to any delivery of recycled water. Such application shall not be effective until it has been approved by the District.

9. ENFORCEMENT

The Chief Engineer is granted authority to establish Regulations governing the use of recycled water as necessary, which shall be in accordance with existing law.

The Chief Engineer shall administer, implement, and enforce the provisions of this Ordinance. Any powers granted to or duties imposed upon the Chief Engineer may be delegated to persons acting in the beneficial interest of or in the employ of the District.

10. VIOLATION

A. Upon a written determination of the Chief Engineer that a violation of this Ordinance has occurred, such action shall constitute a basis for:

1) termination of any User Agreement

2) immediate cessation of recycled water delivery

B. The Chief Engineer shall adopt notice and hearing procedures to implement this section, which shall be consistent with the rights afforded by due process.

11. **VALIDITY**

If any part, section, subsection, paragraph, sentence, clause, or phrase of this Ordinance is held invalid or unconstitutional for any reason by any court, that decision does not affect the validity or constitutionality of the remainder of this Ordinance. The Board of Directors declares that it would have adopted each provision of this Ordinance irrespective of the validity of any other provision.

Chairperson, Board of Directors
County Sanitation District
No. 20 of Los Angeles County

ATTEST:

Clerk, Board of Directors
County Sanitation District
No. 20 of Los Angeles County

PASSED AND ADOPTED by the Board of Directors of County Sanitation District No. 20 of Los Angeles County on February 28, 2007, by the following vote:

AYES: Two (2) Directors Ledford, and Yaroslavsky

NOES: None

ABSTAIN: None

ABSENT: One (1) Director Dispenza

Secretary of the Board of Directors
County Sanitation District No. 20
of Los Angeles County

Exhibit C – Sanitation District Requirements for Recycled Water Users

Requirements for Recycled Water Users
County Sanitation Districts of Los Angeles County
District Nos. 14 and 20

1. Introduction

These Requirements for Recycled Water Users (Requirements) establish regulations pursuant to California Water Code (Water Code) section 13523.1(b), and permits issued to the County Sanitation Districts of Los Angeles County (Districts) by the California Regional Water Quality Control Board, Lahontan Region (LRWQCB). These permits include waste discharge requirements (WDRs) issued pursuant to Water Code section 13263, water reclamation requirements (WRRs) issued pursuant to Water Code section 13523, or a master reclamation permit (Master Permit) issued pursuant to Water Code section 13523.1. The Requirements are in conformance with ordinances adopted by County Sanitation District No. 14 of Los Angeles County and by County Sanitation District No. 20 of Los Angeles County (Ordinances).

2. Background

Water Code section 13523.1(a) authorizes the issuance of Master Permits to suppliers or distributors, or both, of recycled water in lieu of issuing individual water reclamation requirements to each recycled water user. Water Code section 13523.1(b) sets forth the requirements for Master Permits issued by the Regional Water Quality Control Boards (RWQCBs), including a condition that the permittee establish and enforce rules or regulations for recycled water users governing the design and construction of recycled water use facilities and the use of recycled water, in accordance with the uniform Statewide Reclamation Criteria established pursuant to Water Code section 13521.

A Master Permit has been adopted by the LRWQCB for the Lancaster Water Reclamation Plant (WRP). Should the LRWQCB issue individual WDRs or WRRs to the Districts for the use of tertiary recycled water for non-potable reuse applications from the Lancaster WRP or Palmdale WRP, it is the Districts' intent that the Requirements established herein will apply to those uses. These Requirements may be updated, as necessary, to comply with revisions to this permit or applicable laws and regulations.

3. Findings

The Requirements are in conformance with the following:

- Provisions established by the WDRs, WRRs, or Master Permits issued by the LRWQCB to the Districts.
- Applicable portions of the Water Code, including Water Code section 13523.1.
- Applicable portions of the Health and Safety Code.
- California Code of Regulations (CCR), Title 22, Division 4, Chapter 3, Uniform Statewide Reclamation Criteria.
- CCR, Title 17, Division 1, Chapter 5, Subchapter 1, Group 4, Article 1 & 2.
- Regulations established by the County of Los Angeles Department of Public Health (LACDPH) for the use of recycled water.

The Requirements are consistent with the following:

- The Guidelines for the *Preparation of an Engineering Report for the Production, Distribution and Use of Recycled Water*, California State Department of Public Health (CDPH).

- Any measures that are deemed necessary for protection of public health, such as the American Water Works Association (AWWA) California/Nevada section, *Guidelines for the Distribution of Non-Potable Water* and *Guidelines for the On-Site Retrofit of Facilities Using Disinfected Tertiary Recycled Water* or alternate measures that are acceptable to CDPH.
- Relevant user manuals such as the Los Angeles County Recycled Water Advisory Committee's, 2005, *Recycled Water User Manual*.
- Relevant guidance issued by LACDPH for the use of recycled water.

4. Definitions that Apply to these Requirements

4.1. Authorized Recycled Water Use Site (Site) is a site authorized for use of recycled water; the uses of recycled water and the site location must comply with Permits as issued by the LRWQCB to the Districts.

4.2. Direct User is any person to whom the Districts directly distribute recycled water under the Permits issued to the Districts by the LRWQCB.

4.3. Incidental Runoff is any small amount of recycled water that leaves the Site as a result of over-spray or leakage from sprinklers, over watering, breaks in lines, or overflow of impoundments that contain recycled water during storms.

4.4. Master Reclamation Permit (Master Permit) contains requirements established by the LRWQCB for the Districts pursuant to Water Code section 13523.1.

4.5. Permit means any LWRQCB issued WDRs, WRRs, or Master Permit.

4.6. Person is any individual, partnership, corporation, governmental subdivision or unit of a governmental subdivision, or public or private organization or entity of any character.

4.7. Purveyor is any public, private, investor-owned, or other water utility that is legally permitted to distribute water and that obtains recycled water from the Districts for distribution to Users.

4.8. Recycled water is water produced by a municipal water reclamation facility that is suitable for a beneficial use.

4.9. User is any person to whom the Districts distribute recycled water under the Permits issued to the Districts by the LRWQCB, including end users to whom recycled water is conveyed through an intermediate party. User does not include persons who have been independently issued Permits by the LRWQCB.

4.10. User Agreement is a contractual agreement between the User and/or Purveyor and the Districts that establishes the conditions for recycled water service and use.

4.11. Waste Discharge Requirements (WDRs) are requirements established for the Districts by the LRWQCB pursuant to Water Code section 13263.

4.12. Water Recycling Criteria are the criteria established by the CDPH generally dealing with the levels of constituents in recycled water and the means for assurance of reliability under the design concept, which will result in safe recycled water from the standpoint of public health. The criteria are established pursuant to Water Code Section 13521, and are contained in the CCR, Title 22, Division 4, Chapter 3; also referred to as the "Uniform Statewide Reclamation Criteria."

4.13. Water Recycling Requirements (WRRs) are requirements established for the Districts by the LRWQCB pursuant to Water Code section 13523.

5. Requirements for Recycled Water Users

5.1 Effective Date

The effective date of the Requirements is July 1, 2008.

5.2 Applicability

5.2.1 Unless otherwise stated, these Requirements shall apply to any and all Users to whom the Districts distribute tertiary recycled water, either directly or through an intermediate party. These Requirements shall also apply to Purveyors that act as intermediate parties in delivering recycled water to Users. User does not include persons who have been independently issued Permits by the LRWQCB.

5.2.2 These Requirements do not apply to the Districts, when the Districts are both the Purveyor and/or the User, receiving WDRs or WRRs issued by the LRWQCB for the use of tertiary recycled water.

5.3 General Requirements

Use of recycled water must comply with all applicable state laws, regulations, Districts' Permits, and any amendments thereto, the Ordinances, and these Requirements.

5.4 General Prohibitions

5.4.1 Use of recycled water for any purposes other than those explicitly approved in the effective User Agreement is strictly prohibited.

5.4.2 The User shall insure that the treatment, storage, distribution or use of recycled water shall not create a nuisance as defined in Water Code section 13050(m).

5.4.3 The User shall not discharge recycled water from treatment facilities, irrigation holding tanks, storage ponds, or other containment, other than for permitted reuse, except in accordance with other LRWQCB issued Permits, contingency plans authorized by the LRWQCB or for an approved discharge to a municipal sewage treatment system.

5.5 Process to Obtain Permission to Use Recycled Water

5.5.1 Except as provided by the Ordinances, any Direct User or Purveyor who wishes to receive recycled water produced by the Districts must enter into a User Agreement with District No. 14 or No. 20 depending on the location of the reuse project before the use of recycled water can begin. The User Agreement shall include the Districts' terms and conditions for the use of recycled water.

5.5.2 Any Direct User, or Purveyor with a User, who intends to utilize recycled water produced by the Districts for an authorized use at a Site must file a User Application Form (Application) with the Districts and receive approval in writing from the Districts before the use of recycled water can begin for that use and Site.

5.5.3 The Application filed by the Direct User or Purveyor shall include:

.3.1. A detailed description of the proposed Site with:

(a) A map showing the specific boundaries of the proposed Site;

(b) The person or persons responsible for operation and maintenance of the site (O&M Staff), including the person designated as the Site Supervisor and contact information;

(c) Evidence that the O&M Staff and Site Supervisor have received appropriate training from the Districts or an equivalent training program or the date by which training will occur prior to delivery of recycled water such that the Site is operated and maintained in compliance with applicable laws and regulations, the Districts' Permits, and these Requirements;

(d) The specific use to be made of the recycled water at each Site.

.3.2. Design plans and a description of best management practices that show that the quality of waters of the State will be protected (*see* Section 5).

.3.3. Plans and specifications describing:

(a) Proposed piping systems to be used;

(b) Pipe locations for both recycled and potable systems;

(c) Type and location of the outlets and plumbing fixtures that will be accessible to the public;

(d) The methods and devices to be used to prevent backflow of recycled water into the potable water system.

.3.4. The Recycled Water System Operations Manual or the date by which a Recycled Water System Operations Manual will be submitted prior to the delivery of recycled water.

.3.5. Emergency Cross-Connection Response Plan in accordance with the guidelines established by LACDPH or the date by which the Emergency Cross-Connection Response Plan will be submitted prior to delivery of recycled water.

5.5.4 Any User or Purveyor who wishes to receive recycled water produced by the Districts must follow the process presented in Tables 1 and 2 that shows the various agencies involved in the process, documents that must be completed, how documents are routed, etc. Table 1 outlines the process for Direct Users or Purveyors. Table 2 outlines the process for Users receiving water from Purveyors

5.6 Operational Requirements and Best Management Practices

5.6.1 Each User shall designate a Site Supervisor who is responsible for the recycled water system at Site(s) under the User's control. Specific responsibilities of the Site Supervisor include the proper installation, operation and maintenance of the recycled water system; compliance with the Districts' Permits, applicable laws and regulations, local health department guidelines, and these Requirements; prevention of potential hazards; coordination with the cross-connection control program in accordance with CCR, Title 17 and LACDPH or local health department guidelines; preservation of the recycled water system in "as-built" form.

5.6.2 The User's Site Supervisor and O&M staff shall receive appropriate training to assure proper operation of the recycled water facilities, worker protection, and compliance with all applicable laws and regulations, the Districts' Permits, and these Requirements.

5.6.3 The Site Supervisor shall instruct any person at the Site involved with the use of recycled water on its proper use and precautions.

5.6.4 All recycled water facilities and control systems shall be maintained in good working order and operated as efficiently as possible to achieve compliance with all applicable laws and regulations, the Districts' Permits, and these Requirements.

5.6.5 Except as allowed under CCR, Title 17, section 7604, no physical connection shall be made nor shall a connection be allowed to exist between any recycled water system and potable water system.

5.6.6 Cross-connection test shall be performed as necessary to ensure the absolute separation of the recycled water system and potable water system, in accordance with the requirements of LACDPH or local health department.

.6.1. A cross-connection test shall be performed following any significant modifications to the recycled water system or potable water system, construction of new buildings, or any activity that may impact, or has impacted these systems.

.6.2. An initial cross-connection test shall be performed to determine if there are any unknown connections between potable piping and existing piping to be used for recycled water prior to construction or retrofit work.

.6.3. Prior to connection with the recycled water system, a final cross-connection test shall be performed to verify that construction or retrofit work was performed correctly.

.6.4. Cross-connection testing shall be performed by a specialist who has been certified by AWWA or a group with equivalent certification requirements.

5.6.7 The potable water supply shall not be used as a backup or supplemental source of water for a recycled water system unless the connection between the two systems is protected by an air gap separation which complies with the requirements of CCR, Title 17, section 7602, Subdivision (a) and CCR, Title 17, section 7603, Subdivision (a), and that such connection has been approved by CDPH and/or its delegated local agency.

5.6.8 Any backflow prevention device installed to protect the potable water system shall be annually inspected and maintained in accordance with CCR, Title 17, section 7605.

.8.1. Backflow inspections shall be conducted by a person who has demonstrated competency in testing to the User, Purveyor, and/or LACDPH or local health department.

5.6.9 Hose bibs shall not be used in the recycled water system, except in the recycled water system for Sites for which there is restricted public access. Quick couplers that are different from that used on the potable water system may be used.

5.6.10 All recycled water piping and appurtenances in new installations and appurtenances in retrofit installations shall be colored purple or distinctively marked with purple tape in accordance with Health and Safety Code section 116815 and LACDPH or local health department requirements.

5.6.11 All sites shall be designed and operated to prevent direct human consumption of recycled water, or use of recycled water for processing of food or drink intended for human consumption.

.11.1. Where recycled water could potentially be accessed for human consumption, conspicuous signs shall be posted that include the following wording: "RECYCLED WATER – DO NOT DRINK."

.11.2. The prescribed wording included on the sign(s) shall also be translated into Spanish and other appropriate languages.

.11.3. Each sign shall display an international symbol similar to that shown in CCR, Title 22, section 60310, subdivision (g), Figure 60310-A.

.11.4. The sign(s) shall be of a size easily readable by the public; no less than 4 inches high by 8 inches wide.

5.6.12 Irrigation with disinfected tertiary recycled water shall not take place within 50 feet of any domestic water supply well.

5.6.13 Irrigation with disinfected tertiary recycled water shall not take place within 50 feet of any uncovered reservoir or stream currently used as a source of domestic water.

5.6.14 Impoundment of disinfected tertiary recycled water shall not occur within 100 feet of any domestic water supply well.

5.6.15 All recycled water impoundments shall be adequately protected from erosion, washout and flooding from a 24-hour rainfall event having a predicted frequency of once in 100 years.

5.6.16 Vehicles used for distributing recycled water for soil compaction and dust control or other uses shall have an adequate tank and plumbing systems to ensure that leaks and ruptures will not occur in the course of normal use.

.16.1. Control valves shall be provided and configured such that recycled water can be applied in a controlled fashion on the Site and completely retained during transit.

.16.2. Spray heads or nozzles shall be provided and configured such that recycled water is applied to prevent runoff, ponding, or windblown spray conditions.

.16.3. Each tank shall be equipped with an approved air-gap separation between the filler tube and the tank to prevent back-siphonage.

.16.4. Each tank used to store and/or transport recycled water must be flushed and disinfected prior to storage and/or transport of potable water or recycled water of better quality.

.16.5. The vehicles shall be clearly labeled in accordance with the requirements specified in Section 5.6.11.

5.6.17 Sites shall be designed and operated using best management practices (BMPs) to protect waters of the state and prevent public contact with recycled water.

5.6.18 The Sites shall be designed and operated using BMPs to prevent recycled water spray, mist, or surface flow from either leaving the Site or reaching:

(a) Any perennial surface waters located adjacent to the Site;

(b) Areas where the public has access (e.g., dwellings, designated outdoor eating areas, or food handling facilities);

(c) Drinking fountains unless specifically protected with a shielding device.

5.6.19 BMPs shall include, but not be limited to:

(a) Use of buffer zones;

(b) Discontinuation of application of recycled water during precipitation events, which are of sufficient magnitude to generate surface flow or significant ponding within the Site;

(c) Use of devices that protect drinking water fountains against contact with recycled water spray, mist, or surface flow;

(d) Irrigation with recycled water during periods of minimal human use of the irrigated area and timing of irrigation to allow an adequate dry-out time before the irrigated area will be used by the public.

5.6.20 Any storage facility or impoundment containing recycled water for reuse applications shall be managed in a manner to control odors, nuisance conditions or vectors such as

mosquitoes. Should such problems develop, a management plan shall be devised and implemented to monitor, correct, and control future occurrences.

5.6.21 Sites shall be designed and operated using BMPs so that application of recycled water occurs at agronomic rates whereby irrigation does not promote downward migration of salts (including nitrates), which could unreasonably affect present and anticipated beneficial uses of water, or result in water quality less than that prescribed in water quality control plans or policies.

.21.1. To demonstrate whether irrigation is at agronomic rates, the User shall provide information to the Districts including a tabular comparison of the volume of water required for plant growth in the landscape area to the volume of recycled water (and supplemental water) applied to the area.

5.6.22 Fertilizer application shall:

.22.1. Not unreasonably affect present and anticipated beneficial uses of water, or result in water quality less than that prescribed in water quality control plans or policies.

.22.2. Occur at agronomic rates. To demonstrate whether fertilizer application is at agronomic rates, the User shall provide information to the Districts including a tabular comparison of the amount of fertilizer needed for plant growth in the landscape area to the amount applied to the area.

.22.3. Occur if the levels of nitrogen in the recycled water are not sufficient for plant growth. If levels are not sufficient, the Site Supervisor shall calculate how much fertilizer needs to be applied by subtracting the level in recycled water from the level needed for plant growth.

5.6.23 Sites shall be designed and operated using BMPs so that adequate erosion control is implemented so that soil is not released into storm water runoff or surface waters.

5.6.24 Each User shall demonstrate to the Districts the means by which all applicable use area requirements as specified in the Districts' Permits and these Requirements will be complied with.

6. Site Inspections and Site Access

6.1 The Purveyor shall conduct periodic site inspections and prepare a report for each Site inspection pursuant to Section 8.3.

.1.1. Site inspections must be conducted at a minimum once every three (3) years per site or more frequently at the request of the Districts.

.1.2. In the event of identification of violation(s) during site inspections, corrective actions must be taken pursuant to Section 7 and notification shall be provided pursuant to Section 8.3.

6.2 The User shall allow an authorized representative of any of the following agencies the right to enter, inspect the Site, and conduct testing upon presentation of proper credentials: the Districts, LRWQCB, CDPH, and LACDPH or local health department.

6.3 In cooperation with the User or Purveyor, the Districts will make periodic inspections of the Site.

7. Corrective Action

7.1 The Site Supervisor shall immediately initiate corrective action to eliminate violation of any applicable laws or regulations, the Districts' Permits, or these Requirements, and make the appropriate notifications pursuant to Section 8.2.

7.2 The Purveyor or Direct User must verify the corrective action(s) and report to the Districts pursuant to Section 8.2.

7.3 In the event of contamination of a potable water system due to a cross-connection with the recycled water system, the Site Supervisor shall immediately invoke the Emergency Cross-Connection Response Plan and make the appropriate notifications pursuant to Section 8.1.

8. Notification and Reporting

8.1 Public Health, Spills, Unauthorized Discharges

8.1.1 Upon being notified or determining that one of the following events has occurred, the Site Supervisor shall immediately notify the Districts by telephone, and the LRWQCB, CDPH and LACDPH by telephone or electronic means. Written confirmation must be provided to all agencies within three (3) business days from the day of notification.

.1.1. There is a complaint (or other source of information) concerning recycled water use that may involve illness.

.1.2. An unauthorized discharge of more than 50,000 gallons of tertiary recycled water. Information provided shall include: the date and time the spill began and ended; the location of the spill; if the spill entered a storm drain or receiving water; the estimated volume of the spill or flow if the spill is ongoing; the estimated time of repair; the cause of the spill; the agencies involved with repair and clean-up; and corrective actions taken or plans for corrective actions.

.1.3. The potable water system has been contaminated due to a cross-connection with recycled water.

8.1.2 Upon being notified or determining that a spill or other release of recycled water from a Site, other than incidental runoff, including, but not limited to, breaks in the recycled water irrigation or distributions systems has occurred, the Site Supervisor shall immediately notify the Districts by telephone. Information provided shall include: the date and time the spill began and ended; the location of the spill; if the spill entered a storm drain or receiving water; the estimated volume of the spill or flow if the spill is ongoing; the estimated time of repair; the cause of the spill; the agencies involved with repair and clean-up; and corrective actions taken or plans for corrective actions. Written confirmation shall be provided within three (3) business days from the date of notification.

8.2 Non-compliance with Regulations

8.2.1 The Site Supervisor shall notify the Districts by telephone or electronic means upon knowledge of any noncompliance of applicable laws and regulations, the Districts' Permits, and these Requirements. Written confirmation shall be provided within three (3) business days from the date of notification.

8.2.2 The Purveyor or Direct User shall provide written verification to the Districts within ninety (90) days from the date of knowledge of the violation that corrective actions have been implemented.

8.3 Site Inspections

8.3.1 The site inspection report shall be signed and dated by the Site Supervisor and the inspector, and provided to the Districts within thirty (30) days following the end of the quarter in which the inspection was conducted.

8.3.2 The inspector shall immediately notify the Site Supervisor of violation(s) identified during site inspections and what corrective actions must be taken.

8.3.3 The Purveyor or Direct User shall notify the Districts by electronic means at least one (1) week prior to conducting a site inspection.

8.4 Miscellaneous Information

8.4.1 If someone other than the User is responsible for applying the recycled water (e.g., a truck hauler), then the User shall inform them of these Requirements in a written permit or other suitable manner.

8.4.2 The Site Supervisor is required to provide the Districts with an address and phone number(s) where he or she can be contacted at all times. The Site Supervisor is responsible for maintaining current pertinent information regarding the Site and Districts' contacts.

8.4.3 The Districts shall be notified in writing of any proposed changes in the individual designated as the Site Supervisor.

8.4.4 The Districts shall be notified in writing of any planned modifications or additions to the recycled water system. Any proposed significant modifications or additions to the recycled water system shall be reviewed and approved by the Districts before being made.

8.4.5 The User or Purveyor shall provide information as requested by the Districts in order for the Districts to comply with monitoring and reporting requirements issued by the LRWQCB.

9. Record Keeping

9.1 Current as-built drawings and other design plans of the recycled water system and potable water system, and any forms or reports as required by the Districts including, but not limited to, inspection reports, cross-connection tests, etc., shall be maintained by the Site Supervisor or Purveyor.

9.2 A copy of these Requirements, the Districts' Permits, the Emergency Cross-Connection Response Plan, and the Recycled Water System Operations Manual shall be maintained by the Site Supervisor so that they are available to operating personnel at all times.

9.3 For each site, the Site Supervisor or Purveyor must keep operation and maintenance logs that are available to the Districts. The logs shall include information that will be required for compliance with Permit requirements. This information, such as the monthly volumes of recycled water used at each site, dates of inspections and tests, etc, will be specified by the Districts in the approval letter.

Table 1. Process to Obtain Recycled Water for Direct Users or Purveyors

Process	Applicable Documents or Actions Required	Responsible Entity
Step 1 – Consult with Districts and review Recycled Water Users Handbook	Districts' Recycled Water Users Handbook	Direct User or Purveyor
Step 2 - Prepare draft plans and specifications	California Department of Public Health (CDPH) requirements in California Code of Regulations (CCR) Title 17 and 22[1], Los Angeles County Department of Public Health (LACDPH) Guidelines	Direct User or Purveyor
Step 3 - Draft User Agreement or amendment (if site is not covered under existing agreement)	Districts' User Agreement	Districts / Direct User or Purveyor
Step 4 - Approve User Agreement or Amendment	Present Agreement or Amendment to Districts' Board and governing body of Direct User or Purveyor for approval	Districts / Direct User or Purveyor
Step 5 - Submit Application for recycled water use	Districts' User Application Form	Direct User or Purveyor
Step 6 - Identify distribution issues, verify allowed uses, estimate quantity of water and delivery schedule	Verification of information provided in the Application Form. Send conditional approval in writing with caveat that project commencement is contingent upon Direct User or Purveyor receiving all regulatory approvals.	Districts
Step 7 – Complete California Environmental Quality Act (CEQA) Process	Make sure there is proper CEQA documentation for the site	Direct User or Purveyor
Step 8 – Consult with health agencies *(recommended)*	Describe project and show draft plans to CDPH and LACDPH	Direct User or Purveyor
Step 9 – Finalize and submit plans and specifications	Plans and specifications submitted to LACDPH; LACDPH Cross-Connection Plan Approval Application and fee.	Direct User or Purveyor
Step 10 - Provide materials and/or training to User on proper operation of a recycled water system	Districts' Recycled Water Users Handbook to be provided by Districts; training to be provided by Districts and/or Purveyor (or an other equivalent program can be substituted)	Districts or Purveyor
Step 11 – Consult with Lahontan Regional Water Quality Control Board (LRWQCB) *(recommended)*	Describe project and discuss Engineering Report needs	Direct User or Purveyor

[1] Hhttp://www.cdph.ca.gov/healthinfo/environhealth/water/Pages/Waterrecycling.aspxH.

Table 1. Process to Obtain Recycled Water for Direct Users or Purveyors

Process	Applicable Documents or Actions Required	Responsible Entity
Step 12 – Final plans and specifications	Obtain approval of final plans and specifications from LACDPH	Direct User or Purveyor
Step 13 – Prepare / amend Engineering Report	CDPH *Guidelines for Preparation of an Engineering Report for the Production, Distribution and Use of Recycled Water*[2]; Districts' information on water reclamation plants; Direct User or Direct User or Purveyor completes the Engineering Report; the Districts provide information related to treatment facilities; the report must be prepared and stamped by a professional engineer registered in California.	Direct User or Purveyor and Districts
Step 14 – Submit Engineering Report to CDPH and LRWQCB, with copy to Districts	Completed Engineering Report	Direct User or Purveyor
Step 15 – If applicable, submit revised Engineering Report, with copy to Districts	Revisions/additional information may be requested by CDPH and/or the LRWQCB	Direct User or Purveyor
Step 16 – Authorization of project under existing or new LRWQCB permit	Letter or permit	LRWQCB; possibly CDPH and/or LACDPH
Step 17 – Notify Districts of Final Regulatory Approvals	Direct User or Purveyor sends copy of LRWQCB letter or permit to Districts and any other applicable CDPH or LACDPH documents	Direct User or Purveyor
Step 18 – Pre- and post-construction inspections	Contact LACDPH prior to construction to arrange for site inspections, initial cross-connection and backflow prevention device testing; LACDPH Guidelines and Recycled Water System Inspection Report.	Direct User or Purveyor
Step 19 – Approval of final construction	By LACDPH	Direct User or Purveyor
Step 20 – Begin project implementation		Direct User or Purveyor
Step 21 – Submit revised as-built drawings of recycled water distribution system if necessary	Must be provided to LACDPH and Districts if any modifications have been made to original drawings	Direct User or Purveyor

[2] Hhttp://www.cdph.ca.gov/certlic/drinkingwater/Documents/Recharge/ERGUIDE2001.PDFH.

Table 2. Process to Obtain Recycled Water for Users Receiving Water From Purveyors

Process	Applicable Documents *or Actions Required*	Responsible Entity
Step 1 – Consult with Purveyor and review Recycled Water Users Handbook	Districts' Recycled Water Users Handbook	User and Purveyor
Step 2 – Prepare draft plans and specifications	California Department of Health Services (CDPH) requirements in California Code of Regulations (CCR) Title 17 and 22[3], Los Angeles County Department of Public Health (LACDPH) Guidelines.	User or Purveyor
Step 3 – Request for recycled water service	Use recycled water Purveyor's application process	User
Step 4 – Draft User Agreement or amendment (if site is not covered under existing agreement)	Districts' User Agreement or Amendment	Districts / Purveyor
Step 5 – Approve User Agreement or Amendment	Present Agreement or Amendment to Districts' Board and governing body of Purveyor for approval	Districts / Purveyor
Step 6 – Submit Application for recycled water use to Districts	Districts' User Application Form	Purveyor
Step 7 – Identify distribution issues, verify allowed uses, estimate quantity of water and delivery schedule	Verification of information provided in the Districts' User Application Form. Send conditional approval in writing with caveat that project commencement is contingent upon Direct User or Purveyor receiving all regulatory approvals.	Districts
Step 8 – Draft contract or amendment or other legal control mechanism (if site is not covered under existing contract or control mechanism)	Contract, contract amendment, or control mechanism between Purveyor and User	Purveyor and User
Step 9 – Approve contract or amendment or other legal control mechanism (if site is not covered under existing contract or control mechanisms)	Purveyor and User authorize contract, contract amendment, or control mechanism	Purveyor and User
Step 10 – Complete California Environmental Quality Act (CEQA) Process	Make sure there is proper CEQA documentation for the site	Purveyor and User
Step 11 – Consult with health agencies *(recommended)*	Describe project and show draft plans to CDPH and LACDPH	Purveyor
Step 12 – Finalize and submit plans and specifications	Plans and specifications submitted to LACDPH; LACDPH Cross-Connection Plan Approval Application and fee	Purveyor

[3] Hhttp://www.cdph.ca.gov/healthinfo/environhealth/water/Pages/Waterrecycling.aspxH.

Table 2. Process to Obtain Recycled Water for Users Receiving Water From Purveyors

Process	Applicable Documents *or Actions Required*	Responsible Entity
Step 13 – Provide materials and/or training to User on proper operation of a recycled water system	Districts' Recycled Water Users Handbook and training to be provided by Purveyor (the Districts' training program or another equivalent program can be substituted)	Purveyor
Step 14 – Consult with Lahontan Regional Water Quality Control Board (LRWQCB) *(recommended)*	Describe project and discuss Engineering Report needs	Purveyor
Step 15 – Final plans and specifications	Obtain approval of final plans and specifications from LACDPH	Purveyor
Step 16 – Prepare / amend Engineering Report	CDPH *Guidelines for Preparation of an Engineering Report for the Production, Distribution and Use of Recycled Water*[4]; Districts' information on water reclamation plants; Purveyor completes the Engineering Report; the Districts provide information related to treatment facilities; the report must be prepared and stamped by a professional engineer registered in California.	Purveyor and Districts
Step 17 – Submit Engineering Report to CDPH and LRWQCB, with copy to Districts	Completed Engineering Report	Purveyor
Step 18 – If applicable, submit revised Engineering Report, with copy to Districts	Revisions/additional information may be requested by CDPH and/or the LRWQCB	Purveyor
Step 19 – Authorization of project under existing or new LRWQCB permit	Letter or permit	LRWQCB; possibly CDPH and/or LACDPH
Step 20 – Notify Districts of Final Regulatory Approvals	Purveyor sends copy of LRWQCB letter or permit to Districts and any other applicable CDPH or LACDPH documents	Purveyor
Step 21 – Pre- and post-construction inspections	Contact LACDPH prior to construction to arrange for site inspections, initial cross-connection and backflow prevention device testing; LACDPH *Guidelines and Recycled Water System Inspection Report*	Purveyor
Step 22 – Approval of final construction	By LACDPH	Purveyor
Step 23 – Begin project implementation		Purveyor and User
Step 24 – Submit revised as-built drawings of recycled water distribution system if necessary	Must be provided to LACDPH and Districts if any modifications have been made to original drawings	Purveyor

[4] Hhttp://www.cdph.ca.gov/certlic/drinkingwater/Documents/Recharge/ERGUIDE2001.PDFH.

CSD Contract No. 5001A

FIRST AMENDMENT TO AGREEMENT FOR PURCHASE AND SALE OF RECYCLED WATER

This First Amendment to the Agreement for Purchase and Sale of Recycled Water ("**Amendment**") is dated September 23, 2019 ("**Amendment Date**") and is between County Sanitation District No. 20 of Los Angeles County (the "**Sanitation District**"), and the Palmdale Water District ("**PWD**"). The Sanitation District and PWD are referred to in this Amendment individually as a "**Party**" and collectively as the "**Parties.**"

Effective October 26, 2016, the Parties entered into an Agreement for Purchase and Sale of Recycled Water ("**Agreement**"). All capitalized terms used in this Amendment will have the same meaning as in the Agreement, unless specifically defined below.

The Agreement, at Sections 5.9 and 5.12, allows for the Chief Engineer to extend certain deadlines if PWD provides proof of a project delay not caused by PWD and not within PWD's control. Since the execution of the Agreement, PWD has requested an extension of the milestone deadlines necessary to maintain its Recharge and Purple Pipe Allotments. PWD has provided to the Sanitation District a list of project delays, for both the Recharge and Purple Pipe Projects and the causes of those delays.

The Chief Engineer finds that those delays were not caused by or within the control of PWD.

PWD has also requested an extension of time for the mandatory minimum payments owed to the Sanitation District under Section 5.15 due to unforeseen delays in securing funding for the Recharge Project.

The Parties intend by this Amendment to provide for the two-year extension of the milestone requirements set forth in Section 5.9 and 5.12 and concomitantly extend the duration of the Agreement. The Parties also intend by this Amendment to adjust the schedule for mandatory minimum annual payments under Section 5.15 to accommodate PWD's revised funding and implementation schedule, without prejudicing the Sanitation District, and make associated changes and clarifications.

The Parties therefore amend the Agreement as follows:

1. Section 2 of the Agreement is hereby amended by deleting the phrase "30 years" and replacing it with the phrase "thirty-two (32) years".

2. Section 5.8.A of the Agreement is hereby deleted in its entirety and replaced by the following:

> "Milestone 1 (Funding for First Phase Using Recycled Water): Within five years after the Effective Date of this Agreement, PWD must secure and present the Sanitation District with records demonstrating that PWD has secured sufficient project funding to construct the first phase of the Recharge Project that will use recycled water under this Agreement."

3. Section 5.11.A of the Agreement is hereby deleted in its entirety and is replaced by the following:

"Milestone 1 (Award of Phase 2 Contracts): Within five years after the Effective Date of this Agreement, PWD must award all contracts necessary to complete construction of Phase 2 of the Purple Pipe Project and PWD must connect to at least one end user."

4. The prime paragraph and chart of Section 5.15 of the Agreement are hereby deleted and replaced by the following:

"Mandatory Minimum Annual Payment. There is no mandatory minimum volume that PWD must withdraw from the Plant. However, in order to maintain the allotments established under this Agreement, PWD must pay the Sanitation District a minimum payment each fiscal year whether or not recycled water is drawn by or delivered to PWD. The minimum payment will be equivalent to the payment that would be due for the following volumes for each full fiscal year after the Effective Date of this Agreement (for example, "Year 1" refers to the fiscal year ending in 2018) as follows:

Fiscal Year of Contract	Minimum Payment Equivalent (in AFY)
1	0
2	0
3	0
4	0
5	100
6	300
7	1200
8	2100
9	2900
10	3250
11	3600
12	3950
13	4325
14	4575
15	4825
16	5075
17-32	5325

"

5. Subsections A through D of Section 5.15 of the Agreement are not affected by this Amendment.

6. Section 14.1 of the Agreement, relating to an Option Period, is hereby amended by deleting the first sentence of that Section, and replacing it with the following:

> "The Sanitation District grants to PWD a one-time option to extend the duration of this Agreement for a period of up to 20 years (the "**Extended Period**") from the expiration date of the Agreement, October 25, 2048 (the "**Expiration Date**")."

7. Except as explicitly stated above, no other provisions of the Agreement are being modified by this Amendment.

8. This Amendment will be executed in duplicate counterpart originals, one for each Party, and each duplicate original will be deemed to be an original, but all of which will constitute one and the same agreement.

The Parties are signing this Amendment to be effective as of the Amendment Date stated above.

PALMDALE WATER DISTRICT

By: _____
Dennis D. LaMoreaux
General Manager

COUNTY SANITATION DISTRICT NO. 20 OF LOS ANGELES COUNTY

By: _____
Robert C. Ferrante
Chief Engineer & General Manager

APPROVED AS TO FORM:
ALESHIRE & WYNDER, LLP

By: _____
Palmdale Water District Counsel

APPROVED AS TO FORM:
LEWIS BRISBOIS BISGAARD & SMITH, LLP

By: _____
County Sanitation District Counsel

SECOND AMENDMENT TO AGREEMENT FOR PURCHASE AND SALE OF RECYCLED WATER

This Second Amendment to the Agreement for Purchase and Sale of Recycled Water ("**Second Amendment**") is dated _____ ("**Second Amendment Date**") and is between County Sanitation District No. 20 of Los Angeles County (the "**Sanitation District**"), and the Palmdale Water District ("**PWD**"). The Sanitation District and PWD are referred to in this Amendment individually as a "**Party**" and collectively as the "**Parties**."

Effective October 26, 2016, the Parties entered into an Agreement for Purchase and Sale of Recycled Water ("**Agreement**"). Effective September 23, 2019, the Parties entered into the First Amendment to the Agreement ("**First Amendment**") to extend certain milestone deadlines necessary to maintain PWD's Recharge and Purple Pipe Allotments. All capitalized terms used in this Second Amendment will have the same meaning as in the Agreement, unless specifically defined below.

Since the First Amendment, in pursuing options for the Recharge Project, PWD encountered an impermeable layer while drilling monitoring wells in the location of the recharge basin. Geological results and groundwater modeling indicated poor recharge capacity, resulting in a need to reassess and revise the scope and feasibility of the Recharge Project. PWD continues to work diligently on options for moving forward with the Recharge Project. However, as a result of the issues encountered during the test well phase, PWD is asking the Sanitation District for extensions of the milestone timeframes contained in the Agreement.

PWD has completed the final design for the Purple Pipe Project and continues, with the Authority, to pursue funding opportunities for the Purple Pipe Project. After discussions during its meeting on April 19, 2021, however, the Authority voted to suspend work on the Purple Pipe Project for the remainder of 2021.

The Agreement, at Sections 5.9 and 5.12, allows for the Chief Engineer to extend certain deadlines if PWD provides proof of a project delay not caused by PWD and not within PWD's control. PWD has provided to the Sanitation District explanations for the delays in a letter to the Sanitation Districts Chief Engineer dated September 20, 2021 (the "PWD Letter"), a copy of which is attached as Exhibit "A" and incorporated herein by reference. The Chief Engineer has reviewed the PWD Letter and has determined, in accordance with the requirements of the Agreement, that the delays outlined in the PWD Letter were not caused by and are outside of the control of PWD.

PWD has also requested an extension of time for the mandatory minimum payments owed to the Sanitation District under Section 5.15 due to the delays outlined in the PWD Letter.

The Parties intend by this Second Amendment to provide for an additional two-year extension of the milestone requirements set forth in Section 5.9 and 5.12, as modified by the First Amendment. The Parties also intend by this Second Amendment to adjust the schedule for mandatory minimum annual payments under Section 5.15 as a result of the delays contained in the PWD Letter.

The Parties therefore amend the Agreement as follows:

1. Section 5.8.A of the Agreement is hereby deleted in its entirety and replaced by the following:

> "Milestone 1 (Funding for First Phase Using Recycled Water): Within seven years after the Effective Date of this Agreement, PWD must secure and present the Sanitation District with records demonstrating that PWD has secured sufficient project funding to construct the first phase of the Recharge Project that will use recycled water under this Agreement."

2. Section 5.11.A of the Agreement is hereby deleted in its entirety and is replaced by the following:

> "Milestone 1 (Award of Phase 2 Contracts): Within seven years after the Effective Date of this Agreement, PWD must award all contracts necessary to complete construction of Phase 2 of the Purple Pipe Project and PWD must connect to at least one end user."

3. The prime paragraph and chart of Section 5.15 of the Agreement are hereby deleted and replaced by the following:

> "Mandatory Minimum Annual Payment. There is no mandatory minimum volume that PWD must withdraw from the Plant. However, in order to maintain the allotments established under this Agreement, PWD must pay the Sanitation District a minimum payment each fiscal year whether or not recycled water is drawn by or delivered to PWD. The minimum payment will be equivalent to the payment that would be due for the

following volumes for each full fiscal year after the Effective Date of this Agreement (for example, "Year 1" refers to the fiscal year ending in 2018) as follows:

Fiscal Year of Contract	Minimum Payment Equivalent (in AFY)
1	0
2	0
3	0
4	0
5	0
6	0
7	100
8	300
9	1200
10	2100
11	2900
12	3250
13	3600
14	3950
15	4325
16	4575
17	4825
18	5075
19-32	5325

"

Nothing in this Second Amendment shall be construed as limiting or otherwise changing the rights and discretion of the Sanitation District under Subsections A through D of Section 5.15 of the Agreement.

4. Except as explicitly stated above, no other provisions of the Agreement are being modified by this Second Amendment.

5. This Second Amendment will be executed in duplicate counterpart originals, one for each Party, and each duplicate original will be deemed to be an original, but all of which will constitute one and the same agreement

The Parties are signing this Second Amendment to be effective as of the Second Amendment Date stated above.

PALMDALE WATER DISTRICT

By: _____
Chair, Board of Directors

Dated: _____

ATTEST:

By: _____
Secretary to the Board

APPROVED AS TO FORM:
ALESHIRE & WYNDER, LLP

By: _____
Palmdale Water District Counsel

COUNTY SANITATION DISTRICT NO. 20 OF LOS ANGELES COUNTY

By: _____
Chair, Board of Directors

Dated: _____

ATTEST:

By: _____
Secretary to the Board

APPROVED AS TO FORM:
LEWIS BRISBOIS BISGAARD & SMITH LLP

By: _____
County Sanitation District Counsel

EXHIBIT A

September 20, 2021, Letter from Palmdale Water District

PALMDALE WATER DISTRICT

BOARD MEMORANDUM

DATE: October 5, 2021 **October 11, 2021**

TO: BOARD OF DIRECTORS **Board Meeting**

FROM: Mr. Adam Ly, Assistant General Manager

VIA: Mr. Dennis D. LaMoreaux, General Manager

RE: ***AGENDA ITEM NO. 7.3 – CONSIDERATION AND POSSIBLE ACTION ON APPROVAL OF RESOLUTION 21-19 BEING A RESOLUTION OF THE BOARD OF DIRECTORS OF THE PALMDALE WATER DISTRICT APPROVING WAIVER OF DISTRICT PROCUREMENT AND PURCHASING POLICY FOR WELL NO. 36. (NO BUDGET IMPACT – ASSISTANT GENERAL MANAGER LY)***

Recommendation:
Staff recommends that the Board approve Resolution No. 21-19 being a Resolution of the Board of Directors of the Palmdale Water District Approving Waiver of District Procurement and Purchasing Policy for Well No. 36.

Alternative Options:
Do not approve the waiver.

Impact of Taking No Action:
The District will re-bid the project and incur the delay of Well No. 36 drilling.

Background:
District staff and our consultants, Hazen and Sawyer and Kyle Groundwater, worked on development of the Well No. 36 design and construction. The bid request was released on August 23, 2021 with a mandatory pre-bid meeting set for September 7, 2021. Shortly after the pre-bid meeting, staff received notice from all the contractors on conforming to our Community Workforce Agreement (CWA). Staff responded that we can't waive the CWA requirement, and all contractors will need to adhere to it. The District did not receive any bids on the due date of September 30, 2021. Staff would like to contact and negotiate an agreement with one contractor to drill Well No. 36 instead of reposting the bid and potentially getting no bidders.

When complete, staff will bring the agreement back to the Board for approval.

Strategic Plan Initiative/Mission Statement:
This item is under Strategic Initiative No. 1 – Water Resource Reliability and No. 3 – Systems Efficiency.

This item directly relates to the District's Mission Statement.

Budget:
No budget impacts.

Supporting Documents:
- Resolution No. 21-19

RESOLUTION NO. 21-19
A RESOLUTION OF THE BOARD OF DIRECTORS
OF THE PALMDALE WATER DISTRICT
APPROVING WAIVER OF DISTRICT PROCUREMENT AND PURCHASING POLICY
FOR WELL NO. 36

WHEREAS, the Board of Directors of the Palmdale Water District ("District") has previously adopted a Procurement and Purchasing Policy, as fully set forth in Appendix M of the District's Rules and Regulations; and

WHEREAS, the District's Procurement and Purchasing Policy requires solicitation of bids for any project the District undertakes which has an estimated cost in excess of $100,000 and the subsequent letting of any contract for such a project to the lowest responsible bidder; and

WHEREAS, Section I of the District's Procurement and Purchasing Policy provides that notwithstanding that policy, all contracts for projects the District undertakes may be made or entered into upon such terms and conditions and in such manner as the Board of Directors determines is in the best interest of the District; and

WHEREAS, the District advertised a project for construction of Well No. 36, held a mandatory pre-bid job walk for all potential bidders, but received no bids due to the bidders' collective refusal to enter into the Community Workforce Agreement that would otherwise be required for the project; and

WHEREAS, the Well No. 36 project must be completed in order to serve District residents and customers.

NOW, THEREFORE, THE BOARD OF DIRECTORS OF THE PALMDALE WATER DISTRICT DOES HEREBY RESOLVE that it is in the District's best interest to waive the District's Procurement and Purchasing Policy in connection with the construction of Well No. 36. Staff will negotiate an agreement with a contractor for the Board to consider and approve.

PASSED, APPROVED AND ADOPTED on this 11th day of October 2021 by the Board of Directors of the Palmdale Water District.

_____
Gloria Dizmang, President
Board of Directors
Palmdale Water District

_____
Kathy Mac Laren-Gomez, Secretary
Board of Directors
Palmdale Water District

APPROVED AS TO FORM:

_____
Aleshire & Wynder. LLP
Eric Dunn, District General Counsel

PALMDALE WATER DISTRICT

BOARD MEMORANDUM

DATE: October 5, 2021 **October 11, 2021**

TO: Board of Directors **Board Meeting**

FROM: Mr. Scott L. Rogers, Engineering/Grant Manager

VIA: Mr. Adam Ly, Assistant General Manager
Mr. Dennis D. LaMoreaux, General Manager

RE: ***AGENDA ITEM NO. 7.4 – CONSIDERATION AND POSSIBLE ACTION ON A RECOMMENDATION TO UPDATE THE DISTRICT'S STANDARD SPECIFICATIONS FOR WATER DISTRIBUTION SYSTEM CONSTRUCTION. (NO BUDGET IMPACT – ENGINEERING/GRANT MANAGER ROGERS)***

Recommendation:
Staff recommends that the Board approve the update of the District's Standard Specifications for Water Distribution System Construction.

Alternative Options:
Do not update the Standard Specifications.

Impact of Taking No Action:
The District will be operating with outdated construction specifications.

Background:
The District's Standard Specifications for Water Distribution System Construction were last updated with revisions in 2020. The Engineering staff revised the 2020 Standard Specifications for Water Distribution System Construction to update processes, required materials, and replaced those items to refer to a "List of Approved Materials." In the future, this will allow staff to streamline revisions, such as updating required materials or equals, and will allow staff to update the list, instead of the entire Standard Specification document. In addition, the 2021 update includes revisions for updated text to refer to specific sections and includes references to most current American Water Works Association (AWWA) standards.

The 2021 update also includes changes to the standard details for typical service connection (W-1 and W-1A), large meter vaults (W-1B), and the sampling station (W-17). The attached revision incorporates up-to-date construction standards by AWWA.

