

CRESCENTA VALLEY WATER DISTRICT

**2700 Foothill Boulevard
La Crescenta, California**

**Agenda for the
Regular Meeting of the Board of Directors
of the Crescenta Valley Water District
to be held on October 4, 2016 at 7:00 p.m.**

Posted: September 30, 2016 at 3:00 p.m.

Any written materials distributed to the Board in connection with this agenda will be made available at the same time for public inspection at the District office located at the above address.

Call to Order and Determination of Quorum

Pledge of Allegiance

Adoption of Agenda

Public Comments

At this time the public shall have an opportunity to comment on any non-agenda item relevant to the subject matter jurisdiction of the Board. This opportunity is non-transferable and speakers are limited to one three (3) minute comment.

Foothill Municipal Water District Report

1. Report on activities at Foothill Municipal Water District.

Consent Calendar

1. Consideration and approval of the Minutes of the Adjourned Regular Meeting on September 20, 2016.
2. Consideration of attendance at the ACWA Fall Conference to be held November 29-December 2, 2016 in Anaheim, CA.

Action Calendar

The public shall have an opportunity to comment on any action item as each item is considered by the Board prior to action being taken. This opportunity is non-transferable and speakers are limited to one two (2) minute comment.

1. **Water Meter Replacement Program** – Presentation and update of the District's Water Meter Replacement program with Advanced Metering Infrastructure (AMI).
2. **Lower Pickens Canyon Pipeline Crossing Repair, Project E-957**
 - a. Report and discussion of Lower Pickens Canyon pipeline crossing repair project
 - b. Consideration and motion to authorize the General Manager to enter into agreements for professional design services with AMEC Foster Wheeler & DMc Engineering for the Lower Pickens Canyon pipeline crossing repair at a cost of \$75,000.
3. **Strategic Planning** – Discussion regarding the Strategic Plan of the District.

Information Items

Written Communications to District

Staff Reports

- Secretary-Treasurer
- General Manager
- District Engineer
- Program Specialist
- Information Technology

Attorney Report

Reports of Committees

- Engineering Committee
- Finance Committee
- Employee Relations Committee
- Policy Committee
- Community Relations/Water Conservation Committee
- Emergency Planning Committee

Director's Oral Reports

Report on issues, meetings, or activities attended by Directors.

Closed Session

- **Conference with Legal Counsel**
 - o Existing litigation pursuant to paragraph (1) of subdivision (d) of Section 54956.9: Crescenta Valley Water District vs. City of Glendale, et al., Los Angeles Superior Court case no. BC595199.
- **Conference with Legal Counsel – Anticipated Litigation**
 - o Significant exposure to litigation pursuant to paragraph (2) of subdivision (d) of Section 54956.9 (one case).

Board Members' Request for Future Agenda Items

Adjournment

CRESCENTA VALLEY WATER DISTRICT
ADJOURNED REGULAR MEETING, BOARD OF DIRECTORS
September 20, 2016

Pursuant to the order of the Board of Directors of the Crescenta Valley Water District, made at the Regular Meeting of September 6, 2016, an Adjourned Regular Meeting was held on September 20, 2016, at 7:00 p.m. at the District office at 2700 Foothill Blvd., La Crescenta, California, with President Kerry D. Erickson presiding.

At roll call, the following Directors and staff members were present:

Directors:	James D. Bodnar Michael L. Claessens Kerry D. Erickson Kenneth R. Putnam Judy L. Tejeda
Attorney:	Thomas S. Bunn
General Manager:	Thomas A. Love
Secretary-Treasurer:	Ron L. Mitchell
District Engineer:	David S. Gould
Others Present:	Wendy Holloway, Customer Accounts Supervisor Dennis Maxwell, Superintendent Kathy Ross, FMWD Director

PLEDGE OF ALLEGIANCE

President Erickson opened the meeting by asking Director Tejeda to lead the Board and staff in reciting the Pledge of Allegiance.

ADOPTION OF AGENDA

It was moved by Director Tejeda, seconded by Director Bodnar and carried by a 5-0 vote that the Agenda for the Adjourned Regular Meeting of September 20, 2016 be adopted as presented.

PUBLIC COMMENT – Mr. Chonos addressed the Board regarding his large lot and the possibility of having an irrigation rate for his property.

FOOTHILL MUNICIPAL WATER DISTRICT REPORT – Kathy Ross reported on the FMWD Board meeting on September 19, 2016. FMWD is going to rehabilitate the Altadena North and the La Canada East Reservoirs. The August water demand was down 15% from 2013 levels and they were up from last year. Nina Jazmadarian went to a presentation on the Colorado River where water shortage was discussed. Also, FMWD is in the process of hiring a new Engineer and they have advertised and are hoping to interview in October and have the person start in November. Ms. Ross reported to the FMWD Board that CVWD is in favor of improving the conditions at the Devil Gates Dam.

CONSENT CALENDAR

It was moved by Director Bodnar, seconded by Director Claessens and carried by a 5-0 vote to approve the Minutes of the Regular Board Meeting held on September 6, 2016.

It was moved by Director Tejeda, seconded by Director Bodnar and carried by a 5-0 vote to ratify the disbursements for August 2016 which consisted of:

Payment of demands against the Crescenta Valley Water District on or before August 31, 2016 the same having been approved by the General Manager, Thomas A. Love, and heretofore paid, be ratified and approved subject to audit, in the aggregate sum of One Million One Thousand Nine Hundred Sixty Dollars and Sixty Eight cents (1,001,960.68), which is composed of the individual items set forth herein.

ACTION CALENDAR

Appeal of a High Water Bill – Mr. Mitchell reported that Mr. Joel Rocha owns the property at 4536 New York and rents it out. The March 31, 2016 billing showed a usage of 172 billing units. It was sent out for a re-read and check for leaks and came back with no leaks and the reading was correct. Staff performed a download of his meter information that showed a huge consumption for the 5 day period. Mr. Rocha came to the office on April 22nd with the download and the bill in the amount of \$1,955.75. Staff spoke with the tenant on May 16th regarding the bill, and he said he was still working with Mr. Rocha. This tenant had a leak adjustment granted for this property in 2013 in the amount of \$280.17, and on September 14th Mr. Rocha came to the office and provided a leak adjustment letter along with repairs bills asking for a further adjustment. Mr. Mitchell recalculated the bill using the tier 2 rate and shows an additional adjustment of \$831.97.

Following discussion:

It was moved by Director Bodnar, seconded by Director Tejeda and carried by a 5-0 vote to recalculate the customer's bill according to staff's recommendation and provided the billing difference of \$831.97.

Strategic Planning – Mr. Love gave a presentation to the Board regarding the strategic planning process. He discussed the kick off workshop with the leadership team, and to clearly define the objectives, the roadmap, and the concise plan to staff, customers, regulators and the community. He also discussed who will implement the objectives, have a clear understanding of direction, the keys to success, the roles and expectations from all groups involved including the leadership staff, the Board, employees, and the community. Mr. Love said he will administer the process and legal counsel will facilitate the process. He told the Board that the next leadership team workshop will be on October 7, 2016, and would like the Board to meet. The Board discussed the dates and decided to meet on November 4, 2016 at 9:00 a.m. to 2:00 p.m. for the Direction Workshop and to meet on December 2, 2016 at 9:00 a.m. to 2:00 p.m. for the Planning Workshop.

INFORMATION ITEMS – None.

WRITTEN COMMUNICATIONS TO DISTRICT – None.

REPORTS OF PERSONNEL

SECRETARY-TREASURER – Mr. Mitchell reported that the auditors were here last week Monday through Wednesday working on the final phase of the audit, and were pleased with the way things went. A Finance Committee meeting will be scheduled in early October to have the auditor come in and review with the results of the audit. Also, the temporary Utility Worker will be starting work within the next week.

GENERAL MANAGER – Mr. Love discussed the water use and consumption and said the demands are up, but we are still conserving 20% from 2013. The financial reports show for July our revenue is about \$23,000 under budget and for August the revenue is about \$43,000 over budget. The projection for the September revenue is another \$12,000 over budget. Well production is down, so we are purchasing more imported water. As we get into October, we will have the final numbers for September and then we can do the first quarter budget analysis and present that to the Board.

DISTRICT ENGINEER

Water Production – For the period of September 1 through September 18, 2016, water production was 72.4 million gallons for the period, which is **15.4% more** than the daily average production of the same period in 2015. This is **8.0% less** from the daily average production of the previous five years.

Rainfall: September 2016	0.13”
Season-to-date:	13.47”

Administrative and Field Operations – Mr. Gould provided a memorandum and discussed the following:

Rainfall Update – 0.13” for September 2016. Rainfall total for 2015-16 is at 13.47”.

Report on Engineering:

CIP Projects – Ocean View Chlorination Project – Met with FMWD about coordination of project. Testing – Preliminary set for end of October. Pipeline Projects – 4200 – 4300 Blocks of Pennsylvania (Mills Pumphouse) – under design. Pickens Canyon Pipeline Replacement and slope Repair. Met with Consultants to discuss options for pipe replacement. Paschall Booster Station Upgrades – Staff working on Request for Proposal. Seismic Sensors & Valve Actuators at Dunsmore & Pickens Reservoir – Received Quotes from AES Automation. - Construction to start in December 2016. Wall at Ordunio Reservoir – Completion by September 30, 2016.

Nitrate Removal Treatment Facility at Well 2 Project – Finalizing 50% technical memorandum. Setting up meeting with Glendale on permit requirements.

Crescenta Valley County Park Stormwater Recharge Facility Study – Staff reviewing draft report. Task Force Meeting – Tentatively set for October 14, 2016.

ULARA – Administrative Committee meeting on November 3, 2016.

Water Meter Replacement Program: Field crews to start on Pressure Zone 11 in the Briggs Terrace on September 30, 2016. Pressure Zone 11 – 178 total water meter services; 58 – ¾” meters and 16 – 1” meters to replace.

Report on Administrative and Field Operations:

Well Status – Well production capacity – Averaging 1.75 MGD for September 2016. Well 12 out of service due to bacteriological problems and replacing piping. Well 12 should be back in service by September 23, 2016.

Field Maintenance and Operations update for September 1 – September 16, 2016

Water lateral leaks & repairs

- 5840 Irving
- 5843 Irving
- 3319 Alabama
- 4747 Sunset
- 2921 Franklin
- 5532 Ocean View

Fire Hydrant Leak – No Report.

Developer Job – No Report.

Water Main Leaks – No Report.

Booster Pump Maintenance – Oak Creek Booster “B” Waiting on New Motor – Late October 2016.

Reservoir Maintenance – No Report.

Sewer Maintenance – 2200 Block of Del Mar. 4100 Block of Rincon. 4000 – 4100 Blocks of Ocean View. 2300 Block of Mira Vista. 4400 – 5100 Blocks of Ocean View. 4200 Block of Luana Lane. 4400 Block of Saranne Lane. 4000 Block of Young Drive.

PROGRAM SPECIALIST – No Report

INFORMATION TECHNOLOGY – No Report

ATTORNEY – Mr. Bunn reported that at the next meeting he will have a report on legislative bills that have passed or not passed by Governor Brown. He discussed SB814 which requires districts to identify and deal with excessive water use and said that currently the District is in compliance with the regulation which goes into effect on January 1, 2017 as we have a block tier rate structure.

REPORTS OF COMMITTEES

Engineering Committee – Director Bodnar reported that the Committee will meet on September 29, 2016 at 7:30 a.m.

Finance Committee – Director Erickson reported that the Committee had not met; however a meeting will be scheduled as needed.

Employee Relations Committee – Director Tejada reported that the Committee met today and discussed two items, one to replace the Accountant position and another on the office hours.

Policy Committee – Director Claessens reported that the Committee will meet October 3, 2016 at 8:00 a.m.

Community Relations/Water Conservation Committee – Director Putnam reported that the Committee had not met; however a meeting will be scheduled as needed.

Emergency Planning Committee – Director Claessens reported that the Committee will meet on October 14, 2016 at 7:30 a.m.

DIRECTORS ORAL REPORTS

Director Bodnar reported he was at the Descanso Gardens Rain Barrel event on September 18, 2016, and that it was well attended. MWD has a \$75.00 rebate for the rain barrels until January 31, 2017. He also gave a presentation on Water Supply and related issues at the event.

Director Claessens – No report

Director Putnam – No report

Director Tejada reported that she purchased two rain barrels for her home. Also, she talked about the sewer overflow in the Ralph's parking lot caused by a grease trap on Saturday night, September 17, 2016.

Director Erickson reported that Santa Barbara is considering banning the watering of outside landscaping.

CLOSED SESSION – No Reportable Action

ADJOURNMENT

There being no other business to come before the Board at 8:30 p.m., it was moved by Director Claessens, seconded by Director Tejada and carried by a 5-0 vote that the meeting be adjourned to October 4, 2016 at 7:00 p.m.

APPROVED

Kerry D. Erickson
President

Ron L. Mitchell
Secretary-Treasurer

CONSENT ITEM#2
ACWA FALL CONFERENCE

PRICING REFERENCE SHEET



Association
of California
Water Agencies
— Since 1971 —
Leadership • Advocacy
Information • Service

ACWA 2016 Fall Conference & Exhibition
REGISTRATION, MEALS & HOTEL PRICING
November 29–December 2, 2016 | Anaheim Marriott

Register online @ acwa.com

Regular registration and cancellation deadline is November 1, 2016 - 4:30 p.m. (PST)

NEED TO REGISTER ON SOMEONE ELSE'S BEHALF? YOU CAN NOW SIGN-IN AS YOURSELF - After you've logged-in, you can select from a list of people affiliated with your company and proceed to register him/her for the event. If the registrant is not listed, you will have the opportunity to create a Portal profile for him/her before registering.

REGISTRATION FEES & OPTIONS	REGULAR	ONSITE
Advantage (For ACWA public agency members, affiliates & associates ONLY) (ends 11/1/16)		
Full Conference Registration & Meals Package	\$695	Not Avail.
Full Conference Registration Only (meals sold separately)	\$535	\$560
One-Day Conference Registration (meals sold separately): Wednesday 11/30 -OR- Thursday 12/1	\$300	\$325
<i>Wednesday registration includes Welcome Reception on Tuesday evening.</i>		
<i>Thursday registration includes ability to purchase a ticket for Friday breakfast.</i>		
Standard (Applies to non-members of ACWA)		
Full Conference Registration Only (meals sold separately)	\$805	\$830
One-Day Conference Registration (meals sold separately): Wednesday 11/30 -OR- Thursday 12/1	\$450	\$475
<i>Wednesday registration includes Welcome Reception on Tuesday evening.</i>		
<i>Thursday registration includes ability to purchase a ticket for Friday breakfast.</i>		
Guest (Guest registration is not available to anyone with a professional reason to attend.)		
Guest Conference Registration (meals sold separately)	\$45	\$45

MEAL FUNCTIONS	REGULAR	ONSITE
Wednesday – November 30		
Opening Breakfast	\$45	\$50
Wednesday Luncheon	\$50	\$55
Thursday – December 1		
Networking Continental Breakfast	\$35	\$40
Thursday Luncheon	\$50	\$55
Thursday Dinner	\$65	\$70
Friday – December 2		
Friday Breakfast	\$45	\$50

HOTEL INFORMATION *Reservations will not be accepted until August 22, 2016.*

You must be registered for the ACWA conference in order to receive hotel reservation information and conference special room rate. Conference special rate is available August 22 – November 6, based on availability.

Special Hotel Rates

Anaheim Marriott Hotel

700 Convention Way, Anaheim, CA 92802

Single/Double \$189 per night (Rate is subject to 17% tax + \$1.08 resort fee.)

Important Dates:

For those **registering for conference prior to August 22**, hotel information will be provided via e-mail on August 22.

For those **registering for conference from August 22 to November 6**, your confirmation e-mail will include hotel reservation information and an opportunity to receive a conference special hotel rate.

Hotel Reservation Questions?

After August 22, call hotel directly.

Questions? Contact us at 916.441.4545, toll free 888.666.2292. Conference terms and conditions available at acwa.com in the event section.

ACWA 2016 Fall Conference & Exhibition PRELIMINARY AGENDA

November 29–December 2, 2016 | Anaheim Marriott

ACWA/JPIA - MONDAY, NOV. 28

8:00 – 10:00 AM

- ACWA/JPIA Program

10:15 – 11:15 AM

- ACWA/JPIA Executive Committee

1:30 – 4:00 PM

- ACWA/JPIA Board of Directors

4:00 – 5:00 PM

- ACWA/JPIA Town Hall

5:00 – 6:00 PM

- ACWA/JPIA Reception

TUESDAY, NOV. 29

8:00 AM – 6:00 PM

- Registration

8:00 AM – 11:45 AM

- ACWA/JPIA: Seminars

10:00 – 11:45 AM

- Groundwater Committee
- Local Government Committee

11:00 AM – Noon

- Outreach Task Force

Noon – 2:00 PM

- ACWA 101 & Luncheon
- Committee Lunch Break

1:00 – 2:45 PM

- Energy Committee
- Finance Committee
- Scholarship & Awards Subcommittee
- Water Management Committee

1:30 – 3:30 PM

- ACWA/JPIA: Sexual Harassment Prevention for Board Members & Managers (AB 1825)

3:00 – 4:45 PM

- Communications Committee
- Federal Affairs Committee
- Membership Committee
- Water Quality Committee

5:00 – 6:30 PM

- Welcome Reception in the Exhibit Hall

WEDNESDAY, NOV. 30

7:30 AM – 5 PM

- Registration

8:00 – 9:45 AM

- Opening Breakfast *(Ticket Required)*

9:00 AM – Noon & 1:30 – 5:00 PM

- Exhibit Hall

10:00 – 11:30 AM

- Attorneys Program
- Communications Committee Program
- Energy Committee Program
- Exhibitor Technical Presentations
- Finance Program
- Region Issue Forum
- Statewide Issue Forum