Strategic Plan Initiative/Mission Statement:
This work is part of Strategic Initiative No. 3 – Systems Efficiency and No. 5 – Regional Leadership.

This item directly relates to the District's Mission Statement.

Budget:
No impact to budget.

Supporting Documents:
- Standard Specifications for Water Distribution System Construction dated October 2021

PALMDALE WATER DISTRICT

STANDARD SPECIFICATIONS

FOR

WATER DISTRIBUTION SYSTEM CONSTRUCTION

OCTOBER 2021

PALMDALE WATER DISTRICT

2029 EAST AVENUE Q, PALMDALE, CA 93550

661-947-4111

www.palmdalewater.org

Table of Contents

SECTION 1 - GENERAL PROVISIONS

1-01 General

These specifications are to be used to establish standards of work, materials, and construction procedures for improvements to the water system of the Palmdale Water District. These specifications are intended to establish general requirements and technical standards for all pipeline work within the District. Interpretation, if any, is subject to District discretion.

1-02 Supplementary Specifications

Wherever reference is made within these documents to certain standard specifications, the reference shall be construed to mean the standards, with all subsequent amendments, changes, or additions as thereafter adopted and published that are in effect at the date of approval of the plans and specifications. Standard specifications and documents referenced herein, and their abbreviations include, without limitation, the following:

AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
AI	The Asphalt Institute
AISC	American Institute of Steel Construction, Inc.
AISI	American Iron and Steel Institute
ANSI	American National Standards Institute (formerly USASI, USAS, ASA)
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWS	American Welding Society
AWWA	American Water Works Association
MIL	Military Specification (leading symbol)
NFPA	National Fire Protection Association
OSHA	Occupational Safety and Health Administration, U.S. Dept. of Labor
SSPC	Steel Structures Painting Council State
Spec.	California Standard Specifications, Department of Transportation, Division of Highways
UL	Underwriters' Laboratories, Inc.

1-03 Definition of Terms

Whenever in these specifications or other documents where these specifications govern, and the following terms are used and they shall be defined as follows:

a) Acceptance.

Shall mean that the water system has received final completion as defined herein, the one (1) year guarantee period has passed, and all repairs necessary during the one (1) year guarantee period have been made to the satisfaction of the District.

b) Agreement.

The written Agreement between the District and the Applicant providing for the construction of the improvement by the Applicant or his/her Contractor.

c) Applicant.

Shall mean any property owner, firm, or corporation who makes application for District service or enters into an Agreement with the District.

d) Board.

The Board of Directors of the Palmdale Water District.

e) Contract.

A written Agreement executed by and between the Applicant and the Contractor covering the performance of the work.

f) Contractor.

The individual, partnership, association, corporation, entity (public or private), or combination thereof, who has entered into a Contract with the Applicant or into a Public Contract with the District for performance of the work pursuant to these specifications. Except as to Public Contracts, wherever reference is made to Contractor in the Specifications, such reference shall include the Contractor in his/her own capacity and in his/her capacity as authorized agent and representative of the Applicant. Accordingly, where the Specifications require the Contractor to perform certain acts, or hold the Contractor responsible for certain costs, expenses or liabilities, or the like, such requirements and responsibilities shall be equally applicable to and binding upon the Applicant.

g) District.

The Palmdale Water District.

h) Engineer.

A registered civil engineer appointed by the District acting either directly or through his properly authorized engineers.

i) Final Completion.

Shall mean the water system is complete and active, street improvements are complete and required title insurance policies for easements, if any, are provided. The date of final completion shall initiate the beginning of the one-year guarantee period. See Section 1-14 for other requirements.

j) Fire System Activation Letter.

The letter informing Los Angeles County Fire Department that the water system and fire hydrants are available for protection. Two sets of as-built drawings must be submitted, easement documents must be recorded, and title insurance policies to said easements provided prior to issuance of letter. Also, pipe identification wires and compound meters shall be tested if included in the project.

k) Inspector - Owner's Representative.

The personal representative of the District acting on the behalf of the District Engineer and/or District Manager.

l) Plans.

The official scale and full-size approved detail drawings, or exact reproductions thereof, which show location, character, dimensions, elevations, and details of the work.

m) Specifications.

The STANDARD SPECIFICATIONS FOR WATER DISTRIBUTION SYSTEM CONSTRUCTION of the Palmdale Water District. Should job-specific specifications, approved by the District, conflict with these Specifications, the job-specific specifications shall govern.

n) Standard Drawings.

The Standard Drawings, a part of the STANDARD SPECIFICATIONS FOR WATER DISTRIBUTION SYSTEM CONSTRUCTION of the Palmdale Water District, unless otherwise qualified.

o) Work.

All labor, materials, equipment, transportation, supervision, or other facilities necessary to complete the improvement provided for in the Agreement of Public Contract.

p) Private Contract Work.

Work done pursuant to a Contract between the Contractor and the Applicant.

q) Public Contract Work.

Work done pursuant to a Contract between the Contractor and the District.

r) Private Engineer.

A registered civil engineer employed by the Applicant.

s) Approved, Directed, Satisfactory, Proper, Acceptable, Required, Necessary, and Or Equal.

Shall be defined as considered approved, directed, satisfactory, proper, acceptable, required, necessary, or equal in the opinion of the District.

1-04 Abbreviations

The abbreviations used in the plans and specifications are abbreviations the meanings of which are established by general usage through the industry and those defined in subsection 1-02 herein.

1-05 Inspection of Work

The District will provide inspection for all work. The inspection fee will be determined in accordance with the "Palmdale Water District Rules and Regulations" and must be paid to the District before beginning construction activity.

Prior to beginning any construction operations, the developer shall give the District at least forty-eight (48) hours advance written notice of the name and contractor's license number of the contractor who will perform the work and a written request for a pre-job meeting with the location for same to be determined by District staff. The contractor shall notify the District's Engineering Manager forty-eight (48) hours in advance of any work to be done in order that inspection services may be provided.

All work shall be performed only with the approval of the District's authorized representative, and any work done in the absence of said District's authorized representative shall be subject to rejection. The Contractor shall give sufficient notice to the District's authorized representative in advance of backfilling or otherwise covering any part of the work so that the District's authorized representative may, if he wishes, observe such part of the work before it is concealed.

District inspection is available between 7:00 a.m. and 4:30 p.m., Monday through Friday, except District holidays. If the Contractor wishes to work on holidays, weekends, or at other hours than stated in this paragraph, the Developer shall submit a written request for said hours at least forty-eight (48) hours in advance and shall obtain the written permission of the District's Engineering Manager. The Developer shall bear the full cost of approved inspection outside of normal District working hours. Said costs will be billed to the developer and must be paid to the District on a monthly basis.

Inspection by the District will not in any way reduce the Developer's or Contractor's responsibility for the work.

All costs for re-testing and re-inspection which are necessitated by defective materials and/or workmanship shall be at the sole expense of the Contractor and or Applicant.

1-06 Plans Submitted by Private Engineers

First submittal of water improvement plans shall include a letter for District file and record purposes. All documents can be electronic (PDF, CAD). The following described documents, drawings, and materials required by the District to start processing the request:

a) A Conceptual Plan showing how the project will be served;

b) One (1) print of an approved tentative map;

c) One (1) copy of the conditions of approval of said tentative tract map;

d) Full name, address, and telephone number of the developer;

e) Name, address, and telephone number of the tract engineer of record and the name of the project engineer representing the firm on the subject project;

f) Two (2) prints of the tentative map on which the approved, preliminary water system, including required connections to sources of supply, are legibly shown;

g) A plan check fee determined in accordance with the "Palmdale Water District Rules and Regulations";

h) Copies of any other maps, plans, surveys, fire department requirements, improvements, etc. that will help expedite the preliminary plan check and which will be required by Palmdale Water District prior to approving plans.

A complete set of plans shall include the following:

1) A cover sheet containing the following:

   a) Benchmark;

   b) General Notes;

   c) One (1) inch equals Two hundred (200) feet map showing lot lines, lot numbers, existing and proposed water mains, water main sizes, valves, fire hydrant locations, sheet numbers, and easements;

   d) Vicinity Map;

   e) List of Materials;

   f) Name, address, and telephone number of Engineer and Developer; and

   g) Approval and revision blocks.

2) Plan and profile sheets containing, but not limited to, the following:

   a) Horizontal scale of one (1) inch equals forty (40) feet;

   b) Vertical scale of one (1) inch equals four (4) feet;

   c) Locations of all existing utilities;

   d) Existing and future surface profiles;

   e) Approval and revision blocks;

f) North arrow;

g) Curb, gutter, and sidewalk;

h) Property lines, lot lines, and tract boundaries;

i) Complete dimensioning for entire right-of-way of subject street and adjoining streets;

j) Stationing, where applicable, relative to street centerline as shown on the corresponding street improvement plans for the project;

k) All proposed valves, fittings, and appurtenances;

l) Profile view showing all sewer and utility crossings, the proposed water main, valves, fittings, air/vacs, and transitions;

m) Details for transitions including all stationing, and elevations necessary to define pipe alignment and separation from other utilities or improvements;

n) Label and dimensioning for proposed water main.

District design criteria for new water system improvements include the following:

1) Water mains shall be ten (10) feet from curb of face, five (5) feet horizontal, and one (1) foot vertical separation from other utilities. For sewer, see Sheet W-10;

2) Project shall have two (2) points of connection/sources of supply;

3) All water mains must loop (no dead ends);

4) Valves shall be located at right-of-way and property line prolongations;

5) All easement lines shall be valved at both ends, have no service connections, and must be ductile iron pipe;

6) High points shall have air/vacuum release valves;

7) No fittings closer than six (6) feet from curb face;

8) All systems will require retaining glands with mechanical joints;

9) Fire hydrants to be located on the same side of the street as the main wherever possible. Blue dots to be placed six (6) inches from centerline toward fire hydrant.

Plans for private contract work shall be checked by the District and shall be approved by the District prior to starting work.

Plans submitted to the District for approval shall have thereon the name and registration number of the private engineer who prepared the plans or the name of the engineering firm with the name and registration number of the private engineer under whose direction the plans were prepared. Such plans shall be free of advertising, insignia, labels, emblems, seals, or other markings not relevant to the work. Plans are to be presented in a neat, concise, and professional condition.

Upon District's approval of the plans, a single set of original mylars will be sent to the District for signature. Approval of plans by the District will not relieve the Applicant or private engineer of any responsibility because of errors in the plans either by commission or omission. Such errors, when brought to the attention of the private engineer by the District, shall be promptly remedied as herein provided.

After plans have been approved and filed, changes may be made in the plans only upon approval of the District. In order to obtain such approval, the private engineer shall first submit two sets of prints showing the proposed changes. After approval of changes, four prints of the approved revised plans shall be submitted to the District.

If construction operations are not started within twelve (12) months of the date of approval, the plans must be re-submitted for plan check prior to construction. The re-submitted plans will be checked for conformance with the criteria current at the time of re-submittal. The cost of rechecking plans will be paid by the developer as determined above.

The private engineer shall prepare "RECORD DRAWINGS" on prints of the latest revised plans clearly showing all changes in location and elevation of constructed improvement prior to the project being considered complete. These drawings shall show the configuration, manufacturer, and date of manufacture of all valves.

The private engineer shall submit the "RECORD DRAWINGS" to the District Manager for final inspection and approval. Upon receipt of such approval, the private engineer shall correct and deliver the "as-built" original tracings to the District's Engineering Manager not later than thirty (30) days after receipt of such approval.

1-07 Easement Document Requirements.

All easement documents are to be prepared and submitted on the District's approved format and provided along with plans submitted for plan check review.

Prior to the approval of water system plans, the easement documents must be approved as to form.

Grant deeds for easements are required to be executed by the grantor, re-submitted to the District, and have the Affidavit of Acceptance by the District attached to same prior to the tie-in of the water system.

All required easements will be recorded and a Title Insurance Policy for same in the minimum amount of $25,000.00 provided to the District prior to issuance of the Fire System Activation Letter.

1-08 Compliance with Laws and Regulations

The Contractor shall keep himself informed of all laws, ordinances, and regulations in any manner affecting those employed on the work, or the materials used in the work, and of all orders and decrees of bodies or tribunals having any jurisdiction or authority over the same. He shall at all times and at no expense to the District observe and comply with, and shall require all his agents, employees, contractors, and subcontractors to observe and comply with all such applicable laws, ordinances, regulations, orders, and decrees in effect or which may become effective before completion of the work. Unless otherwise explicitly provided in these specifications, all permits, and licenses required by other agencies necessary to the prosecution of the work shall be secured by the contractor.

1-09 Protection of Persons and Property

The Contractor shall provide for the protection of all persons and property as herein specified. Attention is called to "General Industry Safety Orders" and "Construction Safety Orders" of the California State Department of Industrial Relations, Division of Industrial Safety, to which the Contractor is required by law to conform. He shall provide himself with copies of these rules and orders. To the extent applicable, the Contractor shall also comply with the provisions of the Safety and Health Regulations for construction promulgated by the Secretary of Labor under Section 107 of the Contract Work Hours and Safety Standards Act, as set forth in Title 29 C.F.R.

The Contractor shall take all necessary measures to protect the work and prevent accidents during the construction. He shall provide and maintain sufficient night lights, barricades, guards, temporary sidewalks, temporary bridges, danger signals,

watchmen, and necessary appliances and safeguards to properly safeguard life and property. He shall also protect all excavations, equipment, and materials with barricades and danger signals so that the public will not be endangered.

The Contractor shall so conduct his operations as to offer the least possible obstruction and inconvenience to traffic, and he shall have under construction no greater amount of work then he can handle properly with due regard for the rights of the public. All traffic shall be permitted to pass through the work with as little delay and inconvenience as possible unless otherwise authorized by the County of Los Angeles, the City of Palmdale or Caltrans.

Convenience of abutting property owners shall be provided for as far as practicable. Convenient access to mailboxes, driveways, houses, and buildings adjoining the work, as well as fire hydrants, shall be maintained and temporary approaches to intersections shall be provided and kept in good condition. When a section of surfacing, pavement, or a structure has been completed, it shall be opened for use by traffic at the request of the District. In order that unnecessary delay to the traveling public may be avoided, the Contractor, when so ordered, shall provide competent flagmen whose sole duty shall consist of directing traffic either through or around the work.

Care should be taken to preserve and protect all public and private property and facilities in and around the work site. The Contractor shall be liable for the complete cost of repairing or replacing all such property and facilities damaged or destroyed during the progress of the work.

No valve or other control on the existing system shall be operated for any purpose by the Contractor unless said operation is under the direct supervision of District personnel. Any operation of District facilities without direct supervision of District personnel will be cause for the District to stop work on the project and will be regarded as tampering with a public water system (U.S. Code 300i-1) and could result in imprisonment or fine to the Contractor or Developer responsible. Any damage resulting from said operation will be repaired at the Contractor's expense. Otherwise, the District will operate all valves, hydrants, blow-offs, and curb-stops on the existing system. The District Inspector shall be notified 48 hours prior to the construction of tie-ins to existing lines.

1-10 Public Notice

a) Notice of Starting Work:

The Contractor shall provide and distribute to all occupants along the streets of the proposed work, printed notices 8-1/2 inches x 11 inches in size, with wording similar to that showing on the following page 1-12.

b) Notice of Temporary Shutdown:

Notice shall be given for temporary interruption of service to existing customers no later than twenty-four (24) hours prior to said interruption. Said note to be printed on 8-1/2 inches x 11 inches paper in a format to be approved by the District prior to distribution.

PUBLIC NOTICE

[Contractor's Company Name] will be conducting construction work on your street on [Day of Week, Month, Date] between [XX a.m.- XX p.m] for the next [X months or days]. As work starts at [Intersection Street Name], proceeds along your street and ends at [Intersection Street Name], we ask for your cooperation and understanding.

We ask that you please:

1. **Remain alert when driving/walking by the construction site.**
2. **Keep children away from the construction area.**
3. **Report your concerns to [construction superintendent's name] at [contact number].**

The work is being performed by [Contractor Company Name] and supervised by [superintendent's name], who can be contacted at [address, and telephone number]. [Contractor Company Name] is being contracted by Palmdale Water District (PWD) for this project. PWD's Project Manager is [name], who can be reached at [telephone number].

If you have a concern after normal business office hours or have a water emergency, please call PWD's emergency line at 661-947-4114.

Thank you for your cooperation,

[Contractor's Company Name]

NOTICIA PÚBLICA

[Nombre de la empresa del contratista] llevará a cabo trabajos de construcción en su calle el [Día de la semana, mes, fecha] entre [XX a.m.- XX p.m] durante los próximos [X meses o días]. Como el trabajo comienza en [Nombre de la calle de intersección], continúa a lo largo de su calle y termina en [Nombre de la calle de intersección], le pedimos su cooperación y comprensión.

Le pedimos que por favor:

1. Permanezca alerta cuando conduzca / camine por el sitio de construcción.

2. Mantenga a los niños alejados del área de construcción.

3. Informe sus inquietudes al [nombre del superintendente de construcción] en [número de contacto].

El trabajo está siendo realizado por [Nombre de la empresa contratista] y supervisado por [nombre del superintendente], a quien se puede contactar en [dirección y número de teléfono]. [Nombre de la empresa contratista] está siendo contratado por Palmdale Water District (PWD) para este proyecto. El gerente de proyecto de PWD es [nombre], a quien se puede contactar en [número de teléfono].

Si tiene alguna inquietud después del horario normal de oficina comercial o tiene una emergencia de agua, llame a la línea de emergencia de PWD al 661-947-4114.

Gracias por su cooperación,

Nombre de la Firma

1-11 Materials and Workmanship

Unless otherwise specified, all materials incorporated in the work shall be new. Materials not otherwise designated by detailed specifications shall be of the best commercial quality, suitable for the purpose intended and approved by the District. Equipment, pipe, fittings, etc. must be transported to the site and installed without damage.

All workmanship shall be in conformance with the best trade practices. Particular attention shall be given to the appearance of exposed work. Any work or workmanship not conforming to the best practices shall be subject to rejection.

The District practices zero tolerance for graffiti, and it is the Contractor's responsibility to protect and maintain facilities are graffiti-free until acceptance.

1-12 Project Clean-Up

An orderly job shall be maintained at all times. Tools, rubbish, and materials shall be picked up and stored in a workmanlike manner at all times. There shall be removed from the vicinity of the completed work all material, etc., used during construction. Surfaces shall be returned to a condition acceptable to the District. All excess material shall be disposed of as directed by the District or removed from the work site.

1-13 Guarantee

All parts of the work shall be guaranteed against defective materials or workmanship and against settlement of backfill and any resulting damage to resurfacing for a period of one year from the date of final completion of the work.

The expiration of the one (1) year guarantee period does not limit the developer's liability for work which is done contrary to the plans and specifications. Any Performance Bond provided in accordance with Subsection 1-21 of these Specifications shall remain in full force and effect for the guarantee period.

When such defect or settlement is discovered requiring repairs to be made under this guarantee, all such repair work shall be done at no expense to the District within ten (10) days after written notice has been given by the District. Should the Contractor or Applicant fail to repair the work as directed within ten (10) days thereafter, the District may make the necessary repairs and charge the Developer or Applicant with the actual cost of all labor and materials required.

In the event such defect or settlement is discovered requiring immediate corrective action to be taken in the opinion of the District Manager, the District shall have the

right to repair or replace same and to take whatever other action the District deems appropriate to correct same and to charge the Developer with the actual cost incurred by the District.

1-14 Final Completion

As a necessary condition to, and prior to District recognition of final completion of the work, the Applicant shall submit in duplicate to the District:

a) An itemized cost breakdown of the work including cost per foot, and total footage installed, for each size and type of pipe installed; cost per each and total number of fire hydrants installed; and cost per each and total number installed for each size of service lateral and meter installed.

b) A bill of sale conveying, at no cost, to the District all facilities installed.

c) All easement documents recorded, and title insurance policies issued.

d) A letter requesting a final walk-through or punch list and the completion of all items on said punch list.

1-15 Equal Opportunity

During the performance of the public contract, the Contractor agrees as follows:

The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The Contractor will take affirmative action to ensure that applicants are employed and that employees are treated, during employment, without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of any or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in a conspicuous place available to employees and applicants for employment, notices setting forth the provisions of this Equal Opportunity clause.

The Contractor shall, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.

The Contractor shall send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding a notice advising the said labor union or worker's representative of the Contractor's

commitments under this section and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

When applicable to the project, the Contractor will comply with all provisions of Executive Order No. 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

a) The Contractor will furnish all information and reports required by Executive Order No. 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor or pursuant thereto and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

b) In the event of the Contractor's noncompliance with the Equal Opportunity clause of this Section or with any of the said rules, regulations, or orders, the Contract may be canceled, terminated, or suspended in whole or in part, and the Contractor may be declared ineligible for further Government federally assisted construction contracts in accordance with procedure authorized in Executive Order No. 11246 of September 24, 1965 or by rule, regulation, or order of the Secretary of Labor, or as provided by law.

c) The Contractor will include this Equal Opportunity clause in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order No. 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions including sanctions for noncompliance; provided, however, that in the event the Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

The Equal Opportunity requirements of Executive Order No. 11246 are not applicable to Federally assisted contracts:

1) Which do not exceed ten-thousand dollars ($10,000)

2) Where work is to be performed entirely outside the United States and no recruitment of workers within the United States is involved; or

3) Which are specifically exempt by the Secretary of Labor.

1-16 Trench Shoring and Sheeting

In the event the work will entail construction of any trench or trenches or excavation or excavations which will be five (5) feet or deeper and into which a person will be required to descend, prior to commencing such construction, the Contractor shall obtain a permit from the California Division of Industrial Safety pursuant to Section 6501 of the California Labor Code. Said permit shall be posted at the job site prior to opening of the excavation. A copy of said permit shall be provided to the District prior to the start of construction or excavation requiring same.

In addition, and with respect to Public Contract work involving a Public contract price in excess of twenty-five thousand dollars ($25,000.00), if any such trenches or excavations will be entailed in the work, prior to commencing such construction, the Contractor shall also submit to the District for approval a detailed plan showing the design of shoring, bracing, sloping, or other provisions to be made for worker protection from the hazard of caving ground during the excavation of such trench or trenches. If such plan varies from the shoring system standards established in Title 8, Article 6, California Division of Industrial Safety Orders, the plan shall be prepared at Contractor's expense by a private engineer registered as a civil or structural engineer.

1-17 Preservation of Monuments

All historical monuments, benchmarks, survey marks, and stakes shall be preserved. If such monuments are damaged or destroyed during construction, they shall be repaired or replaced at no expense to the District.

1-18 Dust Control

The work shall be conducted to provide control as follows:

a) No fuel shall be used nor shall any work be conducted which shall emit into the atmosphere any smoke, which is defined as equal to Ringelmann No. 2, or darker.

b) No work shall be conducted which will emit into the atmosphere any flying dust or dirt which is hazardous to humans or which might constitute a nuisance. Any dirt, dust, or mud that accumulates on streets is to be removed by the end of each workday.

1-19 Sanitation

Temporary chemical toilet facilities shall be provided for the use of all workmen. Each toilet building shall be maintained in a sanitary condition at all times, and at the completion of the construction, shall be removed from the site. Pit-type privies shall not be used.

Pure, cool drinking water with individual drinking cups or a sanitary bubbler fountain shall be available at all times.

1-20 Shop Drawings

The Contractor shall submit to the District four (4) copies of any shop and erection drawings required by the plans or specifications. The District will, within fifteen (15) days, return two copies to the Contractor marked "Disapproved", "Approved", or "Approved as Revised". In the last case, all revisions will be clearly shown on the returned copy, which shall be considered as an approved drawing, and only drawings or prints which are approved shall be used for manufacture.

Revisions shown on the shop drawings shall be considered as changes necessary to meet the requirements of the plans and specifications and shall not be taken as the basis of claims for extra charges. When delay is caused by the re-submission of shop drawings, Contractor shall not be entitled to any damages or extension of time on account of such delay. The corrections on prints marked "Approved as Revised" shall be made on the originals as soon as practicable and new prints submitted. District's approval shall be considered as applying only to the general arrangement, and such approval of the revisions to detail shall not relieve the Contractor from entire responsibility for correctness of details and dimensions. Contractor shall correct any misfits due to any errors in the drawings. Any fabrication or other work performed in advance of the receipt of approved shop drawings shall be done entirely at the Contractor's expense.

1-21 Contract Bonds

a) Public Contracts. Simultaneously with the execution of the Agreement, the Applicant shall furnish to the District a bond insuring performance of and full payment for, the work pursuant to the Agreement, Contract, and Specifications in an amount equal to one hundred percent (100%) of the contract price. Insuring performance of the guarantee shall be set forth in Subsection 1-12 of the Specifications in an amount equal to fifty percent

(50%) of the contract price. The bond shall be issued by a surety acceptable to the District and shall be released as to insuring such performance and payment of

the work immediately upon acceptance of the work by the District and shall be released as to insuring such performance of the guarantee one (1) year after the District's acceptance of the work.

b) Other Contracts. The Contractor shall furnish to the County of Los Angeles or to the City of Palmdale any bonds specified in the approval document for the improvements issued by the applicable jurisdiction.

The District shall notify the appropriate agency upon final completion of the work to allow the agency to release construction bonds held to the extent the agency's policy dictates.

SECTION 2 - PIPELINE MATERIALS

2-01 General

The work of this section shall include furnishing and installing all pipe, fittings, joints, together with all material, equipment, labor, transportation, supervision, and other items of expense necessary for or incidental to the installation of pressure water mains and appurtenances in accordance with the plans and specifications.

All materials shall be carefully examined at the job site by the Contractor and District Inspector. The pipe and appurtenances shall be new.

2-02 Scope

This section defines the materials to be used for pipelines, fittings, joints, and appurtenances.

2-03 Cement Mortar Lined and Coated Steel Pipe

Cement mortar lined and coated steel pipe (CMLC Pipe) and fittings shall be furnished and installed in accordance with the plans. Pipe, including special fittings, shall be manufactured in accordance with AWWA C205-12, *Cement Mortal Protective Lining and Coating for Steel Water Pipe – 4 inch and larger – Shop Applied*, of latest revision and Fed. Spec. SS-P-385 except as further specified in these specifications.

The pipe shall consist of the following component parts: a welded sheet steel or plate steel cylinder with joints formed integrally with the steel cylinder or with the steel joint rings welded to the ends; a five-sixteenth (5/16) inch cement mortar-lining; a one-half (1/2) inch concentric exterior mortar coating; a self-centering bell and spigot joint with a circular pre-formed rubber gasket so designed that the joint will be watertight under all conditions of service.

Steel for cylinders shall be hot-rolled low carbon steel sheets conforming to ASTM A-570 Gr 33. The minimum acceptable yield strength of the steel shall be 33,000 psi, and the minimum wall thickness of any size pipe shall be 10 gauge. Diameter indicated or specified shall be net inside diameter plus or minus one-quarter (1/4) inch after cement mortar-lining. Type II cement shall be used for all mortar-linings and coating.

The exterior of the pipe shall be cement mortar coated. Cement mortar-coating shall be applied in accordance with AWWA C205-12, *Cement Mortal Protective Lining and Coating for Steel Water Pipe – 4 inch and larger – Shop Applied*, of latest revision and Fed. Spec. SS-P-385. Cathodic protection for CMLC Pipe is required as specified.

a) Joints.

(1) Rubber Gasket Joints. Rubber gasket joints shall conform to Fed. Spec. SS-P-385 and be made in accordance with Standard Drawings W-9.

(2) Lap Welded Field Joints. Where indicated on the drawings, lap joints shall comply with AWWA C206-11, *Field Welding of Steel Pipes* of latest revision. See Standard. Drawing No. W-9

(3) Flanged Ends. Pipe section ends required to be fitted with flanges for special fittings and connections, as shown on the drawings, shall utilize flanges which comply with the requirements of AWWA C207-13, *Steel Pipe Flanges for Waterworks Service* of latest revision Class "D" for steel hub flanges. No plate flanges shall be used. All flanged spools shall be positioned and tack-welded in place prior to completing the weld. Flange bolts installed underground shall be either galvanized or cadmium plated, thoroughly coated with NO-OX Grease and wrapped with 8 mil polyethylene sheet. (AWWA C105/A21.5-10, *Polyethylene Encasement for Ductile Iron Pipe Systems* of latest revision). Gaskets for flanged joints shall be one sixteenth (1/16) inch thick for up to twenty-four (24) inch pipe, one-eighth (1/8) inch thick for pipe larger than twenty-four (24) inches. Rubber gaskets shall not be used for flanged connections. Nuts and bolts shall have hex heads.

b) Fittings for Steel Pipe.

All bends, ells, tees, crosses, reducers, and other fittings for mains twelve (12) inches and smaller shall be either Class 150 or Class 250 Steel Flanged Fittings and shall conform to AWWA Standard C207-13, *Steel Pipe Flanges for Waterworks Service, Sizes 4-inch through 114-inch*, of latest revision and shall be cement mortar lined and coated per AWWA Standard C205-12 or latest revision; or epoxy lined as approved by the District. Fittings for mains larger than twelve (12) inches may be fabricated in accordance to AWWA Standard C208-12, *Dimensions for Fabricated Steel Water Pipe Fittings.*

c) Connections.

All connections including hot tap for water service shall be with 3,000 lb. weld-on half coupling, welded to the pipe in the shop at time of pipe fabrication. After coupling is welded to the pipe, it shall be covered by mortar coating, so no bare metal is left exposed. Where it is necessary to make the connection in the field, additional care shall be exercised to minimize the damage to mortar linings. Refer to Section 5-06.

2-04 Ductile Iron Pipe

Ductile iron pipe shall be designed in accordance with the latest revision of ANSI/AWWA C150/A21.50-14 of latest revision, *Thickness Design for Ductile Iron Pipe*. Water mains 12 inches and below shall be Class 350; water mains above 12 inches must be Class 250 (or project requirements, whichever is greater) rated working pressure plus a 100-psi minimum surge allowance; a safety factor of 2.

Ductile iron pipe shall be manufactured in accordance with the latest revision of ANSI/AWWA C151/A21.51-09, *Ductile Iron Pipe, Centrifugally Cast*, of latest revision. Each pipe shall be subjected to a hydrostatic pressure test of at least 500 psi at the point of manufacture.

Pipe shall have standard asphaltic pipe coating on the exterior and a double thickness cement mortar lining on the interior in accordance with ANSI/AWWA C104/A21.4-13, *Cement-Mortar Lining for Ductile-Iron Pipe and Fittings*, of latest revision.

Manufacturers certificates indicating that pipe has been double lined must be submitted with each pipe delivery.

The class or nominal thickness, net weight without lining, and name of manufacturer shall be clearly marked on each length of pipe. Additionally, the letters "DI" or

Ductile" and the country where the pipe was cast shall be either cast or stamped on to the pipe.

a) Joints.

All pipe shall be furnished with either Push-On Type Joints, such as "Tyton" or "Fastite", or Mechanical Joints. Joints shall be in accordance with ANSI/AWWA C111/A21.11-12, *Rubber-Gasket Joints for Ductile Iron Pipe and Fittings,* of latest revision, and be furnished complete with all necessary accessories.

Push on Restraint: When restraining push on joints adjacent to restrained fittings, a harness restraint device shall be used. All harnesses shall have a pressure rating equal to that of the pipe on which it is used through 14". Harness assemblies, including the bolts, shall be manufactured of ductile iron conforming to ASTM A536-80.

b) Fittings for Ductile Iron Pipe.

Fittings shall be ductile iron. Ductile iron fittings shall conform to the latest revisions of either ANSI/AWWA C110/A21.10-12 *Ductile Iron and Gray Iron Fittings* of latest revisions or ANSI/AWWA C153/A21.53-11 *Ductile Iron Compact Fittings* of latest revision. Fittings shall have a standard asphaltic coating on the exterior and a double thickness cement mortar lining on the interior in accordance with ANSI/AWWA C104/A21.4-13, *Cement Mortar Lining for Ductile-Iron Pipe and Fittings* of latest revision.

All fittings and accessories shall be furnished with Mechanical Joints in accordance with ANSI/AWWA C111/A21.11-12, *Rubber Gasket Joints for Ductile Iron Pressure Pipe and Fittings* of latest revision. Retaining glands will be required on all Mechanical Joint fittings. The design of all connections between ductile iron pipe and other types of pipe shall be submitted to the District for approval prior to ordering the connection materials.

c) Mechanical Restrained Joints.

Restrained joint fittings shall be provided at all tees, crosses, reducers, bends, caps, plugs, and valves such that the pipe is fully restrained in any one given direction.

Mechanical Restrained Joints shall meet Uni-B-13 for PVC and be UL/FM approved through 12" for both ductile iron and PVC. The restraint mechanism shall consist of individually activated gripping surfaces to maximize restraint capability.

Twist-off nuts, sized the same as the tee-head bolts, shall be used to insure proper activating of restraining devices. The gland shall be manufactured of ductile iron conforming to ASTM A536-80. The retainer-gland shall have a pressure rating equal to that of the pipe on which it is used through 14" with a minimum safety factor of 2. See Standard Drawings W-21, W-22, and W-23.

d) Installation of Ductile Iron Pipe and Fittings.

All pipe, fittings, and accessories shall be installed and tested in accordance with the latest revision of AWWA Standard C600-10, *Installation of Ductile Iron Mains and Their Appurtenances*, of latest revision. Newly installed ductile iron water mains shall be disinfected in accordance with the latest revision of AWWA Standard C651-14 *Disinfecting Water Mains*, of latest revision prior to placing in service.

e) Connections.

All connections for water service shall be made with malleable iron double strap service saddle as shown on Standard Drawing No. W-1 and W-1A, refer to Section 5-07. Hot tapping instructions stated in Section 4-21.f)

f) Short Pipe Lengths.

Short lengths of pipe no less than one half the length of a standard pipe section shall be used only where necessary to permit the deflections required for abrupt changes of grade or short radius curves. If short lengths of pipe are required to necessitate placing a valve or fitting on station, the short length shall be installed a minimum of one full pipe length away from said fitting, otherwise joint restraints will be required.

2-05 Polyvinyl Chloride (PVC) Pipe

Polyvinyl Chloride (PVC) pipe and joints shall be designed and manufactured in accordance with ANSI/AWWA Standard C900-07, *Polyvinyl Chloride (PVC) Pressure Pipe, and Fabricated Fittings 4-inch through 12 inch for Water Transmission and Distribution*, of latest revision, and Appendix A of said Standard. All pipe shall have a dimension ratio (DR) as shown on the approved plans. If the DR is not specified, DR 18 shall be installed.

Pipe markings shall be in accordance with ANSI/AWWA Standard C900-07, *Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings, 4-inch through 12-inch for Water Distribution*, of latest revision including the seal (mark) of the testing agency which verified the suitability of the pipe material for potable-water service.

An affidavit of compliance to specifications shall be provided for all delivered materials.

a) Fittings for Polyvinyl Chloride (PVC) Pipe.

Fittings shall be ductile-iron and shall conform to the latest revision of either ANSI/AWWA Standard C110/A21.10-12, *Ductile Iron and Gray Iron Fittings*, of latest revision or ANSI/AWWA C153/A21.53-11, *Ductile Iron Compact Fittings* of latest revision Class 350. Fitting shall be cement mortar lined per ANSI/AWWA Standard C104/A21.5-13, *Cement-Mortar Lining for Ductile Iron Pipe and Fittings* of latest revision.

All fittings and accessories shall be furnished with mechanical joints in accordance with the latest revision of ANSI/AWWA Standard C111/A21.11-12, *Rubber Gasket Joints for Ductile Iron Pressure Pipe and Fittings* of latest revision. All fitting joints shall have Mechanical Restrained Joints.

The design of all connections between Polyvinyl Chloride (PVC) Pipe and other types of pipe shall be submitted to the District for approval prior to ordering the connection materials.

Mechanical Restrained Joints: Restrained joint fittings shall be provided at all tees, crosses, reducers, bends, caps, plugs, and valves such that the pipe is fully restrained in any one given direction.

Mechanical Restrained Joints shall meet Uni-B-13 for PVC and be UL/FM approved through 12" for both ductile iron and PVC. The restraint mechanism shall consist of individually activated gripping surfaces to maximize restraint capability. Twist-off nuts, sized the same as the tee-head bolts, shall be used to insure proper activating of restraining devices. The gland shall be manufactured of ductile iron conforming to ASTM A536-80. The retainer-gland shall have a pressure rating equal to that of the pipe on which it is used through 14" with a minimum safety factor of 2. See Standard Drawings W-18, W-19, and W-20.

b) Curves and Bends.

Changes in alignment and grade may be made by deflecting the pipe units at joints as provided herein and pipe units shorter than standard length may be required. Pipe joints shall not be deflected more than half of the manufacturer's recommendation. Pipe with factory installed couplings shall be deflected not more than half the allowable deflection for field installed couplings.

If necessary, alternate methods of providing curves in pipelines other than shown on the plans may be submitted to the District for approval.

Where no radius is given at minor Points of Intersection, the deflection angle shall be accomplished by making the deflection at one or more couplings as required.

Short lengths of pipe no less than one half the length of a standard pipe section shall be used only where necessary to permit the deflections required for abrupt changes of grade or short radius curves. If short lengths of pipe are required to necessitate placing a valve or fitting on station, the short length shall be installed a minimum of one full pipe length away from said fitting, otherwise Mechanical Restrained Joint will be required.

c) Identification Wire.

Identification wire shall be installed with all Polyvinyl Chloride (PVC) Pipe. The wire shall be insulated 14-gauge copper and shall be installed as detailed on Standard Drawing No. W-8. The wire shall be placed on the top of the pipe on the centerline of the pipe. The wire shall be fastened securely at four (4) foot intervals and at each joint or fitting with an eight (8) inch length of two (2) inch wide duct tape or other approved method. All splices to be encapsulated with rubber sealing tape and shall be in hydrant pads where possible. Refer to PWD List of Approved Materials and Standard Drawing W-8. The wire shall be tested prior to issuance of Fire System Activation Letter to ensure continuity. Testing must be witnessed by the District Inspector.

d) Connections.

All connections for water service shall be made with a bronze service saddle set with double stainless steel straps as shown on Standard Drawing No. W-1 and W-1A and stated in section 5-07. Hot tapping instructions stated in Section 4-21. Refer to PWD List of Approved Materials

e) Underground Marking Tape.

Underground marking tape shall be installed with all pipe materials. The tape shall be placed one (1) foot above the pipe with the lettering facing up. It shall be six (6) inches wide, blue in color, with the following wording: "Caution - Water Line Buried Below", stretchable, and constructed of six (6) ply high-density copolymer. Refer to PWD List of Approved Materials.

f) Push on Restraint.

When restraining push on joints adjacent to restrained fittings, a harness restraint device shall be used. All harnesses shall have a pressure rating equal to that of the pipe on which it is used through 14". Harness assemblies, including the bolts, shall be manufactured of ductile iron conforming to ASTM A536-80.

SECTION 3 - VALVES, FIRE HYDRANTS, AND APPURTENANCES

3-01 Gate Valves

Unless otherwise specified, no gate valves larger than ten (10) inch shall be used.

All gate valves must equal or exceed the requirements of the latest revision of standards for gate valves and resilient-seated gate valves, AWWA C500-09, *Metal-Seated Gate Valves for Water Supply Service*, of latest revision or AWWA C509-09, *Resilient-Seated Gate Valves for Water Supply Service*, of latest revision.

Valves supplied shall be resilient seated wedge, with O-ring seals, non-rising stems, two (2) inch operation nut, opening left.

Valves specified "with handwheels" shall be supplied with operating handwheels instead of two (2) inch operating nut.

Valve ends shall conform to AWWA standard; flanged ends per AWWA C110/A21.10-12, *Ductile Iron and Gray Iron Fittings* of latest revision, as required for steel pipe; or mechanical joints as required for ductile iron and polyvinyl chloride (PVC) pipe.

Valves shall be suitable for buried service and horizontal mounting. Valves shall be adequately anchored for thrust in accordance with the requirements of these specifications and as shown in the Standard Drawing W-4.

a) Gate Valves Two and One-half (2-1/2) Inches and Smaller.

Valves shall conform to Fed. Spec. WW-V-54, Type III, Class C, and style as required. Valves shall be supplied with operating handwheels.

3-02 Check Valves

Check valves shall have an unrestricted opening with an adjustable controlled closure rate so that valve slamming is reduced to an absolute minimum upon instantaneous

shut-off. Valves shall be mounted vertically between ANSI required class flanges. Body shall be cast iron or steel. Disc and shaft shall be stainless steel 18-8 or 303. It shall be complete with hydraulic or pneumatic cushion chamber, counterweight, and accumulator for hydraulic operators. Seat ring shall be replaceable and shall be Viton or Teflon. Valves shall be Prince Cushion Valves, Apco Cushioned Check Valves, or approved equal. Check valves two and one-half (2-1/2) inches and smaller shall be Walworth, or approved equal.

3-03 Plug Valves

Plug valves shall be used only where specified.

Plug valves shall be lubricated, have a semi-steel body, and tapered plug with dry film coating on seating surface with adjustable 3-bolt gland assembly sealed by double o-rings. The plug shall be removable through the top of the valve. The valves shall be designed for the working pressures shown on the plans.

Unless approved otherwise, valves shall have flanged ends and shall be equipped for totally enclosed worm gear operating with a two (2) inch square operating nut where called for on plans. Other valves shall be lever operated. Valves shall be equipped with lubricator extensions as indicated on the plans.

3-04 Butterfly Valves

Butterfly valves, if shown on the plans, shall meet AWWA C504-15, *Rubber-Seated Butterfly Valves* of latest revision for rubber seated, tight closing valves. Valves shall be flanged-pattern short body, and shall be cast iron, shaft or stainless steel 18-8 Type 304, disc of Ni-Resist Type 1. They shall be Class 150 unless noted on the plans. Valve operators shall be waterproof, suitable for buried service and equipped with a two (2) inch square operating nut. Where possible, operators shall be placed on the side of the pipeline nearest the curb, opposite centerline of street. Valves shall be adequately anchored for thrust in accordance with the requirements of these specifications and as shown in the Standard Drawing W-4. Concrete pads shall be poured under butterfly valves adequately anchored for thrust.

All butterfly valves shall be field tested in the presence of the inspector prior to installation for compliance with Section 5 of AWWA C504-15, *Rubber-Seated Butterfly Valves*, of latest revision. This includes performance, leak, and hydrostatic testing. Factory certification is not an acceptable substitute for the field testing. Any valves not tested will be rejected.

Contractor shall coordinate pipe manufacture to insure free movement of valve disc within the pipe.

3-05 Combination Air and Vacuum Valve Assemblies and Blow-off Assemblies

a) General.

Combination air and vacuum valves and blow-off valves shall be installed in the pipeline at locations shown on the plans. The tap for the air valves and/or blow-off valves shall be made in a level section of pipe, no closer than twenty-four (24) inches from any machined section of pipe, rubber gasketed joint, or flanged joint.

Where practical, connections to steel pipe for combination valve assemblies and/or blow-off assemblies shall be made with a 3,000 lb. half weld-on coupling welded to the pipe in the shop at time of fabrication.

Where it is necessary to make the connection in the field, additional care shall be exercised to minimize the damage to mortar-linings. Wherever connections can be made dry, the coupling shall be welded to the pipe and the mortar lining repaired. The exterior concrete lining shall be repaired, and two heavy coats of coal tar enamel paint applied to all exposed steel fittings in conformance with AWWA C203-15. *Coal-Tar Protective Coatings & Linings for Steel Water Pipe*, of latest revision.

b) Combination Air and Vacuum Valve Assemblies.

The Contractor shall install in the water main combination air and vacuum valve assembly as shown on Standard Drawing W-16 at locations detailed on the plans and sized in accordance with manufacturers recommendations. Generally, one (1) inch assemblies are used for eight (8) inch and smaller mains, and two (2) inch assemblies for larger mains.

c) Blow-off Valve Assemblies.

The Contractor shall install blow-off assemblies as detailed on the plans. Valves and fittings shall equal or exceed the pressure rating of the pipe to which they are attached. Materials and required fittings are shown on Standard Drawings W-6, W-6A, and W-7. The blow-off valves shall be adequately sized for blow-down of water lines.

d) Tapping Valves.

Tapping valves shall have flanged end connection with the appropriate adapters.

3-06 Fire Hydrant Assemblies

a) General.

Fire hydrant assemblies shall include the connection to the main and shall consist of fire hydrant and appurtenances in accordance with these specifications and as shown on the Standard Drawings W-2, W-2A, W-3, or W-3A.

b) Location.

Fire hydrant risers shall be located on lot lines or at intersections a minimum of five (5) feet beyond curb radius ends and shall set back from face of curb two (2) feet. Distances in each case are measured from the centerline of the fire hydrant riser.

Gate valves shall be located adjacent to the water main.

c) Materials.

Fire hydrants shall be six (6) inches x four (4) inches by two and one-half (2-1/2) inches. Refer to PWD List of Approved Materials. All valve operating stem ends shall be equipped with pentagonal dummy nuts the same size as the nozzle cap ends.

Fire hydrants shall be cast iron. All hydrants must conform to AWWA C503 and in all cases must be approved by the County of Los Angeles, Forester, and Fire Warden. Fire hydrant tops shall be tapped for two and one-half (2-1/2) inch I.P.T. at the discretion of the District.

Fire hydrant risers and runners shall be a full six (6) inches inside diameter pipe. Type of pipe shall be ten (10) ga. CMLC steel as described in Section 2-04 of these specifications when installed with asbestos cement or steel pipe. The run shall be ductile iron as described in Section 2-05 for all other materials. The bury shall be ductile iron with an eight (8) hole patterned flange.

All required bolts, nuts, and gaskets shall be provided. Bolt holes shall be seven-eighths (7/8) inches in diameter, and bolts shall be three-quarter (3/4) inches by three (3) inches machined bolts. Bolts at hydrant flange shall be Cad-Plated hollow bolts, installed with nuts on bottom. Only hexagonal nuts and bolts will be permitted. All bolts provided must be a minimum length of at least three threads past nut when tightened.

All hydrants shall be painted with one (1) coat of red primer and two (2) finish coats of Rust-Oleum Safety Yellow or approved equal. The Contractor shall apply an additional finish coat after installation.

3-07 Location of Appurtenances

The District reserves the right to direct the location of all valve marker posts, air release valve assemblies, and blow-off valve assemblies within the road right-of-way or easement to ensure proper drainage and to minimize interference with traffic.

3-08 Valve Boxes and Covers

Valve boxes for buried valves shall be installed with eight (8) inch Schedule 40 PVC pipe risers. The entire valve box assembly shall be per Standard Drawing No. W-5.

3-09 Meter Boxes

Concrete meter boxes shall be furnished and installed as shown on the plans or in the Standard Drawings. Meter boxes shall be as manufactured by Eisel Enterprises, Inc., or approved equal.

Meter boxes shall be furnished according to the following schedule:

a) Three-quarter (3/4) inch water service and meter: Refer to PWD List of Approved Materials.

b) One (1) inch water service and meter: Refer to PWD List of Approved Materials.

c) One and one-half (1-1/2) inch or two (2) inch water service and meter: Refer to PWD List of Approved Materials.

d) Two (2) inch blow-off assembly: Refer to PWD List of Approved Materials.

e) Water sampling station: Refer to PWD List of Approved Materials.