11:30 – 11:45 AM

- Prize Drawing in the Exhibit Hall

11:45 AM – 1:45 PM

- General Session & Luncheon *(Ticket Required)*

2:00 – 3:15 PM

- Aquatic Resources Subcommittee
- Attorneys Program
- Exhibitor Technical Presentation
- Region Program
- Statewide Issue Forum
- Water Industry Trends Program

3:30 – 4:45 PM

- Energy Committee Program
- Exhibitor Technical Presentation
- Finance Program
- Statewide Issue Forum
- Water Industry Trends program

4:00 – 6:00 PM

- Legal Affairs Committee

5:00 – 7:00 PM

- CalDesal Hosted Mixer
- CH2M Hosted Reception

THURSDAY, DEC. 1

7:30 AM – 4 PM

- Registration

8:00 AM – Noon

- Exhibit Hall

8:00 – 9:15 AM

- Networking Continental Breakfast *(Ticket Required)*

9:30 – 11:00 AM

- Attorneys Program
- Exhibitor Technical Presentations
- Finance Program
- Region Issue Forum
- Statewide Issue Forum
- Water Industry Trends Program

9:30 – 11:45 AM

- Ethics Training (AB 1234) - *Limited Seating*

11:00 – 11:30 AM

- Prize Drawings in the Exhibit Hall

11:45 AM – 1:45 PM

- General Session & Luncheon *(Ticket Required)*

2:00 – 3:15 PM

- Attorneys Program
- Exhibitor Technical Presentations
- Federal Issues Forum
- Town Hall
- Water Industry Trends Program

3:30 – 5 PM

- Regions 1 – 10
- Membership Meetings

6:00 – 7:00 PM

- Outreach Reception

7:00 – 10:00 PM

- Dinner & Entertainment *(Ticket Required)*

FRIDAY, DEC. 2

8:00 – 9:30 AM

- Registration

8:30 – 10:00 AM

- ACWA's Hans Doe Past Presidents' Breakfast in Partnership with ACWA/JPIA *(Ticket Required)*

OTHER EVENTS

TUESDAY, NOV. 29

7:00 AM – 4 PM

- ACWA Fall Conference Golf Tournament

THURSDAY, DEC. 1

6:45 – 8:30 AM

- San Joaquin Valley Agricultural Water Committee

CRESCENTA VALLEY WATER DISTRICT

BOARD OF DIRECTORS - STAFF REPORT

Action Item No. 1
October 4, 2016

To: Honorable President and Members of the Board of Directors
From: David S. Gould, P.E. – District Engineer
Subject: Update of the District's Water Meter Replacement program with Advanced Metering Infrastructure (AMI)

Discussion Item:

Water Meter Replacement Program – Presentation and update of the District's Water Meter Replacement program with Advanced Metering Infrastructure (AMI)

BACKGROUND:

The District has been working on the Water Meter Replacement (WMR) Program since 2012. Staff and field crews have been replacing older 3/4" & 1" water meters that were beyond their useful life with "Smart Meters".

The "Smart Meter" that the District chose to replace the older meters are the Sensus iPERL meter. The iPERL meter offers low flow accuracy with high flow durability. The innovative magnetic technology allows for the capture of previously unmeasured low flow and drives additional revenue for the utility. The meter is 100% lead-free with no moving parts and maintains its accuracy over a 20-year lifetime.

As Table 1 below shows approximately 56% of the total water meters have been replaced and almost 57% of the ¾-inch meters have been replaced.

Table 1 – Summary of Water Meters Replaced as of June 30, 2016

Meter Size	¾-inch	1-inch	1½-inch	2-inch	3-inch	4-inch	Total
Total No. of Meters	6,965	826	146	66	29	2	8,034
Meter Replaced	4,231	248	12	21	15	1	4,528
Meters to be Replaced	2,734	578	134	45	14	1	3,506

DISCUSSION:

The focus of the WMR program starting in 2012 was to replace old meters that were installed from 1976 to 1999 which were beyond the AWWA recommended age for replacement. Staff and the field crews did an excellent job in completing this task within four (4) years.

A benefit that had been previously discussed was that installation of the new meters would result in a reduction in the amount of unaccounted water (i.e. water that is not being recorded by the older meters). Table 2 below shows the reduction in the amount of unaccounted water that has been realized since the installation of the Smart Meters in 2012.

Table 2 - Summary of Unaccounted Water

	2010	2011	2012	2013	2014	2015	Avg.
Water Use (Kgal)	1,236,050	1,255,511	1,332,550	1,339,123	1,319,590	1,093,071	1,262,649
Water Use (Ac-ft)	3,793	3,853	4,089	4,109	4,049	3,335	3,875
Water Production (ac-ft)	4,299	4,425	4,654	4,693	4,415	3,647	4,356
Recorded Lost Water (ac-ft)	19	21	24	32	30	35	27
Unaccounted Water (ac-ft)	487	551	541	552	336	257	454
Percent Lost Water	11.3%	12.5%	11.6%	11.8%	7.6%	7.1%	10.3%

There are a number of other benefits to utilizing a smart meter such as the ability to collect water usage data on a daily, weekly or monthly basis, ability to revise the billing periods from bi-monthly to monthly, to detect leaks and alert customers, and to increase water use efficiency by daily monitoring by the customer.

Staff's approach for implementation of the water meter replacement program was taken in two (2) phases.

- Phase 1 – Replacement of the existing water meters with new Smart Meters.
- Phase 2 – Installation of the Advanced Metering Infrastructure (AMI) system that will collect the water usage data for monthly billing, customer notification, and water use analysis.

Phase 1 – Water Meter Replacement

Staff and the field crews have been working over the last 4 years on implementation of Phase 1 with over half the meters replaced during this time. As stated before, the original goal was to replace the older meters (1979 to 1999), which have been accomplished. Staff then re-assessed the location of the meters replaced relative to a pressure zone and found that a majority of the meters within pressure zones 6 through 11 have been replaced.

Table 3 below shows the breakdown of meter sizes and number of meters remaining in each of the District's 11 pressure zone and fiscal year that they will be replaced. Typically, the District plans for replacing 1,000 meters per fiscal year.

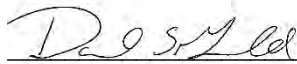
Table 3 - Breakdown of 3/4" and 1" Water Meters Replacement per Pressure Zone & FY										
Fiscal Year	Pressure Zone	3/4" Meter				1" Meter				Total 3/4" & 1" Meters replaced per year
		Total # of meters	# of meters replaced with Smart Meter	# of meters remain to be replaced	Running Total for each FY	Total # of meters	# of meters replaced with Smart Meter	# of meters remain to be replaced	Running Total	
FY 18/19	1	972	531	441	441	213	91	122	122	
	2	1,442	883	559	1,000	182	51	131	253	1,253
FY 17/18	3	521	333	188	188	67	22	45	45	
	4	1,137	638	499	687	112	27	85	130	
	5	818	513	305	992	77	24	53	183	1,175
FY 16/17	6	906	541	365	365	84	17	67	67	
	7	249	164	85	450	10	2	8	75	
	8	242	180	62	512	29	4	25	100	
	9	396	273	123	635	31	7	24	124	
	10	123	74	49	684	4	0	4	128	
	11	159	101	58	742	17	3	14	142	884
	Total	6,965	4,231	2,734		826	248	578		

As shown in Table 3 above, staff will be working on replacing the water meters located within Pressure Zone's 6 through 11 for FY 16/17 since the majority of the lots within the area are single family residents. Staff is also looking into the feasibility of installing the radio communication connection and new water meter box covers within this area. In addition, a radio survey is being performed within the District's service areas to determine the location of data collection "hot spots" or repeaters to maximize coverage and to get the information to a single source (i.e. the main office).

SUMMARY:

In summary, staff is planning to replace 884 meters for FY 16/17 and looking into the feasibility of installing a portion of the fixed area network within Pressure Zone's 6 through 11. At a future Board meeting, staff will provide a detail cost breakdown of fund expended to date and funds need to complete the water meter replacement program.

Prepared by:



David S. Gould, P.E.
District Engineer

Submitted by:

Thomas Love, P.E.
General Manager

CRESCENTA VALLEY WATER DISTRICT

BOARD OF DIRECTORS - STAFF REPORT

Action Item No. 2
October 4, 2016

To: Honorable President and Members of the Board of Directors
From: David S. Gould, P.E. – District Engineer
Subject: Lower Pickens Canyon Pipeline Crossing Repair, Project E-957

ACTION ITEM:

Lower Pickens Canyon Pipeline Crossing Repair, Project E-957

- a. Report and discussion of Lower Pickens Canyon pipeline crossing repair project
- b. Consideration and motion to authorize the General Manager to enter into agreements for professional design services with AMEC Foster Wheeler & DMc Engineering for the Lower Pickens Canyon pipeline crossing repair at a cost of \$75,000.

BACKGROUND:

On May 30, 2015, a water main break occurred on the Lower Pickens Canyon pipeline crossing which is located on the slope near 5481 Ocean View Blvd. This pipeline is one of three (3) pipelines which cross Pickens Canyon. This pipeline was installed in 1956 and a portion of the pipeline was replaced in 1972. The leak has been repaired with a stainless steel clamp and water has been restored to the area. The pressure in the pipeline is approximately 150 psi and the natural slope above and below the pipeline was severely eroded by the water.

Staff determined that the pipeline will have to be either repaired or replaced to prevent any future leaks and the slope will have to be repaired to prevent any future erosion.

Staff worked with DMc Engineering and AMEC Foster Wheeler on the design of an interim pipe & slope stabilization and erosion control plan. This interim plan included installing sand bags with slurry to support the exposed pipeline and to prevent further erosion of the slope during the rainy season. The installation of the interim plan was completed by West End Engineering in February, 2016.

DISCUSSION:

Staff has met with DMc Engineering and AMEC Foster Wheeler in July and August 2016 regarding alternatives for the replacement of the pipeline and final repair of the existing slope. In September 2016, a team of geologists from AMEC Foster Wheeler visited the site to observe the slope after the interim plan was completed. The photos show that the interim plan held over the last seven (7) months.

Staff met with Mr. Jack Tasso, property owner at 5481 Ocean View Blvd in September 2016. Mr. Tasso expressed his concerns about the construction schedule and how it will affect his property.

Staff met with the City of La Canada Flintridge (LCF) which is doing a pavement replacement project on Ocean View Blvd. from Foothill Blvd to the top of Ocean View regarding the construction schedule and scope of work. The City's project also includes restoration of the existing slope on a portion of Ocean View Blvd, just north of the project site. LCF indicated that the pavement project will be on-going during October 2016 and that any work in the street should be completed as soon as possible. CVWD and LCF discussed the scope of work for the slope restoration. The City's project calls for the reinforcement with soil cement of an existing retaining wall along west side of Ocean View, which has been undermined over the past few years.

At the Engineering Committee meeting on September 28, 2016, staff discussed the following three (3) options for the Slope Repair and Pipeline Replacement project (see attached staff report for more information):

- **Option 1:** Repair the slope and install a new 8-inch pipeline from the bottom of the slope and reconnect to the existing water main on Ocean View Blvd.
- **Option 2:** Repair the slope and install a new 8-inch pipeline from the bottom of the slope and reconnect at the angle point near the top of the slope where the pipeline goes underground and through the easement.
- **Option 3:** Repair the slope, replace a small section of 8-inch pipeline where the break occurred and bury the existing pipeline with slurry.

The Engineering Committee discussed these options and other factors such as the project schedule, the disruption to each property owner and coordination with LCF. The Committee requested that staff talk to legal counsel about CVWD's liability and discuss this project further at the next Board meeting. Staff was also asked to investigate trenchless technology such as pipe bursting and slip-lining to replace the pipeline using the same alignment between the properties at 5474 & 5481 Ocean View.

Staff presented a preliminary project schedule that showed project design in October - December, 2016 and construction starting in February 2017. A key factor is obtaining permits from the City of La Canada Flintridge, Los Angeles County Public Works Department, U.S. Army Corps of Engineers, California Department of Fish and Wildlife and California Regional Water Quality Control Board, which could take between 60 and 90 days to complete. Staff also, discussed the need for assistance from the Board with respect to awarding contracts to the consultants and advertising for bids in a timely fashion.

RECOMMENDATION:

Staff recommends proceeding with Option 2, which has less impact to the property at 5481 Ocean View, and the pipeline remains within the easement on 5474 Ocean View.

Staff recommends that the Board authorizes the General Manager to enter into professional services agreements with AMEC Foster Wheeler & DMc Engineering for a total cost of \$75,000 for the design of the Lower Pickens Canyon pipeline crossing repair.

Staff is planning to complete the following next steps:

1. Request AMEC Foster Wheeler & DMc Engineering to provide proposals for design services
2. Meet with permitting agencies
3. Meet with pipeline contractors for preliminary costs
4. Meet with property owners on the proposed slope repair and pipeline replacement
5. Prepare construction cost estimate
6. Proceed with design of the slope repair and pipeline replacement

ENVIRONMENTAL REVIEW:

N/A

FUNDING AVAILABILITY:

The following table shows that there are sufficient funds available for the project:

Account Description	Amount
FY 16/17 Water CIP– Water Distribution – Pipeline Replacement	\$500,000
Estimate for Consultant Professional Services	<\$75,000>
Amount Remaining in Project	\$425,000

Prepared by:



David S. Gould, P.E.
District Engineer

Submitted by:

Thomas A. Love
General Manager

Attachment:

1. Staff report from 9/28/19 Engineering Committee Meeting

CRESCENTA VALLEY WATER DISTRICT

STAFF REPORT

Information Item No. 3
September 29, 2016

To: Engineering Committee
From: David S. Gould, P.E. – District Engineer
Subject: Lower Pickens Canyon Pipeline Crossing Repair, Project E-957

ITEM:

Lower Pickens Canyon Pipeline Crossing Repair, Project E-957 – Status of Pickens Canyon Slope Repair and Pipeline Replacement Project

Background:

On May 30, 2015, a water main break occurred on the Lower Pickens Canyon pipeline crossing which is located on the slope near 5481 Ocean View Blvd. This pipeline is one of three pipelines which cross Pickens Canyon at three locations. This pipeline was installed in 1956 and repaired in 1972.

The pipeline was repaired with a stainless steel clamp to restore water to the area. The pressure in the pipeline is approximately 150 psi and the natural slope above and below the pipeline was severely eroded by the water. The existing pipeline was also undermined and there is no soil supporting it.

Staff determined that the pipeline would have to be repaired or replaced to prevent any future leaks. Staff also concluded that the slope would have to be replaced to provide a structural base for the pipeline to prevent any future erosion of slope.

Staff worked with DMC Engineering and AMEC Foster Wheeler on the design of the pipe & slope stabilization and erosion control plan. This plan was an interim plan to install sand bags with slurry to support the exposed pipeline and to prevent further erosion of the slope during the rainy season. The installation of the pipe & slope stabilization and erosion control plan was performed by West End Engineering and was completed on February 19, 2016.

Staff met with Mr. Jack Tasso, property owner at 5481 Ocean View Blvd in September 2016. Mr. Tasso expressed his concerns about the construction schedule and how it will affect his property. Staff had indicated construction may begin in January or February 2017.

In addition, the City of La Canada Flintridge is doing a pavement replacement project on Ocean View Blvd. from Foothill Blvd to the top of Ocean View. The project also includes restoration of the existing slope on a portion of Ocean View Blvd, just north of the project site. Staff will be meeting with LCF to get more information.

Discussion:

Staff has met with DMC Engineering and AMEC Foster Wheeler in July and August 2016 regarding alternatives for the replacement of the pipeline and final repair of the existing slope. In September 2016, a team of geologists from AMEC Foster Wheeler visited the site to observe the slope after the interim plan was completed (see Exhibit “A” Slope Stabilization Observations presentation). The photos show that the interim plan of sand bags, slurry-filled berms, and plastic sheeting have held over the last seven (7) months.

From the discussions with the consultant team, Staff is presenting three (3) options for the Slope Repair and Pipeline Replacement, which are as follows:

Option 1: Repair the slope and install a new 8-inch pipeline from the bottom of the slope and reconnect to the existing water main on Ocean View Blvd. (See Exhibit “B” for location map).

- a. Repair the existing slope by installing additional slurry-filled berms and add additional slurry to within 24-inches of finish surface.
- b. Install an 8-inch HDPE pipeline on top of the slurry from the exposed pipeline near the bottom of the channel to within 4 – 8 feet of the top of the slope; trench from the top of slope in a new alignment within 5481 Ocean View to install the new pipeline and reconnect with a new valve on Ocean View Blvd.
- c. Place 24-inches of fill soil with erosion control matting from the top of the slurry to the existing finish grade using the slurry-filled berms as benches to contain the soil.

Option 2: Repair the slope and install a new 8-inch from the bottom of the slope and reconnect at the angle point where the pipeline goes underground and through the easement. (See Exhibit “B” for location map).

- Repair the existing slope by installing additional slurry-filled berms and add additional slurry to within 24-inches of finish surface.
- Install an 8-inch HDPE pipeline on top of the slurry from the exposed pipeline near the bottom of the channel to within 4 – 8 feet of the top of the slope and reconnect to the existing pipeline within the easement area on 5474 Ocean View.
- Place 24-inches of fill soil with erosion control matting from the top of the slurry to the existing finish grade using the slurry-filled berms as benches to contain the soil.

Option 3: Repair the slope, replace a small section of pipeline where the break occurred and bury the existing pipeline with the slurry. (See Exhibit “B” for location map).