3-10 Flexible Couplings

Flexible couplings shall have all stainless-steel nuts and bolts and be either stainless steel bodies or all epoxy lined and coated. Refer to PWD List of Approved Materials. Flanged couplings adapters are listed in PWD List of Approved Materials. Clamp type mechanical couplings are listed in PWD List of Approved Materials. and shall be for pipe with grooved ends for water service and able to withstand a pressure equal to the

strength of the pipe to which they are attached. All flexible couplings shall be protected by coating with NO-OX Grease.

3-11 Reduced Pressure Detector Assembly (RPDA)

All projects that are required to provide on-site fire protection will be required to install a reduced pressure detector assembly (RPDA) that is sized appropriately to meet the projects on-site fire protection requirements. RPDAs shall also be field tested by a certified testing firm prior to issuance of Fire System Activation Letter. Testing shall be done at one-year intervals thereafter until the project is accepted.

3-12 Large Meters (3" and Larger)

Large meter assemblies, when required, shall be completely contained in a vault and include sufficient valving and by-pass capabilities to allow the meter to be serviced, removed, or tested without interrupting water service to the customer. Serial number of the large meters shall be clearly labelled on the body of the meter or within the register. The large meter and vault must be fully detailed on improvement plans. The vault shall have the following features:

a) A 3/8" aluminum diamond plated cover with a spring-loaded access cover;

b) A ladder; and

c) A concrete floor sloped to a sump constructed per Standard Drawing W-12.

The large meter, registers, and automatic reading system shall be manufactured and assembled as a complete unit and shall be accompanied by certification from the manufacturer that the automatic reading system is appropriate and an integral part of same. Certification of bench test accuracy shall be provided at the time of delivery of the unit. The remote readers shall accurately reflect the actual meter readings.

Large meters shall also be field tested for accuracy by a certified testing firm prior. Testing shall be done at one-year intervals thereafter until the project is accepted. All registers of the meter shall comply with the AWWA C715-18, *Cold-Water Meters – Electromagnetic and Ultrasonic Type For Revenue Applications,* standard for accuracy, of latest revision. All flanged bolts and appurtenances shall be painted a minimum of two (2) coats of automotive grade non-lead red primer. See PWD List of Approved Materials.

3-13 Flange Insulation Kits

Flange insulation kits are required at connections between ductile mains and steel mains or services. Flange insulation kits shall be installed as shown on approved plans or as directed by the District. Refer to PWD List of Approved Materials.

SECTION 4 - PIPELINE INSTALLATION

4-01 Scope

This section covers the installation of pipelines and appurtenances, including trenching, laying, backfill, compaction, restoring street surfaces, and clean-up.

4-02 Shop Drawings

Wherever proposals for alternate methods or materials, special conditions, require approval of the District, detailed shop, fabrication, or erection drawings shall be provided by the Contractor for District approval as specified in Section 1-20 to accommodate the rate of construction.

4-03 Control of Water

The Contractor shall furnish, install, and operate all necessary machinery, appliances, and equipment to keep excavation sufficiently free from water during construction of the work to permit proper laying and jointing and shall dispose of water so as not to cause injury to public or private property or to cause a nuisance or a menace to the public.

4-04 Excavation

The Contractor shall perform all excavations for pipelines and appurtenances of whatever substances encountered to the depths indicated or otherwise required. Excavated material suitable for backfilling shall be piled in an orderly manner a minimum of two (2) feet from the excavated banks to avoid overloading and to prevent slides or cave-ins. Such grading shall be done as may be necessary to prevent surface water from flowing into trenches. Any water accumulating therein shall be removed by pumping or other approved means. Such sheeting and shoring shall be installed as may be necessary for protection of the work and safety of personnel in accordance with O.S.H.A. requirements. Excavations in earth and in rock shall be carried to six (6) inches below bottom of pipe. Bell holes and depressions for couplings, valves, and the like shall be excavated the same distances below these installations. The

materials excavated shall be used in the backfill or removed and disposed of by Contractor as required and specified by the Engineer.

The overnight use of trench plates will be allowed only upon written request by Contractor or Developer subject to approval by the District's General Manager. Trench plates shall be non-skid, a minimum of one-inch thick, and rated for H.D.-20 loading or greater. The excavation beneath the plate shall be shored, and the plates must be either pinned to the existing surface and ramped with temporary asphalt or counter-sunk flush to the surface. If two or more adjoining plates are to be used, they shall be tack-welded together. In the event that pending inclement weather or other conditions, as determined by the District, may adversely affect the use of plates, said plates shall be removed, and the excavation shall be backfilled, and the surface secured with temporary asphalt. The placement of trench plates shall be in accordance with the requirements of and meet the approval of the governmental agencies having jurisdiction.

Unless otherwise approved by the District prior to the beginning of construction, the length of open trench shall not exceed 500 feet including excavation, pipeline installing, and backfill in any one location. Minimum trench width shall be as required for proper assembly and joint inspection, but in no case less than twelve (12) inches greater than nominal pipe diameter. Maximum allowable width of trench for all pipelines measured at the top of the pipe shall be the outside diameter of the pipe (exclusive of all bells or collars) plus sixteen (16) inches, and such maximum shall be inclusive of all timbers. All open trenches will be backfilled to the compaction requirements and to the satisfaction of the District Inspector by the end of each workday.

4-05 Location of Existing Facilities

Contractor shall excavate and locate existing utilities and culverts prior to excavation. All pavements shall be cut or sawed a minimum eight (8) inches wider than the trench prior to trenching.

4-06 Depth of Pipe

Unless otherwise shown on the plans, all water mains shall have a coverage of forty-two (42) inches between the top of the pipe and the top of finished surface.

4-07 Changes in Line and Grade

The alignment of the pipeline is shown on the plans.

In the event obstructions not shown on the plans are encountered during the progress of the work, which will require alterations to the plans, the Developer's Engineer shall submit proposed changes to the District for approval. The Contractor shall not make any deviation from the specified line or grade without prior approval by the District.

4-08 Handling and Storing Materials

During storage, handling, and transporting, every precaution shall be taken to prevent damage to pipe. Pipe shall be handled only by means of fabric slings or other approved methods for the pipe used.

Valves, fittings, hydrants, and other accessories shall be loaded and unloaded by lifting with hoist or skidding, so as to avoid shock or damage. Under no circumstances shall such materials be dropped. Any disapproved materials shall be removed from the job site immediately.

In distributing the material at the site of work, each piece shall be unloaded opposite the place where it is to be laid in the trench.

Steel and ductile iron pipe shall be handled so that the lining and coating will not be damaged. If, however, any part of the coating is damaged, repair shall be made by the Contractor at his expense to manufacturer's specifications.

4-09 Installing Pipe

The Contractor is required to coordinate all installation of the various utilities so that the storm drain, sewer and curb and gutter are constructed prior to the water main installation. The Contractor shall, after excavating the trench and preparing the proper bedding for the pipe, furnish all necessary facilities for properly lowering and placing sections of the pipe in the trench without damage and shall properly install the pipe. The sections of pipe shall be fitted together correctly and shall be laid true to line and grade in accordance with elevations established by the Engineer. In the absence of curb and gutter, construction stakes shall be set by a registered civil engineer or licensed land surveyor indicating line and grade and location of all valves, fire hydrants and appurtenances.

The maximum stake interval shall be fifty (50) feet. The full length of the barrel of the pipe shall have a uniform bearing upon six (6) inches of bedding material, but if the pipe has a projecting bell, suitable excavation shall be made to receive the bell which shall not bear on the subgrade. The requirement for closely fitting the bottom of the pipe to the bedding material for the width shown on the drawings will be strictly enforced.

Pipe shall be laid uphill. Pipe shall be true in alignment, both vertical and horizontal, and shall not show any undue settlement after laying. No pipe shall be laid which is damaged, cracked, checked, or spalled, or has any other defect deemed by the District to make it unacceptable. All such sections shall be permanently removed from the work.

At all times when the work of installing pipe is not in progress, all openings into the ends of the installed pipelines shall be kept tightly closed with suitable bulkheads to prevent the entrance of animals, foreign materials, and water.

The pipe trench shall be kept free from water at all times, and the Contractor shall take all necessary precautions to prevent the pipe from floating due to water entering the trench from any source, shall assume full responsibility for any damage due to this cause, and shall, at his expense, restore and replace the pipe to its specified condition and grade if it is displaced due to floating or due to any other reason.

All pipelines adjoining concrete structures shall have a flexible joint at eighteen (18) inches from the face of such concrete structures.

Before lowering and while suspended or standing vertically at trench side, the pipe shall be inspected for defects. Any defective, damaged, or unsound material shall be rejected.

a) <u>Ductile Iron or Polyvinyl Chloride (PVC) Pipe.</u>

Pipe shall be laid true to line and grade. Pipe shall be installed in accordance with AWWA C600-17, *Installation of Ductile-Iron Mains and Their Appurtenances* and AWWA C605-13/C900, *Underground Installation of Polyvinyl Chloride (PVC) and Molecularly Oriented Polyvinyl Chloride Pressure Pipe and Fittings*, of latest revisions . All pipe on curves shall be assembled straight and laid over. The maximum joint deflection shall be as hereinbefore specified. The rubber rings shall be checked after installation with a gauge supplied by the manufacturer to ensure that the ring is properly seated. If, for any reason, the ring is not properly seated, the joint shall be pulled apart and satisfactorily remade.

At all locations where pipe is to be encased or cradled in concrete, the pipe shall be wrapped with a minimum of two (2) layers of fifteen (15) pound, asphalt-impregnated roofing felt in such a manner that the concrete does not form a bond with the pipe.

Identification wire shall be installed with all non-metallic pipe. The wire shall be insulated, 14-gauge copper, and shall be installed as detailed on Standard Drawing No. W-8. The wire shall be placed on the top of the pipe and the

centerline of the pipe. The wire shall be fastened securely at intervals of four (4) feet and at each joint or fitting with an eight (8) inch length of two (2) inch wide duct tape or other approved method.

Underground marking tape shall be installed with all non-metallic pipe. The tape shall be placed one (1) foot above the pipe with the lettering facing up. It shall be six (6) inches wide, blue in color, with the following wording: "Caution - Water Line Buried Below", stretchable, and constructed of six (6) ply high-density copolymer. Refer to PWD List of Approved Materials.

b) Steel Pipe.

Jointing sections of welded steel pipe with rubber gasket joints shall be accomplished by placing the rubber gasket in the spigot groove before the section is lowered into the trench and lubricating the bell end of the last section laid with an approved lubricant to reduce the friction of the entering gasket. The spigot end shall then be inserted in the bell end of the pipe in place and forced into position without injury to the pipe or gasket. Care shall be taken to ensure that the spigot is fully entered into the bell and a "feeler" gauge used to check the position of the rubber gasket. Just prior to joining the two ends together, each end of pipe shall be "buttered" with cement mortar in such a manner and in sufficient quantity to completely fill the space between the respective mortar linings. The mortar shall be composed of one (1) part of Portland Cement of the same type used in the lining and coating, two (2) parts of sand by volume, and one-eighth (1/8) part fire clay with sufficient water added to give the mixture a stiff consistency. The mixture shall not be held over one (1) hour then shall be discarded and no re-tempering by addition of water shall be allowed. Epoxy concrete adhesive shall be applied to the metal prior to coating of field fabrications or minor repairs on both coating and lining that the District may allow. After the jointing is completed, the pipe interior shall be swabbed to remove all excess mortar by drawing an approved type swab or squeegee through the pipe. After the field joints have been completed and inspected, the joint exterior shall be thoroughly cleaned.

Pipe bonding devices to provide electrical continuity shall be installed in accordance with the pipe manufacturers recommendations.

The outside joint recess shall be grouted with cement mortar after a fabric diaper has first been placed around the joint and tightened securely to prevent leakage while the mortar is being poured. The diaper shall be made of heavy-duty polyethylene fabric or other approved material of sufficiently close weave to prevent cement loss from the mortar. The fabric shall be hemmed on each edge and shall contain a metal strap within each hem sufficiently

longer than the circumference of the pipe to allow a secure attachment of the diaper to the pipe. The diaper shall be centered on the joint and positioned to provide a mortar coating of the pipe ends equal in thickness to the mortar coating on the pipe. The mortar shall be the same as for the interior joints except that it shall contain sufficient water to produce a creamy consistency. Prior to placing the mortar, the joint and diaper shall be moistened with water. The joints shall be poured and rodded or manipulated by hand to remove air bubbles from one side only until the mortar comes up to the top of the diaper on the opposite side. The mortar shall completely fill the outside annular space between the ends of the pipes around the entire circumference of the joint.

If required by the District, the diaper shall be removed, and the grouted joint inspected after the adjacent pipe sections have been sufficiently covered with backfill material to bring the pipe to a normal in-place temperature. The joint shall be repaired, if necessary, and given a heavy coating of Hunt Process Concrete Curing Compound or curing compound (Hunter equal) at the earliest practicable time after the mortar has hardened sufficiently.

Field welded joints shall be in conformance with AWWA C206-11, *Field Welding of Steel Water Pipe,* of latest revision.

4-10 Foundation Rock

Where ground water is encountered or the native material does not afford a solid foundation for pipe subgrade as specified herein, the Contractor shall excavate to such depths below the subgrade as the District decides is necessary and shall construct a stable base by placing foundation rock upon which pipe bedding can be prepared. Foundation rock shall be three-quarter (3/4) inch aggregate base material.

4-11 Protective Coatings

All otherwise uncoated buried steel surfaces, including nuts and bolts, shall be thoroughly coated with NO-OX Grease and then be wrapped with 8 mil polyethylene sheet per AWWA C-105/A21.5-10, *Polyethylene Encasement for Ductile Iron Pipe Systems,* of latest revision.

4-12 Shop Painting

All exposed ferrous metal surfaces, including any pipe supports, shall be shop painted unless otherwise shown on the plans.

a) Surface Preparation.

All rust, loose scale, and foreign matter shall be removed from surfaces to be coated by wire brushing or sandblasting. Oil and grease shall be removed with cleaning solvent, and surfaces shall be dry.

b) Coating.

Surfaces which will be in contact with the earth and are to receive a field applied coating as specified elsewhere shall be shop-painted in accordance with AWWA C203-15, *Coal Tar Protective Coatings and Linings for Steel Water Pipe*, of latest revision.

Exposed surfaces shall be shop-painted with one coat of red primer.

4-13 Anchor and Thrust Blocks

Anchor and thrust blocks shall be installed at fittings and valves and, where directed by the District, in accordance with details shown on Standard Drawing W-4. Excavations and forms for thrust and anchor blocks shall be examined by the District's authorized representative prior to placement of concrete. Thrust blocks shall be constructed of five-sack concrete and shall bear against undisturbed soil and shall be allowed to cure until an adequate strength has been obtained, at least forty-eight (48) hours, prior to pressurizing the pipe. No quick setting additives shall be used. Any flanged fittings coming in contact with concrete shall be thoroughly wrapped, including the bolts and nuts, with a layer of 8 mil polyethylene film. Form work shall be constructed of sandbags wherever necessary to confine the concrete to the prescribed dimensions for the block.

4-14 Hydrostatic Tests

After the pipe backfill has been completed and accepted, the pipe shall be subjected to a hydrostatic pressure test as hereinafter specified. The District shall be notified twenty-four (24) hours prior to testing. An Inspector shall be present at all tests.

Each water main shall be filled with potable water and shall be tested in sections of convenient lengths as determined by the range of elevations within the test section which shall result in test pressure within the limits hereinafter specified. Testing against valves will not be permitted.

The test pump and gauge shall be connected to the water main at a location other than the highest point in the line in order to facilitate release of air from the high point. The gauge shall be approved by the District.

The test pressure at the location of the testing equipment shall be computed on the basis of the relative elevations of the test gauge and the lowest point in the pipe section being tested and shall result in a pressure equal to the pressure classification of the pipe plus 50 psi at the lowest point in said pipe section. The test pressure at the highest point in the pipe test section shall not be less than 110 percent of pressure classification.

This test shall be made on all sections of water main in order that all pipe, valves, fittings, fire hydrants, connections, and water services may receive the test. The test pressure shall be maintained continuously by pumping for a period of one (1) hour. Pumping shall then be discontinued for one (1) hour and the drop in pressure read on the dial of the gauge at the end of the second hour and recorded. The initial test pressure shall then be restored by pumping, and the quantity of water pumped into the line to accomplish this shall be measured accurately. If there is any sign of leakage or failure at any point on the line during the test, the test shall be discontinued until the same has been repaired after which the test shall be repeated until the pipe section tested shall have met the above requirements. The test shall be performed and accepted only in the presence of District's authorized representative.

The following table summarizes the maximum allowable leakage rate for various pipe materials:

PIPE MATERIAL	ALLOWABLE LEAKAGE (PER MILE, PER HOUR)
STEEL (NON-WELDED)	$\frac{(D)\sqrt{T}}{36.75}$
DUCTILE IRON & PVC	$\frac{(D)\sqrt{T}}{25.00}$

D = DIAMETER IN INCHES

T = TEST PRESSURE (PSI)

Contractor shall furnish and install, at his own expense, all corporation stops, temporary pipe, fittings, connections, equipment, bulkheads, R.P.B.D.'s, and bracing required for the tests and shall be responsible for any and all damage resulting from

failure under test of material furnished and installed by him, or from faulty workmanship, negligence, or improper test methods.

All defective joints, cracked, or defective pipe, fittings, valves, hydrants, or service connections shall be removed and replaced by Contractor with sound material. Tests shall be rejected until satisfactory results are obtained as determined by the District.

Before applying the specified test pressure, care shall be taken to insure the expulsion, through hydrants, air release valves, services, or by other suitable means, of all air within the pipe and appurtenances to be tested.

4-15 Disinfection of Water Mains and Services

All water mains, water services, attached appurtenances, and temporary connections, if any, shall be disinfected in accordance with AWWA C601-81, *Standard for Disinfecting Water Mains*, of latest revision and the following requirements:

Chlorine shall be applied to the water in sufficient quantity to produce a dosage of not less than 50 ppm in all sections of the line, services, and appurtenances. Treated water shall be retained in the system for a period of twenty-four (24) hours minimum and shall produce not less than twenty-five (25) ppm in all sections being disinfected at the end of the twenty-four (24) hour period. Chlorination shall be done using a chlorine gas/water or sodium hypochlorite solution. Chlorine dosage not-to-exceed one hundred (100) ppm under normal conditions.

The chlorinated water may be used later, if practicable, for water settling operations in connection with backfilling, for testing other mains, or if not so used, Contractor shall properly dechlorinate and dispose of the water. District will not be responsible for loss or damage resulting from such disposal.

Contractor shall install corporation valves in accordance with Standard Drawing W-1 of the proper size wherever necessary to chlorinate or sample and/or dispose of any chlorinated water. There shall be no separate payment for tapping and installing connections which are for filling, testing, sampling, or chlorination or flushing only.

Temporary taps for bacteriological samples shall be installed every 500 feet on main lines where there are no other outlets available for sampling.

Disinfecting the main and services, hydrostatic testing, and preliminary retention may run concurrently for the required twenty-four (24) hour period, but in the event there is leakage and repairs are necessary, additional disinfection may be required.

During the chlorination process, all valves and accessories shall be operated.

After the required period of retention of the chlorine or hypochlorite solution, a District representative will test the water for residual chlorine and any further tests which may be required.

After chlorination, the water shall be flushed from the line at its extreme ends until the replacement water is chemically and bacteriologically equal to the permanent source of water supply. One set of samples for bacterial analysis will be taken not less than twenty-four (24) hours later by the District and sent to the District's laboratory for analysis. The disinfection will not be considered complete until the supply is in conformance with the public health standards for drinking water and pseudomonas aeruginosa is no greater than the water source. The number of samples required will be as determined by the District, and the cost of processing shall be borne by the Developer.

If the tests are not satisfactory, Developer shall provide additional disinfection as required at no extra cost to the District.

4-16 Water

District will provide water at the standard metered rate to perform all necessary operations. No other water shall be used unless test results are provided proving the water meets all applicable quality standards at point of connection to system. Contractor shall bear the cost of any necessary testing and connections and install any necessary facilities to obtain water, unless stated on the drawings.

4-17 Excavation of Pipeline Trench

a) Trench excavation shall be per Section 4-04.

b) Placing of Pipe Zone Bedding and Backfill Material.

All pipe zone backfill from a depth of six (6) inches below the bottom of the pipe to twelve (12) inches above the top of the pipe shall be imported fill sand having a minimum sand equivalency of 30 per ASTM 2419. The six (6) inch bedding layer shall be placed and compacted to a minimum of 90% of the maximum density of the material at optimum moisture content. The pipe shall then be installed after which the remaining imported pipe zone material up to twelve (12) inches above the top of the pipe shall be placed and compacted in lifts, if necessary, to said relative compaction of 90%.

c) Backfilling Pipe Trenches Above the Pipe Zone.

Backfill in pipe trenches above the pipe zone shall be a structural fill accomplished by filling and compacting the trench in lifts of depths that will permit obtaining a minimum compaction of 90% of the maximum density of the material at optimum moisture content.

All backfill materials shall be placed in such a manner as to not disturb the pipe or damage its coating. Impact, free fall, hydro hammer, or similar compaction equipment shall not be used for compaction in water system trenches. Slurry or cement-treated backfill material will not be allowed in trench with the exception of cross gutters, etc. as determined by the District Inspector or by written permission by the General Manager.

d) Trench Backfill Compaction Tests.

The Developer will retain the services of an independent geotechnical engineering firm having a State of California licensed laboratory to make soils compaction tests at any point or points or depths as required by the District as the trench is backfilled. The minimum number of tests shall be shown on the plans. In the event any of said tests indicate that the trench compaction is less than the compaction above described, the Contractor will be required, at his own expense, to remove placed trench material in the zone or zones directed by the District. Contractor shall replace and compact said trench material to meet the requirements of this specification. Re-tests will be required on re-compacted material. No compaction tests shall be spotted by the District until all utilities have been installed.

e) Trench Resurfacing.

Trench resurfacing, where required, shall be accomplished in accordance with the requirements of and meet the approval of the governmental agencies having jurisdiction, such as the Los Angeles County Road Department, the City of Palmdale, or Caltrans.

f) Trench Width.

The trench width shall be the outside diameter of the pipe (exclusive of all bells or collars) plus sixteen (16) inches

4-18 Valves

All main line valves shall be located on the property line or utility easement prolongation in the street unless otherwise indicated by the District. All gate valves

up to eight (8) inches shall be flanged. Valves greater than ten (10) inches shall be flanged butterfly valves.

All valve box risers shall be of eight (8) inch Schedule 40 PVC pipe. All valve risers shall be adjusted so that the valve box lid will be flush with the finished street grade per Standard W-5.

Valves shall be installed plumb and in alignment with the pipe. Each valve shall be operated prior to its installation to assure proper functioning.

4-19 Fire Hydrants

a) Location.

Hydrants shall be located as shown or as directed and in a manner to provide complete accessibility and also in such a manner that the possibility of damage from vehicles or injury to pedestrians will be minimized. When placed behind the curb, the centerline of the hydrant barrel shall be set twenty-four (24) inches behind the face of curb unless specifically stated on approved plans.

The installation of the hydrants shall be in accordance with Standard Drawing No. W-2, W-2A, W-3, or W-3A.

b) Position.

All hydrants shall stand plumb and shall have their nozzles facing the curb at an angle of forty-five (45) degrees. Hydrants installed where there is no curb shall have the four (4) inch nozzle facing the street. Hydrants shall be set to the established grade as shown in Standard Drawings W-2, W-2A, W-3, or W-3A.

c) Fire Hydrant Barricades.

When required, fire hydrant barricades shall not obstruct the outlets and shall be constructed per Standard Drawing W-14 or W-15.

4-20 Connections to Existing Water Lines

No connection to the existing system shall be made until after the new system has been completed and fully accepted by the District.

In the locations shown on the drawings, the Contractor shall cut and machine existing water pipes and install the new fittings and lines as specified or noted. The Contractor shall make all connection within a maximum shutdown period required by the District.

If, in the opinion of the District, the connection cannot be accomplished within the required shutdown period, the connection shall be made at night or on weekends. The District will supervise operation of all existing valves necessary for the shutdown.

Contractor shall be responsible for handling dewatering from existing main, prevent cross contamination of existing water system, dechlorination, and disposal of water.

4-21 Hot Tapping of Existing Water Line

Pressure taps are allowed only as shown on approved plans.

All hot taps shall either be performed by the District or an experienced licensed contractor specializing in said work. Contractors must have a proved ability and experience to perform hot taps, hold a current underground contractor's license, and carry sufficient insurance as determined by the District and be approved by the District prior to commencing said work.

Existing mains to be tapped must be cleaned. The area required to be cleaned shall be either the diameter of the hot tap plus seven (7) inches or the full diameter of the main to be tapped when full circle reinforcement is required.

Approved tapping sleeves will be required for size on size taps and only allowed when approved by a District Inspector/Engineer. Tapping sleeves shall be installed in accordance with the manufacturer's instructions. The pipe barrel shall be thoroughly cleaned with a wire brush to provide a smooth, hard surface for the sleeve. The sleeve shall be independent of the pipe during the tapping operation. The sleeve shall be hydrostatic tested in the presence of the District representative prior to tapping. Thrust blocks shall be provided at the tapping sleeve after tap is completed.

The following steps are then required prior to hot tapping:

a) Steel Mains.

The nozzle shall be welded to the main after cleaning. It shall then be blind flanged and air tested to 100 psi. The pressure must hold for a minimum of three minutes. The test must be done in the presence of a District Inspector.

After passing the air test, the reinforcement ring shall be placed and welded continuously on edges to the existing main and to the nozzle pipe.

b) Ductile Iron and PVC Mains.

Mechanical tapping sleeves are required. After cleaning, the sleeve shall be bolted to the main and a blind flange placed on the nozzle. An air test shall

then be performed as described above. Ductile iron and PVC hot tapping shall be made with mechanical tapping sleeves. Refer to PWD List of Approved Materials.

c) Asbestos Concrete Mains.

Mechanical tapping sleeves are required. The tapping sleeve shall be installed in accordance with the manufacturer's instructions and to the satisfaction of the District representative. ACP hot tapping shall be made with mechanical tapping sleeves. Refer to PWD List of Approved Materials.

SECTION 5 - SERVICE LINES

5-01 Location of Service Lines

a) The trench for a single service diameter size ranging from (3/4") to (2") shall have a minimum width of ten (10) inches and a depth of thirty (30) inches below the existing or finished grade throughout the length of service. Services larger than two (2) inches shall be detailed in supplementary drawings which will be furnished to the Contractor if such larger size is specified.

b) Services in existing, paved streets shall be installed by boring under the pavement, where practicable.

c) Size of services shall be as shown on the plans, as specified, or as determined by the District.

d) In general, each service shall start at the new water main and shall extend to the meter location at an elevation determined by Standard Drawing W-1 or W-1A and the existing grade at the meter location. Each service shall be connected to the corporation valve at the main and an angle valve shall be installed at its end in the meter box location.

e) The locations of the meter boxes shall be as indicated on the plans or as directed by the Inspector. No meter box shall be installed closer than five (5) feet from the edge of a driveway apron.

f) Single service lines shall not be less than five (5) horizontal feet from sewer laterals.

g) In no case shall a service or other tap be made in a main closer than twenty-four (24) inches to a bell, coupling, joint, fitting, or another service tap.

h) A single service line is required for each metered connection. However, two individual services may be installed in a single twenty-four (24) inch wide trench excavated approximately along the projection of a lot line common to any two (2) lots. In such cases, service taps on the main shall not be less than two (2) feet apart.

i) Meter will be purchased from the District and installed by Contractor. Water services shall be installed by Contractor only when indicated on the plans.

j) Services shall be tested and disinfected in the same manner as specified elsewhere herein for water mains. These operations shall be performed concurrently with the testing and disinfecting of the water mains where practicable.

5-02 Corporation Valves and Angle Valves

All corporation valves and angle valves shall be same size as the service size. Corporation valves shall have male iron pipe threads on the inlet.

All valves shall have a circular waterway of service line diameter. All nuts, washers, and contact surfaces shall be faced to a true fit. All tapers shall be carefully ground and show no leakage under hydrostatic test. All valves shall be finished in a neat and workmanlike manner, and the thickness of metal shall be equal around the axis of the circular way. All burrs on the inside of valves shall be carefully removed leaving a clean, smooth waterway. All valves, including copper tubing connections, shall be field tested with the water main as noted above.

All valves shall be sand cast of high-grade bronze conforming to ASTM B62. District shall have the right to take one or more from each lot and have same analyzed.

5-03 Copper Tubing

Copper tubing shall be required for all services. It shall be seamless copper water tube, Type K, cold drawn, and annealed of the size shown on the plans. It shall be true, smooth, clean on both inside and outside, and free from any cracks, seams, or other defects. It shall be truly cylindrical, of the full specified outside and inside diameters and of uniform thickness of metal and shall conform to ASTM B88. The tubing shall be continuous between the main line and the meter with no splices

permitted. All copper tubing shall be wrapped with 20 mil tape within 18" of the water main inclusive of corporation valve.

5-04 Fittings

All fittings shall have copper flare and/or compression connections. All joints shall be made in accordance with manufacturers recommendations.

5-05 Connections to Asbestos Cement Mains

All connections for water services shall be made with a bronze double strap service clamp as shown on Standard Drawing W-1 and W-1A.

5-06 Connections to Cement Mortar Lined and Coated Steel Mains

Where practical, connections for water services shall be made with 3,000 lb. weld-on half coupling, welded to the pipe in the shop at time of pipe fabrication. After coupling is welded to the pipe, it shall be covered by mortar coating, so no bare metal is left exposed. Where it is necessary to make the connection in the field, additional care shall be exercised to minimize the damage to mortar linings.

5-07 Connections to Polyvinyl Chloride (PVC)

All connections for water services shall be made with a bronze service saddle with double stainless-steel straps, positioned as shown on Standard Drawing W-1 and W-1A. Refer to PWD List of Approved Materials.

5-08 Connections to Ductile Iron Mains

All connections for water services shall be made as shown on Standard Drawing W-1 and W-1A.

5-09 Water Meters

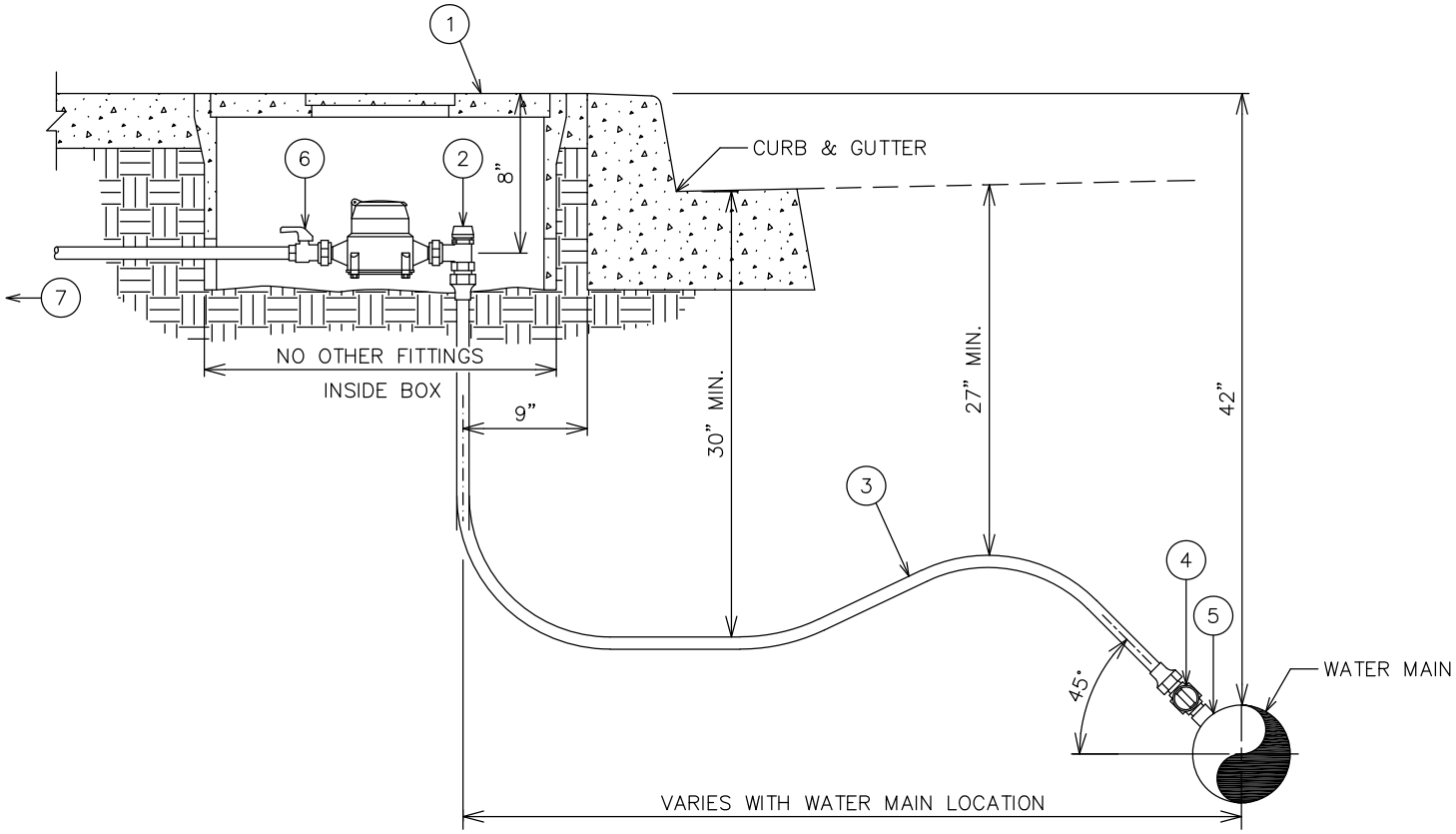
All water meters shall include an approved Automatic Meter Reading System. Water meters shall be purchased from the Water District. Meters must be paid for and ordered from the District a minimum of thirty days prior to date of need.

5-10 Pressure Regulators

All services at 80 psi or greater must be equipped with pressure regulators. Regulators may not be installed within the meter box. All pressure regulators shall be installed on the property and are maintained by the property owner.

5-11 Cross Connection Protection

All cross-connection protection shall conform to Appendix F in the District's Rules and Regulations. In addition, all plumbing between meter and backflow prevention assembly must be visually inspected and approved by Cross Connection Specialist or District Inspector. Said assemblies shall be placed as close as practical to meter. Backflows to be tested within seven (7) days of activation of service and submitted to the District for approval.



KEY NOTES:

1. ALL METER BOXES WILL BE SET BEHIND CURB SECTION SO THERE IS 2" TO 4" BETWEEN BACK OF CURB & METER BOX. METER BOX TO BE SET TO SIDEWALK GRADE. NO METER BOX SHALL BE LOCATED CLOSER THAN 5'-0" FROM EDGE OF DRIVEWAY APRON.

2. ALL METER BOXES NOT SET IN A SIDEWALK AND CURB SECTION WILL BE SET IN A CONCRETE PAD 12" THICK AND 24" WIDE AROUND THE BOX. METER WILL BE SET NEXT TO THE PROPERTY LINE AND OUTSIDE THE TRAVELED AREA.

3. DISTRICT WILL APPROVE ALL LOCATIONS OF METER BOXES.

MATERIAL DESCRIPTION

(1) 12" x 20" x 12" ARMORCAST METER BOX NO. A6001419X12 W/ ARMORCAST COVER W/HINGED READING LID NO. A6000484R FOR 3/4" SERVICES AND ARMORCAST METER BOX NO. A6001946PCX12 W/ ARMORCAST COVER W/HINGED READING LID NO. A6001866R FOR 1" SERVICES OR APPROVED EQUAL.

(2) BALL ANGLE METER VALVE W/ LOCKWING (FORD NO. BA43-232W-G-NL COMPRESSION CORP.) FOR 3/4" & 1" TUBING OR APPROVED EQUAL.

(3) TYPE "K" SOFT COPPER TUBING SERVICE LINE.

(4) 3/4" & 1" BALL TYPE CORPORATION VALVE WITH MALE I.P.T. ON THE INLET (MUELLER NO. B-25028N COMPRESSION CORP.) OR APPROVED EQUAL. SET CORPORATION VALVE AT 45° ON 3/4" AND 1" SERVICE CONNECTIONS.

(5) 3000 LB. WELD ON HALF COUPLING FOR 3/4" & 1" SERVICE CONNECTIONS ON STEEL PIPE. DOUBLE STRAP BRONZE SERVICE SADDLES FOR 3/4" & 1" SERVICE CONNECTION ON ASBESTOS CEMENT PIPE (FORD NO.202B) OR APPROVED EQUAL. DOUBLE STRAP MALLEABLE IRON SADDLES WITH DIELECTRIC BUSHINGS FOR DUCTILE IRON PIPE. (JONES MODEL J-996) SADDLE OR APPROVED EQUAL FOR P.V.C. PIPE. ALL SADDLES TO BE GREASED AND WRAPPED. WRAP SERVICE WITH 10 MIL TAPE WITHIN 18" OF CORP FOR D.I. PIPE.

(6) CUSTOMER SHUT-OFF VALVE JONES NO. E-1908 FOR 3/4" AND 1" SERVICES OR APPROVED EQUAL.

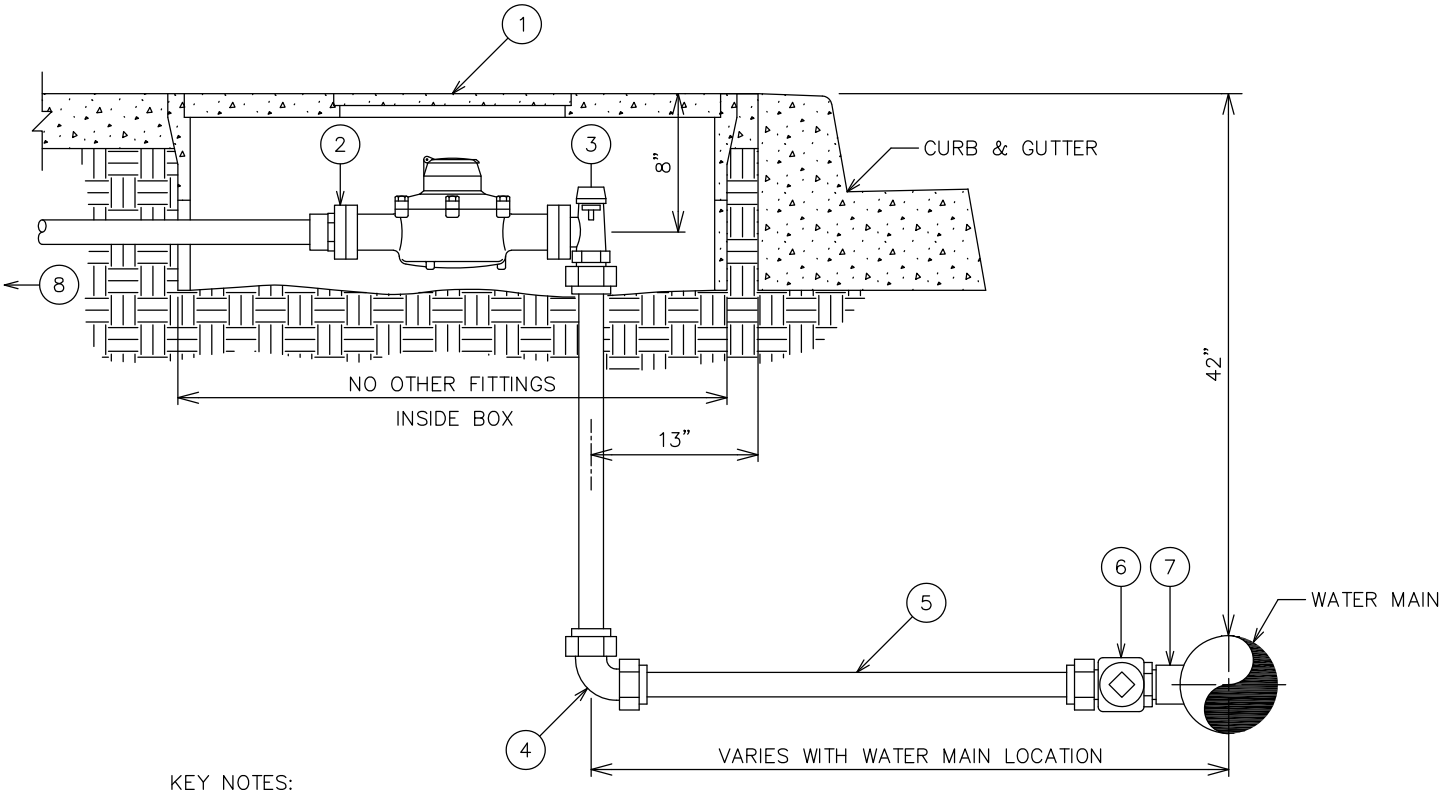
(7) APPROVED BACKFLOW PREVENTION DEVICE IS REQUIRED FOR NON-RESIDENTIAL USE.

PALMDALE WATER DISTRICT
A CENTURY OF SERVICE
EST. 1918

DATE: JUL. 2021 CMV
APPROVED:

TYPICAL SERVICE CONNECTION
(3/4" AND 1")

W-1



KEY NOTES:

1. ALL METER BOXES WILL BE SET BEHIND CURB SECTION SO THERE IS 2" TO 4" BETWEEN BACK OF CURB & METER BOX. METER BOX TO BE SET TO SIDEWALK GRADE. NO METER BOX SHALL BE LOCATED CLOSER THAN 5'-0" FROM EDGE OF DRIVEWAY APRON.

2. ALL METER BOXES NOT SET IN A SIDEWALK AND CURB SECTION WILL BE SET IN A CONCRETE PAD 12" THICK AND 24" WIDE AROUND THE BOX. METER WILL BE SET NEXT TO THE PROPERTY LINE AND OUTSIDE THE TRAVELED AREA.

3. DISTRICT WILL APPROVE ALL LOCATIONS OF METER BOXES.

MATERIAL DESCRIPTION

(1) 17" x 30" x 12" ARMORCAST METER BOX NO. A6001640PCX12 W/ARMORCAST COVER W/HINGED READING LID NO. A6001643R OR APPROVED EQUAL.

(2) METER FLANGE COUPLING (FORD NO. CF31) OR APPROVED EQUAL WITH FULL-FACE OR DROP-IN GASKET.

(3) BALL ANGLE METER VALVE WITH LOCKWING (JONES NO. E-1975W) FOR 1" & 2" TUBING OR APPROVED EQUAL WITH FULL-FACE OR DROP-IN GASKET.

(4) COMPRESSION 90° ELBOW COUPLING (JONES NO. E-2611) OR APPROVED EQUAL.

(5) TYPE "K" SOFT COPPER TUBING SERVICE LINE AND COMPRESSION FITTINGS WILL BE USED.

(6) 1" OR 2" BALL TYPE CORPORATION VALVE WITH MALE I.P.T. ON THE INLET (JONES NO. J-1935 COMPRESSION) OR APPROVED EQUAL. SET CORPORATION VALVE HORIZONTAL ON 1 " & 2" SERVICE CONNECTIONS.

(7) 3000 LB. WELD ON HALF COUPLING FOR 1" & 2" SERVICE CONNECTIONS ON STEEL PIPE. DOUBLE STRAP BRONZE SERVICE SADDLES FOR 1" & 2" SERVICE CONNECTION ON ASBESTOS CEMENT PIPE (FORD NO. 202B) OR APPROVED EQUAL. DOUBLE STRAP MALLEABLE IRON SADDLES WITH DIELECTRIC BUSHINGS FOR DUCTILE IRON PIPE. (JONES MODEL J-996) SADDLE OR APPROVED EQUAL FOR P.V.C. PIPE. ALL SADDLES TO BE GREASED AND WRAPPED. WRAP SERVICE WITH 10 MIL TAPE WITHIN 18" OF CORP FOR D.I. PIPE.

(8) APPROVED BACKFLOW PREVENTION DEVICE IS REQUIRED FOR NON-RESIDENTIAL USE.