- Repair the existing slope by installing additional slurry-filled berms and add additional slurry to within 24-inches of finish surface.
- Repair the existing water main by installing a small section (about 6 feet) 8-inch steel pipeline where the break occurred.
- Bury the exposed portions of the pipeline with slurry.
- Place 24-inches of fill soil with erosion control matting from the top of the slurry to the existing finish grade using the slurry-filled berms as benches to contain the soil.

Staff and its consultants evaluated each option and developed a list of advantages and disadvantages for each option as shown below:

Option 1	
Advantage	Disadvantage
Replace pipeline installed in 1956 (60 years) and repaired in 1972 (44 years)	New alignment would require a new waterline easement at 5481 Ocean View
New pipeline should last for an additional 40 to 50 years	Existing driveway would have to be removed and replaced
New alignment will provide for easier access for pipeline maintenance	Project would require permits from LCF
Slope will be repaired	Project could affect LCF's paving project on Ocean View
	Construction costs will be higher than Options 2 & 3
	Estimated construction schedule 3 - 5 months

Option 2	
Advantage	Disadvantage
Replace a portion of the pipeline installed in 1956 (60 years) and repaired in 1972 (44 years)	Portion of the pipeline along 5474 Ocean View will still be the 1956 pipeline (risk of future failure)
New pipeline should last for an additional 40 to 50 years	Need access to 5481 Ocean View for construction
Pipeline would remain in same alignment and easement area within property at 5474 Ocean View	Construction costs will be higher than Option 3
Existing driveway would not have to be removed and replaced	Estimated construction schedule 1 - 2 months
Project would not require permits from LCF	
Project would not affect LCF's paving project on Ocean View	
Slope will be repaired	
Construction costs will be lower than Option 1	

Option 3	
Advantage	Disadvantage
Pipeline encased in slurry backfill	1956 & 1970 pipeline will not be replaced & risk of future failure
Pipeline would remain in same alignment	Need access to 5481 Ocean View for construction
Existing driveway would not have to be removed and replaced	Estimated construction schedule 1 month
Project would not require permits from LCF	
Project would not affect LCF's paving project on Ocean View	
Construction costs will be lower than Option 1 & 2	
Slope will be repaired	

Permits: Meet with the following to discuss permits:

- o City of La Canada Flintridge
- o Los Angeles County
- o U.S. Army Corps of Engineers
- o California Department of Fish and Wildlife
- o California Regional Water Quality Control Board

Pipeline Replacement: Staff to meet with HDPE or PVC Pipe contractors to discuss access, constructability and preliminary costs.

Project Schedule: See attached project schedule (See Exhibit "C").for discussion

Recommendation:

Staff recommends proceeding with Option 2, which has less impact to the property at 5481 Ocean View, and the pipeline remains within the easement on 5474 Ocean View.

Staff is planning to complete the following next steps:

1. Request AMEC & DMC Engineering to provide proposals for design services
2. Meet with the permitting agencies
3. Meet with the pipeline contractors for preliminary costs
4. Meet with the property owners on the proposed slope repair and pipeline replacement
5. Prepare construction cost estimate
6. Proceed with design of the slope repair and pipeline replacement project

Prepared by:



David S. Gould, P.E.
District Engineer

Submitted by:

Thomas A. Love
General Manager

Attachment:

1. Exhibit "A" - Slope Stabilization Observations
2. Exhibit "B" - Location Map
3. Exhibit "C" - Project Schedule

From: [Jack Tasso](#)
To: [David Gould](#)
Cc: [Thomas Love](#); [Bryan Jones](#)
Subject: RE: 5481 Ocean View Blvd
Date: Sunday, September 18, 2016 6:46:44 PM

David,

After our conversation on Friday (9/16) I wanted to put in writing the serious problems that we will be facing with the permanent replacement of the new water line. I am retiring at the end of the year and we are relocating in the Spring of 2017 to Arizona as our daughter is having her 3rd child in April and we need to be there to help her. We are putting our house up for sale at the end of February, so we talked to a real estate specialist this weekend concerning our issues. She confirmed that it would be impossible to sell the house with a construction project going on. She also said that we would not be able to sell the house with the project pending, even with disclosure of the project, as potential buyers would be put off or it would greatly impact the sale price of the house (of which we cannot afford). This puts us in a very bad financial situation as we have invested heavily in this property with purchase and full renovation with our retirement funds and we cannot relocate without the funds from the sale of the house.

In addition, you discussed the possibility of running the pipe on our property, where currently it is on our neighbor's property. We realize that we granted permission for access through our property but never thought that you would consider running the pipeline through our property. We urge you to consider other alternatives.

As you know, the pipe broke in May 2015 (16 months ago) and we have been very co-operative in allowing you access to the area for the temporary fix. Please take into account our problems as this is a major issue for us and we need you to **complete** the permanent pipeline project as soon as possible so that we can proceed with the sale of the house in the 1st quarter of 2017, which is the prime time to sell this property.

Please advise us of the outcome of your upcoming project review meeting and what your schedule will be.

Sincerely,
John & Joyce Tasso

From: David Gould [mailto:dgould@cvwd.com]
Sent: Wednesday, May 04, 2016 2:35 PM
To: jtasso@tsryarns.com
Cc: Thomas Love; Bryan Jones; Derek McGregor (dmcgregor@dmcceng.com); Hamer, Greg
Subject: RE: 5481 Ocean View Blvd

Jack –

Good afternoon.

The next step will be to work on the design to replace the slope and pipeline.

We plan on meeting with our design team this month to layout a project schedule and options.

After we meet, I'll get back to you on the status of the project.

Thanks,

David S. Gould, P.E.
District Engineer
Crescenta Valley Water District
2700 Foothill Blvd.
La Crescenta, CA 91214
(818) 248-3925
(818) 236-4119 (direct)
(818) 284-5813 (cell)
(818) 248-1659 (fax)

From: Jack Tasso [mailto:jtasso@tsryarns.com]
Sent: Tuesday, May 3, 2016 9:20 AM
To: David Gould
Cc: Thomas Love; Bryan Jones
Subject: 5481 Ocean View Blvd

David,
Please provide us with an update regarding the schedule for the permanent repair of the pipe/hillside project.
Thank you, Jack & Joyce Tasso

This email has been scanned for email related threats and delivered safely by Mimecast.
For more information please visit <http://www.mimecast.com>

Pickens Canyon

Slope Stabilization Observations

September 22, 2016

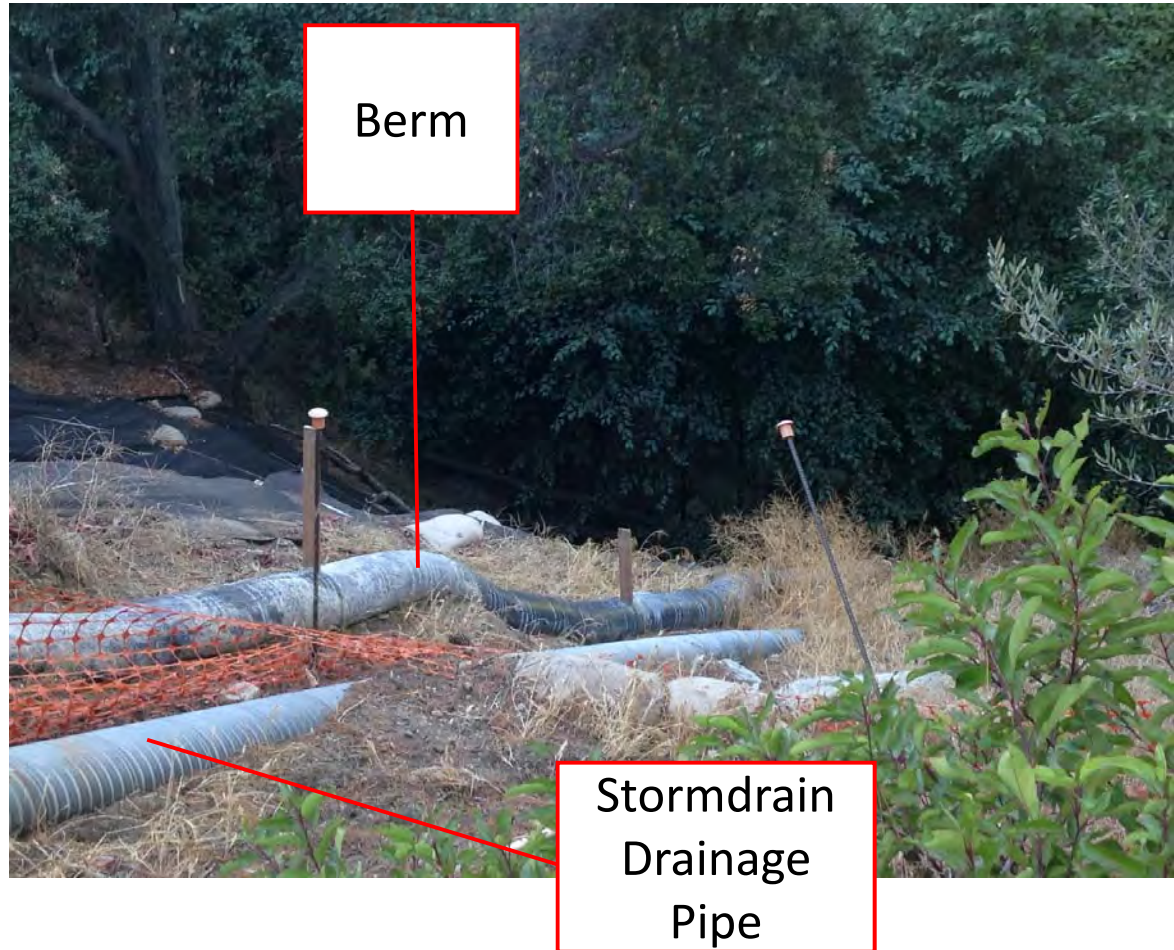
VIEW LOOKING SOUTH AT SLOPE REPAIR.