PALMDALE WATER DISTRICT
A CENTURY OF SERVICE

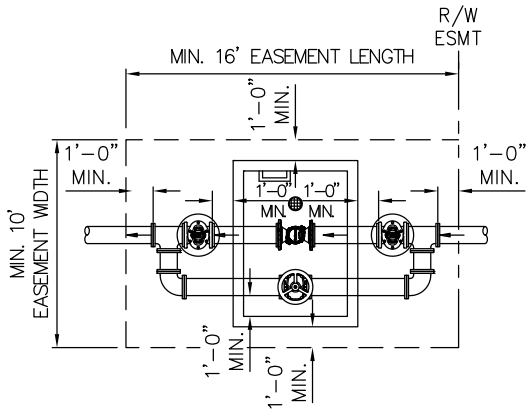
DATE: JUL. 2021 CMV
APPROVED:

TYPICAL SERVICE CONNECTION
(1-1/2" AND 2")

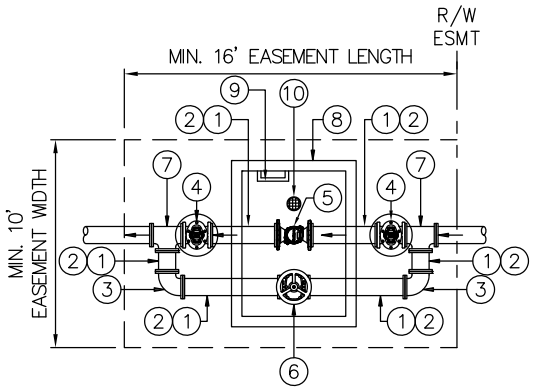
W-1A

MATERIAL DESCRIPTION

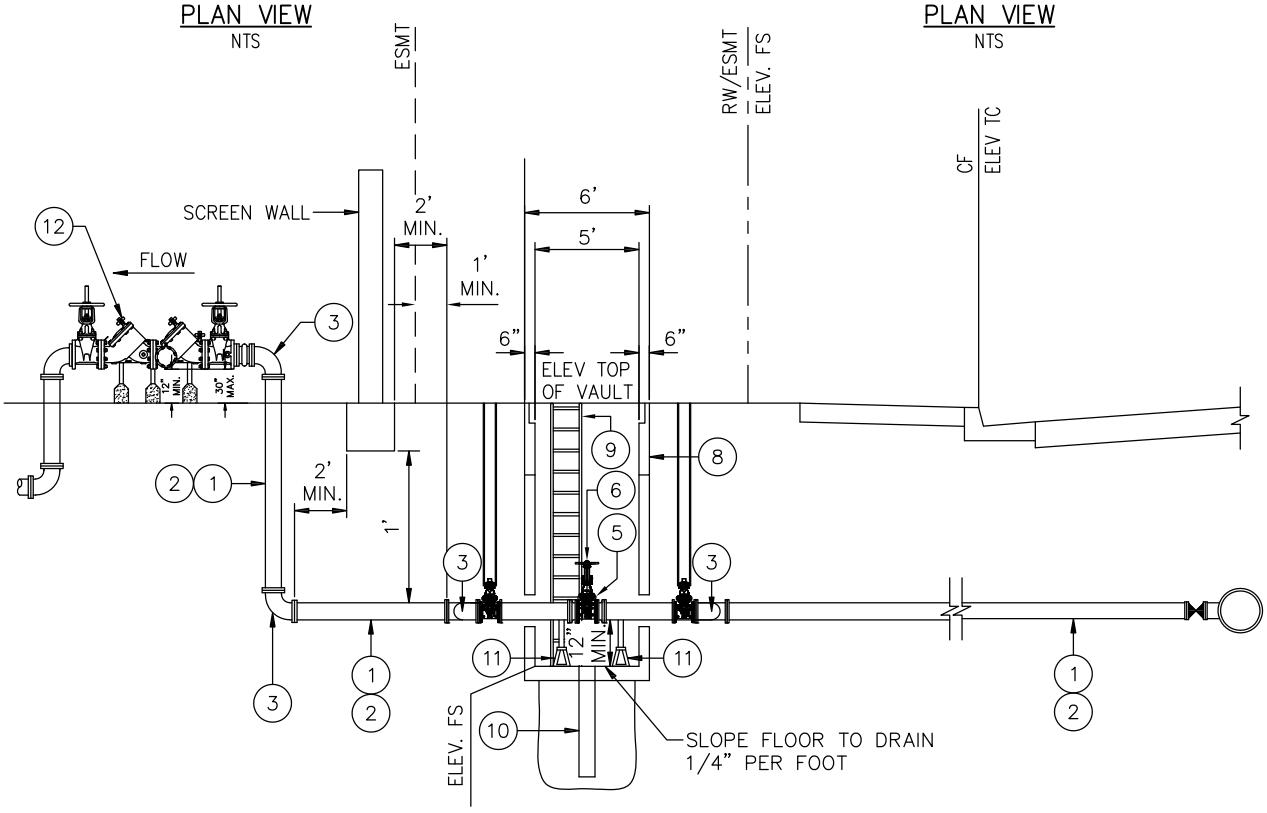
1. STEEL PIPE, 10 GA., C.M.L.&C.
2. SLIP ON WELD FLANGE
3. FLANGED 90° ELBOW, STL, C.M.L.&C.
4. FLANGED GATE VALVE CL150 W/VALVE BOX PER P.W.D. STD. W-5 AND LOCKING LID.
5. LARGE METER, MODEL OCTAVE ULTRASONIC WITH ITRON "ERT" AUTOMATIC METER READING SYSTEM.
6. GATE VALVE, FLANGED, 150 PSI WWP W/ WHEEL HANDLE O.S. & Y. (OUTSIDE SCREW YOKE AND HANDLE) AND LOCKING HANDLE.
7. FLANGED TEE, STL, C.M.L.&C.
8. 8'W X 6'L CONCRETE VAULT, MODEL JENSEN PRECAST OR APPROVED EQUAL.
9. LADDER, HOT-DIPPED GALVANIZED IRON.
10. SUMP DRAIN PER PWD STD. W-12
11. ADJUSTABLE STEEL SUPPORTS.
12. REDUCED PRESSURE-PRINCIPLE BACKFLOW PREVENTER



PLAN VIEW
NTS



PLAN VIEW
NTS



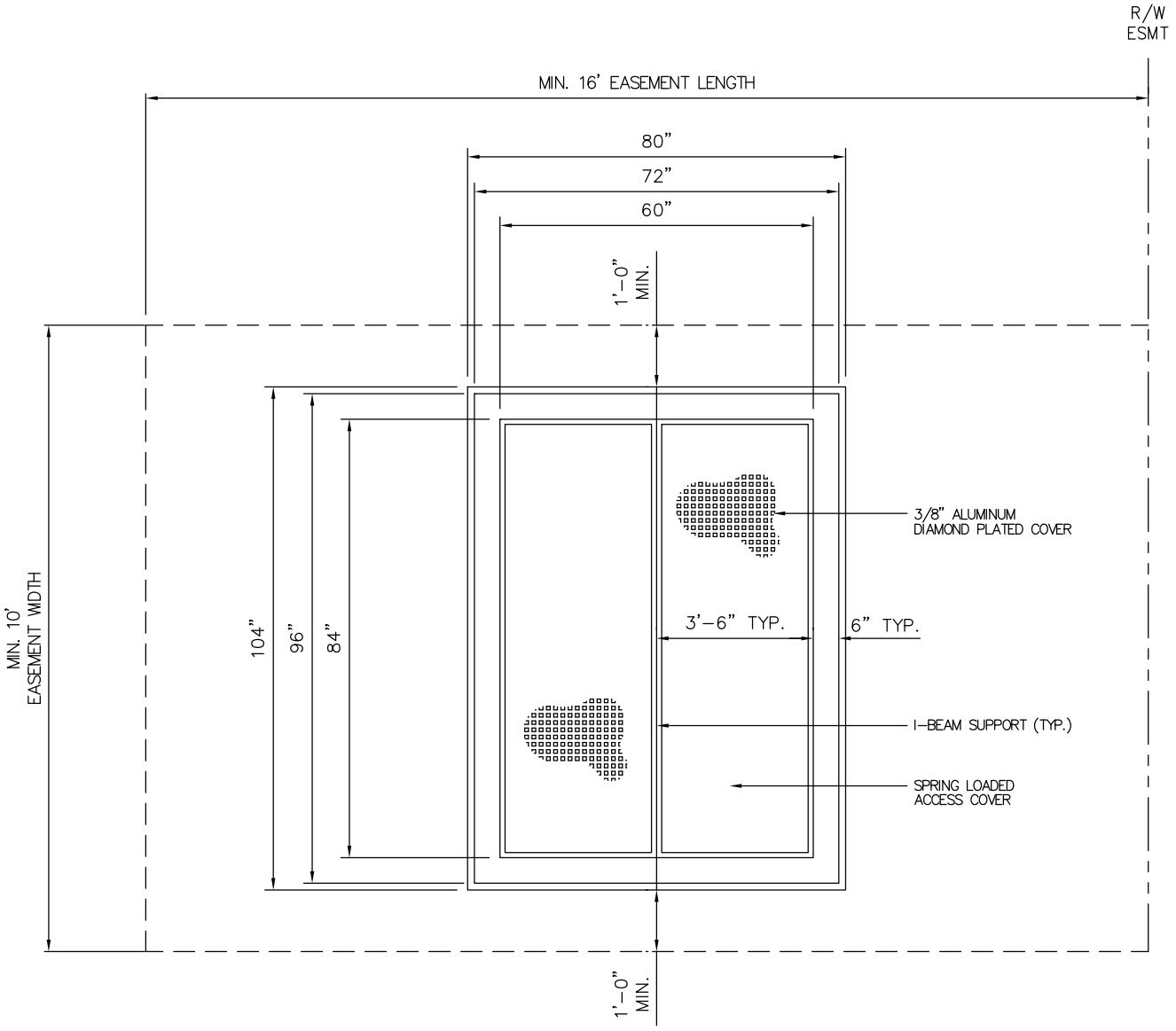
PROFILE VIEW
NTS

PALMDALE WATER DISTRICT
A CENTURY OF SERVICE

DATE: JUL. 2021 CMV
APPROVED:

TYPICAL LARGE METER SERVICE CONNECTION
(3" – 10")

W-1B



PLAN VIEW VAULT COVER

NTS

NOTES:

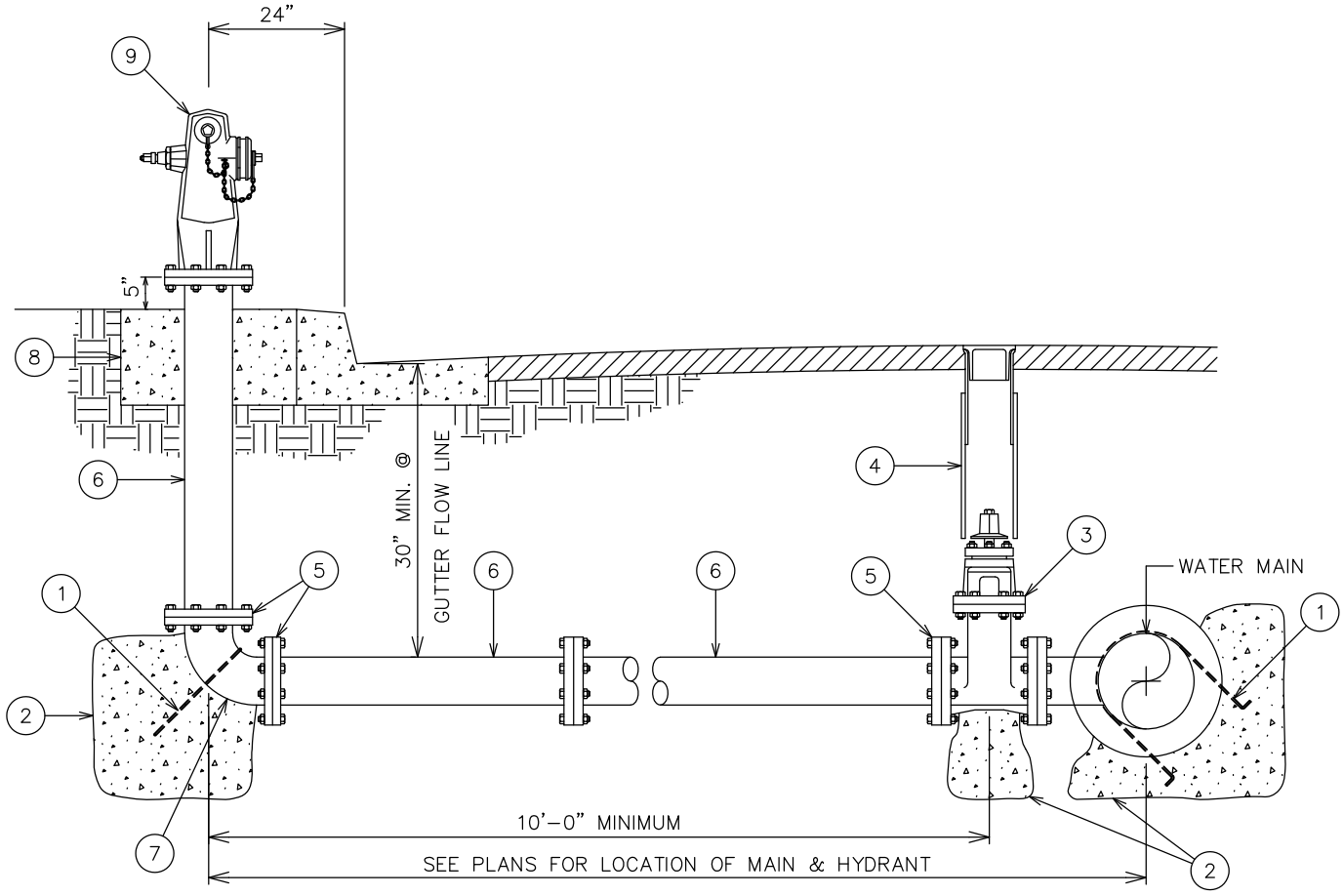
1. FRAME AND COVER TO ALUMINUM.
2. VAULT AND LID SUBMITTAL TO BE PROVIDED BY CONTRACTOR AND APPROVED BY DISTRICT PRIOR TO INSTALLATION.
3. VAULT LID SHALL BE RATED FOR H-20 LOADING.
4. EASEMENT SHALL BE GRANTED TO THE PALMDALE WATER DISTRICT FOR ACCESS, MAINTENANCE, AND INCIDENTAL PURPOSES.
5. AREA WITHIN AND ADJACENT TO THE VAULT EASEMENT SHALL BE GRADED TO DIRECT FLOWS AWAY FROM THE VAULT.
6. METER MUST BE SET IN A HORIZONTAL POSITION AT LEAST TWO (2) DIAMETERS OF STRAIGHT PIPE REQUIRED AT INLET END.
7. SCREEN WALL, IF REQUIRED, MUST BE LOCATED OUTSIDE DISTRICT EASEMENT. NO JOINTS WITHIN 2' OF FOOTING EDGE.
8. REDUCUED-PRESSURE PRINCIPLE BACKFLOW PREVENTER TO BE MAINTAINED BY OWNER/DEVELOPER.

PALMDALE WATER DISTRICT
A CENTURY OF SERVICE

DATE: JUL. 2021 CMV
APPROVED:

TYPICAL LARGE METER SERVICE CONNECTION
(3" - 10")

W-1B
CONTINUED



KEY NOTES:

1. CENTERLINE OF RISER SHALL BE 2 FEET BEHIND CURB FACE. NO FIRE HYDRANT SHALL BE INSTALLED CLOSER THAN 5 FEET FROM THE EDGE OF ANY DRIVEWAY APRON OR CURB RETURN. ALL UNCOATED METAL SURFACES (INCLUDING NUTS AND BOLTS) INSTALLED UNDERGROUND SHALL BE THOROUGHLY COATED W/ NO-OX GREASE AND THEN WRAPPED WITH 8 MIL POLYETHYLENE SHEET (AWWA C-105) ALL HYDRANTS SHALL BE PAINTED WITH ONE COAT OF RED PRIMER AND TWO COATS OF RUSTOLEUM SAFETY YELLOW OR APPROVED EQUAL. INTERMEDIATE PIPE JOINTS IN LATERAL SHALL BE FLANGED. PIPE SHALL BE INSTALLED HORIZONTAL OR SLOPING DOWNWARD FROM MAIN TO PROVIDE MINIMUM COVER.

MATERIAL DESCRIPTION

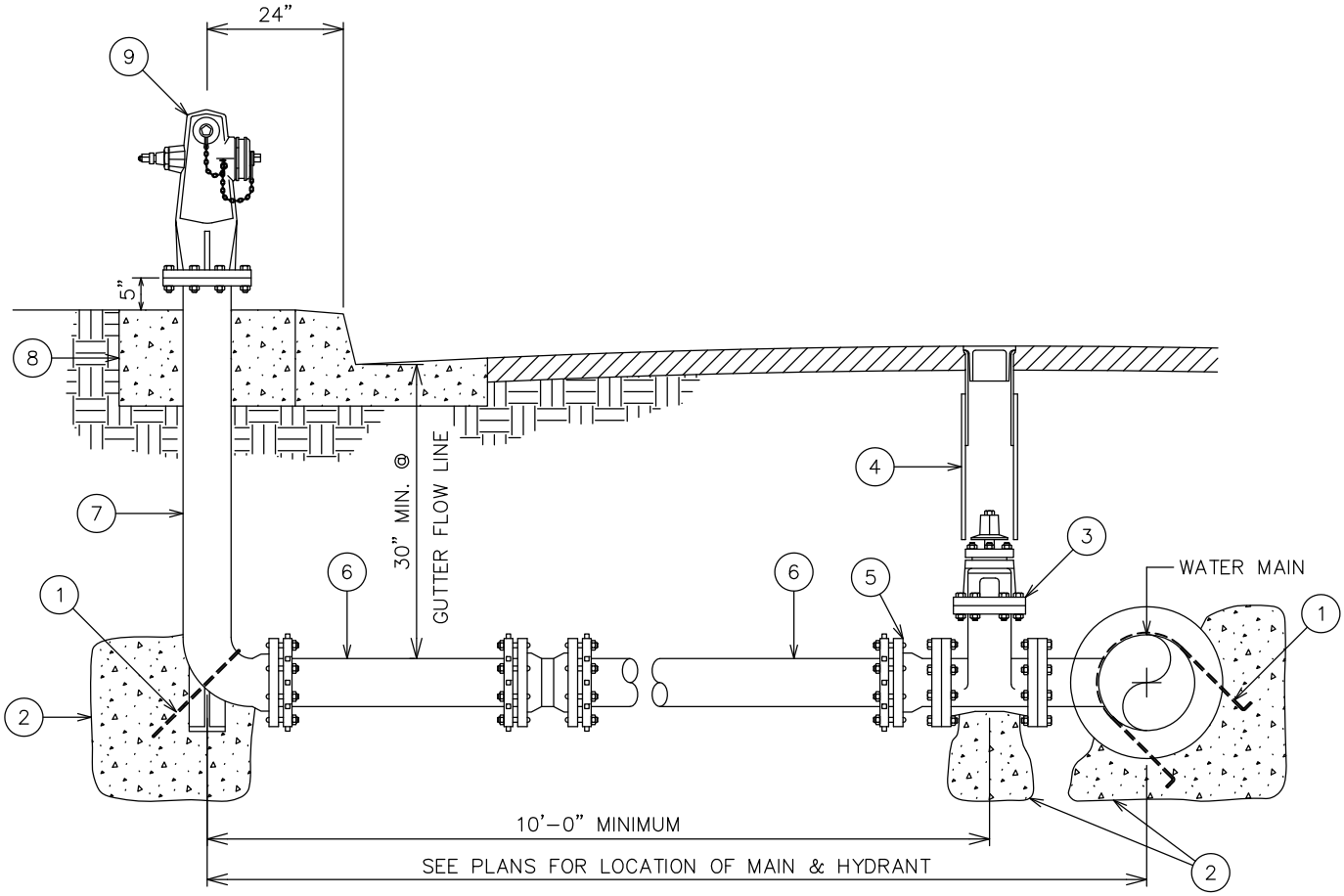
① ANCHOR ROD PER STD. W-4
② USE 2000 PSI MIN. CONCRETE FOR THRUST BLOCKS AND HYDRANT PAD. PLACE CONCRETE ON UNDISTURBED OR COMPACTED SOIL. THRUST BLOCKS MUST MEET REQUIREMENTS OF STD. W-4.
③ 6" FLANGED GATE VALVE CL150.
④ VALVE BOX PER STD. W-5.
⑤ 6" SLIP-ON WELD FLANGE CL 150.
⑥ 6-5/8" O.D. STL. PIPE 10 GA. C.M.L.& C. EXTEND NON-SHRINK MORTAR COATING WITH EXPANDED GALVANIZED LATH REINFORCEMENT TO MEET FLG. TAPER THICKNESS AND TO MEET FLG. HUB.
⑦ 6" FLANGED 90° ELBOW, STL., C.M.L.C., CL150 FLG.
⑧ 36" x 36" x 12" CONCRETE PAD WITH SIDEWALK FINISH TO BE SLOPED 1/4" PER FOOT TOWARDS THE CURB. IN THE ABSENCE OF A CONCRETE CURB OR WHERE TYPE "E" CURB (ROLLED) IS USED, SET BOTTOM OUTLET 24" ABOVE CROWN OF ROAD AND INSTALL BARRICADES PER STD. W-14.
⑨ 6" x 4" x 2-1/2" FIRE HYDRANT (CLOW 850 O.A.E.) SET F.H. OUTLETS AT 45° TO STREET. INSTALL BOLTS WITH HEADS UP. (HOLLOW BOLTS REQUIRED)

PALMDALE WATER DISTRICT
A CENTURY OF SERVICE

DATE: JUL. 2021 CMV
APPROVED:

6" x 4" x 2-1/2" FIRE HYDRANT
(FOR STEEL OR A.C. PIPE)

W-2



KEY NOTES:

1. CENTERLINE OF RISER SHALL BE 2 FEET BEHIND CURB FACE. NO FIRE HYDRANT SHALL BE INSTALLED CLOSER THAN 5 FEET FROM THE EDGE OF ANY DRIVEWAY APRON OR CURB RETURN. ALL UNCOATED METAL SURFACES (INCLUDING NUTS AND BOLTS) INSTALLED UNDERGROUND SHALL BE THOROUGHLY COATED W/ NO-OX GREASE AND THEN WRAPPED WITH 8 MIL POLYETHYLENE SHEET (AWWA C-105) ALL HYDRANTS SHALL BE PAINTED WITH ONE COAT OF RED PRIMER AND TWO COATS OF RUSTOLEUM SAFETY YELLOW OR APPROVED EQUAL. INTERMEDIATE PIPE JOINTS IN LATERAL SHALL BE RESTRAINED WITH A MECHANICAL JOINT SLEEVE WITH RETAINING GLANDS OR JOINT RESTRAINT. PIPE SHALL BE INSTALLED HORIZONTAL OR SLOPING DOWNWARD FROM MAIN TO PROVIDE MINIMUM COVER.

MATERIAL DESCRIPTION

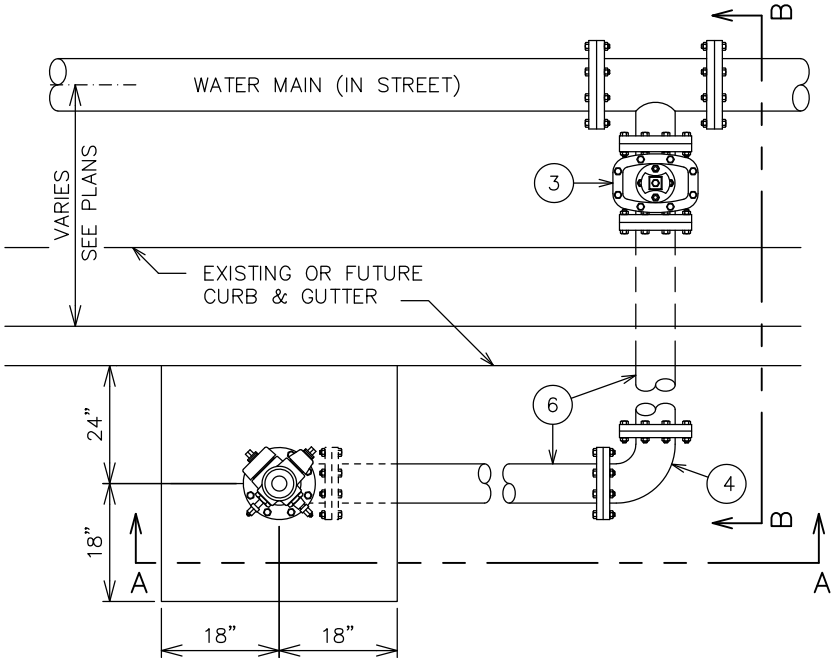
(1) ANCHOR ROD PER STD. W-4
(2) USE 2000 PSI MIN. CONCRETE FOR THRUST BLOCKS AND HYDRANT PAD. PLACE CONCRETE ON UNDISTURBED OR COMPACTED SOIL. THRUST BLOCKS MUST MEET REQUIREMENTS OF STD. W-4.
(3) 6" FLANGED GATE VALVE CL150.
(4) VALVE BOX PER STD. W-5.
(5) 6" FLG. X M.J. ADAPTER, D.I., D.C.M.L., CL350 WITH RETAINING GLAND.
(6) 6.90" O.D. DUCTILE IRON PIPE CL350 D.C.M.L.
(7) 6" M.J. DUCTILE IRON HYDRANT BURY (8HOLE) WITH RETAINING GLAND OR 6" DUCTILE IRON SPOOL AND 6" M.J. x FLG. 90° ELBOW, D.I., D.C.M.L., CL350 WITH RETAINING GLAND.
(8) 36" x 36" x 12" CONCRETE PAD WITH SIDEWALK FINISH TO BE SLOPED 1/4" PER FOOT TOWARDS THE CURB. IN THE ABSENCE OF A CONCRETE CURB OR WHERE TYPE "E" CURB (ROLLED) IS USED, SET BOTTOM OUTLET 24" ABOVE CROWN OF ROAD AND INSTALL BARRICADES PER STD. W-14.
(9) 6" x 4" x 2-1/2" FIRE HYDRANT (CLOW 850 O.A.E.) SET F.H. OUTLETS AT 45° TO STREET. INSTALL BOLTS WITH HEADS UP. (HOLLOW BOLTS REQUIRED)

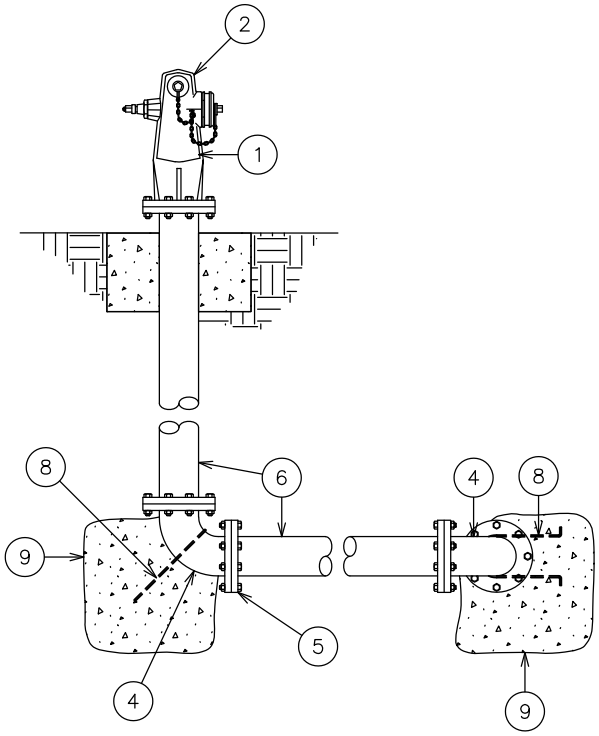
PALMDALE WATER DISTRICT
A CENTURY OF SERVICE

DATE: JUL. 2021 CMV
APPROVED:

6" x 4" x 2-1/2" FIRE HYDRANT
(FOR DUCTILE IRON PIPE OR C-900 PVC PIPE)

W-2A





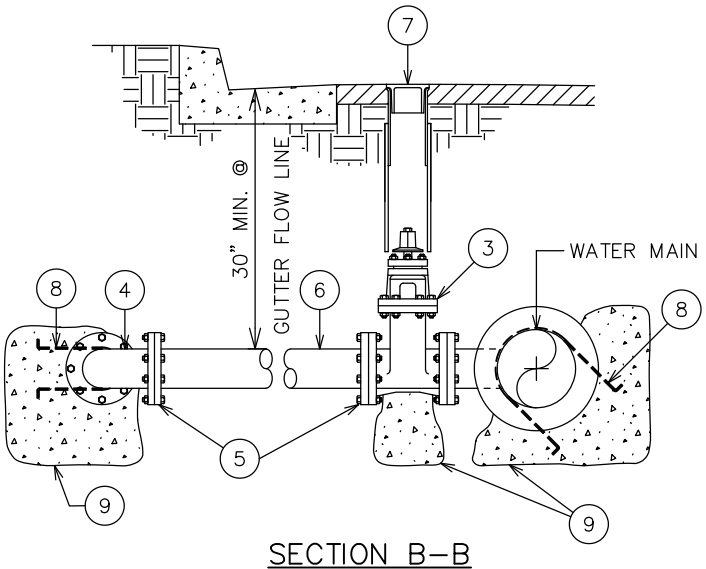
SECTION A–A

PROPERTY LINE

PLAN VIEW

KEY NOTES:

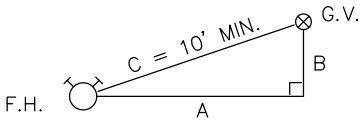
1 CENTERLINE OF RISER SHALL BE 2 FEET BEHIND CURB FACE. NO FIRE HYDRANT SHALL BE INSTALLED CLOSER THAN 5 FEET FROM THE EDGE OF ANY DRIVEWAY APRON OR CURB RETURN. ALL UNCOATED METAL SURFACES (INCLUDING NUTS AND BOLTS) INSTALLED UNDERGROUND SHALL BE THOROUGHLY COATED W/ NO–OX GREASE AND THEN WRAPPED WITH 8 MIL POLYETHYLENE SHEET (AWWA C–105) ALL HYDRANTS SHALL BE PAINTED WITH ONE COAT OF RED PRIMER AND TWO COATS OF RUSTOLEUM SAFETY YELLOW OR APPROVED EQUAL. INTERMEDIATE PIPE JOINTS IN LATERAL SHALL BE FLANGED. PIPE SHALL BE INSTALLED HORIZONTAL OR SLOPING DOWNWARD FROM MAIN TO PROVIDE MINIMUM COVER.



SECTION B–B

MATERIAL DESCRIPTION

① SEE STANDARD W–2 FOR FIRE HYDRANT REQUIREMENTS.
② SET FIRE HYRANT OUTLETS AT 45° TO STREET.
③ 6" FLANGED GATE VALVE CL150.
④ 6" FLG'D 90° ELBOW, STL., C.M.L.C., CL150 FLG.
⑤ 6" SLIP–ON WELD FLANGE, CL150.
⑥ 6–5/8" O.D. STEEL 10 GA. MIN. C.M.L.C.
⑦ VALVE BOX PER STD. W–5.
⑧ ANCHOR ROD PER STD. W–4.
⑨ USE 2000 PSI MINIMUM CONCRETE FOR THRUST BLOCKS AND CONCRETE PAD. PLACE CONCRETE AGAINST UNDISTURBED OR COMPACTED SOIL. THRUST BLOCKS MUST MEET REQUIREMENTS OF STD. W–4. IN THE ABSENCE OF A CONCRETE CURB OR WHERE TYPE "E" CURB (ROLLED) IS USED, SET BOTTOM OUTLET 24" ABOVE CROWN OF ROAD AND INSTALL BARRICADES PER P.W.D. STD. W–14.



$$\sqrt{A^2 + B^2} = C$$

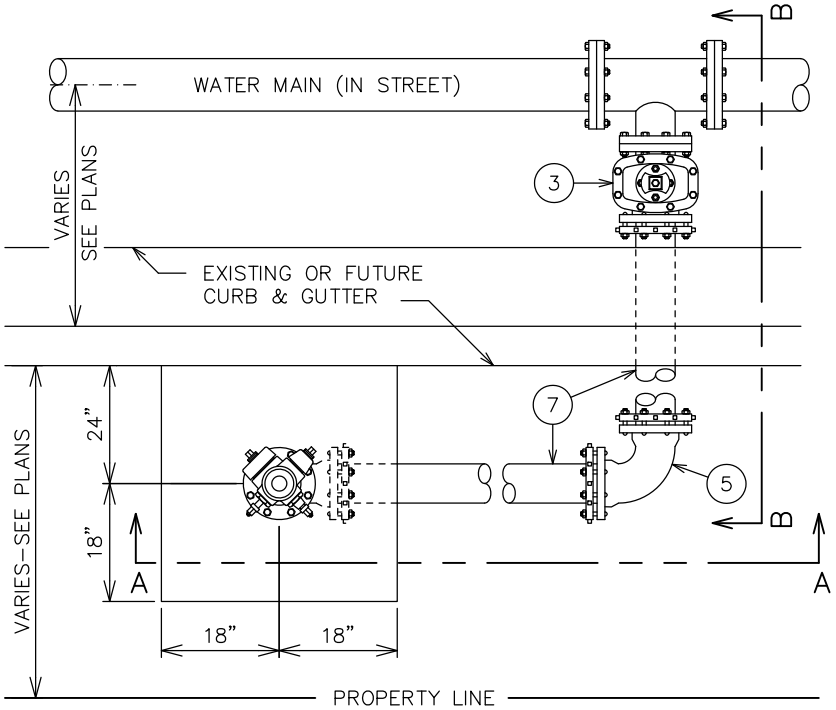
FORMULA FOR FIGURING HYDRANT FROM VALVE LOCATION

PALMDALE WATER DISTRICT
A CENTURY OF SERVICE

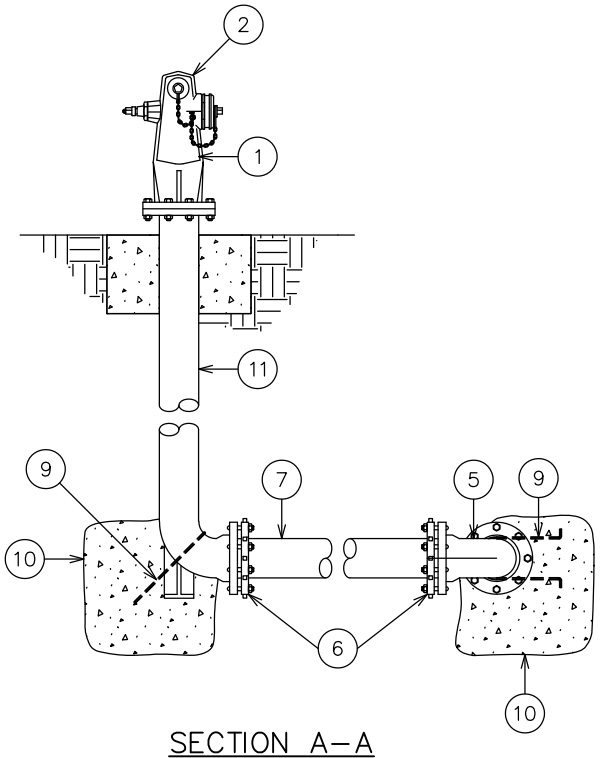
DATE: JUL. 2021 CMV
APPROVED:

PARALLEL FIRE HYDRANT
(FOR STEEL OR A.C. PIPE)

W–3



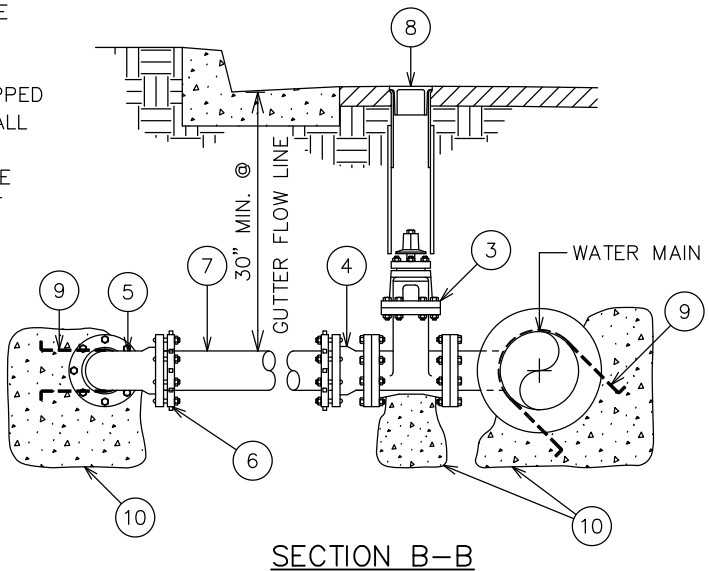
PLAN VIEW



SECTION A–A

KEY NOTES:

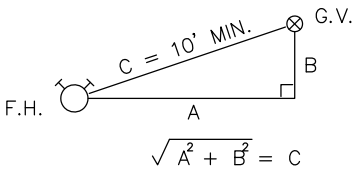
1 CENTERLINE OF RISER SHALL BE 2 FEET BEHIND CURB FACE. NO FIRE HYDRANT SHALL BE INSTALLED CLOSER THAN 5 FEET FROM THE EDGE OF ANY DRIVEWAY APRON OR CURB RETURN. ALL UNCOATED METAL SURFACES (INCLUDING NUTS AND BOLTS) INSTALLED UNDERGROUND SHALL BE THOROUGHLY COATED W/ NO-OX GREASE AND THEN WRAPPED WITH 8 MIL POLYETHYLENE SHEET (AWWA C-105) ALL HYDRANTS SHALL BE PAINTED WITH ONE COAT OF RED PRIMER AND TWO COATS OF RUSTOLEUM SAFETY YELLOW OR APPROVED EQUAL. INTERMEDIATE PIPE JOINTS IN LATERAL SHALL BE RESTRAINED WITH A MECHANICAL JOINT SLEEVE WITH RETAINING GLANDS OR JOINT RESTRAINT. PIPE SHALL BE INSTALLED HORIZONTAL OR SLOPING DOWNWARD FROM MAIN TO PROVIDE MINIMUM COVER. FOR C-900 PIPE USE TRACER WIRE PER P.W.D. STD. W-8.



SECTION B–B

MATERIAL DESCRIPTION:

1. SEE STANDARD W-2A FOR FIRE HYDRANT REQUIREMENTS.
2. SET FIRE HYDRANT OUTLETS AT 45° TO STREET.
3. 6" FLANGED GATE VALVE CL150.
4. 6" FLG. X M.J. ADAPTER, D.I., D.C.M.L., CL350 WITH RETAINING GLAND.
5. 6" M.J. 90° ELBOW, D.I., D.C.M.L., CL350 WITH RETAINING GLAND.
6. ALL M.J. FITTINGS SHALL HAVE RETAINING GLANDS.
7. 6.90" O.D. DUCTILE IRON PIPE CL 350 D.C.M.L.
8. VALVE BOX PER STD. W-5.
9. ANCHOR ROD PER STD. W-4.
10. USE 2000 PSI MINIMUM CONCRETE FOR THRUST BLOCKS AND CONCRETE PAD. PLACE CONCRETE AGAINST UNDISTURBED OR COMPACTED SOIL. THRUST BLOCKS MUST MEET REQUIREMENTS OF STD. W-14. IN THE ABSENCE OF A CURB OR WHERE TYPE "E" CURB(ROLLED) IS USED, SET BOTTOM OUTLET 24" ABOVE CROWN OF ROAD AND INSTALL BARRICADES PER STD. W-14.
11. 6" M.J. DUCTILE IRON HYDRANT BURY (8 HOLES) WITH RETAINING GLAND OR 6" DUCTILE IRON SPOOL AND 6" M.J. X FLG. 90° ELBOW, D.I., D.C.M.L., CL350 WITH RETAINING GLAND.



$\sqrt{A^2 + B^2} = C$

FORMULA FOR FIGURING HYDRANT FROM VALVE LOCATION

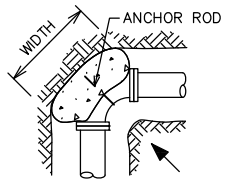
PALMDALE WATER DISTRICT
A CENTURY OF SERVICE

DATE: JUL. 2021 CMV
APPROVED:

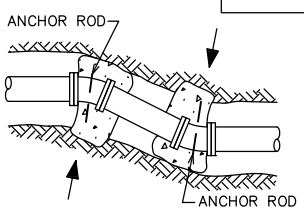
PARALLEL FIRE HYDRANT
(FOR DUCTILE IRON PIPE OR C-900 PVC PIPE)

W-3A

→ = DIRECTION OF RESULTANT THRUST

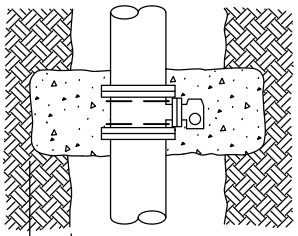


PLAN

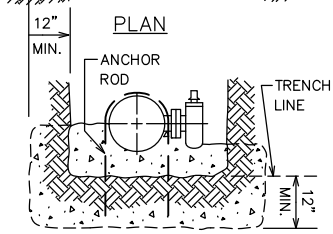


PLAN

BENDS

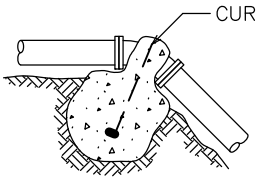


PLAN



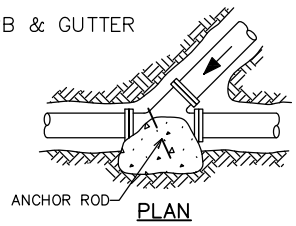
PROFILE

BUTTERFLY VALVES



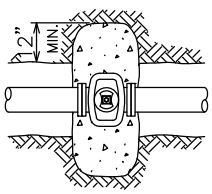
ELEVATION

VERTICAL BEND
(SEE NOTE 5)

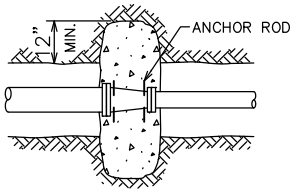


PLAN

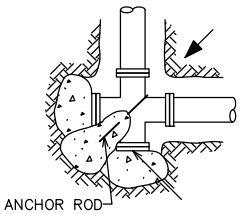
WYE



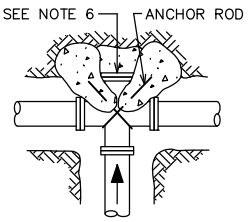
PLAN



PLAN

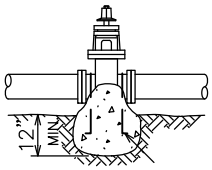


PLAN



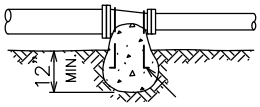
PLAN

CROSSES



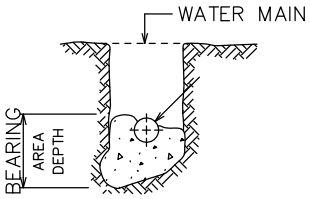
ELEVATION

VALVES
(ALL TYPES
EXCEPT BFV)

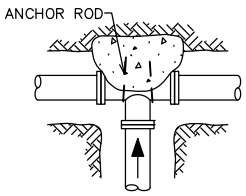


ELEVATION

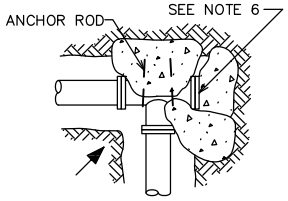
REDUCERS



FITTING SECTION
(TYPICAL)



PLAN



PLAN

TEES

TABLE I				
* MINIMUM BEARING AREAS IN SQ. FT.				
MAIN SIZE	** TEE	90° BEND	45° BEND	22-1/2° BEND
6"	4	4	4	3
8"	5	7	4	3
10"	9	12	6	4
12"	12	16	9	6

* BASED ON 150 PSI W.W.P. PRESSURE AND SOIL BEARING LOADS OF 2000 PSF. THE RATIO OF WIDTH TO HEIGHT SHALL NOT EXCEED 1-1/2 TO 1.

** TEES, PLUG, CAPS AND HYDRANTS.

TABLE II		
*** SOIL TYPE	**** MAX. ALLOWABLE SOIL BEARING VALUES	FACTORS FOR INCREASING AREAS IN TABLE I
LOOSE SAND	500 PSF	4
SOFT SANDY CLAY	1000 PSF	2
ADOBE	1000 PSF	2
COMPACT FINE SAND	2000 PSF	1
COMPACT COARSE SAND	2000 PSF	1
MEDIUM STIFF CLAY	2000 PSF	1

*** THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE SAFE SOIL BEARING VALUES AND THE POSITION AND SIZE OF BEARING AREAS.

**** BASED ON 2 FEET MINIMUM DEPTH OF COVER OVER PIPE.

GENERAL NOTES:

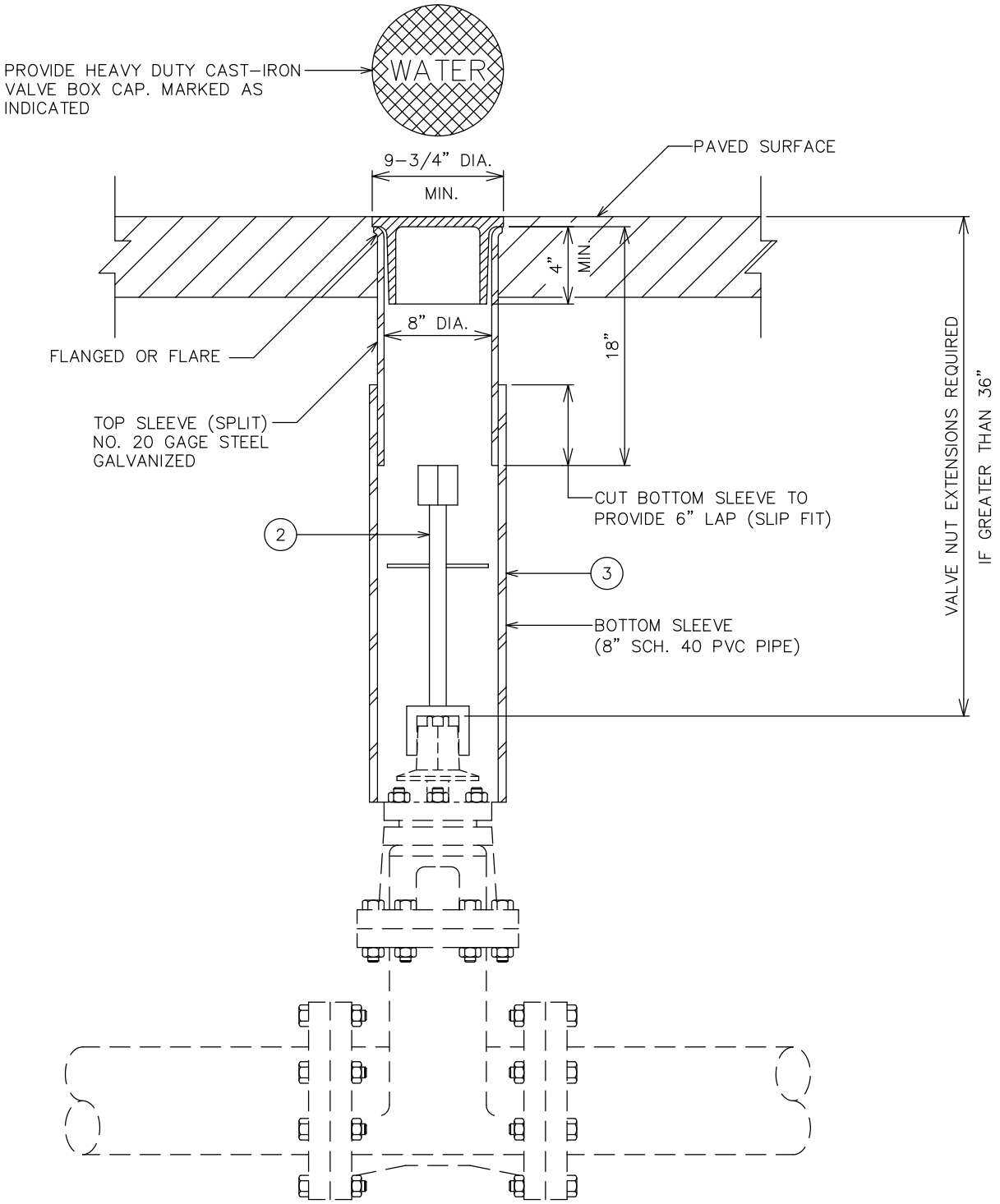
1. ALL ANCHOR AND THRUST BLOCKS SHALL BEAR AGAINST UNDISTURBED OR COMPACTED SOIL.
2. MINIMUM ALLOWABLE WATER PRESSURE FOR DESIGN OF THRUST BLOCKS IS 150 PSI. BEARING AREA INCREASES DIRECTLY WITH INCREASE IN PRESSURE.
3. ALL CONCRETE USED IN THRUST BLOCKS SHALL ATTAIN 2000 PSI STRENGTH.
4. ANCHOR RODS SHALL BE A MINIMUM OF 1/2" DIAMETER REINFORCING STEEL AND SHALL BE USED FOR ALL THRUST BLOCKS. ENCASE RODS IN 2000 PSI CONCRETE. EXPOSED PORTIONS OF RODS SHALL BE THOROUGHLY COATED IN NO-OX GREASE AND WRAPPED W/8 MIL POLYETHYLENE SHEET (AWWA C-105).
5. USE ANCHOR BLOCKS AT VERTICAL BENDS WHEN PIPE IS ABOVE OR BELOW GROUND. SIZE OF BLOCK AND ROD SHALL BE AS SHOWN ON THE PLANS OR AS DETERMINED BY THE ENGINEER IN THE FIELD.
6. USE 30 POUND FELT TO INSURE COLD JOINT OR 8 MIL POLYETHYLENE WRAP PER AWWA C105.