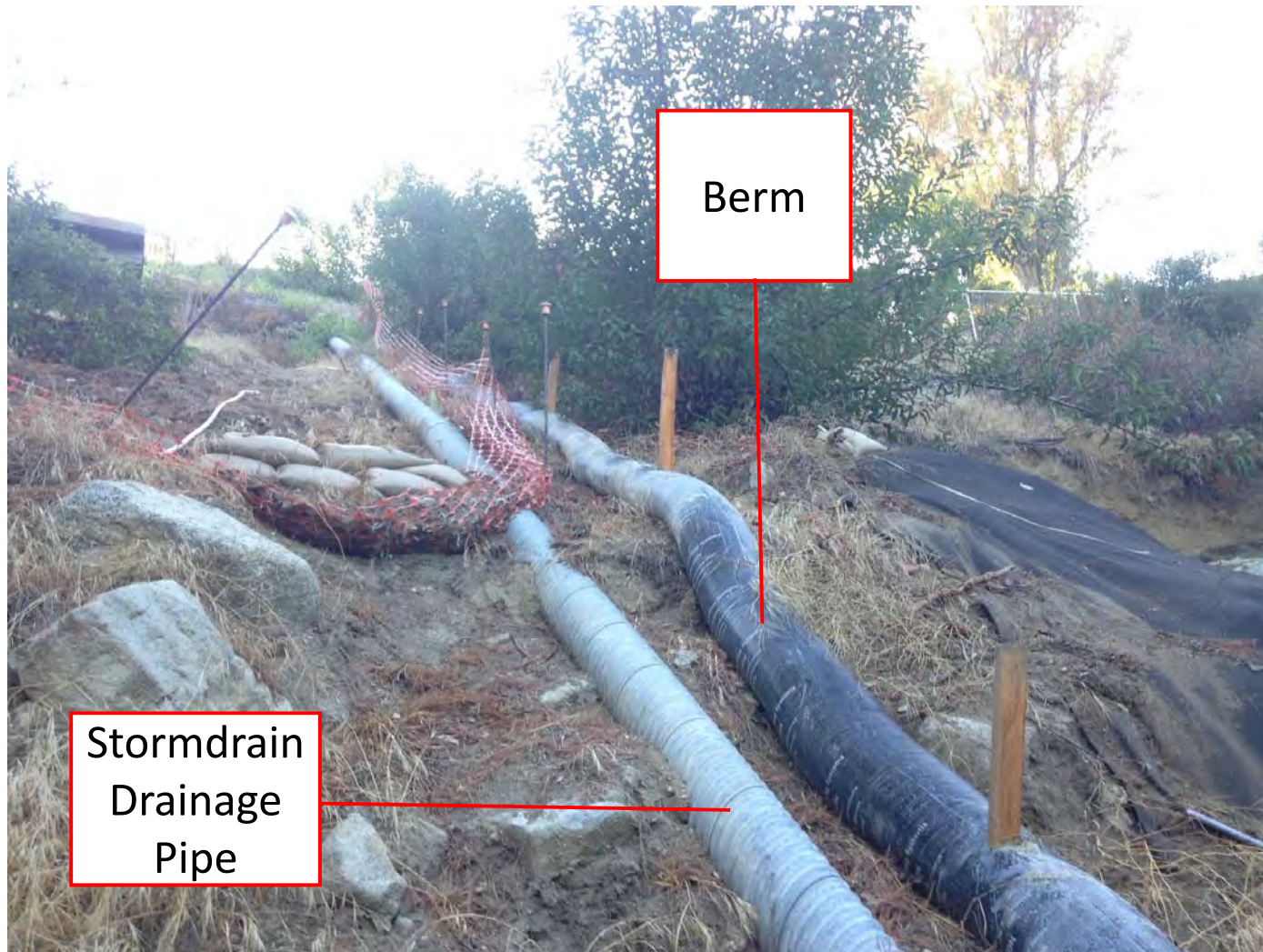
DOUBLE
SANDBAG

VIEW FROM THE WEST SLOPE LOOKING DOWN INTO THE CANYON

- Slurry-filled berm tube is secured along the slope with wooden stakes.
- This mechanism acts as a berm to prevent erosion of the slope and protect the integrity of the water pipe.



View standing on the western slope and looking up the slope



A tear was observed in the plastic covering and likely developed because of the jagged rock underlying rock.



Close-up image of a rock that pierced through the plastic covering.



VIEW LOOKING UPWARDS WHILE STANDING NEAR THE BOTTOM OF THE SLOPE REPAIR.

Water
pipeline



Double
sandbag

Supersacks

ABS
Drainage
Pipe



Water
pipeline

Double
Sandbag

Original
Concrete

ABS
Drainage
Pipe

VIEW STANDING NEAR THE BOTTOM OF THE CANYON.



Double
Sandbag

Western Slope:
Lowest exposed
portion of water
main pipe is
approximately 20
feet above the
canyon bottom.

Original
concrete
over pipe



Double
Sandbag

ABS
Drainage
Pipe

View from western slope looking down into the canyon: Double row of sandbags observed in place.

Double
Sandbag



Location where pipeline crosses the canyon bottom: the pipeline is not exposed, but the concrete encasement is. **Red lines show edges of concrete encasement**



View facing upstream: concrete encasement where water pipe crosses the channel. Concrete exposure is an estimated 3 to 4-feet in long and 1-foot in wide.



View from west-bank of creek: concrete encasement protecting the pipe crosses the channel. Large boulder observed nearby.



Direction of water
flow in canyon
bottom

A view of the slope stabilization from the bottom of the canyon. Creek flow is to viewer's back.

Water
pipeline



Original
Concrete

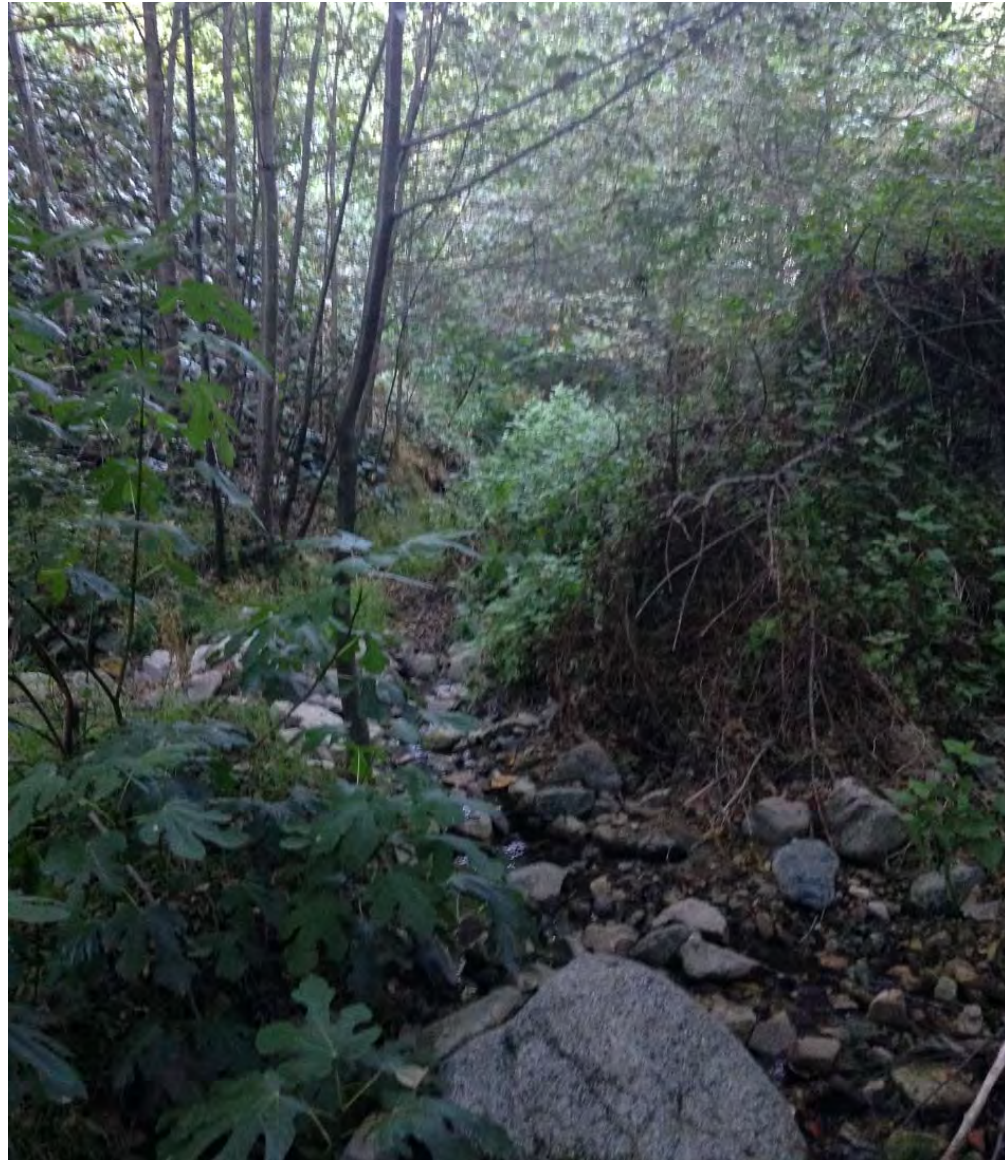
View from canyon bottom looking up east-facing slope