PALMDALE WATER DISTRICT
A CENTURY OF SERVICE
EST. 1918

DATE: JUL. 2021 CMV
APPROVED:

CONCRETE THRUST BLOCKS

W-4



GENERAL NOTES:

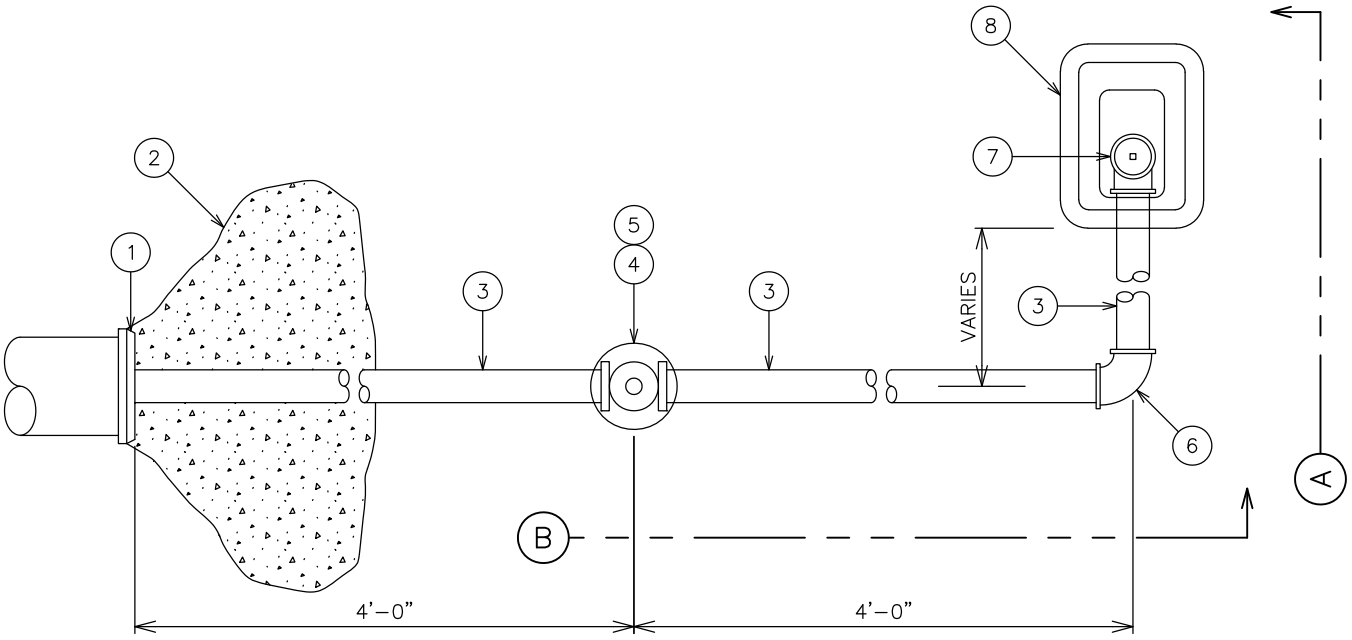
1. ALL VALVE BOXES LOCATED IN UNIMPROVED STREETS OR DIRT AREA SHALL BE ENCLOSED IN 24" x 24" x 12" CONCRETE PAD.
2. VALVE NUT EXTENSION – 1-1/4" DIAMETER GALVANIZED STEEL PIPE WITH 2" SQUARE BOX AT BASE AND 2" SQUARE OPERATING NUT AT TOP AND 1/4" CENTERING PLATE CUT 1/4" SMALLER THAN THE INSIDE DIAMETER OF VALVE RISER.
3. ALL VALVE RISERS SHALL BE ADJUSTED SO THAT THE VALVE BOX LID WILL BE FLUSH WITH THE FINISHED STREET GRADE.
4. VALVE MARKERS ARE REQUIRED WHEREVER VALVES ARE CONSTRUCTED IN UNIMPROVED STREETS OR EASEMENTS. MARKERS SHALL BE PLACED AS CLOSE AS PRACTICABLE TO VALVES. MARKERS SHALL FACE VALVES AND BE ORIENTED PERPENDICULAR TO THE MAINLINE. DISTANCE AND DIRECTION TO THE VALVE SHALL BE CLEARLY SHOWN ON THE MARKER.

PALMDALE WATER DISTRICT
A CENTURY OF SERVICE

DATE: JUL. 2021 CMV
APPROVED:

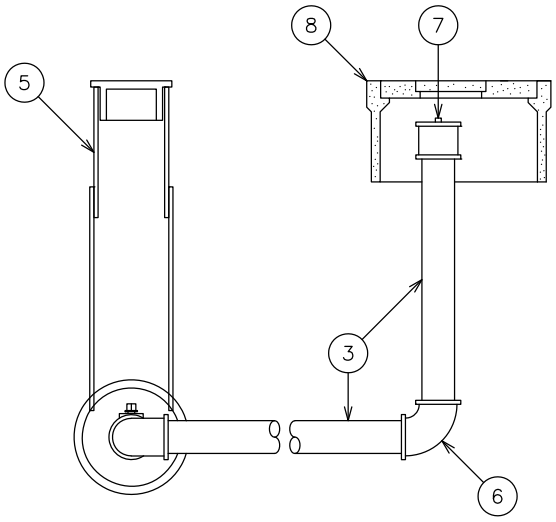
TYPICAL VALVE BOX INSTALLATION
(IMPROVED OR UNIMPROVED ROADS)

W-5



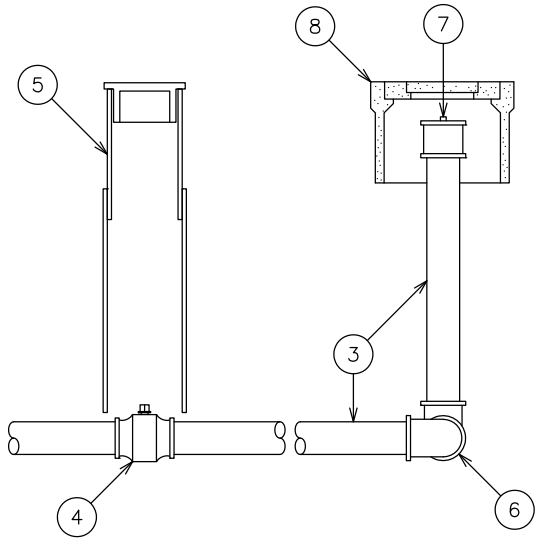
PLAN VIEW

N.T.S.



SECTION A

N.T.S.



SECTION B

N.T.S.

KEY NOTES:

1. DUCTILE PIPE WILL REQUIRE A DIELECTRIC BUSHING.
2. 10 MIL TAPE REQUIRED FROM END CAP TO 1 FT PAST CONCRETE OR 18" MIN.

MATERIAL DESCRIPTION:

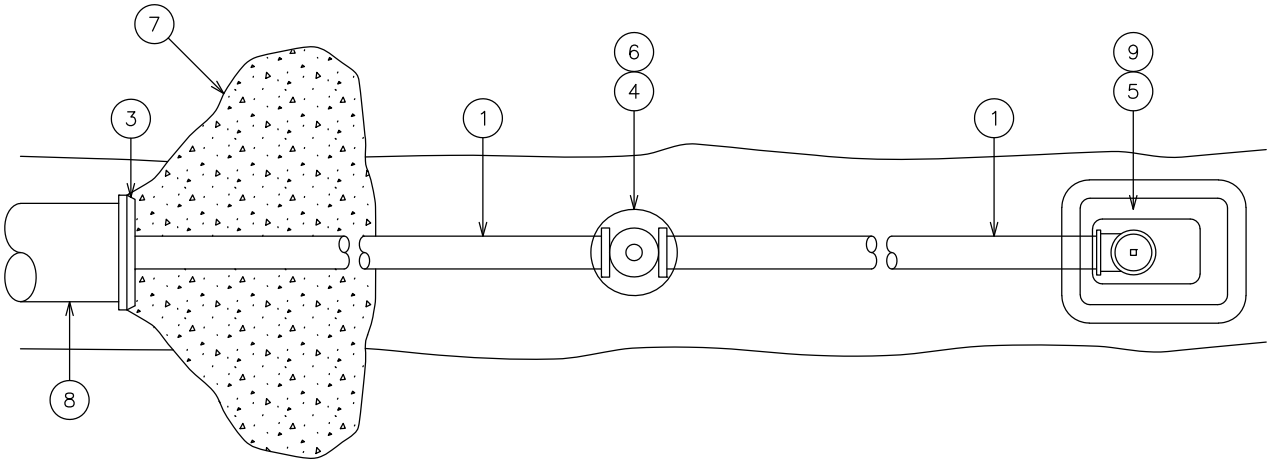
(1) 2" TAPPED CAP OR BLIND FLANGE
(2) CONCRETE THRUST BLOCK PER P.W.D. STD. W–4.
(3) 2" BRASS ALLOY LEAD FREE (LF) PER NSF/ANSI 61 AND 372.
(4) 2" LF BRASS BALL STRAIGHT SVC VALVE (JONES NO. J–1900W OR APPROVED EQUAL).
(5) VALVE BOX PER STD. W–5 (NOTE: VALVE RISER IS NOT TO REST ON PIPE).
(6) 2" 90° ELBOW BRASS ALLOY LEAD FREE (LF) PER NSF/ANSI 61 AND 372.
(7) 2" COUPLING WITH SQUARE HEAD PLUG BRASS ALLOY LEAD FREE (LF).
(8) SET NO. W438 METER BOX 1–1/2" TO 2" BEHIND THE CURB SECTION. IN THE ABSENCE OF CURB, SET METER BOX ADJACENT TO RIGHT–OF–WAY LINE WITH CONCRETE PAD PER STD. W–1.

PALMDALE WATER DISTRICT
A CENTURY OF SERVICE

DATE: JUL. 2021 CMV
APPROVED:

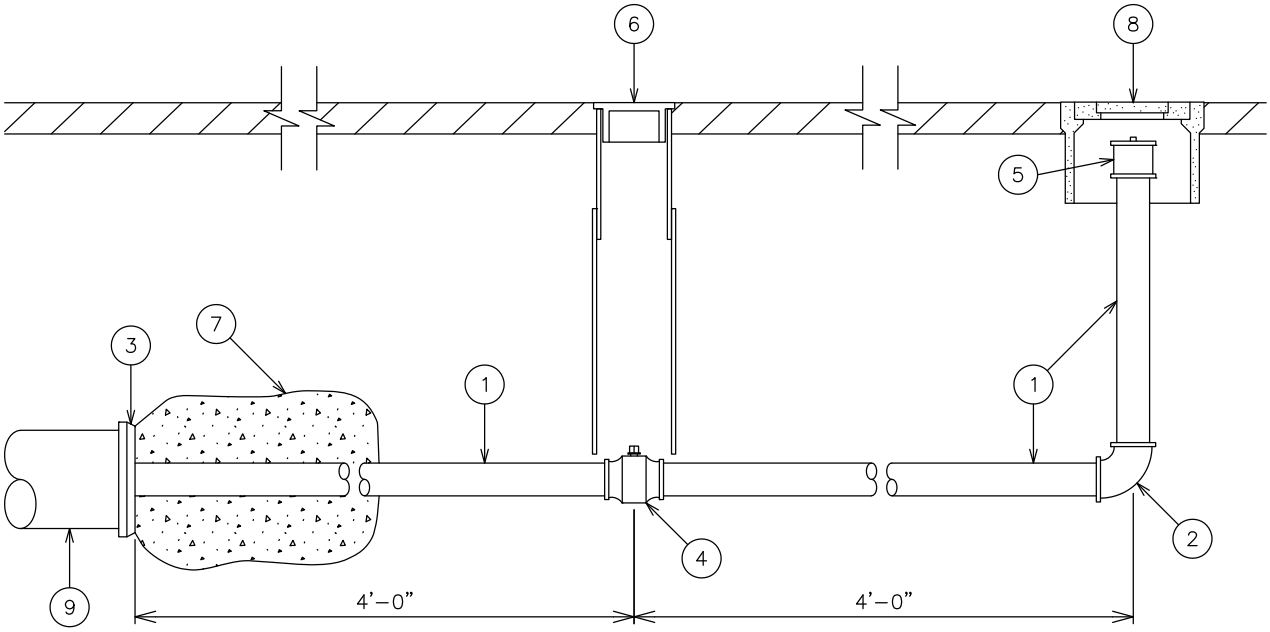
2" TEMPORARY BLOW–OFF ASSEMBLY
(BEHIND CURB IN PARKWAY)

W–6



PLAN VIEW

N.T.S.



SECTION VIEW

N.T.S.

GENERAL NOTES:

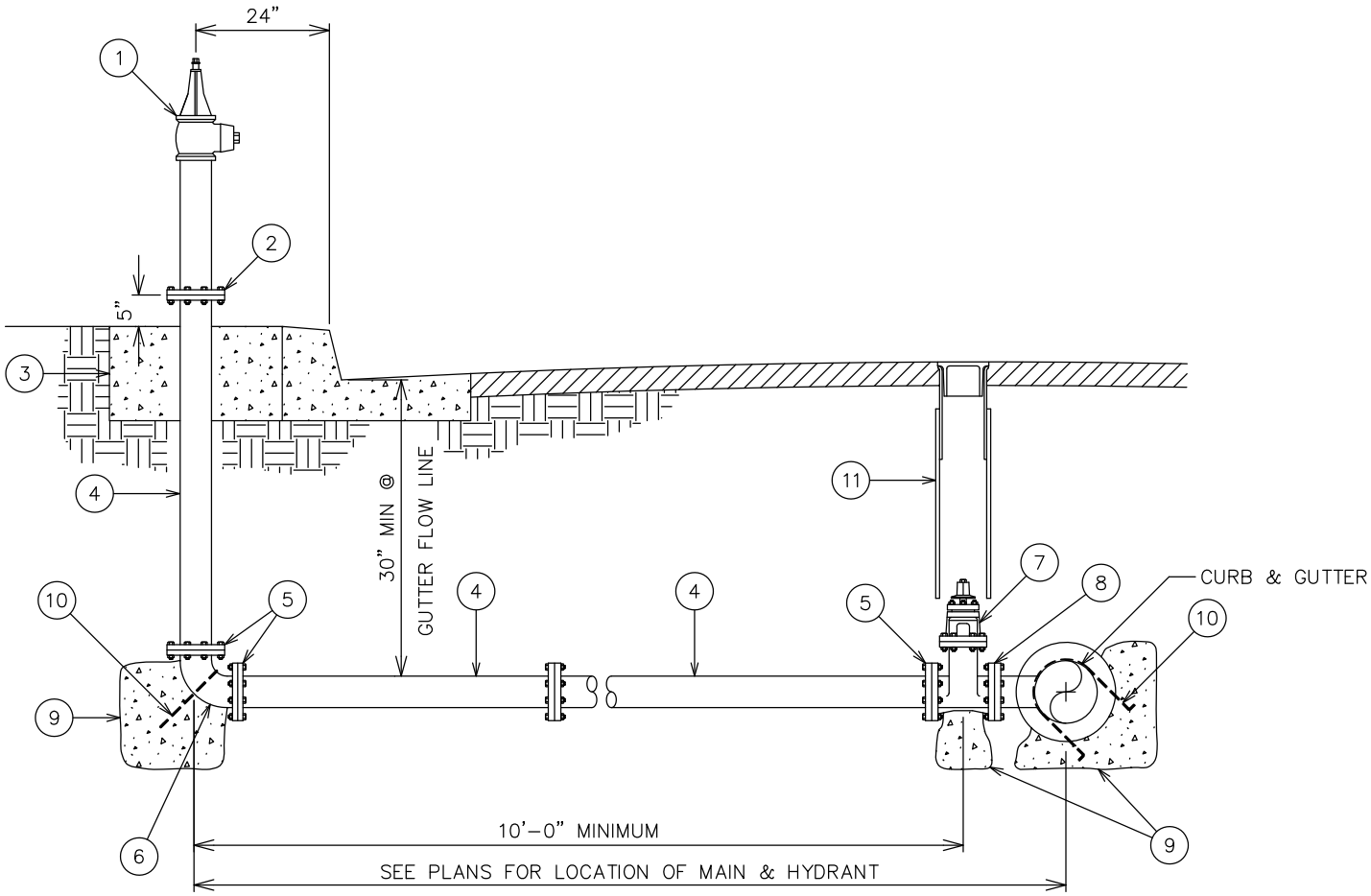
1. 2" BRASS ALLOY LEAD FREE (LF) PER NSF/ANSI 61 AND 372.
2. 2" 90° ELBOW BRASS ALLOY LEAD FREE (LF) PER NSF/ANSI 61 AND 372.
3. 2" LF BRASS TAPPED CAP OR BLIND FLANGE.
4. 2" LF BRASS BALL STRAIGHT SVC VALVE (JONES NO. J–1900W OR APPROVED EQUAL).
5. 2" LF BRASS COUPLING WITH SQUARE HEAD PLUG.
6. VALVE BOX PER STD. W–5 (NOTE: VALVE RISER IS NOT TO REST ON PIPE).
7. CONCRETE THRUST BLOCK PER STD. W–4.
8. SET NO. W438 METER BOX 1–1/2" TO 2" BEHIND THE CURB SECTION. IN THE ABSENCE OF CURB, SET METER BOX ADJACENT TO RIGHT–OF–WAY LINE WITH CONCRETE PAD PER STD. W–1.
9. DUCTILE PIPE WILL REQUIRE A DIELECTRIC BUSHING.
10. 10 MIL TAPE REQUIRED FROM END CAP TO 1 FT PAST CONCRETE OR 18" MIN.

PALMDALE WATER DISTRICT
A CENTURY OF SERVICE

DATE: JUL. 2021 CMV
APPROVED:

2" TEMPORARY BLOW–OFF ASSEMBLY
(IN THE STREET)

W–6A



KEY NOTES:

1. IN THE ABSENCE OF A CURB OR WHERE TYPE "E" CURB (ROLLED) IS USED, SET OUTLET 24–INCHES ABOVE CROWN OF ROAD AND INSTALL BARRICADES PER STD. W–14.
2. CENTERLINE OF RISER SHALL BE 2 FEET BEHIND CURB FACE.
3. NO BLOW–OFF SHALL BE INSTALLED CLOSER THAN 5 FEET FROM EDGE OF ANY DRIVEWAY APRON OR CURB RETURN.
4. ALL UNCOATED METAL SURFACES (INCLUDING NUTS AND BOLTS) INSTALLED UNDERGROUND SHALL BE THOROUGHLY COATED W/ NO–OX GREASE AND THEN BE WRAPPED WITH 8 MIL POLYETHYLENE SHEET (AWWA C–105).
5. ALL BLOW–OFFS SHALL BE PAINTED WITH ONE COAT OF RED PRIMER AND TWO COATS OF RUST–OLEUM FOREST GREEN OR APPROVED EQUAL.
6. INTERMEDIATE PIPE JOINTS IN LATERAL SHALL BE FLANGED. PIPE SHALL BE INSTALLED HORIZONTAL OR SLOPING DOWNWARD FROM MAIN TO PROVIDE MINIMUM COVER.

MATERIAL DESCRIPTION:

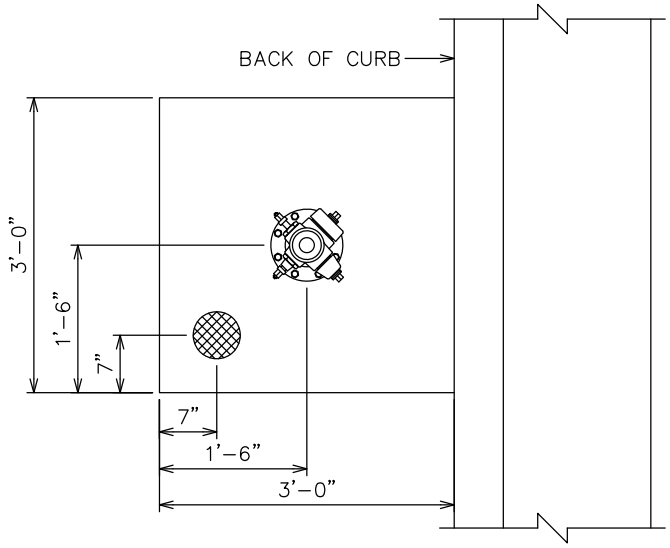
(1) 4" x 2–1/2" WHARF HEAD. (JONES MODEL NO. J–344 H.P. O.A.E.)
(2) 4" COMPANION FLANGE CL125. INSTALL BOLTS WITH HEADS UP. (HOLLOW BOLTS REQUIRED)
(3) 36" x 36" x 12" CONCRETE PAD WITH SIDEWALK FINISH TO BE SLOPED 1/4" PER FOOT TOWARDS THE CURB.
(4) 4" STL. PIPE 10 GA. MIN. C.M.L.& C. EXTEND NON–SHRINK MORTAR COATING WITH EXPANDED GALVANIZED LATH REINFORCEMENT TO MEET FLG. TAPER THICKNESS AND TO MEET FLG. HUB
(5) 4" SLIP–ON WELD FLANGE.
(6) 4" FLANGED 90° ELBOW, STL., C.M.L.C., CL150 FLG.
(7) 4" FLANGED GATE VALVE CL150.
(8) 4" FLG INSULATION KIT (WHEN WATER MAIN IS DUCTILE IRON)
(9) USE 2000 PSI MINIMUM CONCRETE FOR THRUST BLOCKS AND CONCRETE PAD. PLACE CONCRETE ON UNDISTURBED OR COMPACTED SOIL. THRUST BLOCKS MUST MEET REQUIREMENTS OF P.W.D. STD. W–4.
(10) ANCHOR ROD PER STD. W–4.
(11) VALVE BOX PER P.W.D. STD. W–5.

PALMDALE WATER DISTRICT
A CENTURY OF SERVICE

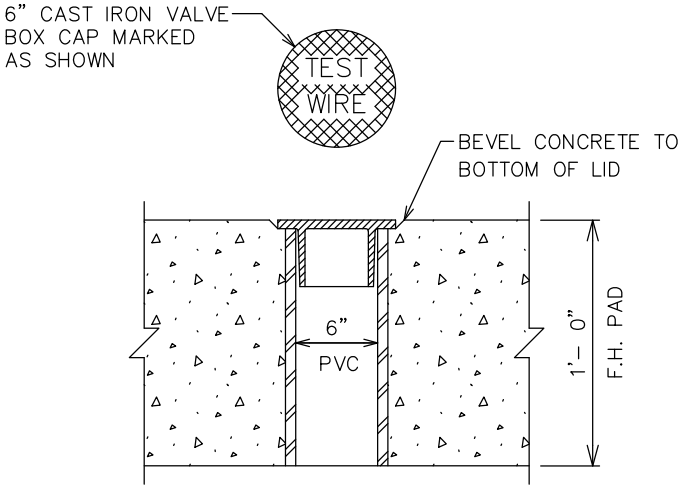
DATE: JUL. 2021 CMV
APPROVED:

4" BLOW–OFF ASSEMBLY

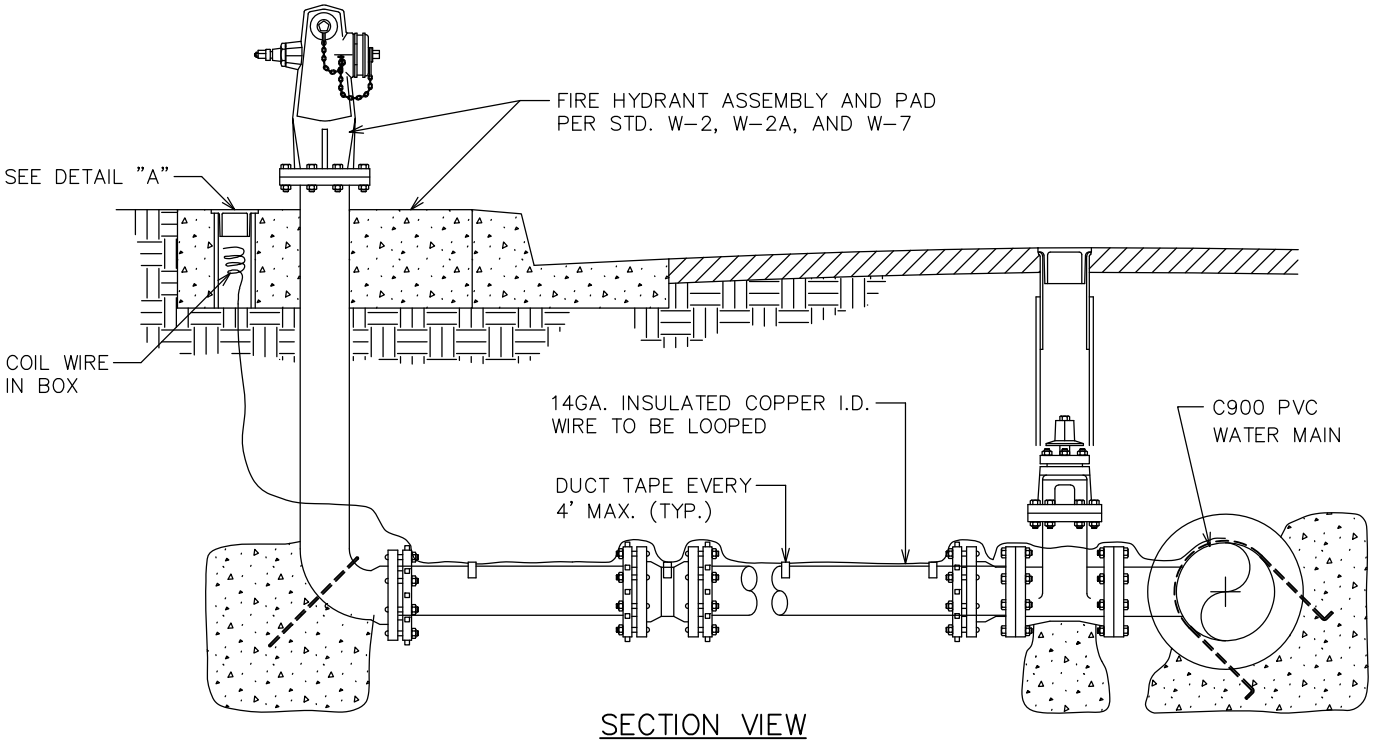
W–7



PLAN VIEW
N.T.S.



DETAIL "A"
N.T.S.



SECTION VIEW
N.T.S.

GENERAL NOTES:

1. WIRE MUST BE LAID ON TOP OF PIPE AND FASTENED SECURELY AT 4' MAX. INTERVALS WITH AN EIGHT INCH LENGTH OF DUCT TAPE OR OTHER APPROVED METHOD.

2. SPLICES TO BE MADE WITH BUTT CONNECTORS AND ARE TO BE ENCAPSULATED WITH RUBBER SEALING TAPE (POLYISOBUTELENE) PER DUET INDUSTRIES OR OTHER APPROVED TYPE.

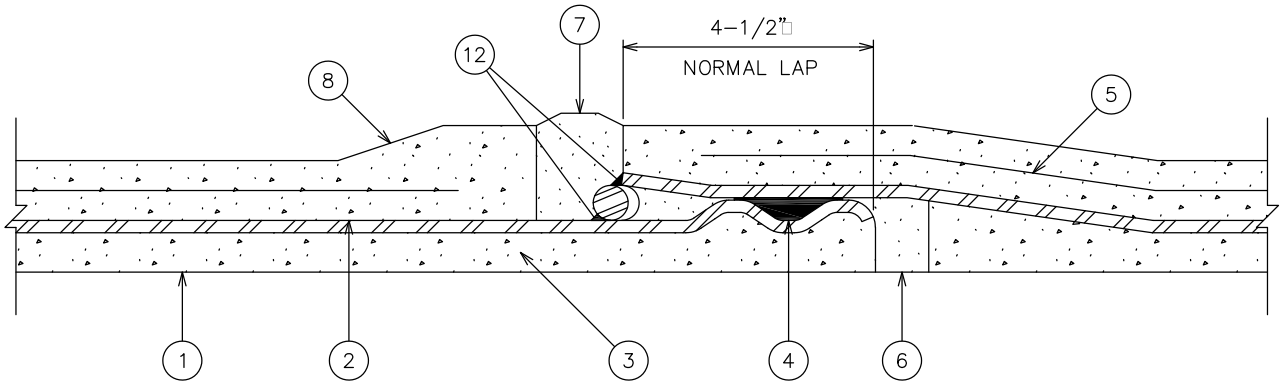
3. INSTALL TEST STATION AT ALL DEAD ENDS OR POINT OF CONNECTION.

PALMDALE WATER DISTRICT
A CENTURY OF SERVICE

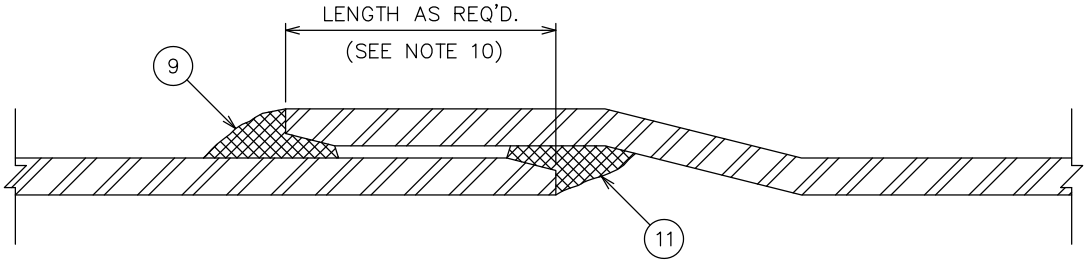
DATE: JUL. 2021 CMV
APPROVED:

INSTALLATION OF IDENTIFICATION WIRE
(C-900 PVC PIPE)

W-8



TYPICAL RUBBER GASKET JOINT



TYPICAL LAP-WELDED SLIP JOINT

GENERAL NOTES:

1. I.D. PIPE
2. O.D. CYLINDER
3. CEMENT MORTAR LINING
4. RUBBER GASKET
5. WIRE REINFORCEMENT
6. CEMENT MORTAR – PLACE IN FIELD – STEEL TROWEL FINISH FOR PIPE 24" DIAMETER & LARGER, BALL FINISHED FOR LESS THAN 24" DIAMETER.
7. CEMENT GROUT PLACED IN FIELD WITH FACTORY SUPPLIED DIAPERS.
8. CEMENT MORTAR COATING
9. OUTSIDE WELD
10. NORMAL LAP – 1-1/2 INCHES. 10TH JOINT LAP – 3 INCHES (NOT TO BE WELDED UNTIL 9 JOINTS ON EACH SIDE HAVE BEEN WELDED).
11. INSIDE WELD MAY BE SUBSTITUTED FOR OUTSIDE WELD.
12. CONTINUITY CONNECTOR.

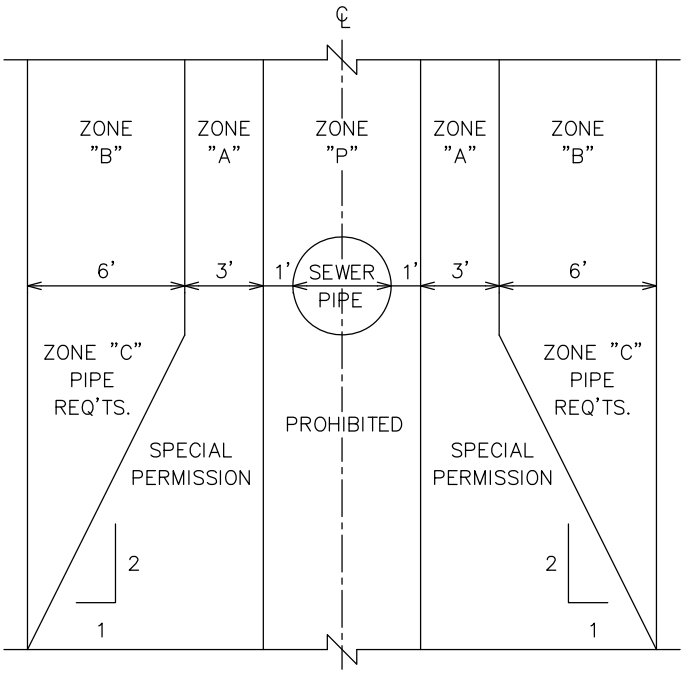
PALMDALE WATER DISTRICT
A CENTURY OF SERVICE

DATE: DEC. 2021 CMV
APPROVED:

TYPICAL STEEL PIPE JOINT DETAILS

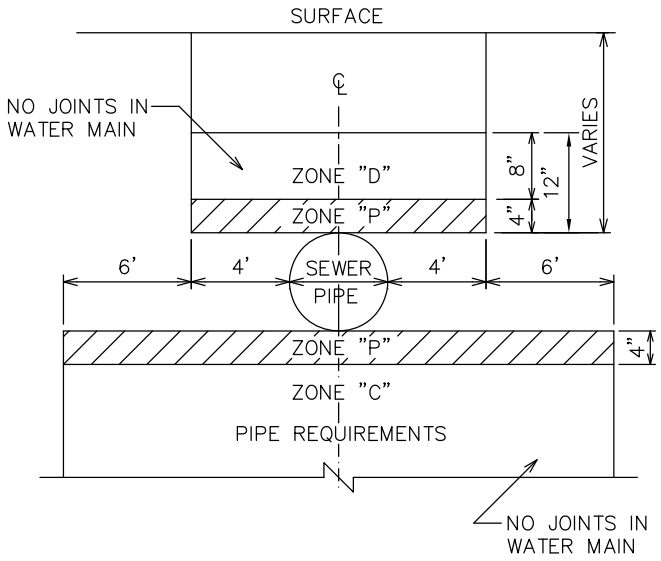
W-9

PARALLEL CONSTRUCTION



SPECIAL CONSTRUCTION WILL BE REQUIRED IF HORIZONTAL CLEARANCE BETWEEN PRESSURE WATER MAIN AND SEWER LINE IS LESS THAN 10 FEET. SEE THE ZONE ABOVE CORRESPONDING TO CONSTRUCTION REQUIREMENTS BELOW.

PERPENDICULAR CONSTRUCTION



SPECIAL CONSTRUCTION WILL BE REQUIRED IF VERTICAL CLEARANCE BETWEEN PRESSURE WATER MAIN AND SEWER LINE IS LESS THAN 1 FOOT AT CROSSING. SEE THE ZONE ABOVE CORRESPONDING TO CONSTRUCTION REQUIREMENTS BELOW.

ZONE	WATER MAIN CONSTRUCTION REQUIREMENTS
A	NO WATER MAINS PARALLEL TO SEWERS SHALL BE CONSTRUCTED WITHOUT APPROVAL FROM THE HEALTH AGENCY.
B	USE THE FOLLOWING TYPES OF PIPE: DUCTILE IRON PIPE, C.M.L. WITH HOT DIP BITUMINOUS COATING OR STEEL PIPE 10 GA. (MIN.), C.M.L. & C.M.C. WITH WELDED JOINTS.
C	NO JOINTS WITHIN 10 FEET OF OUTER EDGES OF SEWER LINE. PIPE REQUIREMENTS: DUCTILE IRON PIPE, C.M.L. WITH HOT DIP BITUMINOUS COATING OR STEEL PIPE 10 GA. (MIN.), C.M.L. & C.M.C. WITH WELDED JOINTS. PIPE SHALL BE 20 FT LENGTHS
D	NO JOINTS WITHIN 4 FEET OF EITHER SIDE OF SEWER LINE. MINIMUM 1 FOOT VERTICAL SEPARATION USE THE FOLLOWING TYPES OF PIPE: DUCTILE IRON PIPE, C.M.L. WITH HOT DIP BITUMINOUS COATING OR STEEL PIPE 10 GA. (MIN.), C.M.L. & C.M.C. WITH WELDED JOINTS.
P	PROHIBITED ZONE – NO WATER MAINS ARE ALLOWED TO BE INSTALLED WITHIN THIS ZONE.

GENERAL NOTES:

1. WATER MAINS AND SEWER LINES SHALL NOT BE INSTALLED IN THE SAME TRENCH.

2. SEPARATION DISTANCES SPECIFIED SHALL BE MEASURED FROM THE OUTER EDGES OF PIPE.

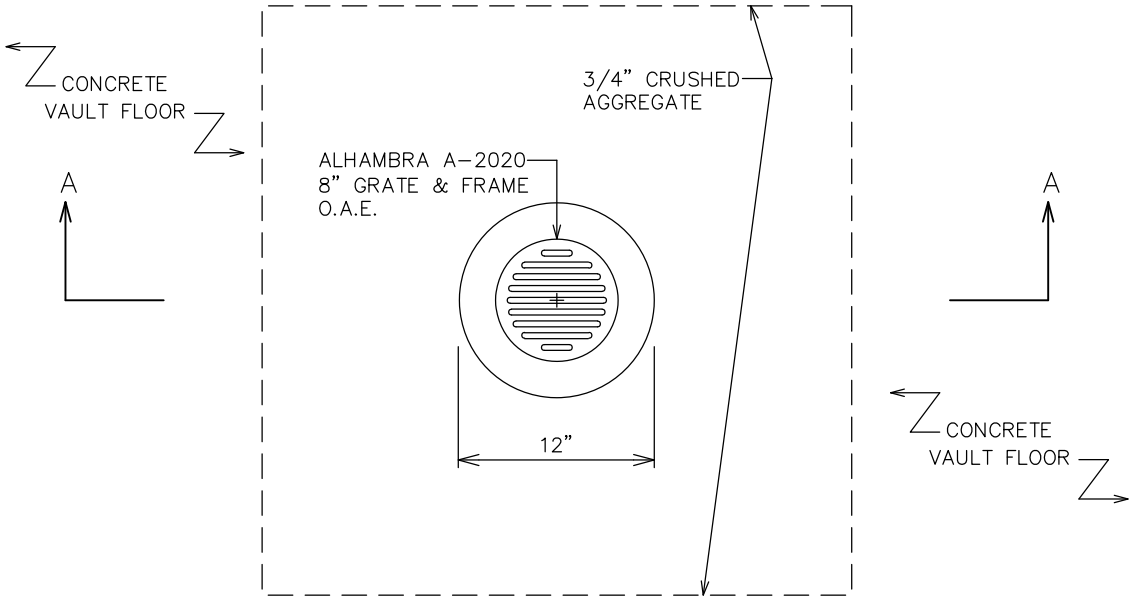
3. THE "CALIFORNIA WATERWORKS STANDARDS" SETS FORTH THE MINIMUM SEPARATION REQUIREMENTS FOR WATER MAINS AND SEWER LINES. THESE STANDARDS ARE CONTAINED IN SECTION 64630, TITLE 22, CALIFORNIA ADMINISTRATIVE CODE.

PALMDALE WATER DISTRICT
A CENTURY OF SERVICE

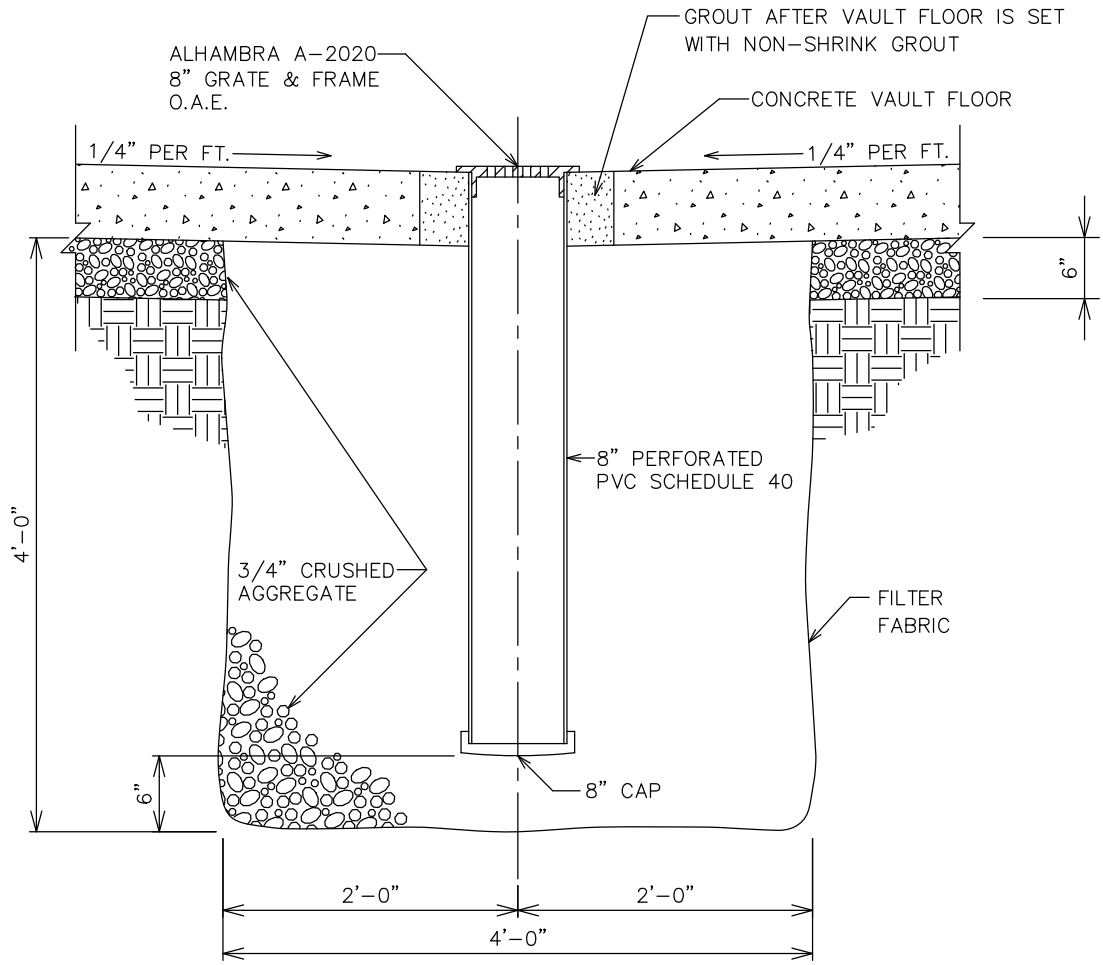
DATE: JUL. 2021 CMV
APPROVED:

DESIGN REQUIREMENTS FOR WATER MAINS IN THE VICINITY OF SANITARY SEWERS

W–10



PLAN VIEW
N.T.S.



SECTION A-A
N.T.S.

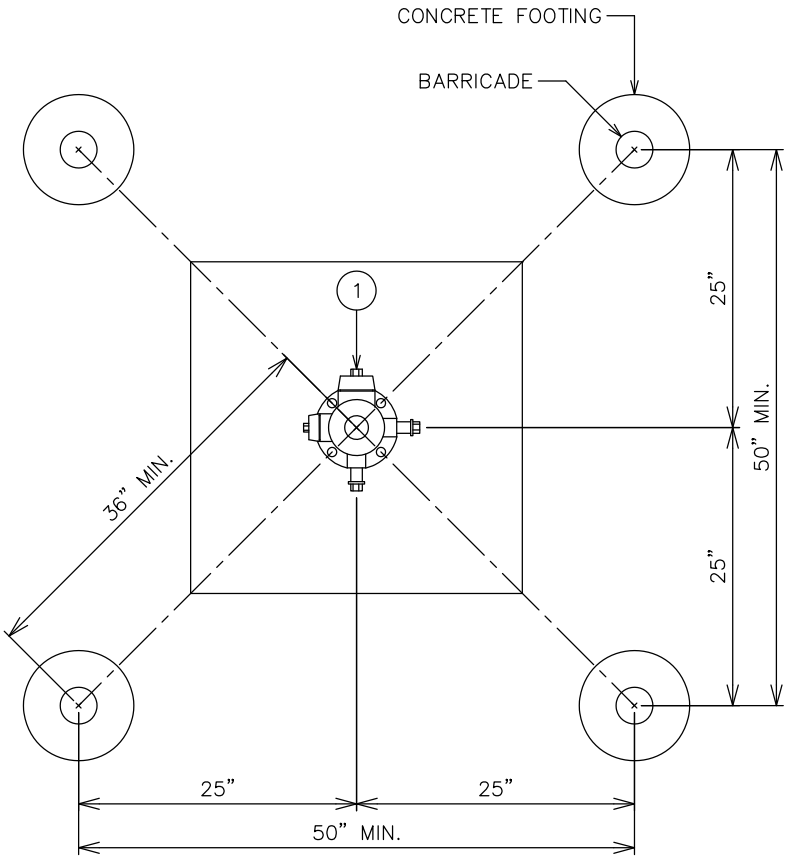
PALMDALE WATER DISTRICT
A CENTURY OF SERVICE

DATE: JUL. 2021 CMV
APPROVED:

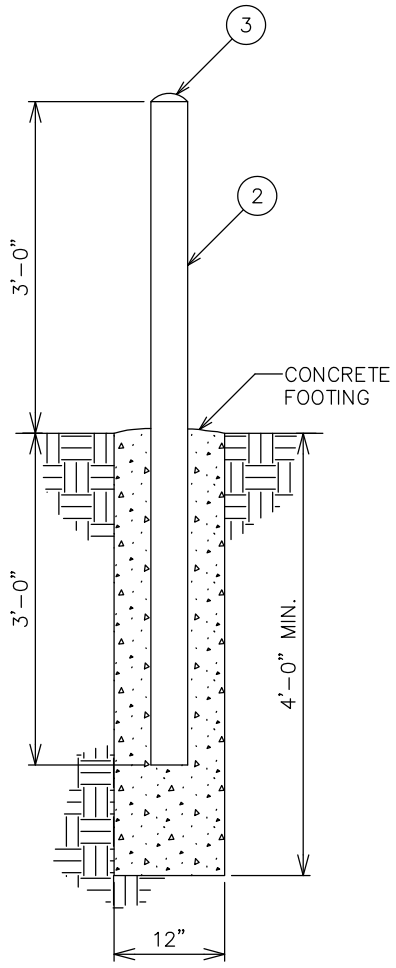
SUMP DETAIL FOR METER VAULTS
(TO BE LOCATED PER APPROVED PLAN)

W-12

STREET WITHOUT CONCRETE CURB



BARRICADE PLAN
TYPICAL PER L.A. CO. FIRE DEPARTMENT
N.T.S.



BARRICADE DETAIL
N.T.S.

GENERAL NOTES:

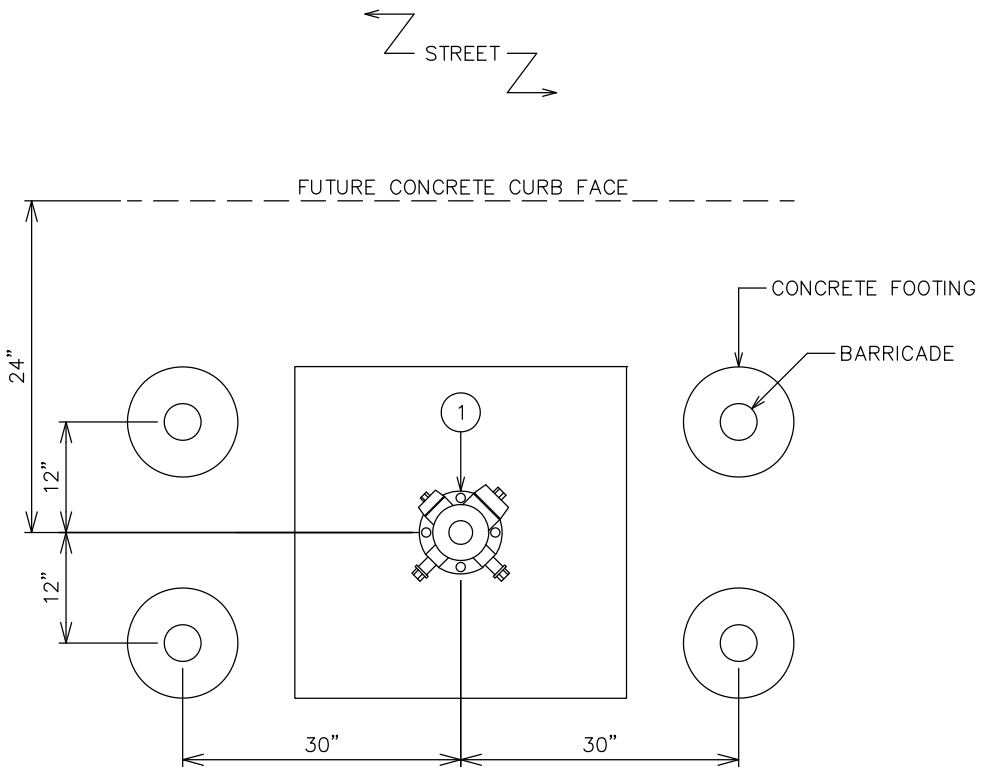
1. WATER DEVICE (HYDRANT SHOWN) BEING PROTECTED.
2. 6' OF 4" STANDARD STEEL PIPE SCHEDULE 40 CONCRETE FILLED
3. CONCRETE CAP
4. FOUR BARRICADES ARE TO BE USED UNLESS OTHERWISE SPECIFIED.
5. THE EXACT LOCATION OF BARRICADES MAY BE CHANGED BY THE DISTRICT REPRESENTATIVE IN THE FIELD.
6. THE STEEL PIPE ABOVE THE GROUND SHALL BE PAINTED A MINIMUM OF ONE FIELD COAT OF RED PRIMER AND TWO COATS OF RUST-OLEUM SAFETY YELLOW OR APPROVED EQUAL.
7. 25" BARRICADE SPACING SHALL BE WIDENED AS REQUIRED TO PROVIDE CLEARANCE FOR ATTACHMENTS TO FIRE HYDRANT OUTLETS.

PALMDALE WATER DISTRICT
A CENTURY OF SERVICE

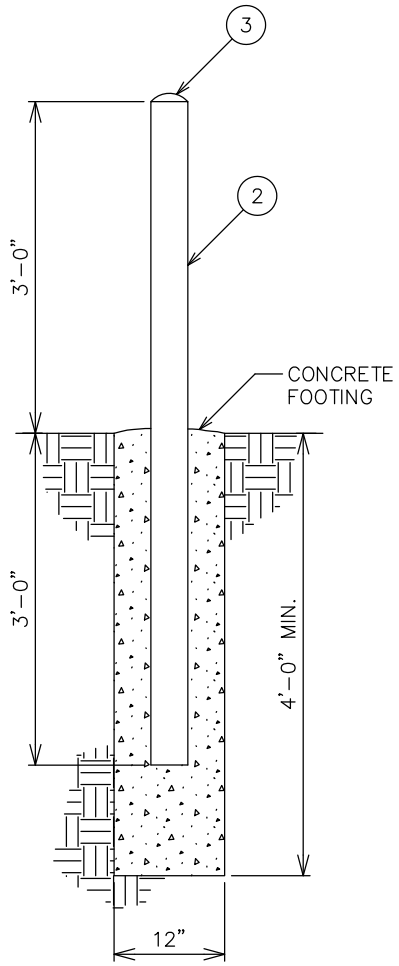
DATE: JUL. 2021 CMV
APPROVED:

TYPICAL BARRICADES DETAIL
(STREET WITHOUT CONCRETE CURB)

W-14



TEMPORARY BARRICADE PLAN
TYPICAL PER L.A. CO. FIRE DEPARTMENT
N.T.S.



BARRICADE DETAIL
N.T.S.

GENERAL NOTES:

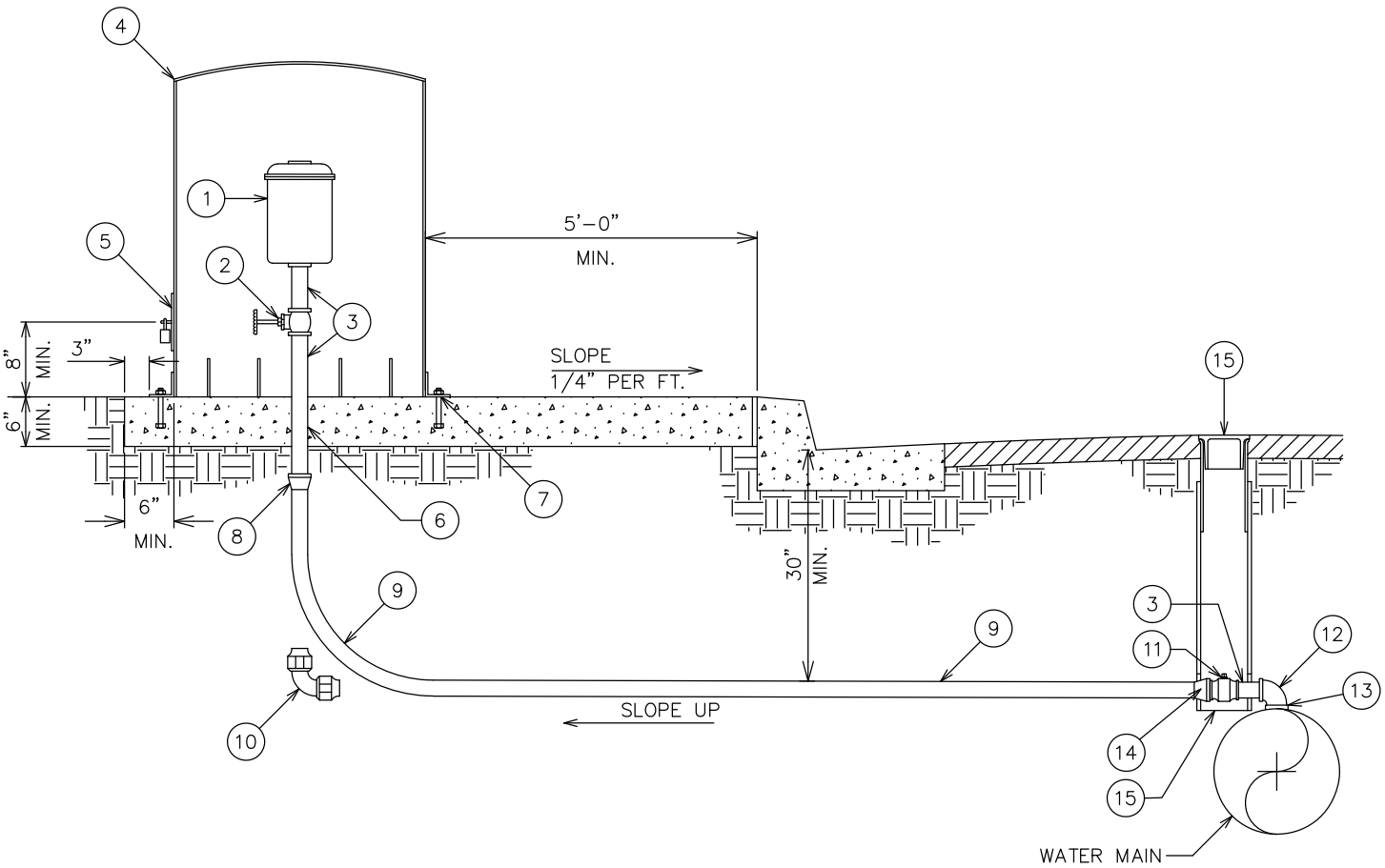
1. FIXTURE BEING PROTECTED.
2. 6' OF 4" STANDARD STEEL PIPE SCHEDULE 40 CONCRETE FILLED
3. CONCRETE CAP
4. FOUR BARRICADES ARE TO BE USED UNLESS OTHERWISE SPECIFIED.
5. THE EXACT LOCATION OF BARRICADES MAY BE CHANGED BY THE DISTRICT REPRESENTATIVE IN THE FIELD.
6. THE STEEL PIPE ABOVE THE GROUND SHALL BE PAINTED A MINIMUM OF ONE FIELD COAT OF RED PRIMER AND TWO COATS OF RUST-OLEUM SAFETY YELLOW OR APPROVED EQUAL.

PALMDALE WATER DISTRICT
A CENTURY OF SERVICE
EST. 1918

DATE: JUL. 2021 CMV
APPROVED:

TYPICAL TEMPORARY BARRICADES DETAIL
FOR FIRE HYDRANTS

W-15



KEY NOTES:

1. WHEN WATER MAIN IS REQUIRED TO BE HOT TAPPED USE M.I.P. x M.I.P. CORPORATION VALVE.
2. IF NO CURB AND GUTTER OR IF TYPE "E" CURB (ROLLED). INSTALL BARRICADES PER STANDARD W-14 AS REQUIRED (RUST-OLEUM SAFETY YELLOW).
3. ALL VALVES AND PIPING ABOVE GROUND SHALL BE INSULATED.
4. PAINT VALVE ASSEMBLY ABOVE GROUND, AND STEEL COVER (INSIDE AND OUTSIDE), WITH TWO COATS OF RED PRIMER AND TWO COATS OF RUSTOLEUM FOREST GREEN OR APPROVED EQUAL.
5. USE PROPER CLASS FITTINGS FOR WATER WORKING PRESSURE (CLASS 150 MINIMUM).
6. SEE PLANS FOR VALVE SIZES AND USE SAME SIZE FITTINGS AND NIPPLE LENGTHS TO SUIT (NO CLOSE NIPPLES).
7. ALL EDGES AGAINST OTHER CONCRETE TO HAVE PREFORMED JOINT FILLER.
8. ALL PIPING AND APPURTENANCES WILL BE AIR VACUUM VALVE SIZE.
9. 36" x 36" x 6" CONCRETE PAD WITH SIDEWALK FINISH TO BE SLOPED 1/4" PER FOOT TOWARDS THE CURB.

MATERIAL DESCRIPTION:

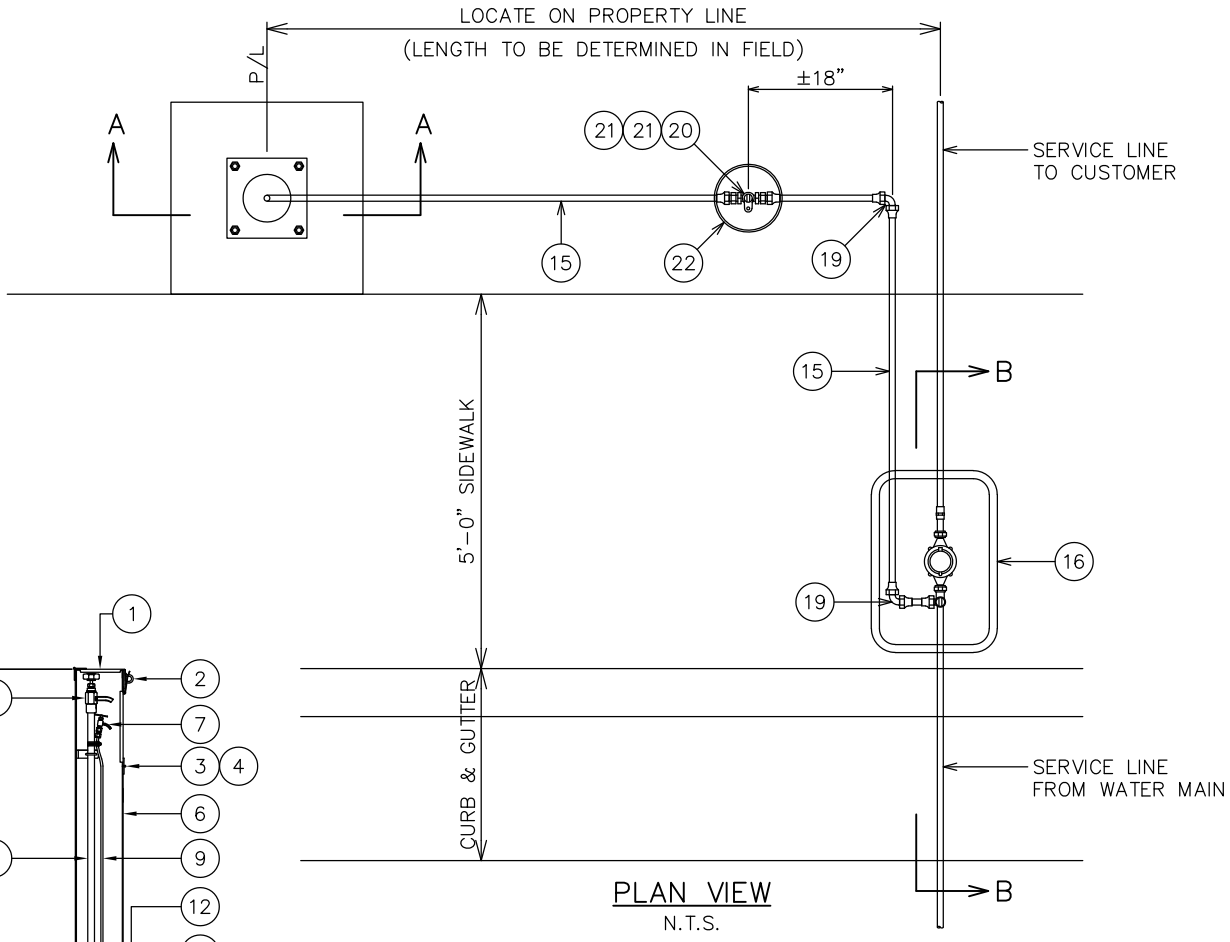
(1) COMBINATION AIR AND VACUUM RELEASE VALVE A.R.I. D-040.
(2) GATE VALVE, BRASS
(3) BRASS NIPPLE
(4) A.R.I. VALVE ENCLOSURE
(5) 6" x 6" DOOR WITH WELDED HINGES AND PADLOCK HASP. PADLOCK TO BE SUPPLIED BY DISTRICT.
(6) PROTECT PIPE WITH 20 MIL TAPE
(7) 3" x 3" x ," , 4" LONG WITH Œ" DIA. HOLE WELDED TO STEEL COVER (4 REQUIRED)
(8) COUPLING, F.I.P. x COMPRESSION FOR 2", FIP x COMP. FOR 1"
(9) USE TYPE "K" COPPER TUBING.
(10) COMPRESSION 90^ ELBOW REQUIRED FOR 1" AND 2" ASSEMBLIES.
(11) BALL STRAIGHT SVC VALVE (JONES NO. J-1900W, OR APPROVED EQUAL)
(12) 90^ STREET ELBOW, BRASS
(13) CONNECTIONS SHALL BE MADE WITH MATERIALS SPECIFIED IN P.W.D. STD. W-1.
(14) MIP x COMPRESSION ADAPTER FOR 2", MIP x COMP. ADAPTER FOR 1".
(15) VALVE BOX PER P.W.D. STD. W-5 (NOTCH VALVE RISER AROUND PIPE)

PALMDALE WATER DISTRICT
A CENTURY OF SERVICE

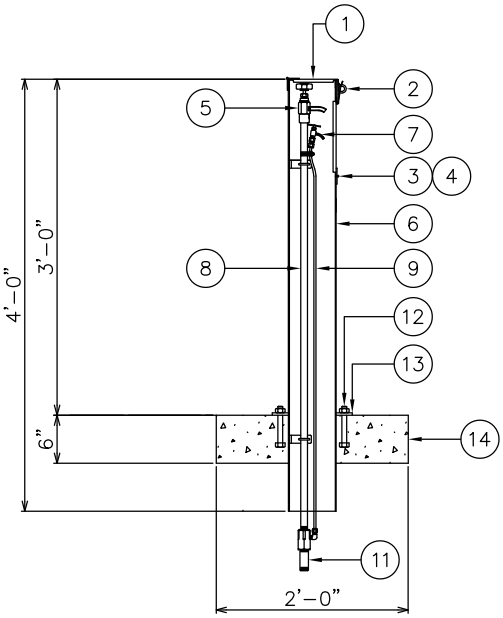
DATE: JUL. 2021 CMV
APPROVED:

AIR AND VACUUM RELEASE VALVE
(TYPICAL 1" THROUGH 2" COMBINATION)

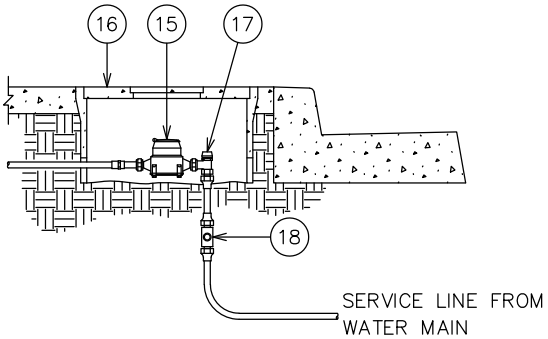
W-16



PLAN VIEW
N.T.S.



SECTION A–A
N.T.S.



SECTION B–B
N.T.S.

MATERIAL DESCRIPTION – KUPFERLE MODEL #66 O.A.E.:

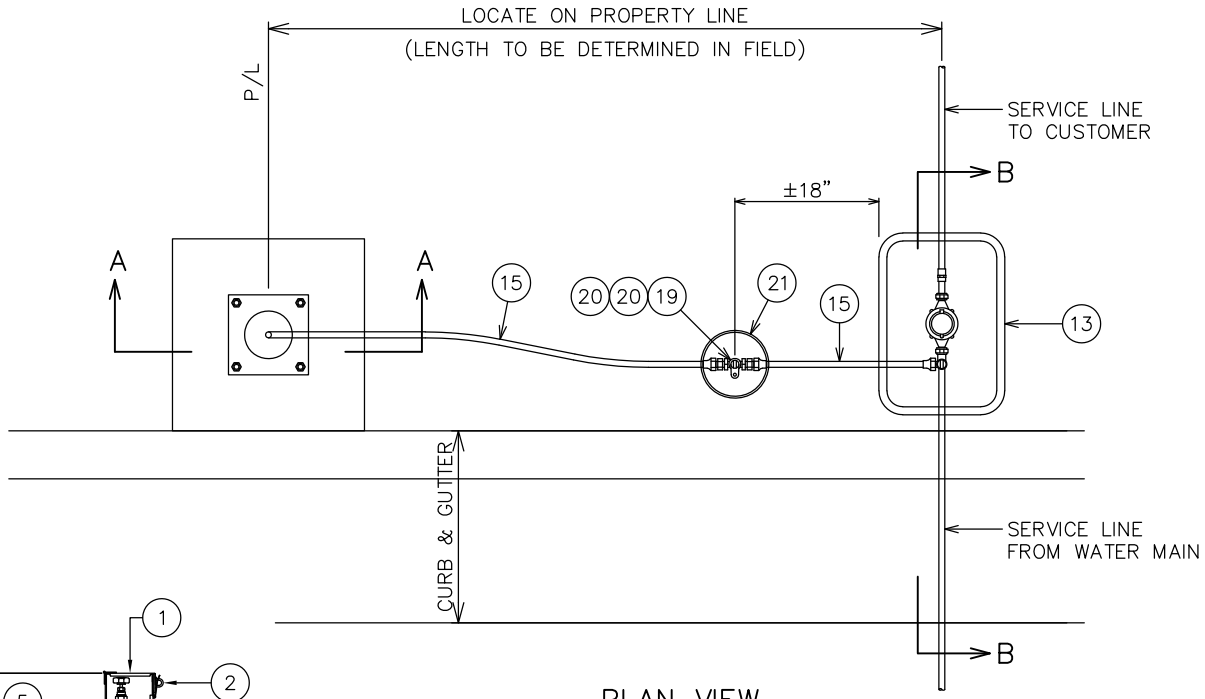
1. TOP ACCESS DOOR
2. PADLOCK EYE (PADLOCK TO BE SUPPLIED BY DISTRICT)
3. PADLOCK HASP
4. FRONT ACCESS DOOR
5. BLOW OFF SAMPLING BIBB
6. 6" ALUMINUM SQUARE BOX
7. PET COCK
8. 1/2" STAINLESS STEEL WATERWAY
9. 1/4" STAINLESS STEEL TUBING
10. VALVE BOX PER P.W.D. STD W–5
11. 3/4" X 18" STAINLESS STEEL NIPPLE WITH PIPE INSULATION
12. 4–1/2" ANCHOR BOLTS
13. 10" x 10" x 3/16" BASE PLATE
14. 24" x 24" x 6" CONCRETE PAD
15. 3/4" TYPE "K" SOFT COPPER TUBING
16. METER BOX PER P.W.D. STD. W–1
17. ANGLE STOP WITH COMPRESSION INLET (SIZE VARIES).
18. VARIES" x 3/4" COMPRESSION TEE
19. 3/4" COMPRESSION 90° ELBOW
20. 3/4" STRAIGHT STOP
21. 3/4" M.I.P. x COMP. ADAPTER
22. IRRIGATION CONTROL VALVE BOX

PALMDALE WATER DISTRICT
A CENTURY OF SERVICE

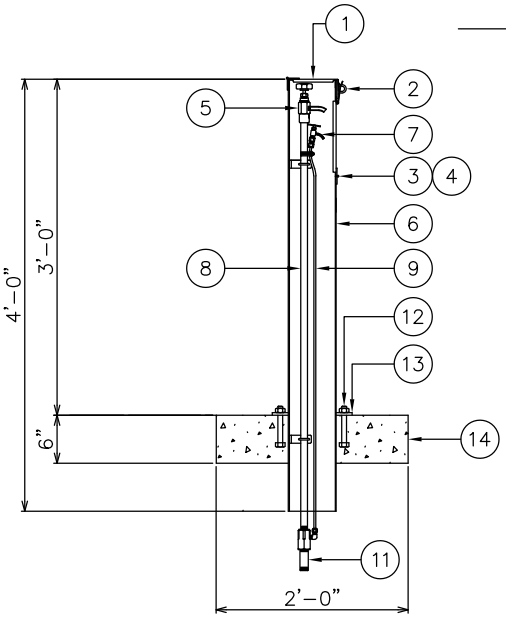
DATE: JUL. 2021 CMV
APPROVED:

BACTERIOLOGICAL TEST STATION
(TEST STATION BEHIND SIDEWALK)

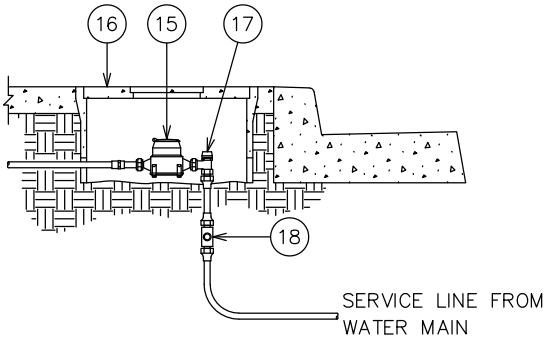
W–17



PLAN VIEW
N.T.S.



SECTION A–A
N.T.S.



SECTION B–B
N.T.S.

KEY NOTES:

IF NO CURB AND GUTTER OR IF TYPE "E" CURB (ROLLED), INSTALL BARRICADES PER P.W.D. STD. W–14 AS REQUIRED (RUSTOLEUM SAFETY YELLOW)

MATERIAL DESCRIPTION – KUPFERLE MODEL #66 O.A.E.:

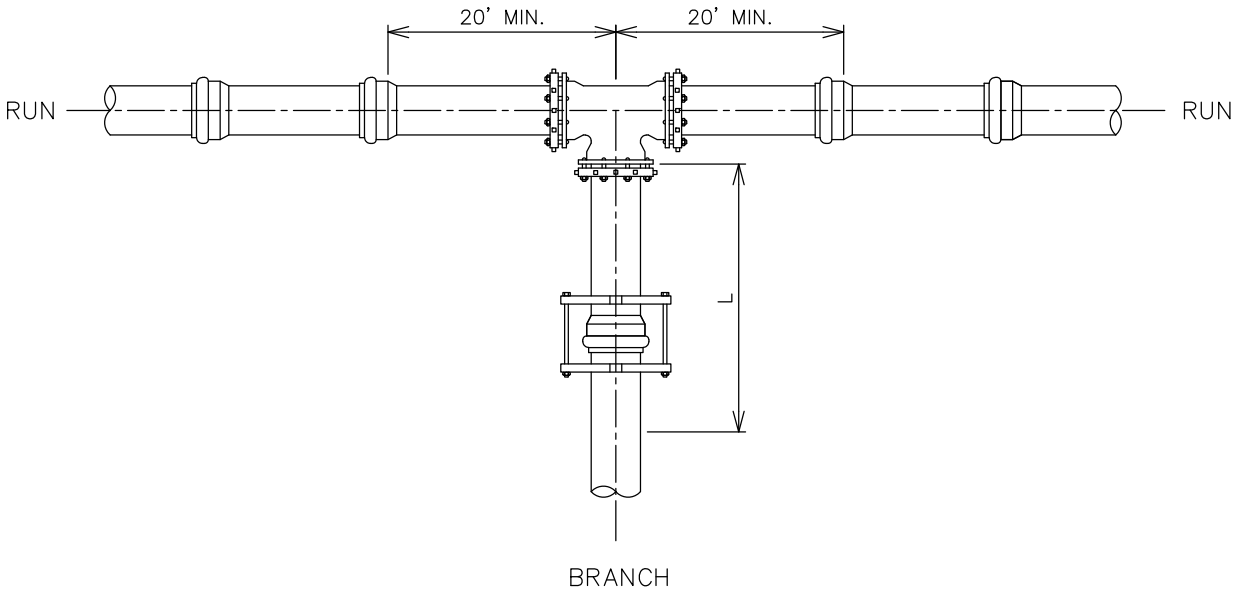
1. TOP ACCESS DOOR
2. PADLOCK EYE (PADLOCK TO BE SUPPLIED BY DISTRICT)
3. PADLOCK HASP
4. FRONT ACCESS DOOR
5. BLOW OFF SAMPLING BIBB
6. 6" ALUMINUM SQUARE BOX
7. PET COCK
8. 1/2" STAINLESS STEEL WATERWAY
9. 1/4" STAINLESS STEEL TUBING
10. VALVE BOX PER P.W.D. STD W–5
11. 3/4" X 18" STAINLESS STEEL NIPPLE WITH PIPE INSULATION
12. 4–1/2" ANCHOR BOLTS
13. 10" x 10" x 3/16" BASE PLATE
14. 24" x 24" x 6" CONCRETE PAD
15. 3/4" TYPE "K" SOFT COPPER TUBING
16. METER BOX PER P.W.D. STD. W–1
17. ANGLE STOP WITH COMPRESSION INLET (SIZE VARIES).
18. VARIES" x 3/4" COMPRESSION TEE
19. 20 3/4" STRAIGHT STOP
20. 3/4" M.I.P. x COMP. ADAPTER
21. IRRIGATION CONTROL VALVE BOX

PALMDALE WATER DISTRICT
A CENTURY OF SERVICE

DATE: JUL. 2021 CMV
APPROVED:

BACTERIOLOGICAL TEST STATION
(TEST STATION FOR NO SIDEWALK OR SIDEWALK WIDER THAN 5')

W–17A



RUN SIZE

BRANCH SIZE	4	6	8	10	12	14	16	18	20	24
4	*	*	*	*	*	*	*	*	*	*
6		*	*	*	*	*	*	*	*	*
8			*	*	*	*	*	*	*	*
10				*	*	*	*	*	*	*
12					13	*	*	*	*	*
14						24	13	*	*	*
16							36	25	14	*
18								47	37	16
20									58	39
24										79

* – FOR THIS CONDITION NEED ONLY RESTRAIN THE BRANCH OUTLET OF THE TEE.

RESTRAINED LENGTHS, "L" (IN FEET)

1. RESTRAIN THE TWO MECHANICAL JOINTS ON THE RUN SIDES OF THE TEE. THERE SHOULD BE A FULL 20' LENGTH OF PIPE INSTALLED ON EACH SIDE OF THE RUN.

2. ALL JOINTS WITHIN THE LENGTH "L" ON THE BRANCH MUST BE RESTRAINED. USE RETAINER GLAND AT MECHANICAL JOINTS AND HARNESS ON PUSH–ON PIPE PER P.W.D. SPECIFICATION.

3. FOR TEST PRESSURES AND LAYING CONDITIONS SEE SECTION OF GENERAL NOTES FOR USE OF RESTRAINED JOINT LENGTHS ON STANDARD DRAWING W–20.

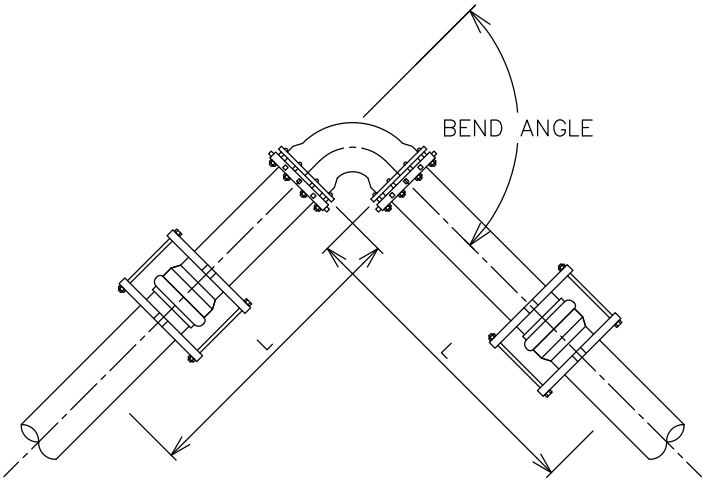
PALMDALE WATER DISTRICT
A CENTURY OF SERVICE

DATE: DEC. 2021 CMV
APPROVED:

STANDARD TEE RESTRAINT
(FOR C–900 PVC PIPE)

W–18

HORIZONTAL BEND



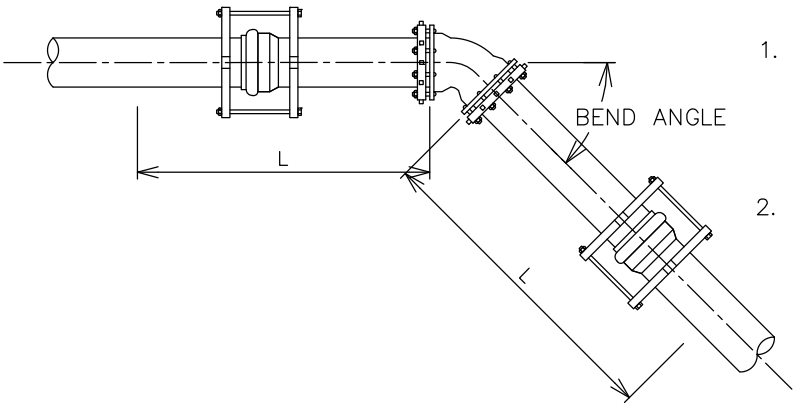
1. ALL JOINTS WITHIN LENGTH "L" MUST BE RESTRAINED. USE RETAINER GLAND AT MECHANICAL JOINTS AND HARNESS WITH PUSH-ON PIPE PER P.W.D. SPECIFICATION.

2. FOR TEST PRESSURES AND LAYING CONDITIONS SEE SECTION OF GENERAL NOTES FOR USE OF RESTRAINED JOINT LENGTHS ON STANDARD DRAWING W-20.

RESTRAINED LENGTHS, "L" (IN FEET)

BEND ANGLE \ RUN SIZE	4	6	8	10	12	14	16
11.25	3	3	3	4	4	5	5
22.5	3	5	7	7	9	10	11
45	7	11	13	15	18	20	23
90	17	24	31	37	43	49	55

VERTICAL BEND



1. ALL JOINTS WITHIN LENGTH "L" MUST BE RESTRAINED. USE RETAINER GLAND AT MECHANICAL JOINTS AND HARNESS WITH PUSH-ON PIPE PER P.W.D. SPECIFICATION.

2. FOR TEST PRESSURES AND LAYING CONDITIONS SEE SECTION OF GENERAL NOTES FOR USE OF RESTRAINED JOINT LENGTHS ON STANDARD DRAWING W-20.

RESTRAINED LENGTHS, "L" (IN FEET)

BEND ANGLE \ RUN SIZE	4	6	8	10	12	14	16
11.25	5	7	9	11	13	15	17
22.5	11	15	19	23	27	31	35
45	23	31	40	48	56	64	72

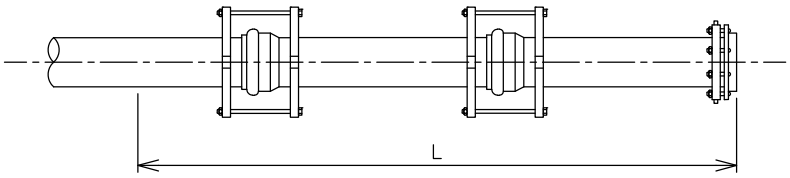
PALMDALE WATER DISTRICT
A CENTURY OF SERVICE
EST. 1918

DATE: DEC. 2021 CMV
APPROVED:

STANDARD BEND RESTRAINT
(FOR C-900 PVC PIPE)

W-19

DEAD END P.V.C. PIPE



1. ALL JOINTS WITHIN LENGTH "L" MUST BE RESTRAINED. USE RETAINER GLAND AT MECHANICAL JOINTS AND HARNESS WITH PUSH–ON PIPE PER P.W.D. SPECIFICATION.

2. FOR TEST PRESSURES AND LAYING CONDITIONS SEE GENERAL NOTES BELOW.

PIPE SIZE

4	6	8	10	12	14	16
52	73	96	115	136	155	174

RESTRAINED LENGTHS, "L" (IN FEET)

RESTRAINED JOINT LENGTHS USAGE GENERAL NOTES

RESTRAINED LENGTH CALCULATIONS ARE BASED ON THE FOLLOWING DESIGN CRITERIA TYPICALLY USED WITH BACKFILL IN P.W.D. ;

1. FORTY–TWO (42) INCHES MINIMUM DEPTH OF COVER.

2. A MINIMUM SAFETY FACTOR OF 1.5

3. SOIL TYPE PER P.W.D. SPECIFICATION.

4. PIPE ZONE BACKFILL FROM A DEPTH OF SIX (6) INCHES MINIMUM UNDER THE PIPE TO TWELVE (12) INCHES ABOVE THE TOP OF PIPE SHALL BE IMPORTED FILL SAND HAVING A MINIMUM SAND EQUIVALENCY OF SAE–30. PIPE ZONE AND TRENCH BACKFILL MATERIALS SHALL BE PLACED AND COMPACTED TO A MINIMUM OF 90% OF THE MAXIMUM DENSITY OF THE MATERIAL AT OPTIMUM MOISTURE CONTENT.

5. 200 PSI TEST PRESSURES FOR FOUR (4) THROUGH SIXTEEN (16) INCH SIZE PIPES.

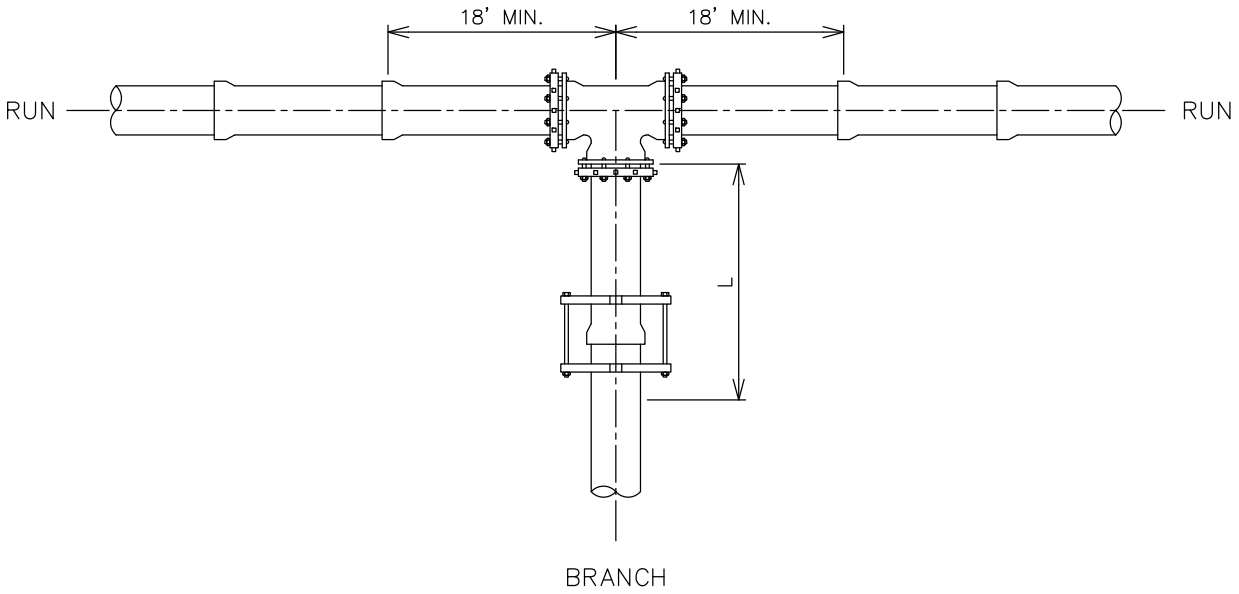
   IF ACTUAL CONDITIONS DIFFER FROM THOSE LISTED ABOVE OR THE REQUIRED RESTRAINED LENGTH CANNOT BE MET, THE RESTRAINED JOINT LENGTH SHALL BE DETERMINED BY THE DISTRICT ENGINEER.

PALMDALE WATER DISTRICT
A CENTURY OF SERVICE
EST. 1918

DATE: JUL. 2021 CMV
APPROVED:

STANDARD DEAD END RESTRAINT
(FOR C–900 PVC PIPE)

W–20



RUN SIZE

BRANCH SIZE	4	6	8	10	12	14	16	18	20	24
4	*	*	*	*	*	*	*	*	*	*
6		*	*	*	*	*	*	*	*	*
8			*	*	*	*	*	*	*	*
10				*	*	*	*	*	*	*
12					13	*	*	*	*	*
14						24	13	*	*	*
16							36	25	14	*
18								47	37	16
20									58	39
24										79

* – FOR THIS CONDITION NEED ONLY RESTRAIN THE BRANCH OUTLET OF THE TEE.

RESTRAINED LENGTHS, "L" (IN FEET)

1. RESTRAIN THE TWO MECHANICAL JOINTS ON THE RUN SIDES OF THE TEE. THERE SHOULD BE A FULL 18' LENGTH OF PIPE INSTALLED ON EACH SIDE OF THE RUN.

2. ALL JOINTS WITHIN THE LENGTH "L" ON THE BRANCH MUST BE RESTRAINED. USE RETAINER GLAND AT MECHANICAL JOINTS AND HARNESS ON PUSH–ON PIPE PER P.W.D. SPECIFICATION.

3. FOR TEST PRESSURES AND LAYING CONDITIONS SEE SECTION OF GENERAL NOTES FOR USE OF RESTRAINED JOINT LENGTHS ON STANDARD DRAWING W–23.

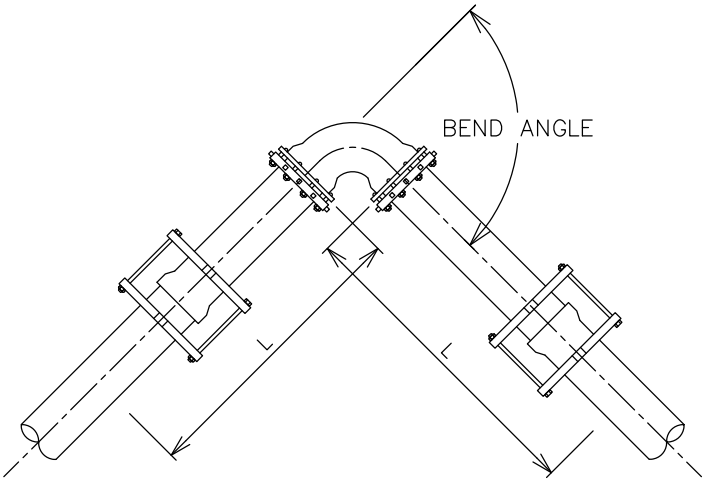
PALMDALE WATER DISTRICT
A CENTURY OF SERVICE

DATE: JUL. 2021 CMV
APPROVED:

STANDARD TEE RESTRAINT
(FOR DUCTILE IRON PIPE)

W–21

HORIZONTAL BEND



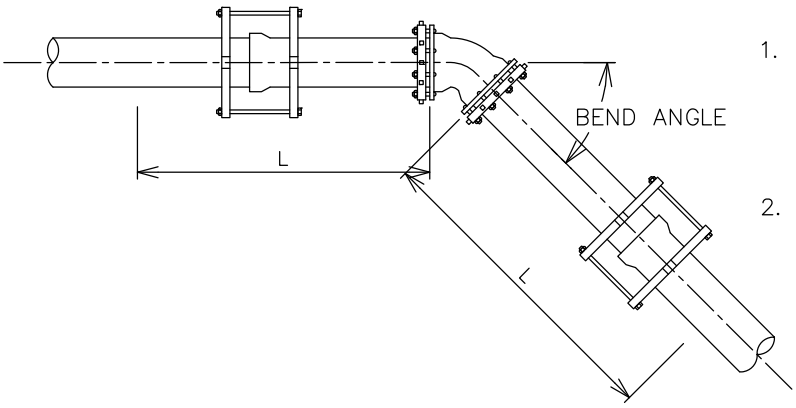
1. ALL JOINTS WITHIN LENGTH "L" MUST BE RESTRAINED. USE RETAINER GLAND AT MECHANICAL JOINTS AND HARNESS WITH PUSH-ON PIPE PER P.W.D. SPECIFICATION.

2. FOR TEST PRESSURES AND LAYING CONDITIONS SEE SECTION OF GENERAL NOTES FOR USE OF RESTRAINED JOINT LENGTHS ON STANDARD DRAWING W-23.

RESTRAINED LENGTHS, "L" (IN FEET)

BEND ANGLE \ RUN SIZE	4	6	8	10	12	14	16
11.25	3	3	3	4	4	4	5
22.5	3	4	7	7	8	9	10
45	7	9	12	15	17	19	21
90	16	23	29	35	40	45	51

VERTICAL BEND



1. ALL JOINTS WITHIN LENGTH "L" MUST BE RESTRAINED. USE RETAINER GLAND AT MECHANICAL JOINTS AND HARNESS WITH PUSH-ON PIPE PER P.W.D. SPECIFICATION.

2. FOR TEST PRESSURES AND LAYING CONDITIONS SEE SECTION OF GENERAL NOTES FOR USE OF RESTRAINED JOINT LENGTHS ON STANDARD DRAWING W-23.

RESTRAINED LENGTHS, "L" (IN FEET)

BEND ANGLE \ RUN SIZE	4	6	8	10	12	14	16
11.25	3	5	7	8	8	10	11
22.5	7	11	12	15	17	20	22
45	15	19	25	31	36	41	46

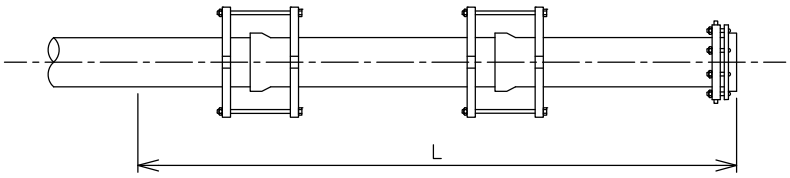
PALMDALE WATER DISTRICT
A CENTURY OF SERVICE
EST. 1918

DATE: DEC. 2019 MRW
APPROVED:

STANDARD BEND RESTRAINT
(FOR DUCTILE IRON PIPE)

W-22

DEAD END DUCTILE IRON PIPE



1. ALL JOINTS WITHIN LENGTH "L" MUST BE RESTRAINED. USE RETAINER GLAND AT MECHANICAL JOINTS AND HARNESS WITH PUSH–ON PIPE PER P.W.D. SPECIFICATION.

2. FOR TEST PRESSURES AND LAYING CONDITIONS SEE GENERAL NOTES BELOW.

PIPE SIZE

4	6	8	10	12	14	16
33	47	61	73	86	98	111

RESTRAINED LENGTHS, "L" (IN FEET)

RESTRAINED JOINT LENGTHS USAGE GENERAL NOTES

RESTRAINED LENGTH CALCULATIONS ARE BASED ON THE FOLLOWING DESIGN CRITERIA TYPICALLY USED WITH BACKFILL IN P.W.D. ;

1. FORTY–TWO (42) INCHES MINIMUM DEPTH OF COVER.

2. A MINIMUM SAFETY FACTOR OF 1.5

3. SOIL TYPE PER P.W.D. SPECIFICATION.

4. PIPE ZONE BACKFILL FROM A DEPTH OF SIX (6) INCHES MINIMUM UNDER THE PIPE TO TWELVE (12) INCHES ABOVE THE TOP OF PIPE SHALL BE IMPORTED FILL SAND HAVING A MINIMUM SAND EQUIVALENCY OF SAE–30. PIPE ZONE AND TRENCH BACKFILL MATERIALS SHALL BE PLACED AND COMPACTED TO A MINIMUM OF 90% OF THE MAXIMUM DENSITY OF THE MATERIAL AT OPTIMUM MOISTURE CONTENT.

5. 200 PSI TEST PRESSURES FOR FOUR (4) THROUGH SIXTEEN (16) INCH SIZE PIPES.