East-Facing
slope Water
Main
Exposed



Flagged
location of
buried water
line

Upstream of the
intersection
between the
pipeline and creek.



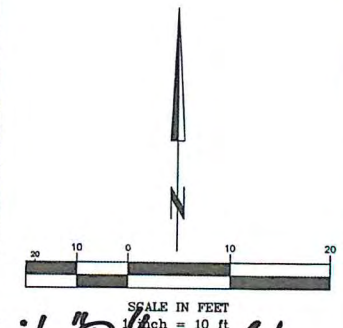
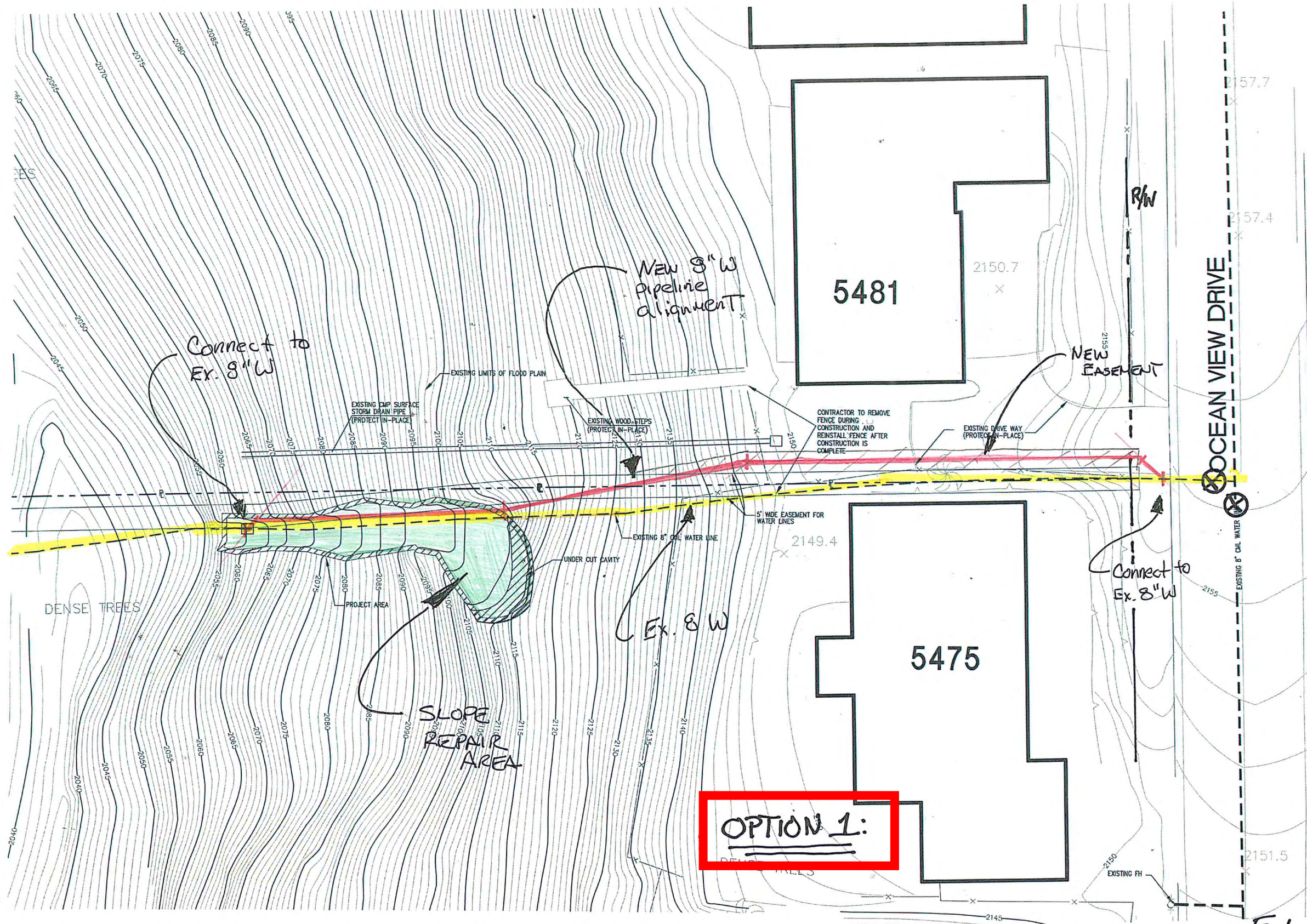


Exhibit "B" 1/3

UNDERGROUND SERVICE ALERT DIAL ALERT PLAY IT SAFE. DIAL BEFORE YOU DIG! AT LEAST TWO WORKING DAYS PRIOR TO EXCAVATING	REVISIONS DESCRIPTION APP. DATE		PREPARED BY: DMC ENGINEERING Civil • Surveying • Planning • Construction 18 Technology Drive, Suite 100 Irvine, CA 92618 949-733-9393 • www.dmceng.com	SEAL: 	SCALE: AS SHOWN DATE: OCT. 2015 DRAWN BY: M. RAMOS DESIGNED BY: DJM APPROVED: AS BUILT:	CRESCENTA VALLEY WATER DISTRICT PIPE AND SLOPE STABILIZATION AND EROSION CONTROL SITE PLAN	SHT. 2 OF 4 SHTS. COMPLETION DATE: JOB NO. 1245-02 FILE NO.
	01.18.15 01.15.15 02.28.15						