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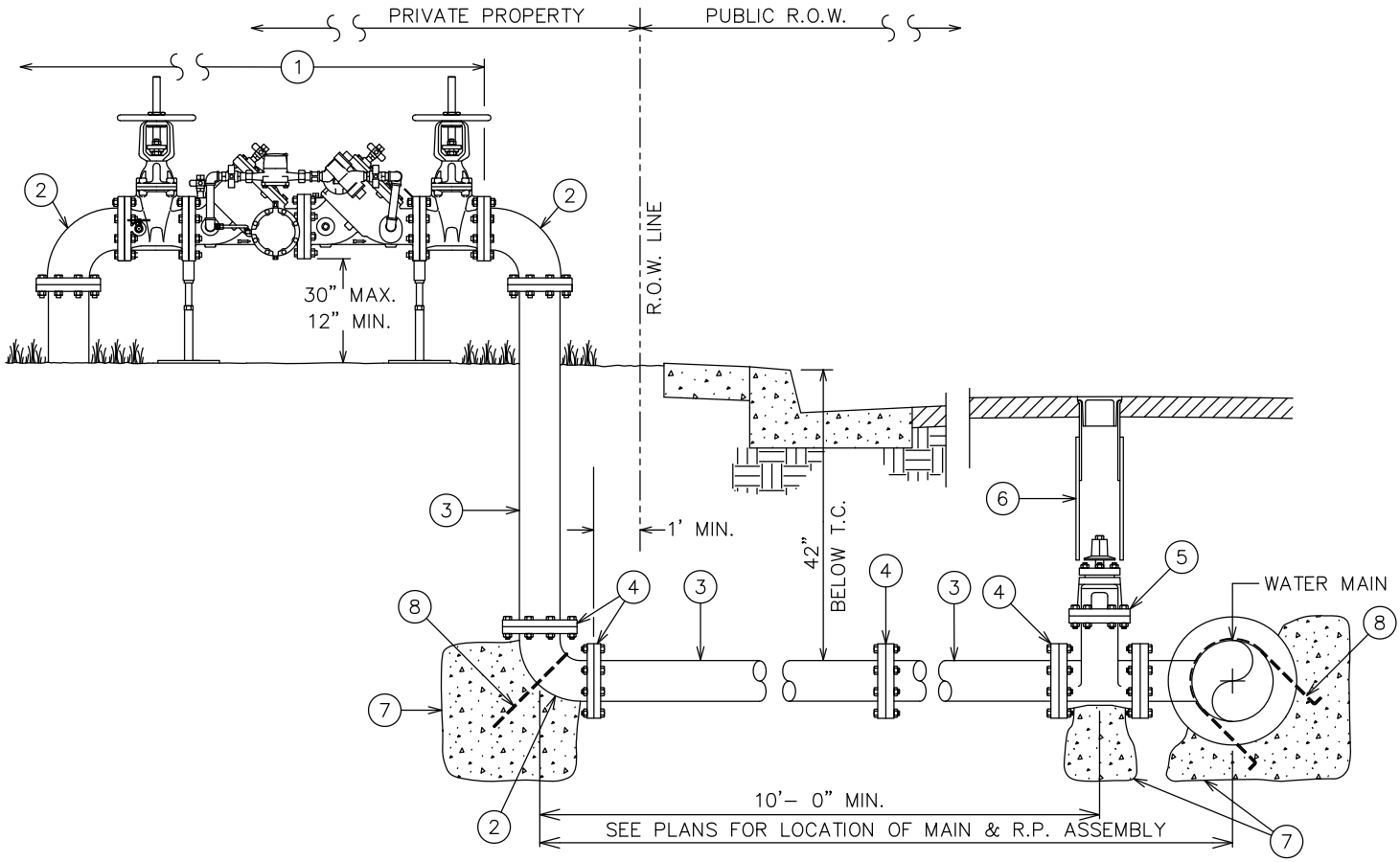
PALMDALE WATER DISTRICT
A CENTURY OF SERVICE
EST. 1918

DATE: JUL. 2021 CMV
APPROVED:

STANDARD DEAD END RESTRAINT
(FOR DUCTILE IRON PIPE)

W–23



KEY NOTES:

1. PROPERTY OWNER SHALL BE RESPONSIBLE FOR MAINTENANCE INCLUDING REPAIR OR REPLACEMENT AND MUST PROVIDE RESULTS OF REQUIRED ANNUAL BACKFLOW TEST TO THE DISTRICT.
2. METER ATTACHED TO REDUCED PRESSURE DETECTOR ASSEMBLY (RPDA) SHALL BE OWNED AND MAINTAINED BY THE DISTRICT. RPDA METER TO BE ACCESSIBLE TO THE DISTRICT AT ALL TIMES.
3. ALL UNCOATED METAL SURFACES (INCLUDING NUTS AND BOLTS) INSTALLED UNDERGROUND SHALL BE THOROUGHLY COATED W/ NO-OX GREASE AND THEN BE WRAPPED WITH 8 MIL POLYETHYLENE SHEET (AWWA C-105).
4. INTERMEDIATE PIPE JOINTS IN LATERAL SHALL BE FLANGED. PIPE SHALL BE INSTALLED HORIZONTAL OR SLOPING DOWNWARD FROM MAIN TO PROVIDE MINIMUM COVER.
5. IF THE ABSENCE OF A CURB OR WHERE TYPE "E" CURB (ROLLED) IS USED, INSTALL BARRICADES PER P.W.D. STD. W-14 AS REQUIRED.

MATERIAL DESCRIPTION:

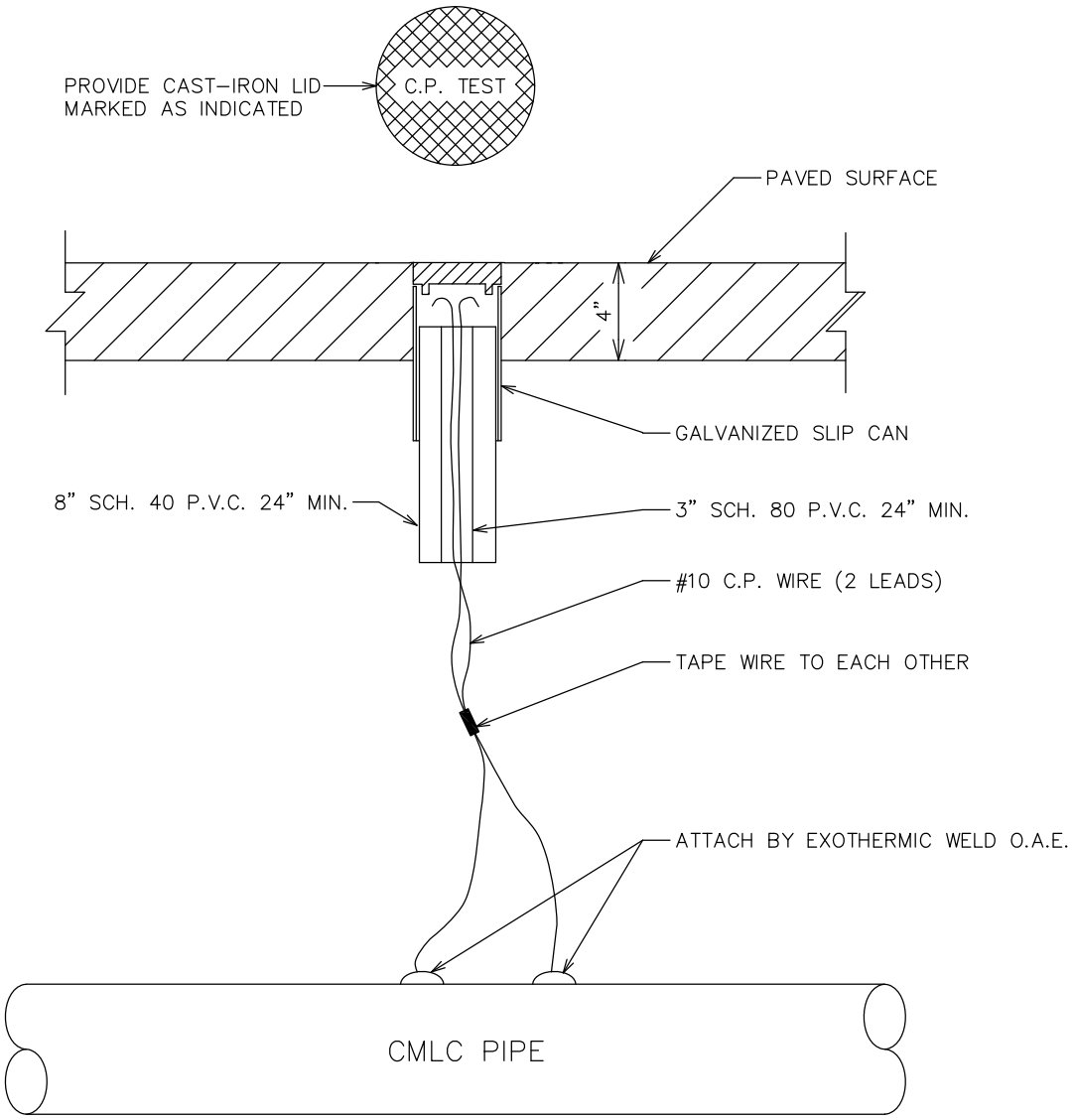
(1) REDUCED PRESSURE DETECTOR ASSEMBLY (RPDA), CURRENT USC APPROVED MODELS ONLY.
(2) 90° FLANGED ELBOW STL., C.M.L.C., CL150 FLG.
(3) STL. PIPE 10 GA. MIN. C.M.L.& C. EXTEND NON-SHRINK MORTAR COATING WITH EXPANDED GALVANIZED LATH REINFORCEMENT TO MEET FLG. TAPER THICKNESS AND TO MEET FLG. HUB.
(4) SLIP-ON WELD FLANGE CL150.
(5) FLANGED GATE VALVE CL150.
(6) VALE BOX PER P.W.D. STD. W-5.
(7) USE 2000 PSI MIN. CONCRETE FOR THRUST BLOCKS. PLACE CONCRETE ON UNDISTURBED OR COMPACTED SOIL. THRUST BLOCKS MUST MEET REQUIREMENTS OF P.W.D. STD. W-4.
(8) ANCHOR ROD PER P.W.D. STD. W-4.

PALMDALE WATER DISTRICT
A CENTURY OF SERVICE

DATE: JUL. 2021 CMV
APPROVED:

REDUCED PRESSURE DETECTOR ASSEMBLY

W-24



KEY NOTES:

1. ALL VALVE BOXES LOCATED IN UNIMPROVED STREETS OR DIRT AREA SHALL BE ENCLOSED IN 24" x 24" x 12" THICK CONCRETE PAD.
2. PUT LARGE LOOP KNOT IN CABLE WITH HEAVY SLACK.
3. TEST BEFORE AND AFTER BACKFILL BY DISTRICT.

PALMDALE WATER DISTRICT
A CENTURY OF SERVICE

DATE: JUL. 2021 CMV
APPROVED:

TYPICAL C.P. TEST STATION
(IMPROVED OR UNIMPROVED ROADS)

W-26

P A L M D A L E W A T E R D I S T R I C T

B O A R D M E M O R A N D U M

DATE: October 5, 2021 **October 11, 2021**

TO: Board of Directors **Board Meeting**

FROM: Mr. Scott L. Rogers, Engineering/Grant Manager

VIA: Mr. Adam Ly, Assistant General Manager
Mr. Dennis D. LaMoreaux, General Manager

RE: ***AGENDA ITEM NO. 7.5 – CONSIDERATION AND POSSIBLE ACTION ON A RECOMMENDATION TO ADOPT PALMDALE WATER DISTRICT DEVELOPMENT SERVICES PROCEDURAL GUIDELINES. (NO BUDGET IMPACT – ENGINEERING/GRANT MANAGER ROGERS)***

Recommendation:
Staff recommends that the Board adopt the PWD Development Services Procedural Guidelines document.

Alternative Options:
Do not adopt the PWD Development Services Procedural Guidelines.

Impact of Taking No Action:
The District will not be able to provide clear guidelines to developers to follow when they are working with the Engineering staff.

Background:
The Development Services Procedural Guidelines was created by the Engineering staff to provide PWD customers and businesses with a clear guide to PWD procedures for handling the multitude of service requests received. The Guidelines also provide a listing of the general design criteria for domestic water systems.

The Guidelines will allow the Engineering staff to refer developers and new customers to a document that will answer common questions about the plan check process, design requirements, service request forms, and other common questions for development within the District's service system.

Strategic Plan Initiative/Mission Statement:
This work is part of Strategic Initiative No. No. 3 – Systems Efficiency and No. 5 – Regional Leadership.

This item directly relates to the District's Mission Statement.

Budget:
No impact to budget.

Supporting Documents:
- Palmdale Water District Development Services Procedural Guidelines

PALMDALE WATER DISTRICT

A CENTURY OF SERVICE

PALMDALE WATER DISTRICT

DEVELOPMENT GUIDELINES

Palmdale Water District
2029 East Avenue Q
Palmdale, CA 93550-4038

1.0 About Palmdale Water District

The Palmdale Water District (PWD, District) began as the Palmdale Irrigation District in 1918, which was formed under the provisions of Division 11 of the Water Code of the State of California, to supply irrigation water to approximately 4,500 acres of agricultural land. By 1966, the District was providing only municipal and industrial water. The name was then changed to Palmdale Water District in 1973 to reflect the new direction.

The District's service area now encompasses approximately 187 square miles of land in northeastern Los Angeles County, consisting of more than 30 non-contiguous areas scattered throughout the Antelope Valley with the District's primary service area within the City of Palmdale's planning area. The distribution system has over 414 miles of pipelines ranging in diameter from 4 inches to 42 inches, 21 storage reservoirs with an approximate total storage capacity of 50 million gallons (MG), 17 booster pump stations, and 23 active groundwater wells.

The Palmdale Water District serves a population of a little over 116,000 with about 27,000 water connections. In-fill growth within Palmdale Water District's service area is expected since 68% of the service area is vacant.

2.0 Development Design

The purpose of the "Palmdale Water District" (Guidelines) is to provide PWD customers and businesses with a guide to PWD procedures for handling the multitude of service requests received. The Guidelines also provide a listing of the general design criteria for domestic water systems.

2.2 General Project Design Requirements

2.2.1 Design

The developer shall employ, at its sole expense, a qualified professional engineering firm with an engineer licensed to practice in the State of California, to plan, design and prepare detailed water plans in full. All such planning, design work, and plans performed and prepared by the developer's engineer shall be subject to review and approval by PWD prior to providing to contractors for bidding purposes. The plans shall conform to PWD Standards; refer to Section 3 Design Criteria for Water Facilities.

2.2.2 CEQA

The developer shall, at the developer's sole cost and expense, be responsible for compliance with the CEQA, all other applicable state and federal environmental laws, all requirements of the Federal Endangered Species Act and the California Endangered Species Act arising out of or in connection with the design and construction of the standard and/or special facilities, and for compliance with all conditions and mitigation measures which must be satisfied in connection with the same. The developer shall cause the appropriate public agency of the State of California to act as lead agency for the purpose of complying with CEQA, or PWD may elect, but shall have no obligation, to act as lead agency. As part of its obligation to fund the CEQA process, the developer shall prepare or cause to be prepared all instruments, documents, reports, and other like or kind writings required to be prepared and/or filed by CEQA.

2.3 PWD Deposit and Fees

Information regarding fees for connection to PWD facilities, usage charges, and other administrative fees can be found in Development Services on the PWD website. All applicable fees shall be paid and agreements executed by the applicant prior to the pre-construction meeting, installation of individual services, or at other times as requested by PWD. The cost of rechecking plans will be paid by the developer as determined above.

2.4 Water Serviceability & Water Service Availability Letters

PWD provides domestic water service to nearly all properties within its service area boundaries. Refer PWD's website for a detailed map of PWD service area boundaries for confirmation of service potential.

For proposed developments within the boundaries of PWD, the developer may request a Water Serviceability letter to determine the capacity of PWD to provide water to the development and the preliminary identification of water system improvements needed for the proposed development. The letter can be requested by contacting PWD Engineering department. The Water Serviceability letter is a document that may be required by the local jurisdictional agencies for processing tentative maps, development reviews, and water supply assessments.
A Water Service Availability Letter is issued once Water System Improvement Plans are in a "nearly approved" or "approved condition" meaning printed on mylars awaiting signature or mylars have been signed and approved. These letters are required for the local jurisdictional agencies to approve the final tract or parcel map. Water Service Availability Letters provide PWD's conditional commitment to serve the proposed development and remain valid for six-months. If the water system improvements are not started within six-months, the conditional commitment lapses and a new Water Service Availability Letter must be requested.

2.5 General Development Project Review and Approval Process

2.5.1 Initial Contact with PWD

For information regarding projects already initiated at a previous date, the developer may contact the PWD Engineering department for any record requests.

It is recommended that the developer visit the PWD website for specific requirements for plan submittals. The PWD website contains a copy of PWD AutoCAD standard template for drawing plans format. The developer is expected to use this format for all water plan submittals. The developer shall visit the website for PWD's Standard Specifications and Drawings, and General Plan Check Comment's and Criteria Checklist.

The developer is responsible for a complete conceptual water plan submittal. The complete submittal shall include the following:

- Conceptual water plan
- Approved site plan with approved fire prevention requirements

The District will not accept or comment on an incomplete submittal.

The developer will take responsibility for all previous incomplete developments (prior to 2020) to be brought up to current PWD Standards. This includes but is not limited to, fees associated with offsite and onsite improvements as well as plan check fees.

If the Fire Department requires the developer to obtain a fire flow test, the developer must submit a ***Fire Flow Test Application*** along with the required fees to PWD Engineering for processing.

2.5.2 Plan Check Submittal Requirements

First Plan Check Submittal Requirements

For processing of the first plan check, the developer shall have an approved conceptual water plan and paid required plan check fees or deposits.

The developer shall submit a complete formal submittal of Water System Improvement Plans or the first plan check process will be delayed.
The developer/engineer shall submit an electronic copy of the plans in PDF and CAD for review and comments. The plans can be emailed to the assigned PWD plan checker.

In general, submittals for Water Improvement Plans shall include the following:

A. A revised Conceptual Plan showing how the project will be served;
B. One (1) print of an approved tentative map;
C. Full name, address, and telephone number of the developer or owner;
D. Name, address, and telephone number of the tract engineer of record and the name of the project engineer representing the firm on the subject project;
E. A plan check fee determined in accordance with the "Palmdale Water District Rules and Regulations";
F. Show all proposed connections to existing PWD distribution system
G. Show all existing and proposed utilities in the proposed project site
H. Copies of any other maps, plans, surveys, fire department requirements, improvements, etc. that will help expedite the preliminary plan check and which will be required by Palmdale Water District prior to approving plans.

Second Plan Check Submittal Requirements

The developer/engineer shall submit the following items for second check for any residential, commercial, or industrial subdivision:

A. Electronic submittal of Revised Water Improvement Plans and tract/parcel map
B. PWD Engineering request developer to pothole fire hydrant, large meter services, and fire service connection points. If the developer/engineer chooses to wait until construction and horizontal and vertical locations are different than shown on plans then developer/engineer are required to make revisions on plans and resubmit for approval before construction continues.
C. Engineer's forecasted demands for domestic and irrigation connections.

If the plans are substantially complete, with only minor revisions remaining, PWD may elect to bypass the third plan check phase to final approval of Water Improvement Plans where the final design plans shall be signed by the developer's Engineer of Record. One electronic (1) redlined set of plan check comments will be returned to the developer's engineer for corrections upon completion of any plan check.

Third and Subsequent Plan Check Submittal Requirements

If significant corrections to the drawings are still needed at the third plan check phase, revisions will be repeated. Minor corrections will be addressed on a case by-case basis and may not require re-submittal.

Additional Plan Check Submittal Requirements

If significant corrections are still required past the third Plan Check Review, additional fees may be charged.

Final Approval of Design Documents

If the development review items are satisfactorily completed, the PWD Engineering Department will notify the developer by telephone and/or email that the final design plans can be produced, and the developer has their Engineer of Record sign the final design plans. The final design plans shall be on bond paper and submitted for District approval by a District Engineer. Once the District Engineer signs the approved plans, it is required of the developer/representative to obtain a licensed and bonded blue printer to submit 3 stapled copies back to the District.

After plans have been approved and filed, changes may be made only upon approval of the District. In order to obtain such approval, the private engineer shall contact the Engineering department to schedule proposed changes. After approval of changes, three prints of the approved revised plans shall be submitted to the District.

If construction operations are not started within twelve (12) months of the date of approval, the plans must be re-submitted for plan check prior to construction. The re-submitted plans will be checked for conformance with the criteria current at the time of re-submittal. The cost of rechecking plans will be paid by the developer as determined above.

The private engineer shall prepare "RECORD DRAWINGS" on prints of the latest revised plans showing clearly all changes in location and elevation of constructed improvement prior to the project being considered complete. These drawings shall show the configuration, manufacturer, and date of manufacture of all valves.

The private engineer shall submit the "RECORD DRAWINGS" to the Engineering department for final inspection and approval. Upon receipt of such approval, the private engineer shall correct and deliver the "as-built" original tracings to the District's Engineering Manager not later than thirty (30) days after receipt of such approval.

A Water Agreement, Performance and Labor and Materials bond might be required for all water improvements that will be considered public after PWD acceptance. The developer executes (signs) the Water Agreement, prepares the bonds, and submits (by mail or hand delivers) the original executed documents to PWD offices located at 2029 East Avenue Q, Palmdale, CA 93550. (Note: This process should be done concurrently when the final design plans are approved and ready to be signed by the developer's Engineer of Record.) The Water Agreement will be signed by PWD officials after the PWD Board approves the Water Agreement and bonds.

2.5.3 Water Meter Installation Process

The customer must complete the ***Water Meter Application***, refer to the District's website, and submit the form along with the fees to PWD Engineering. The meter fees can be paid either by check or credit card. Fees shall be collected before installation occurs. One Water Meter Application is required per account.

PWD furnishes meters but not meter boxes. Meter boxes and lids shall conform to the PWD Standards and Specifications, and be submitted and approved by PWD prior to installation. Refer to Appendix B. Once all required forms are approved and the costs for the meters are paid, the applicant may pick up the material at PWD. A receipt of payment must be provided to pick up meter from PWD. The completed meter installation will include three (3) inspections by PWD: first - meter box; second - meter installation and third - Certificate of Occupancy. If satisfactory, the job will be considered complete. Installation of meter and meter boxes must be performed by a State of California licensed contractor or PWD. If the meter is to be installed by the contractor, the contractor must conform to licensing requirements as defined under Division III, Chapter 9, of the Business and Professions Code of the State of California.

2.5.4 Construction Requirements

After approval of the plans, all fees must be paid prior to scheduling the pre-construction conference, the developer/engineer must forward Materials Submittals to the PWD Engineering Department for review and approval. Submittals can be sent electronically to project manager.

Next, the developer's contractor shall schedule a pre-construction conference with the PWD Engineering department. The developer/contractor must provide certification that the contractor is properly licensed in California and that the developer has adequate

insurance. If the contractor plans to remove asbestos cement pipe (ACP), the contractor must be licensed to handle ACP and provide a proper abatement plan for disposal.

All new public infrastructures will be constructed under direct PWD inspection. See Chapter 4 for detailed inspection requirements.

2.5.5 Project Completion & Acceptance

The water system can be approved for service after the water system has been pressure tested and bacteriological samples have been taken in accordance with AWWA and PWD Standards. When construction has been successfully completed and the final inspections have been performed, the PWD Inspector will notify the developer. The contractor shall submit as-built drawings upon completion of the project (refer to Section 5.10 for details regarding as-built drawings).

Upon the satisfactory completion of construction, acceptance by the PWD Inspector, and submission and acceptance of completed as-built drawings, the facilities shall be conveyed to PWD by means of a properly executed Bill of Sale (BOS.) The BOS shall be accompanied by Cost of Construction Statement (CCS) reporting the actual cost of construction supplied by the developer. Completed items should be submitted to PWD within thirty (30) calendar days of the completion of the final inspection and prior to the release of the final dwelling units along with one (1) "RECORD" set of drawings for the improvement plans and CAD plans on approved electronic media for water plans per PWD CAD Standards. Upon receipt of these items, PWD will approve the release of the bonds posted for construction of the water facilities.

For large tract developments, with long lead times between phases, partial releases of bonds may be allowed after completion of entire phase or tract, solely at the discretion of the PWD under these, or similar circumstances. Requests for a partial release of bonds shall be submitted in writing. Refer to Section 1-21 of the PWD Standard Specifications for additional information regarding the release of bonds.

2.5.6 Expiration of Approved Plans and Plans in Review

Plans will be valid for a period of one (1) year from the date of PWD approval. If construction has not begun within that one-year period, the approval of the plans becomes null and void. In addition, if plans are in review but it takes longer than one (1) year to address redlines by PWD, the plan check process must be reinitiated. In these events, PWD will require that the plans be re-checked, and additional plan check fees be collected. No modifications will be allowed to the development that increases the number of units to be served by the system without prior approval by PWD. Water Service Availability letters will be valid for a period of six (6) months from the date of PWD issuance.

3.0 Design Criteria for Water Facilities

The following sections are design criteria to be used in the design of proposed domestic water systems. The developer and their engineer shall be responsible to ensure that the designs that are submitted are consistent with PWD's Standards, and generally accepted standards of good engineering practice.

3.1 Standard Requirements

The design and construction of all water system facilities to be owned, operated, and maintained by PWD shall be in accordance with the latest editions of PWD Standard Drawings and List of Approved Materials, California Waterworks Standards (Title 22, California Code of Regulations, Chapter 16), PWD Standard Specifications and Details, as well as requirements from the Los Angeles County Fire Department.

3.1.1 Hydraulic Analysis

The PWD will determine on a case-by-case basis if a hydraulic analysis will be required for any proposed water infrastructure improvements. The purpose of this analysis will be to demonstrate fire flow, domestic, and irrigation capacity is met and is concurrent with PWD's infrastructure. In addition, an analysis regarding fire will be subject to fire flow requirements established by Los Angeles County Fire Prevention. The Fire Flow Availability Form will only be issued if all requirements are met per Los Angeles County Fire Prevention.

3.2 NPDES Requirements

The contractor is required to adhere to the provisions of the Federal Clean Water Act as regulated by the U.S. Environmental Protection Agency, Code 40, Code of Federal Regulations (CFR) Parts 122, 123, 124, the Porter-Cologne Act (California Water Code), the Water Discharge Requirements for Municipal Storm Water Discharges (MS-4 Permit) and the City of Palmdale Municipal Code.

3.3 Water System Master Plan

All domestic water system design, including water demands, pressure zones, and system elements, shall be in accordance with the improvements identified in PWD Water System Master Plan, and all other supplements and revisions thereto.

3.4 Water Plans Drawing Format

3.4.1 Drawings - General

PWD performs water plan checks using the Water Improvement Plan Checklist as a guide. Please refer to Appendix B for all required information and call outs necessary for PWD Engineering Department to approve water plans.

All plans submitted to PWD Engineering for plan checking and approval of water facilities shall be submitted either electronically in PDF format, CAD format, or dropped off to the Engineering Department. All plans shall conform to the PWD CAD Standard template. The plans shall also contain the information detailed in the following subsections. Use the following information as a checklist for plan preparation.

The format for Water Improvement Plans shall be in the same format as shown on the PWD Engineering Services website under "Water System Improvement Example Plans."

3.4.2 Sheet Layout

All drawings shall be twenty-four inches by thirty-six inches (24" x 36") in size. Plans should be drawing to a reasonable scale to convey information clearly for plan-checking and construction purposes.

A north arrow shall be clearly shown on all sheets of plans. Indicate sheet number and total sheets on the drawings at the bottom right corner, e.g., Sheet 1 of 3. Each sheet shall have a Standard Title Block including the following: revision block, signature approval, block showing firm name, address, phone number and contact person of firm responsible for work, PWD approval block, PWD logo and address block, block showing project title and sheet name, and block showing drawing number, and sheet number, date, and project number. The plans shall clearly identify the PWD tract number/parcel map number or project name, developer information (name, address, and telephone number).

Provide detail sections for special assemblies and complex connections. The detail shall be drawn to an appropriate scale showing pipe size and shall clearly and fully identify all the parts in the detail.

The engineer shall identify all connections to existing PWD facilities on the drawings.

3.4.3 Title Sheet

The first sheet is the "Title Sheet". The complete list of required information for this sheet is located in the General Plan Check Comments and Criteria Checklist, refer to Appendix C.

1. **Bench Mark:** Bench Mark number, description, elevation, quad, and adjustment year.
2. **Name, address, and telephone number of Engineer and Developer**
3. **Legend**
4. **Vicinity Map**
5. **One Inch=200 Feet Map**: Include all items per **section 1-06, 1), C) of PWD Standard Specifications for Water Distribution System Construction.** (Oversize valve and fire hydrant symbols so they are easily discernable)

6. **General Notes**: Refer to *General Notes for Water System Improvement Plans* and for additional notes refer to *General Construction Notes for Water System Improvement Plans* under the Engineering Services tab on the PWD website.
7. **Additional Notes**
8. **List of Materials**: List of materials must include material item number, description, quantity of each item per sheet, total quantity of each item, and units. (Refer to PWD General Plan Check Comments and Criteria Checklist, Appendix B)
9. **Sidewalk Detail**: A plan view detail showing the back of sidewalk transitioning to provide the required ADA clearance around fire hydrant riser in accordance with COP Std. No. C-6 must be shown on the cover sheet.

3.4.4 Plan and Profile Sheets

Plan and Profile Sheet(s) shall immediately follow the Title sheet. See PWD Plan Check Comments and Criteria Checklist in Appendix C for list of information that should be included at a minimum.

3.4.4.1 Plan View

Plan view sheets shall have a horizontal scale of one inch (1") equals forty feet (40'). All proposed facilities shall be called out in large bold font with type and size of facilities. All existing and proposed utilities (i.e. water, sewer, gas, storm drain, etc.) contained within the public right-of-way of all streets depicted on each sheet. All existing and proposed improvements (i.e.: curb and gutter, sidewalk, cross gutters, structures, etc.) contained within or attached to the public right-of-way of all streets depicted on each sheet.

All driveways, streetlights, storm drains, sewer lines, sewer laterals, sewer manholes, lot lines, lot numbers, street names, street centerlines, street right-of-way, dimensions, identification for all utilities from the title sheet, labelling of valves, stationing, material numbers, join numbers, joint notes, abandonment numbers, abandonment notes, and leaders shall be identified on the sheets.

All connection points, crossings, and appurtenances shall be called out by stationing. Restrained joints shall be clearly marked with stationing.

Easements shall be identified on all plan and profile sheets. All easements shall be clearly depicted and dimensioned.

3.4.4.2 Profile View

Profile view sheets shall have a horizontal scale of one inch (1") equals forty feet (40'), and a vertical scale of one inch (1") inch equals four feet (4'). Profile view(s) shall be included for Water Improvement Plans, or unless otherwise directed by PWD. Profile view(s) shall show all existing and proposed surfaces and utility

crossings over or under proposed facility. Profile view(s) shall align with plan view stationing directly above plan view(s), whenever possible. Stationing shall be shown along bottom of profile at 100-foot intervals and elevations shall be clearly shown on both ends of profile sheet.

All profile types shall show slope of pipeline, restrained joints, stationing of appurtenances and connection points with reference drawings called out.

3.4.5 Detail Sheets

Detail sheet(s) shall follow Plan and Profile sheet(s). See PWD Plan Check Comments and Criteria Checklist in Appendix C for a complete list of information required on Detail sheet(s).

All details shall be accurately scaled when feasible and appropriately cross-referenced to other drawing(s) on the plans. When applicable, PWD Standard Specifications and Drawings shall be included on Detail sheet(s) or referenced appropriately and accurately. The latest edition of the PWD Standard Specifications and Drawings is located on the PWD website.

3.4.6 Required Easements

All easement documents are to be prepared and submitted on the District's approved format and provided along with plans submitted for plan check review.

Prior to the approval of water system plans, the easement documents must be approved as to form. Grant Deeds for easements are required to be executed by the grantor, re-submitted to the District, and have the Affidavit of Acceptance by the District attached to same prior to the tie-in of the water system.

All required easements will be recorded and a Title Insurance Policy for same in the minimum amount of $25,000.00 provided to the District prior to issuance of the Fire System Activation Letter.

If an easement to PWD is required for maintenance and/or replacement of water facilities, the minimum easement width shall be twenty feet (20') for domestic water facilities not within a casing. Deep water lines (deeper than 60 inches or 5 feet of cover) will require wider easements and be determined by doubling the depth from finished ground or finished surface. Easements shall be contained in single lots and shall not straddle lot lines.

3.4.6.1 Easements for Tracts

Easements over lots within proposed tracts are required to allow water mains within cul-de-sacs to loop or connect to water mains within other streets. Please refer to PWD Rules and Regulations for more details regarding Easement requirements to maintain a circulating water system.

One easement sideline shall be coincident with the lot line of the lot or lots traversed by easement. All water mains must be centered within the dedicated easement.

Easements over property adjacent to proposed tracts are required to allow water mains within streets, which end at the tract boundaries, to loop or connect to water mains within other streets.

Alignments shall be determined on a case-by-case basis.

Easements shall be twice as wide as the depth to the bottom of the main at the deepest point within the easement but no less than ten feet (10') overall.
Cross slopes within easements shall not exceed five percent (5%) .

Drainage swales of parallel construction must be located a minimum of five feet (5') from the center of the easement.

3.4.6.2 Easements for Commercial Projects

Easements within project sites to accommodate meters and vaults are required for proposed commercial projects having private on-site systems.

Easement width must abut right-of-way. Easement length must be oriented perpendicular to street centerline.

Easement dimensions must be at least one foot (1') greater than the outside dimensions of the proposed vault.

Drainage and irrigation must be directed away from easement.

One (1) copy of the easement legal descriptions with accompanying sketch or plot and a survey closure report shall be prepared by the developer's State of California licensed surveyor, and submitted with required fees to PWD for review. After review of the submittals mentioned above, PWD Engineering will provide an electronic template in word document of the Grant of Easement title report that is to be included with the easement legal descriptions and survey closure report. Once satisfactory review by PWD has been completed, the developer's project manager shall submit two (2) hard copies of the signed, dated, and notarized Grant of Easement title report, easement legal descriptions, and survey closure report, to be signed and dated by PWD. Easements for facilities that will be transferred to PWD may be shown on the tract or parcel map with the correct certificates for PWD acceptance. The legal description for the easements shall be in a form acceptable to PWD and must be accompanied by a current title report to be checked by the PWD's Engineering Department for accuracy. Dedicated easements must also be shown on the construction plans and the index map, without exception.

Improvement plans for PWD facilities will not be approved until all required easements have been dedicated to PWD along with any necessary re-conveyances or subordination agreements.

Easements twenty feet (20') wide and extending a radius of five feet (5') beyond all fire hydrants, water meter locations will be required unless waived by PWD.

3.4.7 Digital Submission Requirements

All design engineers preparing water improvement plans shall submit drawings in both DWG (drawing) and PDF formats after the design drawings have been approved and signed by the appropriate agencies.

The data will be layered as a minimum into the following features:

A. Existing water lines and appurtenances
B. Proposed water lines and appurtenances
C. Other existing utilities
D. Easement lines, right-of-way lines, and boundary data (boundary and lot lines)
E. Street centerlines and street names
F. Construction notes and labels (callouts)

The coordinate system of data shall be the California State Plane Coordinate System (NAD 83).
Digital files shall be submitted through email, CD, or thumb drive to the PWD Engineering Department.

3.5 Water Improvement Plans-General Criteria

Refer to PWD's Standard Specification for additional information.

1. Water Improvement Plans shall be submitted to PWD in digital format, see Section 3.4 for requirements.
2. Substantiating engineering calculations for demands and pressures shall be provided, if requested by the PWD Engineering Department.
3. Water Improvement Plans shall be prepared in accordance with PWD Standards Specifications, PWD General Plan Check Comments and Criteria, and Section 3 for requirements. The following additional requirements shall be met:
    a. The contractor shall obtain all City and/or County permits prior to the start of construction.
    b. Water mains shall be staked for line and grade and shall be installed subsequent to the installation of the curbs and gutters but prior to surfacing and paving of the streets.

c. Water Mains shall be ten feet (10') from curb of face, five feet (5') horizontal, and one foot (1') vertical separation from other utilities. For sewer, see PWD Standard Drawing W-10.
d. Project shall have two (2) points of connection/sources of supply.
e. All water mains must loop (no dead ends).
f. Valves shall be located at right-of-way and property line prolongations.
g. All easement lines shall be valved at both ends, have no service connection, and must be ductile iron pipe.
h. No valve shall be located within a gutter or other concrete drainage device.
i. High points shall have air/vacuum release valves.
j. No fittings closer than six feet (6') from curb face.
k. All systems will require retaining glands with mechanical joints.
l. No facility is to be backfilled until inspected by the PWD Inspector.
m. Shut down of existing water lines to facilitate connection to existing facilities shall be requested through the PWD Inspector. The shutdown shall be coordinated with the PWD Inspector and conducted exclusively by the PWD crews. No connections to the be PWD existing water system shall be made until the new facilities have been successfully tested, flushed, disinfected, and passed bacteriological testing. All connections to the PWD water system shall be made in the presence of the PWD Inspector.
n. Water services shall be installed behind the curb prior to paving of the street. The services shall be extended to their final location by the developer at a time prior to pressure testing of the water system. Each service will be installed per PWD Standard Detail No. W-1, W-1A, or W-1B.
o. Backflow devices shall be installed for all commercial, industrial, dedicated irrigation and residential services where non-potable water may also be available.
p. Meter boxes shall be installed directly behind the curb whether sidewalk is directly behind the curb or not. Meter boxes installed behind rolled curb shall have traffic lids. No meter boxes shall be permitted within driveways. Refer to PWD Standard Detail No. W-1, W-1A, or W-1B for details.
q. The developer/contractor shall raise all valve boxes to the finished pavement grade upon completion of the pavement. If the surface course of pavement is not completed within a reasonable amount of time after the base course of pavement is completed, the developer/contractor shall raise the valve boxes to the finished grade of the base course so that PWD may operate the valves. The developer shall then raise all valve boxes to final finished grade of the pavement upon completion of the surface

course pavement. **All valves and appurtenances must be accessible to PWD staff at all times.**

r. Hot taps on existing mains shall be approved on a case-by-case basis by the PWD Engineering Department.
s. Plan/project number designated on drawings to be assigned by PWD.
t. Fire hydrants to be located on the same side of the street as the main wherever possible. Blue dots to be placed six inches (6") from centerline toward fire hydrant.

3.6 Pressure Zones

The PWD distribution consists of ten (10) pressure zones. PWD reserves the right to change said pressure zone on the Water Improvement Plans before approving the final design drawings.

3.7 Reservoir Storage

If additional reservoir storage is required for tract developments, refer to the PWD Water Mater Plan for more detailed requirements. Additional storage requirements are based on the maximum day demand (MDD), maximum month demand, and fire flow including maintain required minimum pressure. The minimum volume of required water storage within a pressure zone is the sum of operational or daily storage, fire flow storage, and emergency storage components.

The location of the reservoir storage will be at the sole discretion of PWD. The location of a reservoir is dictated by the hydraulic grade line (HGL) of the pressure zone when the reservoir is empty (base elevation). PWD requires a minimum static pressure of 40 PSI and a maximum static pressure of 100 psi at all points within the development; additionally, PWD requires a minimum static pressure of 20 psi at all points within the PWD service area at the required fire flow for the fire hydrant locations throughout the development.

3.8 Booster Pump Stations

A booster pump station shall be required if a development cannot achieve a minimum of 40 psi static pressure or at the boundary of two (2) pressure zones in which case to pump water from the low pressure zone to the high pressure zone. The booster pump station shall also provide an emergency backup source of water in cases of unexpected booster station outages.

Construction of the booster pump stations shall only move forward once the PWD Engineering Department has approved and signed off on the final design drawings. The PWD Inspectors shall have access to the construction site at all times to verify the project is proceeding per plan. Refer to Chapter 4 for Inspection requirements.

3.8.1 Booster Pump Station Design Criteria

It is the responsibility of the developers' design engineer to submit an appropriate booster station design for approval by the PWD Engineering Department based on location, service area, pressure zone, flow rate and pressure requirements, and operation.

All piping within the pump station shall be sized for total water demand based on total build out capacity for the water service area.

3.9 Pressure Regulating Stations

A pressure regulating station is required if a project is located at the boundary line between two different pressure zones. The pressure regulating station will serve as a backup source of water in case of high demands because of an emergency.

Pressure regulating stations will be site specific. The pressure regulating station design shall be coordinated with the PWD Engineering Department and terms included in the Water Agreement.

3.10 Design System Pressures

The following criteria shall be met for all domestic water systems unless otherwise approved or specified by PWD:

A. Minimum residual pressure at any point in the system shall be 20 psi at maximum day plus design fire flow demands.
B. PWD supplies water at pressure ranging between 40 psi (minimum) to 100 psi (maximum). The owner is solely responsible for regulating the pressure on the customer side of the water meter, (i.e., either decreasing or increasing the pressure to the customer's required level)

3.11 Pipeline Requirements

Water mains shall be installed per the provisions described in the Development Services Procedural Guidelines, PWD Standard Specifications for Water Distribution System Construction and AWWA standards as reference.

No connections to the PWD existing water system shall be made without approved set of plans by PWD Engineering, payment of applicable fees, and pre-construction meeting.

3.11.1 Main Line Sizes

Water mains twelve inches (12") and below shall be Class 350; water mains above twelve inches (12") must be Class 250.

Transmission Mains- The size of a transmission main shall be a minimum of twelve inches (12") in diameter. Transmission mains shall be sized based on a maximum head loss of three feet (3') or less per one thousand linear feet (1,000') of pipe, and in no case shall the design head loss exceed five feet (5') per one thousand linear feet (1,000') of pipe unless specifically approved by the PWD Engineer. All water mains shall have a profile shown on the improvement plans.

Distribution Mains- The minimum size distribution main shall be eight inches (8") in diameter. For distribution mains, the maximum allowable design velocity shall be seven feet (7') per second. New distribution mains will not be allowed to connect to existing transmission mains.

No 10-inch or 14-inch diameter mains will be allowed without specific approval of the PWD Engineering Manager. Unless otherwise specified herein or approved by the PWD Engineering Manager, all water mains must be looped.

Dead-end Mains- No dead-end lines shall be permitted, except at the discretion of the Engineering Manager, and in cased where circulation lines are necessary, they shall be designed and installed by the District as part of the cost of the main extension in accordance with District policy regarding circulating water system set forth in Article 11.02 of the PWD Rules and Regulations.

3.11.2 Design Flows

Design flows shall be based on a demand of an average of 714 gallons per day (gpd) per connection which is referenced in the latest PWD Water System Master Plan. Commercial/Industrial flows shall be calculated based on the developers estimated water demands for the proposed development. The calculation for design flows is used for determining instantaneous water supply and not related to water budgets.

3.11.3 Depth of Cover

Minimum cover (from top of curb) for all water mains shall be forty-two inches (42"). Any cover more than 42-inches shall be approved by PWD Engineering.

3.11.4 Standard Location

Domestic water mains shall be located within public right-of-way or easements dedicated to PWD. Domestic water mains shall be ten feet (10') from curb face per PWD Standard Specifications.

3.11.5 Horizontal Separation Requirements

There shall be a minimum of five feet (5') horizontal separation is required from the outside edge of the water main to the outside edge of any utility parallel construction other than sewer. For separation from sewer see PWD Standard Drawing W-10. Separation other than the Health Department minimums must be approved by PWD.

Pipe joints must be located at least four feet (4') from any crossing utility, edge of gutter (including cross gutters), back of sidewalk, etc. For crossing sewer, see PWD Standard Drawing W-10.

Where water main transitions under a crossing utility, the edges of the closest transition fittings must be no less than five feet (5') from the outside edge of the crossing utility.

3.11.6 Vertical Separation Requirements

There shall be a one foot (1') minimum vertical separation required from outside edge of water main to the outside edge of any utility crossing the water main. For crossing sewer, see PWD Standard Drawing W-10.

3.11.7 Looped System Requirements

Each project or development shall have at least two (2) connections to water lines in different streets to form a looped water system. Non-looped systems will not be permitted unless specific written authorization in writing is granted by the PWD Engineering Manager. Refer to PWD's Rules and Regulations for further requirements.

3.12 Pipe Material and Appurtenances

A. All public water mains shall be ductile iron pipe unless directed by PWD staff. For large services and fire services, cement mortar lined and coated (CMLC) steel pipe shall be used. A list of manufacturers can be found in the PWD List of Approved Materials. See Appendix B.
B. Thrust blocks shall conform to PWD Standard Drawing No. W-4.
C. Restrained joints shall be designed based on the PWD Standard Specifications and Details. Restrained joints shall be approved case-by-case basis by PWD Engineering Manager.

Refer to PWD Standard Specifications for further details and additional requirements.

3.13 Fire Flow Requirements

Fire flow requirements will be determined by Los Angeles County Fire Department. Any plan submitted for plan check must have been reviewed by the Fire Department.

3.13.1 Reduced Pressure Principle Detector Assembly (RPDA)

A fire service must have a Reduced Pressure Principle Detector Assembly (RPDA) with bypass meter shown on PWD Standard Drawing W-24.

3.14 Fire Hydrants

Fire hydrants shall be installed in accordance with PWD's Standard Drawing Nos. W-2, W-2A, W-3, W-3A and the following requirements.

3.14.1 Types of Fire Hydrants

All fire hydrant assemblies shall be wet barrel and be six (6") x four (4") inches by two and one-half inches (2-1/2"). Types and configurations are specified in PWD's Standard Specifications for Water Distribution System Construction and "List of Approved Materials", both documents can be found on PWD's website.

3.14.2 Location of Fire Hydrants

Locations of fire hydrants in public right-of-way shall be to the satisfaction of PWD, Los Angeles County Fire Prevention, City of Palmdale, and shall be accessible at all times. Fire hydrant standards shall conform to the following criteria:

A. On distribution mains rather than transmission mains unless otherwise specified or approved by PWD.
B. On the side of the main nearest to the street right-of-way line, subject to approval by PWD.
C. Five feet (5') from the beginning of the curb return at intersections.
D. On the prolongation of a lot line, but a minimum of five feet (5') from the edge of any driveway, streetlight, underground utility vaults or other similar obstructions.
E. A minimum horizontal clearance of 24-inches from the face of curb, with the four inch (4") pumper outlet perpendicular to the curb face.
F. A minimum horizontal and vertical clearance of thirty-six inches (36") around operating nuts and protective caps, with the hydrant flange mounted at least 4 inches above finished grade.
G. Any hydrant located behind the sidewalk shall be set in a three feet by three feet by six inch (3' x 3' x 6") concrete pad. Where a curb is not present, barricades will be required.
H. Any hydrant shall be in locations that minimize damage from traffic.

3.14.3 Spacing of Fire Hydrants

The required spacing of fire hydrants in public right-of-way shall be subject to the approval of the Fire Department. Spacing in private water systems shall be subject to the approval of the Los Angeles County Fire Prevention. The following guidelines for maximum spacing of hydrants are presented for normal installations:

All on-site fire hydrants and fire protection supply mains for commercial/industrial developments shall be private and shall be owned, operated, and maintained by the property owner.

3.15 Water Services and Meters

In general, a single domestic service connection to each individual parcel is required. Commercial and multi-family are able to obtain large meters but must be approved by the PWD Engineering

Department. This includes apartment buildings within an apartment complex, condominiums, commercial/industrial buildings.

The size of service shall be determined by the developer's engineer and approved by PWD Engineering Department. The location of service shall be on the address side of the street.

For any construction project, the duration for a temporary fire hydrant meter shall be limited to six (6) months. If the duration exceeds the 6-month limit, a permanent metered service shall be required. Unless requested in writing to exceed six (6) months.

3.15.1 Water Service and Location of Service Lines

Water services shall be installed in accordance with the latest PWD's Standard Drawings and the following requirements:

A. All service lines shall be in accordance with PWD Standard Drawing Nos. W-1, W-1A, and W-1B.
B. All commercial, irrigation, and industrial water services shall be submitted to PWD for review and approval. Plans shall be submitted in accordance with PWD Standard Drawings.

3.15.2 Water Meters

Every service connection shall be metered. All water meters shall be purchased from PWD, subsequent to payment of applicable fees. Water meters shall be installed by developer's representative under PWD Inspection.

3.16 Water Valves

Valves shall be installed per PWD Specifications and Standard Drawings, and American Water Works Association (AWWA) Standards. Refer to PWD Standard Specifications for installation details.

3.16.1 Types of Valves

Unless otherwise specified, no gate valves larger than ten inches (10") shall be used. All main line water valves shall be resilient wedge gate valves. Gate valves shall conform to the "*AWWA Standard for Reduced Wall, Resilient-Seated Gate Valves for Water Supply Service*" ANSI/AWWA C509. Valves supplied shall be resilient seated wedge, with O-ring seals, non-rising stems, two-inch (2") operation nut, opening left.

Valve ends shall conform to AWWA standard; flanged ends per AWWA C110/A21.10-12, Ductile Iron and Gray Iron Fittings of latest revision, as required for steel pipe; or mechanical joints as required for ductile iron and polyvinyl chloride (PVC) pipe.

Valves shall be suitable for buried service and horizontal mounting. Valves shall be adequately anchored for thrust in accordance with the requirements of these specifications and as shown in the Standard Drawing W-4.

Valves twelve inches (12") and larger shall be butterfly type in accordance with PWD Standard Specifications. Butterfly valves, if shown on the plans, shall meet AWWA C504-15, Rubber-Seated Butterfly Valves of latest revision for rubber seated, tight closing valves. Valves shall be flanged-pattern short body, and shall be cast iron, shaft, or stainless steel 18-8 Type 304, disc of Ni-Resist Type 1. They shall be Class 150 unless noted on the plans. Valve operators shall be waterproof, suitable for buried service and equipped with a two inch (2") square operating nut.

Approved valve manufacturers are specified in the PWD "List of Approved Materials"

3.16.2 Location of Valves

There shall be at least three (3) valves at a 3-way intersection of any water mains; at least four (4) valves at the 4-way intersection of any water mains. Valves on distribution mains all be spaced a maximum of 1,000 feet apart so that no more than three fire hydrants would be taken out of service at one time. Unless specifically approved by PWD, the maximum allowable spacing for intermediate valves on transmission mains is 1,200 feet.

In no event shall any valve be installed within a gutter or other concrete draining device.

All fire hydrant laterals shall have an isolation valve. The isolation valves at all intersections as described herein shall be flanged to the main line tee or cross unless otherwise approved by PWD.

The final determination of the locations of all valves shall be subject to the approval of PWD.

3.17 Blow-offs and Combination Air and Vacuum Relief Valves

Blow-offs shall be installed at any point along the main where either the flow velocity or the slope of the main cause sediment to settle. Blow-offs shall normally be installed at all low points in transmission mains. Blow-offs shall be installed at any other location specified by PWD to assure the capability of complete flushing of a main. Size recommendations for blow-off assembles shall be designed per PWD Standard Specifications.

Combination air and vacuum relief valves shall be installed at all high points in water mains and at siphon-type crossings where air is isolated. Recommended sizing for combination air and vacuum relief valves shall be designed per PWD Standard Specifications.

3.18 Cross-Connection Regulations

Refer to PWD's Standard Specifications, PWD's Rules and Regulations or the Cross-Connection page on our website.

4.0 Inspections

All water main and water appurtenance construction activities shall be subject to inspection by PWD and shall be left uncovered until approved by the PWD Inspector. The Contractor shall not proceed with any subsequent phase of work until the previous phase has been inspected and approved by PWD.

The contract shall notify the PWD Inspector at least four (4) working days before construction begins and 24 hours prior to any work through the duration of the project.

4.1 Water System Inspections - General

Inspection and approval shall be obtained during and/or at the completion of the following portions of work, as determined by PWD:

A. Trench excavation and pipe bedding installation
B. Hot tap
C. Placing pipe, fittings, and structures, including identification tap on non-domestic water main and service lines
D. Placing of all concrete anchors, thrust blows, and restrained joints
E. Placing and compacting the pipe zone backfill
F. Backfilling balance of trench to grade. Compaction test to be performed by an PWD representative at contractor's expense or by private soils consultant retained by contractor and approved by PWD. Copies of test results shall be given to PWD by contractor for approval before final acceptance of work
G. Pressure testing of all mains and services
H. Disinfecting, sampling, and flushing of pipelines
I. Repaving trench cuts
J. Raising valve box covers to finished grade
K. Installation of service lines, meter boxes, water meters, and backflow prevention devices.

4.2 PWD Staff Authority

PWD Engineering Staff shall have access to the work at all times during construction and shall be furnished with every reasonable facility for ascertaining full knowledge of the progress, workmanship, and character of materials used and employed in the work. No pipe, fittings, or other material shall be installed or backfilled until inspected and approved by the PWD Inspector. The contractor shall give due notice in advance of backfilling to the PWD Inspector so that proper inspection may be provided.

Inspection of the work shall not relieve the contractor of any obligations to complete the work as prescribed by PWD Standards. Any defective work shall be corrected before testing or final

inspection. Unsuitable materials may be rejected even if these materials have been previously overlooked by the PWD Inspector.

The PWD Inspector shall have the authority to suspend the work completely or in part for such time as it may deem necessary if the contractor fails to provide a safe work zone, carry out inspections given by the PWD Inspector, or to perform any required provisions of the plans and specifications. The contractor shall immediately comply with a written order from the PWD Inspector to suspend the work completely or in part. The work shall resume when improper methods or defective work are corrected as ordered and approved in writing by the PWD Inspector.

4.3 Water Service Prior to Acceptance

New water facilities installed in phased tract developments (more than one phase) will not be accepted and approved for operation until each phase of the development's water system is properly looped and approved for operation by the PWD Inspector. Subsequent phases of the water system cannot be started for construction until the above conditions are met.

PWD may approve putting newly installed water facilities into service after compaction has been approved by the PWD Inspector and the portions have been pressure tested, flushed, and potable water mains have passed the bacteriological tests. This partial acceptance shall be granted only upon written request from the developer and subsequent approval by PWD. Upon this written approval for partial acceptance of facilities, the developer shall be relieved of the duty to maintain the portions so used or placed into operation provided; however, that nothing in this section shall be construed as relieving the developer of full responsibility for completing the work in its entirety, for making good of any defective work and materials, for protecting the work from damage, and for being responsible for damage and for work as set forth in the Agreement, and other contractual documents; nor shall such action by PWD be deemed completion and acceptance, and such action shall not relieve the developer of the guarantee provisions of the Agreement with PWD.

4.4 Final Water Facilities Inspection

Before final acceptance, the PWD Inspector will make a final inspection of all work, accompanied by the contractor's superintendent or foreman, to verify that:

A. All phases of the job are complete in accordance with plans and specifications.
B. Valve boxes are raised to finish grade and that all repairs are complete
C. Service lateral locations have been marked on curbs and the PWD Inspector has been given all reference measurements
D. Right-angle meter stops, meters, and customer service valves are properly positioned and meter boxes are positioned and raised to proper grade and meters installed

E. Backflow devices have been inspected and tested
F. Fire hydrants are raised to proper grade, are in a vertical position, painted, and concrete pads are properly installed
G. Backfill has passed all compaction testing
H. System valves are turned and left open (except those specifically required to be normally closed), turns required for complete open/close cycle are recorded on the as-built drawings
I. Domestic water lines have been chlorinated, bacteriologically sampled, pressure tested and flushing have been completed
J. The job site is clean and cleared of all contractor's equipment and materials

4.5 Interpretation of Specifications and Standard Drawings

Figure dimensions of the drawings shall govern but work not dimensioned shall be directed in this section. Work not particularly shown or specified shall be the same as similar parts that are shown or specified or as directed. Full size details shall take precedence over scale drawings as to shape and details of construction. Specifications shall govern as to material. Scale drawings, full-size details, and specification are intended to be fully cooperative and to agree; but should any discrepancy or apparent difference occur between the plans and specifications or should errors occur in project being constructed by others affecting the work, and the contractor proceeds with the work affected without instruction from PWD, the contractor shall be fully responsible for any resultant damage, defect, and replacement of facilities affected. The contractor is advised to report any discrepancy between plans and specifications to the PWD Inspector.

4.6 Release Given to Public Works Department

After final inspection requirements have been fulfilled, PWD will work with the City of Palmdale to facilitate the release of the developer's bonds for water improvement. A single unit of the development, to be agreed upon by the developer and the PWD Inspector, shall be held and not released for occupancy until all items on the punch list for final acceptance have been completed to the satisfaction of the PWD Inspector.

APPENDIX A
LIST OF APPROVED MATERIALS

LIST OF APPROVED MATERIALS

Meter Installation

All water meters will be supplied by PWD at the contractors' expense. Acceptable manufacturers are listed below. ***No other substitutions will be allowed.***

Description	Approved Manufacturer/Stock Number
(Size of main) x (Service line size) Double Strap Malleable Iron Saddle with Pipe Thread	Smith-Blair Or Approved Equal
Meter Boxes	¾" Meters: 12"x20"x12" Armorcast Meter Box No. A6001419X12 w/ Armorcast Cover w/ Hinged Reading Lid No. A6000484R 1" Meter: 12"x20"x12" Armorcast Meter Box No. A6001946PCX12 w/ Armorcast Cover w/ Hinged Reading Lid No A6001866R Or Approved Equal
Corporation Stop, Ball Style MIP x Comp	Jones No J-1935 Or Approved Equal
Angle Ball Meter Valve (Angle Stop)	¾" and 1" Ford No. BA43-232W-G-NL Or Approved Equal
	1 ½ " and 2" Jones No. E-1975W Or Approved Equal
Polywrap-C (6Mil, use applicable size)	Northtown Or Approved Equal
Neptune Water Meter	Neptune
Meter Coupling (Iron Pipe Thread by Meter Swivel Nut)	¾" and 1" Jones E1908 Mueller B24351N Or Approved Equal
	1 ½ " and 2" Jones E129
Type "K" Softer Copper Tubing	Mueller Cerro Cambridge Lee

Combination Air Valve Assembly

Description	Approved Manufacturer/Stock Number
(Size of main) x (Service line size) Double Strap Malleable Iron Saddle with Pipe Thread	Ford-202B Series Or Approved Equal
Corporation Stop, Ball Style MIP x Comp	Use Applicable Size Jones No J-1935 Or Approved Equal
Type "K" Softer Copper Tubing	Mueller Cerro Cambridge Lee
Combination Air Release Vacuum Release Valve	A.R.I. D-040
Curb Valve	Jones-E1949SG Mueller- B25209N Or Approved Equal
Brass Gate Valve	Nibco Or Approved Equal
Air Release Valve Enclosure	A.R.I Valve Enclosure Or Approved Equal

Backflow and Reduced Pressure Devices

Description	Approved Manufacturer/Stock Number
Reduce Pressure Devices up to 2"	Wilkins 975XL2 Or Approved Equal
Reduce Pressure Devices 3" or Larger	Febco LF880V Or Approved Equal
Double Detector Check Backflow Assembly	Febco LF876V or LF886V

Ductile Iron Pipe and Fittings

Description	Approved Manufacturer/Stock Number
Ductile Iron Pipe- *Double Cement lined only* Class 350 for line size up to 12" Class 250 for line size 14" and above	McWane Pacific States Griffin American Pipe Or Equal
12 mil Polyethylene Wrap & 10 mil Tap	Northtown Christy's
Pipe Restraints	Mechanical Restraints Megalug by Ebba Iron, Inc. or Equal Push on Restraint Ebba Iron, Inc. or Equal
	Restraint Joint Gasket McWane Romac
Ductile Iron Fittings *Flange and Mechanical Joint fittings only*	Ebba Iron, Inc. or Approved Equal
Mechanical Tapping Sleeves	Mueller H-615 or Approved Equal
Flange Insulation Kits (rubber-coated gasket kits)	Calpico, Inc. or Approved Equal

Cement Mortar Lined and Coated Steel Pipe and Fittings

Description	Approved Manufacturer/Stock Number
Cement Mortar Lined and Coated Steel Pipe AWWA C205-12	Southland Pipe Corporation Imperial Pipe or Equal
Cement Mortar-Coating AWWA C205-12	Southland Pipe Corporation Imperial Pipe or Equal
Joints: -Rubber Gasket Joints (SS-P-385) -Lap Welded Field Joints (AWWA C206-11) -Flanged Ends (AWWA C207-13)	Southland Pipe Corporation Imperial Pipe or Equal
Steel Pipe Fittings All fittings for mains 12 inches or smaller shall be Class 150 or Class 250 9 (AWWA C207-13)	Southland Pipe Corporation Imperial Pipe or Equal
Mechanical Tapping Sleeves	Mueller H-615 or Approved Equal

PVC Pipe and Fittings

Description	Approved Manufacturer/Stock Number
PVC Pipe C-900 AWWA C900-07	North American Pipe Corp Or Equal
Mechanical *Shall meet Uni-B *Gland shall be Ductile Iron (ASTM A536-80)	Megalug by EBBA Iron, Inc. or Approved Equal
Push On Restraint	Harness: EBBA Iron, Inc. or Approved Equal
Ductile Iron Pipe Fittings ANSI/AWWA C110/A21.10-12 Class 350	Megalug by EBBA Iron, Inc. or Approved Equal
Identification Wire	Duet Industries or Approved Equal
Underground Marking Tape	Terra Tape Extra Stretch 540 or Approved Equal
*Connections to PVC Pipe	Jones Model NO. J-969 or Approved Equal (Bronze service saddle set with double stainless-steel straps)
Mechanical Tapping Sleeves	Mueller H-615 or Approved Equal

Valves and Related Items

Description	Approved Manufacturer/Stock Number
Resilient Wedge Gate Valve- up to 10" Ductile iron, epoxy coated interior and exterior body To meet AWWA C500-09, or AWWA C509-09 Flange to Flange fitting only 2" operating nut	Mueller Stockham Clow Kennedy A.P. Smith American Or Approved Equal
Butterfly Valve- up to 12" Cast Iron To meet AWWA C504-15, or AWWA C509-09 Rubber-Seated Flange to Flange fitting only 2" operating nut	Mueller Stockham Clow Kennedy A.P. Smith American Or Approved Equal
Check Valves (Seat rings shall be replaceable-either Viton or Teflon)	Prince Cushion Valves Apco Cushioned Check Valves Or Approved Equal

Check Valves (2-1/2" and smaller)	Walworth or Approved Equal
Plug Valves	Rockwell Dezurick or Approved Equal
Tapping Valves	Mueller A.P. Smith Clow Or Approved Equal
Steel Valve Stem Extension	Pipeline Products- SX Zinc rich powder coat finish
Valve can riser	8" Blue Brute C-900 Or approved AWWA C-900 equal

Fire Hydrant Assemblies

Description	Approved Manufacturer/Stock Number
6" Wet Barrel Fire Hydrant *Must have one (1), 4" port and two (2), 2 ½" ports* All hydrants must conform to AWWA C503	Clow-Model 850 or Equal
Fire Hydrant Paint (One (1) coat of red primer and two (2) finish coats	Rust-Oleum Safety Yellow or Approved Equal

4-Inch Blow Off Assembly

Description	Approved Manufacturer/Stock Number
Wharf Head 4" x 2 1/2"	Jones Model No. J-344 H.P. Or Approved Equal

Transition Couplings

Description	Approved Manufacturer/Stock Number
Specially made long flange coupling adapter to fit on AC (913) (914) style with minimum 12”-18” length	Smith Blair Romac Dayton Or Approved Equal
Flexible Couplings (Stainless-steel nuts and bolts and be either stainless-steel bodies or all epoxy lined and coated	Smith-Blair Baker Or Approved Equal
Clamp Mechanical Couplings	Victaulic Company of America Gustin-Bacon Or Approved Equal

Other Materials

Description	Approved Manufacturer/Stock Number
Ring Flange Gasket *For below ground installation use non-asbestos paper* *For above ground installation use threaded flange rubber*	 NFS-61 Approved for paper ASTM Approved for Rubber
Nuts and Bolts Sets *Must be 316 SS bolts with Blue Coated Nuts*	 Tripac
Sampling Station	Kupferle Model #66 or Approved Equal
Tapping Sleeves (may only be used under approval of PWD Engineer) *Must be all stainless steel to include flange*	PVC (C-900), Ductile Iron, and Asbestos Concrete sleeves shall be: Mueller H-615 or Equal
Large Meter Vault Polymer/fiberglass blend vaults Cast-in-place and concrete block vaults to be approved by PWD Engineer	 Jensen Pre-Cast Or Approved Equal

APPENDIX B

PALMDALE WATER DISTRICT

WATER DISTRIBUTION SYSTEM IMPROVEMENT PLANS

GENERAL PLAN CHECK
COMMENTS AND CRITERIA CHECKLIST

SEPTEMBER 2021

WATER SYSTEM IMPROVEMENT PLAN CHECKLIST

The PWD Engineering department will follow the provided checklist below when performing water system improvement plan checks. All information below must be included in water plans for PWD approval, unless it is not applicable.

For all inquiries associated with the plan check process, please contact PWD Engineering Department at 661-947-4111.

Table of Contents

GENERAL PLAN CHECK COMMENTS AND CRITERIA CHECKLIST

WHAT MUST BE SHOWN (*ALL SHEETS*)

☐ **TITLE BLOCK**
Include Palmdale Water District Water System Improvements, sheet number, number of sheets, description of content, or extent of improvements on sheet (i.e.: mat'l list, gen. notes, benchmark, vicinity map, etc.; or Avenue R-12 from 1+00.00 to 12+52.75, etc.)

☐ **REVISION BLOCK**

☐ **P.W.D. APPROVAL BLOCK**

☐ **P.W.D. WATER SERVICE MAP PAGE NUMBER**

☐ **TRACT NUMBER, PARCEL MAP NUMBER, OR PROJECT NAME**

☐ **ENGINEER INFORMATION**
Name, address, telephone number, stamp, signature, and expiration date

☐ **DEVELOPER INFORMATION**
Name, address, and telephone number

☐ **NORTH ARROW**
One north arrow per plan view map, drawing, or detail depicted on each sheet

☐ **SCALE**

- One scale per plan view, drawing, or detail depicted on each sheet.
- All plan view drawings, except details must be 1" = 40'.
- One scale per profile view, drawing, or detail depicted on each sheet.
- All profile view drawings, except details, must be 1" = 40' (horizontal) and 1" = 4' (vertical).

WHAT MUST BE SHOWN (COVER SHEET)

☐ **BENCHMARK**
Benchmark number, description, elevation, quad, and adjustment year

☐ **LEGEND**

☐ **VICINITY MAP**

☐ **ONE INCH = 200 FEET MAP**
- Include all items per section 1-06, 1), c) of PWD Standard Specifications for Water Distribution System Construction.
- Oversize valve and fire hydrant symbols so they are easily discernable.

☐ **GENERAL NOTES**
Refer to **suggested form of general notes** handout

☐ **ADDITIONAL NOTES**
Include applicable notes from **general construction notes** handout.

☐ **LIST OF MATERIALS**
List of materials must include material item number, description, quantity of each item per sheet, total quantity of each item, and units.

Material list descriptions must include size, type, configuration, material type, class, and lining information, as well as reference to standard drawing, if applicable. The following are examples of typical material list descriptions:

- 8" MJxFLG TEE, DI, CL 350, DCML
- 12" DIP,CL 350, DCML
- FH ASSY PER PWD STD W-2A
- 8" MJxFLG GV,CL 150, W/VALVE BOX PER PWD STD W-5
- 16"x 8" KOPPL CN-120 WELD-ON NOZZLE W/FLG'D OUTLET
- 12" FLG INSULATION KIT
- 12" MJxFLG ADAPTER, DI, CL 350, DCML
- 16" FLG'D BFV, CL 150, W/VALVE BOX PER PWD STD W-5
- 1" AIR/VAC PER PWD STD W-16
- ¾" METERED SERVICE PER PWD STD W-1
- 12" STL PIPE, 10 GA, CMLC
- 12" FLG'D 90º ELBOW, STL, CMLC

*Refer to **sections 2 and 3** of **PWD Standard Specifications for Water Distribution System Construction** for pipeline materials, valves, fire hydrants, and appurtenances.*

☐ **SIDEWALK DETAIL** (A plan view detail showing the back of sidewalk transitioning to provide the required A.D.A. clearance around fire hydrant riser in accordance with COP Std. No. C-6 must be shown on the cover sheet.)

WHAT MUST BE SHOWN (PLAN VIEW)

☐ **UTILITIES**
All existing and proposed utilities (i.e.: water, sewer, gas, storm drain, etc.) contained within the public right-of-way of all streets depicted on each sheet.

☐ **IMPROVEMENTS**
All existing and proposed improvements (i.e.: curb and gutter, sidewalk, cross gutters, structures, etc.) contained within or attached to the public right-of-way of all streets depicted on each sheet.

☐ **DRIVEWAYS**
All driveways within all streets depicted on each sheet.

☐ **STREETLIGHTS**
All streetlights within all streets depicted on each sheet.

☐ **SEWER LATERALS**
All sewer laterals within all streets depicted on each sheet.

☐ **SEWER MANHOLES**
All sewer manholes within all streets depicted on each sheet.

☐ **LOT LINES**
All lot lines for all lots fronting all streets depicted on each sheet.

☐ **LOT NUMBERS**
All lot numbers for all lots fronting all streets depicted on each sheet.

☐ **STREET NAMES**
All street names for all streets depicted on each sheet.

☐ **EASEMENTS**
- All easements to PWD contained within lots or parcels depicted on each sheet.
- All easements to PWD over adjacent property depicted on each sheet.
    - Refer to **easements to PWD** on sheet 12 for additional information.
- All easements to others, contained within streets or lots depicted on each sheet which may conflict with district facilities or easements.

☐ **STREET CENTERLINES**
All street centerlines within all streets depicted on each sheet.

☐ **STREET RIGHT-OF-WAY**
All right-of-way lines for all streets depicted on each sheet.

WHAT MUST BE SHOWN (PLAN VIEW CONTINUED)

☐ **DIMENSIONS**

- Dimensions, measured from street centerline, for all existing or proposed utilities or improvements within all streets depicted on each sheet.
- Dimensions (including overall and from main line to Pl or sideline) for all easements depicted on each sheet.
- Locate or place dimensions where they will not create clutter or confusion.

☐ **IDENTIFICATION**

- Identification, utilizing line type from cover sheet legend, of all utilities and improvements contained within all streets or easements depicted on each sheet.
- Identification, on each sheet, utilizing size and type (i.e.: 12" BFV, 8" GV, etc.) of all valves necessary to perform a planned or emergency shutdown.
- Identification, on each sheet utilizing size and type (i.e.: 8" VCP, 24" RCP, 4" Stl, 12" DIP, etc.) of all existing and proposed utilities including sewer, storm drain, gas, etc. depicted on each sheet. (Orient this information parallel to utility identified.)
- Identification of easements to PWD
- Locate identification information in a manner that does not create clutter or confusion.

☐ **LABELLING**

Labeling of all valves necessary to perform a planned shutdown (i.e.: gate valve, butterfly valve," etc.)

☐ **STATIONING**

- Station plans relative to street centerline in accordance with related Street Plans except through easements or along knuckle centerline curves. Within knuckles, station relative to projection of street centerline. Within easements runs, station relative to water main.

- Provide stationing for all centerline intersections, cul-de-sac radius points, and projected centerline intersections of knuckles, etc.

- Provide stationing for proposed main line valves, fittings, air/vacs, angle points, commercial services, and tie-in points if their location cannot be determined by required street dimensions.

- Provide stationing for existing valves necessary to perform a planned or emergency shut down if their location cannot be determined by required street dimensions.

- Provide station equations at centerline intersections where stationing is required to locate valves, shown on intersecting streets, for planned or emergency shutdowns.

WHAT MUST BE SHOWN (PLAN VIEW CONTINUED)

☐ **WATER SYSTEM IMPROVEMENTS**

- All existing valves, main line, and appurtenances contained within all streets depicted on each sheet.
- All existing valves necessary to perform a planned or emergency shutdown.
- Depict existing water system improvements with dashed lines and empty symbols.
- All proposed valves, fittings, tapping nozzles or sleeves, mainline and appurtenances, contained within all streets, or easements depicted on each sheet.
- Depict proposed water system improvements shown as to be constructed per other sheets with dashed lines and empty symbols.
- Depict proposed water system improvements shown as to be constructed per a particular sheet with solid lines and filled symbols on that sheet.
- Utilize consistent line weight, shade, symbol size and shape to represent water system improvements throughout plans.
- All reduced pressure detector assemblies or compound meters, vaults, and reduced pressure back flow devices proposed for commercial projects on the sheet depicting the location of said facilities. Refer to detail drawings on sheets 13 and 14 for required additional drawings.

☐ **MATERIAL NUMBERS**

- Encircled material numbers are required to identify all main line valves, fittings, tapping nozzles or sleeves, and appurtenances shown as to be constructed on each sheet. Grey scale encircled numbers are required to identify main line material, constructed per other sheets and joined, at the beginning or end of the plan view drawing.
- Material numbers (1, 2, 3, etc.) should be attached to leaders and arranged or strung vertically at each location, from top to bottom, in construction order.

☐ **JOIN NUMBERS**

- Join numbers are required to identify locations where proposed water system improvements (i.e.: main line, fire hydrants, large meter services, or R.P.D.A.s) will join existing water main and to reference join notes.
- Join numbers (J1, J2, J3, etc.) should be contained within hexagonal symbol and attached to the end of the related material number string. The identical number and symbol should appear next to the referenced note.

☐ **JOIN NOTES**

- Join notes are required to describe manner and order of work necessary to join proposed water system improvements to existing water main (i.e.: Hot Taps, Drop-Ins, etc.) The following are examples of join notes:
- Under District supervision hot tap exist. 12” D.I.P and join with material shown.
- After testing, disinfection and District personnel have closed all valves necessary to isolate the proposed join. Under District supervision, remove existing 12” blind flange and join existing 16”x12” cross with material shown. Shut down not to exceed two hours.

WHAT MUST BE SHOWN (PLAN VIEW CONTINUED)

☐ **ABANDONMENT NUMBERS**

- Abandonment numbers are required to identify locations where existing water system improvements will be abandoned after activation of proposed system.
- Abandonment numbers (A1, A2, A3, etc.) should be contained within a hexagonal symbol and attached to the end of the material and or join number string, if any. Otherwise, it should be attached to the leader.

☐ **ABANDONMENT NOTES**

Abandonment notes are required to describe the manner and order of work necessary to abandon existing water system improvements rendered obsolete by the proposed system.

☐ **LEADERS**

- Leaders are required for all items depicted on each sheet that require stationing, material numbers, join numbers, abandonment numbers, or descriptions.
- Orient leaders on each sheet (vertically) perpendicular to main line shown as to be constructed with that sheet.
- Leaders for tees or appurtenances should extend from the main line in the opposite direction of the branch or appurtenance (except services).
- Leaders for services should be shown in one or two places per sheet and should extend from the meter toward the lot it serves.
- Arrange leaders and all info attached thereto in a manner that does not create clutter or confusion. (i.e.: Spread out and/or lengthen leaders to create more room. Do not cross leaders over each other.)

WHAT MUST BE SHOWN (PROFILE VIEW)

☐ **EXISTING GROUND**

Plot existing ground, in the horizontal alignment of the water main, in all profile views.

☐ **REFERENCE PROFILE**

- Reference profiles are required for all plan view drawings showing main line to be constructed on each sheet.
- Within streets use top of curb closest to the proposed water main as the reference profile.
- Where main line tees into the main line of a connecting street provide additional profile of finish surface in the horizontal alignment of the water main.
- Within easement runs use finish surface over the horizontal alignment of the water main as the reference profile.
- It should be noted that finish surface over the main within the lot is not the same as the pad elevation due to the proximity of the side yard drainage swales and overall drainage of the lot.

WHAT MUST BE SHOWN (PROFILE VIEW CONTINUED)

☐ **STATIONING**

- Refer to **stationing** on sheet 5 for basis of stationing.
- Provide stationing at the beginning and end of the reference profile and at points on the reference profile where the water main transitions from 42" below top of curb.
- Provide stationing at the beginning and end of the water main profile and at all points on the water main profile necessary to fully define the vertical alignment of the main where it deviates from 42" below top of curb.
- Provide stationing for x-ing utilities which do not obviously meet the minimum one foot (1') separation from the water main.
- Provide reference stationing.

☐ **IDENTIFICATION**

Identify reference profile, all stationed points on the reference profile, and mainline grade breaks.

☐ **ELEVATIONS**

- Provide elevations for all points on the reference profile that require stationing.
- Provide top of pipe elevations on the water main profile at all points necessary to fully define the vertical alignment of the main where it deviates from 42" below top of curb.
- Provide elevations for x-ing utilities which do not obviously meet the minimum one foot (1') separation from the water main.
    - Top of pipe elevations for utilities crossing under water main.
    - Bottom of pipe elevations for utilities crossing over water main.
- Provide reference elevations for all profile view drawings.

☐ **SLOPES**

Provide slopes for proposed water main depicted on each sheet where top of main deviates from 42" below reference profile.

☐ **WATER SYSTEM IMPROVEMENTS**

- All existing main line valves and fittings or mainline depicted in the related plan view at or near proposed points of connection.
- Depict existing water system improvements with dashed lines and empty symbols.
- All proposed main line valves, fittings, tapping nozzles or sleeves, air/vacs, and main line shown in the related plan view as to be constructed with that sheet.
- Depict proposed water system improvements shown as to be constructed per other sheets with dashed lines and empty symbols.
- Depict proposed water system improvements shown as to be constructed per a particular sheet with solid lines and filled symbols on that sheet.
- Utilize consistent line weight, shade, symbol size and shape to represent water system improvements throughout plans.

Refer also to **detail drawings** on sheets 13 and 14

WHAT MUST BE SHOWN (PROFILE VIEW CONTINUED)

☐ **CROSSING UTILITIES**

☐ **LEADERS**

- Leaders are required for all items depicted on each sheet that require stationing or description.
- Orient leaders on each sheet vertically.
- Locate reference profile leaders above reference profile.
- Locate leaders for water system improvements below water main.
- Locate leaders for x-ing utilities above the utility if it crosses above the water main or below the utility if it crosses below the water main.
- Arrange leaders and all information attached thereto in a manner that does not create clutter or confusion. (i.e.: Spread out and or lengthen leaders to create more room. Do not cross leaders over each other.)

WATER SYSTEM IMPROVEMENT LOCATIONS

☐ **WATER MAIN**

(Horizontal Location)
Within streets water mains are to be located at ten (10) feet from the curb face except through localized horizontal curb transitions such as right turn pockets, knuckles, or cul-de-sacs.

Within easements water mains are to be centered.

(Vertical Location)
Within streets, top of water main is to be located forty two (42) inches below top of curb wherever practicable.

Within easements, top of water main is to be located a minimum of forty two (42) inches below finish surface. high points, if any, should be located near to public right-of-way.

☐ **MAIN LINE VALVES**

- At least one valve per street is required for street intersections at locations where the main line of one street intersects the right-of-way projection of the other street.
- At least one valve is required per knuckle at the intersection of the main line of one street with the right-of-way projection of the other street.
- Maximum valve spacing is six hundred (600) feet. Valves should be located at the lot line closest to that spacing where practicable.
- Valves are required at each end of easement runs within paved portion of the street no closer than six feet (6') from curb face.

WATER SYSTEM IMPROVEMENT LOCATIONS (CONTINUED)

☐ **FIRE HYDRANTS**

Fire hydrant risers are to be located at two feet (2') behind curb face on the same side of the street as the main line wherever practicable and on lot lines or at intersections a minimum of five feet (5') from curb return.

☐ **AIR/VACS**

Air/vacs are required at high points of the water main and must be located within the public right-of-way a minimum of five feet (5') behind back of curb.

☐ **METERS AND SERVICE LINES**

- Meters are to be located behind curb face.
- Service lines must run straight from the main line to the meter.

WATER SYSTEM IMPROVEMENT SEPARATIONS

☐ **WATER MAINS**

(Horizontal Separations)

Five feet (5') minimum horizontal separation is required from the outside edge of the water main to the outside edge of any utility of parallel construction other than sewer. For separation from sewer see PWD Std.W-10.

Pipe joints must be located at least four feet (4') from any x-ing utility, edge of gutter (including x-gutters), back of sidewalk, etc. For x-ing sewer see PWD Std. W-10.

Where water main transitions under a crossing utility, the edges of the closest transition fittings must be no less than five feet (5') from the outside edge of the x-ing utility.

(Vertical Separations)

One foot (1') minimum vertical separation is required from outside edge of water main to the outside edge of any utility crossing the water main. For x-ing sewer see PWD Std. W-10.

☐ **MAIN LINE VALVES AND FITTINGS**

- Valves and fittings must be located at least four feet (4') from any x-ing utility, edge of gutter (including x-gutters), back of sidewalk, etc. For x-ing sewer see PWD Std. W-10.
- The minimum allowable separation between the edge of any valve, fitting, tapping sleeve, service saddle, etc. and the edge of any other valve, fitting, tapping sleeve, service saddle, etc is two feet (2').

WATER SYSTEM IMPROVEMENT SEPARATIONS (CONTINUED)

☐ **FIRE HYDRANTS**

- Fire hydrants must be located at least five feet (5') from the edge of any driveway apron, sewer lateral, or streetlight.
- Back of walk in vicinity of the riser must transition where necessary to provide the A.D.A. required clearance in accordance with COP Std. No. C-6.

☐ **APPURTENANCES**

- Appurtenances, including air/vacs, blow-offs, meters, etc., must be located at least five feet (5') from the edge of any driveway apron, sewer lateral, or streetlight.
- Service lines and saddles must be located no closer than five feet (5') from any sewer lateral or two feet (2') from the edge of any valve, fitting, tapping sleeve, etc.

EASEMENTS TO PWD

☐ **EASEMENTS FOR TRACTS**

- Easements over lots within proposed tracts are required to allow water mains within cul-de-sacs to loop or connect to water mains within other streets.
- One easement sideline shall be coincident with the lot line of the lot or lots traversed by easement.
- Easements over property adjacent to proposed tracts are required to allow water mains within streets which end at the tract boundaries to loop or connect to water mains within other streets.
- Alignments shall be determined on a case by case basis.
- Easements shall be twice as wide as the depth to the bottom of the main at the deepest point within the easement but no less than ten (20) feet overall.
- Cross slopes within easements shall not exceed five (5) percent.
- Drainage swales of parallel construction must be located a minimum of five feet (5') from the center of the easement.

☐ **EASEMENTS FOR COMMERCIAL PROJECTS**

- Easements within project sites to accommodate compound meters and vaults are required for proposed commercial projects having private on-site systems.
- Easement width must abut right of way. Easement length must be oriented perpendicular to street centerline.
- Easement dimensions must be at least one foot (1') greater than the outside dimensions of the proposed vault.
- Drainage and irrigation must be directed away from easement.

DETAIL SHEETS

☐ **LARGE SERVICE METERS, VAULTS, VAULT LIDS, AND R.P.D.A.S**

- Detail sheets are required for proposed commercial projects served through large service meters.
- Sheets must include plan and profile views of compound meter and vault and plan view of vault lid.
- Construction notes are required on the sheet for all material associated with meter configuration and vault.
- See large service meter detail sheet of water system improvement example plans (commercial) for additional required notation.
- Detail sheets are required for commercial projects served through reduced pressure detector assemblies.
- Sheets must include plan and profile views of the R.P.D.A.
- See R.P.D.A. detail sheet of water system improvement example plans (commercial) for required notation.

DETAIL DRAWINGS

☐ **LARGE SERVICE METERS AND VAULTS (PLAN VIEW)**

- Items depicted in the detail should include the meter configuration, vault, all back flow devices, tees for domestic, and or irrigation, screen wall, and the easement.
- Back flow devices must be dimensioned for location only. All other listed items must be fully dimensioned.
- All material comprising meter configuration and vault must be identified by numbers or letters corresponding to construction notes listed on same sheet. Run material and back flow devices will be identified by numbers corresponding to cover sheet material list.
- All piping from main line connection to the primary back flow device must be Steel, 10ga, CMLC.
- All fittings outside of the vault must be Steel, CMLC. Fittings located within the vault may be CI, CL 150, CML.

☐ **LARGE SERVICE METERS AND VAULTS (PROFILE VIEW)**

- Items depicted in the detail should include the street and all utilities and improvements contained therein, the connection, run, meter configuration, vault, all back flow devices, tees for domestic, and or irrigation, screen wall, and the easement.
- All dimensions, descriptions, and elevations necessary to fully define the vertical alignments of the installation and reference profile as well as separations from utilities and vault floor must be provided in the profile view detail.

☐ **VAULT LID (PLAN VIEW)**

- Detail must show vault lid ring, lid sections, supports, and spring assist access hatch.
- All material comprising vault lid must be identified.
- Detail must be fully dimensioned.

DETAIL DRAWINGS (CONTINUED)

☐ **REDUCED PRESSURE DETECTOR ASSEMBLIES (PLAN VIEW)**

- Items depicted in this detail should include R.P.D.A., screen wall,

☐ **REDUCED PRESSURE DETECTOR ASSEMBLIES (PROFILE VIEW)**

- Items depicted in the detail should include the street and all utilities and improvements contained therein, the connection, the run and the RPDA.
- All stations and elevations necessary to fully define the vertical alignments of the installation and reference profile.
- All material comprising the connection and run must be identified by numbers corresponding to the cover sheet material list.
- All piping from main line connection to RPDA must be Steel, 10ga, CMLC.
- All fittings must be STL, CMLC.

☐ **FIRE HYDRANTS (PROFILE VIEW)**

- A profile view detail is required for proposed fire hydrants extending from existing mains and crossing existing utilities.
- Items depicted in the detail should include the street and all utilities and improvements contained therein, the connection, the run, including all transition elbows, reducers, etc., and the fire hydrant assembly.
- All stations, and elevations necessary to fully define the vertical alignments of the installation and the reference profile as well as separations from utilities must be provided in the profile view detail.
- All material comprising the fire hydrant configuration must be identified by numbers corresponding to the cover sheet material list.

MINUTES OF MEETING OF THE OUTREACH COMMITTEE OF THE PALMDALE WATER DISTRICT, AUGUST 4, 2021:

A meeting of the Outreach Committee of the Palmdale Water District was held Wednesday, August 4, 2021, at 2029 East Avenue Q, Palmdale, CA 93550 and via teleconference. Chair Mac Laren-Gomez called the meeting to order at 4:30 p.m.

1) Roll Call.

Attendance:	**Others Present:**
Committee:	Dennis LaMoreaux, General Manager
Kathy Mac Laren-Gomez, Chair	Adam Ly, Assistant General Manager
Don Wilson, Committee Member	Judy Shay, Public Affairs Director
	Dawn Deans, Executive Assistant
	1 member of the public

2) Adoption of Agenda.

It was moved by Committee Member Wilson, seconded by Chair Mac Laren-Gomez, and unanimously carried by all members of the Committee present at the meeting to adopt the agenda, as written.

3) Public Comments for Non-Agenda Items.

There were no public comments for non-agenda items.

4) Action Items: (The Public Shall Have an Opportunity to Comment on Any Action Item as Each Item is Considered by the Committee Prior to Action Being Taken.)

4.1) Consideration and Possible Action on Approval of Minutes of Meeting Held July 14, 2021.

It was moved by Committee Member Wilson, seconded by Chair Mac Laren-Gomez, and unanimously carried by all members of the Committee present at the meeting to approve the minutes of the Outreach Committee meeting held July 14, 2021, as written.

4.2) Discussion of the District's Response to the Drought. (Public Affairs Director Shay/Resource and Analytics Director Thompson II)

Public Affairs Director Shay provided an overview of the District's response to the drought, including drought messaging as previously reported, and stated that an A. V. Conservation Roundtable was held earlier today with members of the Antelope Valley East Kern Water Agency, Rosamond Community Services District, Quartz Hill Water District, and Los Angeles County Waterworks where they discussed having a stronger voice regarding the drought and hosting a public roundtable to discuss the drought and water conservation and that on September 29, a joint workshop will be held with the City of Palmdale to teach customers how to save water.

4.3) Discussion of 2021 Outreach Activities. (Public Affairs Director Shay)

a) Outreach Report.

Public Affairs Director Shay reviewed outreach events since the date of the last Committee meeting including press releases; articles in the Antelope Valley Press and ACWA News; Customer Appreciation Day/103rd Anniversary Day; National Night Out with the City of Palmdale; Virtual Draft Hazard Mitigation Hearing; a Café con Leche radio interview with Director Wilson; school supplies for the Palmdale School District's back-pack giveaway; the website update; and social media highlights.

b) Upcoming Events/2021 Plans.

She then stated that upcoming 2021 events include a virtual Hazard Mitigation Plan public meeting on August 26, the Junior Water Ambassador's Academy on September 23, work continues on the local California Special Districts Association chapter, and the Ways to Save Water Workshop with the City of Palmdale on September 29 followed by discussion of the District's participation in the City of Palmdale's academy.

4.4) Consideration and Possible Action on a Recommendation on Resuming Normal Public Board Meetings with no Teleconferencing. (General Manager LaMoreaux)

General Manager LaMoreaux stated that the Governor's Executive Order regarding Brown Act modifications for public meetings expires September 30 and that staff recommends the District's current Brown Act and virtual meeting practices continue until October. After a brief discussion, the Committee concurred with staff's recommendation.

5) Reports.

5.1) Lobbying Activities. (Assistant General Manager Ly)

Assistant General Manager Ly stated that Reeb Government Relations submitted letters on the District's behalf regarding AB602 regarding an impact fee study with an oppose unless amended position, AB1434 regarding the standard for the number of gallons of water allowed per person per day with an opposition position, and SB222 regarding state low income assistance with no funding mechanism with an oppose unless amended position and that potential payment for arrearages on unpaid water bills is being closely watched. After a brief discussion, he stated that copies of the letters will be provided for the Board's information.

General Manager LaMoreaux then stated that Gaylen Kyle has requested the Board consider sending a letter to the Board of Supervisors requesting them to not legalize cannabis within the unincorporated areas of Los Angeles County, and after a brief discussion of this request, he stated that this item will be placed on the agenda for the second Regular Board Meeting in August for consideration.

6) Board Members' Requests for Future Agenda Items.

There were no requests for future agenda items.

7) Date of Next Committee Meeting.

It was stated that the next Outreach Committee meeting will be held September 15, 2021 at 4:00 p.m.

8) Adjournment.

There being no further business to come before the Outreach Committee, the meeting was adjourned at 4:58 p.m.

Kathy J. MacLaren-Gomez
Chair

MINUTES OF MEETING OF THE FINANCE COMMITTEE OF THE PALMDALE WATER DISTRICT, AUGUST 17, 2021:

A meeting of the Finance Committee of the Palmdale Water District was held Tuesday, August 17, 2021, at 2029 East Avenue Q, Palmdale, CA 93550 and via teleconference. Chair Wilson called the meeting to order at 1:02 p.m.

1) Roll Call.

Attendance:
Committee:
Don Wilson, Chair
Gloria Dizmang, Committee Member

Others Present:
Dennis LaMoreaux, General Manager
Adam Ly, Assistant General Manager
Mike Williams, Finance Manager
Judy Shay, Public Affairs Director
Dennis Hoffmeyer, Accounting Spvsr.
Bob Egan, Financial Advisor
Dawn Deans, Executive Assistant
1 member of the public

2) Adoption of Agenda.

It was moved by Committee Member Dizmang, seconded by Chair Wilson, and unanimously carried by all members of the Committee present at the meeting to adopt the agenda, as written.

3) Public Comments for Non-Agenda Items.

There were no public comments for non-agenda items.

4) Action Items: (The Public Shall Have an Opportunity to Comment on Any Action Item as Each Item is Considered by the Committee Prior to Action Being Taken.)

4.1) Consideration and Possible Action on Approval of Minutes of Meeting Held July 29, 2021.

It was moved by Committee Member Dizmang, seconded by Chair Wilson, and unanimously carried by all members of the Committee present at the meeting to approve the minutes of the Finance Committee meeting held July 29, 2021.

4.2) Discussion and Overview of Cash Flow Statement and Current Cash Balances as of July 2021. (Financial Advisor Egan)

Financial Advisor Egan provided an overview of the monthly and quarterly Major Account Activity Reports, Investment Funds Report, and the Cash Flow Statement through July 2021, including water sales, capital improvement fees and DWR refunds received, and the projected year-end balance.

4.3) Discussion and Overview of Financial Statements, Revenue, and Expense and Departmental Budget Reports for July 2021. (Finance Manager Williams)

Finance Manager Williams reviewed in detail the balance sheet, profit and loss statement and trends, quarter to quarter comparisons, and revenue and expense analysis reports for the period ending July 2021 and stated that departments are operating at or below the targeted expenditure percentage of 58.3%.

4.4) Discussion and Overview of Committed Contracts Issued. (Finance Manager Williams)

Finance Manager Williams provided an overview of the Contractual Commitments and Needs Report for new and replacement capital projects, consulting and engineering support projects, new and replacement equipment, water quality fee funded projects, committed and projected capital expenditures, and the payout summary for the Water Revenue Bond Series 2018A through July 2021.

4.5) Consideration and Possible Action on a Recommendation to Approve 2021 Taxable Refunding Outstanding 2013A Water Revenue Term Bonds Maturing 2025 Through 2028. ($10.9 Million - $690,000.00 Potential Savings – Non-Budgeted – Finance Manager Williams/Mark Northcross, NHA Advisors)

Finance Manager Williams and Mr. Mark Northcross, NHA Advisors, provided an overview of the refunding opportunity of a portion of the 2013A Water Revenue Term Bonds, including the cash flow savings and the benefit to the debt service coverage, after which it was moved by Committee Member Dizmang, seconded by Chair Wilson, and unanimously carried by all members of the Committee present at the meeting that the Committee concurs with staff's recommendation to approve 2021 taxable refunding outstanding 2013A Water Revenue Term Bonds maturing 2025 through 2028 and that this item be presented to the full Board for consideration at the August 23, 2021 Regular Board Meeting.

5) Reports.

5.1) Finance Manager Williams:

a) The Effect of COVID-19 Event.

Finance Manager Williams stated that due to COVID-19 events, as of July 31, 2021, there were 1,607 single family accounts with a balance of $50 or more and over sixty days past due with a total past due amount of $986,421 compared to 1,575 accounts at June 30, 2021 with an outstanding balance of $919,067 and 869 accounts at July 31, 2020 with an outstanding balance of $313,404 and that cash received for July 2021 was 8% higher than June 2021, 32% higher than May 2021, and 14% higher than July 2020 followed by discussion of payment plans for customers with past due accounts.

b) Revenue Projections.

He then stated that 2021 revenue is ahead of projections by approximately $902,000 as of July 31, 2021.

5.2) Financial Advisor Egan:

a) Debt Service Coverage Status.

Financial Advisor Egan stated that the Debt Service Coverage for June 2020 to July 2021 is 2.62.

6) Board Members' Requests for Future Agenda Items.

There were no requests for future agenda items.

7) Date of Next Committee Meeting.

It was determined that the next Finance Committee meeting will be held September 22, 2021 at 2:00 p.m.

8) Adjournment.

There being no further business to come before the Finance Committee, the meeting was adjourned at 1:40 p.m.

Chair