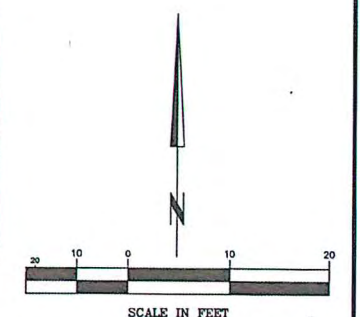
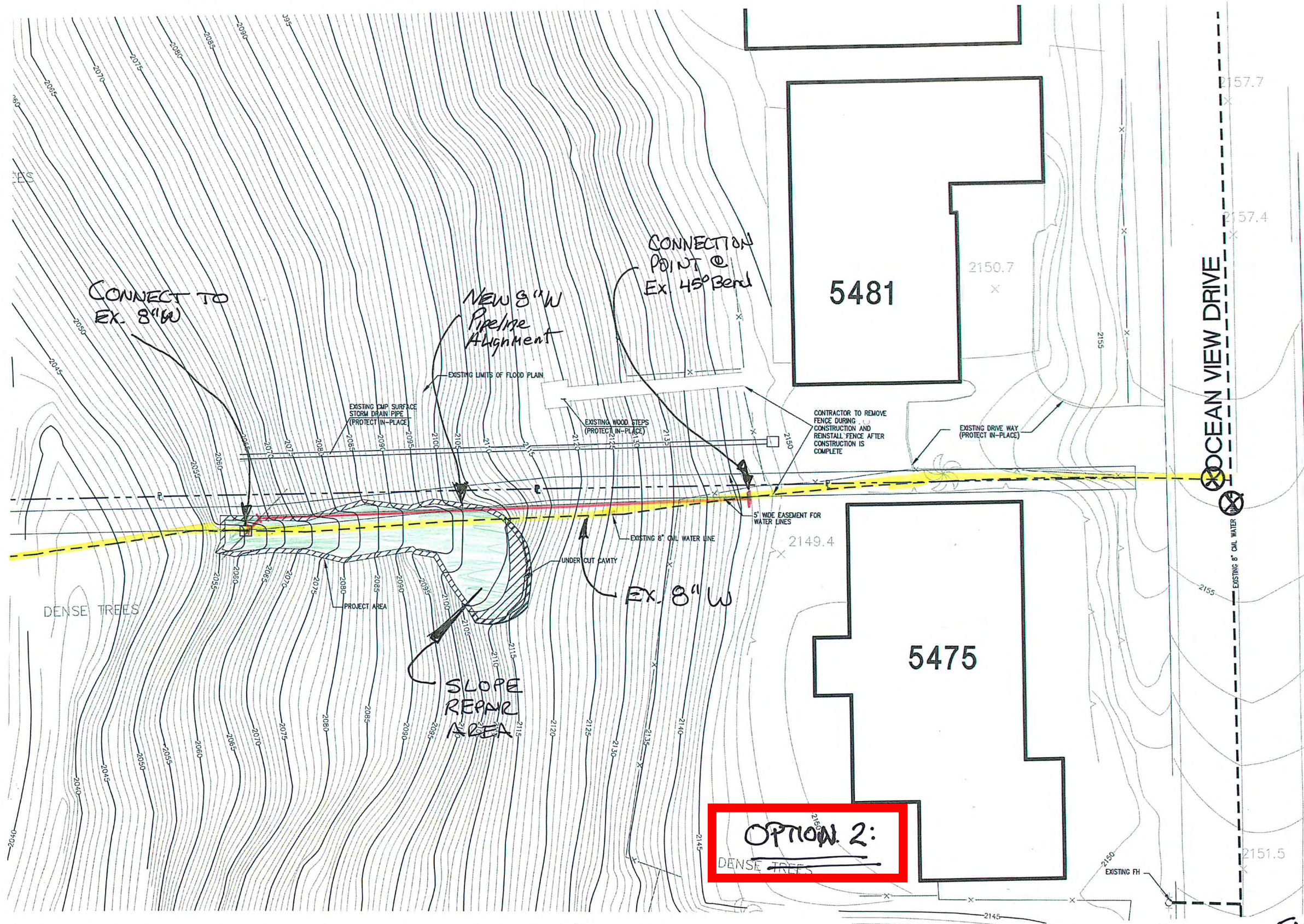
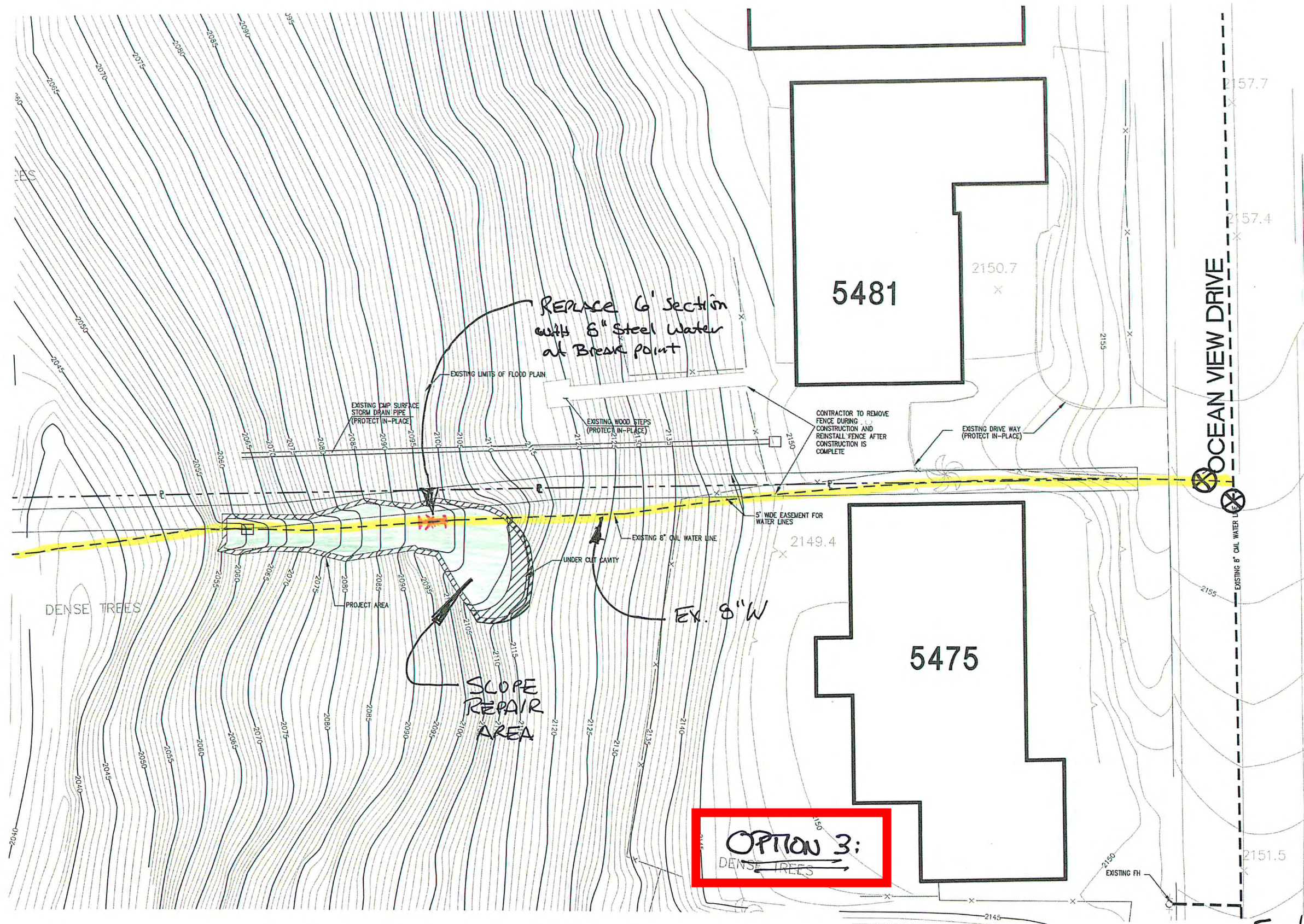


EXHIBIT "B" 2/3

UNDERGROUND SERVICE ALERT 1-800-227-2600 DIAL ALERT PLAY IT SAFE. DIAL BEFORE YOU DIG! AT LEAST TWO WORKING DAYS PRIOR TO EXCAVATING		REVISIONS NO. DESCRIPTION APP. DATE		PREPARED BY: DMC ENGINEERING Civil • Surveying • Planning • Construction 18 Technology Drive, Suite 100 Irvine, CA 92618 949-733-9393 • www.dmceng.com		SEAL: REGISTERED PROFESSIONAL ENGINEER DEREK J. MCGREGOR No. 33493 Exp. 2-31-17 CIVIL STATE OF CALIFORNIA		SCALE: AS SHOWN DATE: OCT. 2015 DRAWN BY: M. RAMOS DESIGNED BY: DJM APPROVED: AS BUILT:		CRESCENTA VALLEY WATER DISTRICT PIPE AND SLOPE STABILIZATION AND EROSION CONTROL SITE PLAN		SHT. 2 OF 4 SHTS. COMPLETION DATE: JOB NO. 1245-02 FILE NO.	
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AutoCAD 2015 User: P:\Users\jmcgregor\My Documents\Projects\2015\1245-02\1245-02.dwg, 11/18/2015 3:45:35 PM



OPTION 3:
DENSE TREES

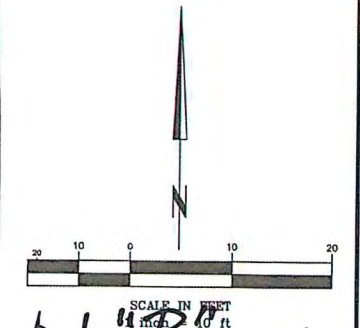


Exhibit "B" 3/3

UNDERGROUND SERVICE ALERT DIG ALERT PLAY IT SAFE. DIAL BEFORE YOU DIG! AT LEAST TWO WORKING DAYS PRIOR TO EXCAVATING	REVISIONS		PREPARED BY:	SEAL:	SCALE: AS SHOWN	DATE:	CRESCENTA VALLEY WATER DISTRICT	SHT. 2 OF 4 SHTS.	
	NO.	DESCRIPTION	APP.	DATE	DMC ENGINEERING Civil • Surveying • Planning • Construction 18 Technology Drive, Suite 100 Irvine, CA 92618 949-733-9393 • www.dmceng.com	DIRECTOR OF ENGINEERING Derek J. McGreggor No. 35483 Exp. 3-31-17 CIVIL STATE OF CALIFORNIA			DRAWN BY: M. RAMOS DESIGNED BY: D.J.M. APPROVED: AS BUILT:
PIPE AND SLOPE STABILIZATION AND EROSION CONTROL								JOB NO. 1245-02	FILE NO.
SITE PLAN									

Exhibit "C"
Preliminary Project Schedule
Lower Pickens Canyon Crossing Repair, Project E-957

TASK	Start Date	End Date	Calendar Days		Revised Start Date	Revised End Date	Calendar Days		Project Manager
Preliminary Design Mtg #1	7/14/16	7/14/16	0						CVWD/DMC
Preliminary Design Mtg #2 - Discuss Options	9/8/16	9/8/16	0						CVWD/DMC/AMEC
Preliminary Design Memo	9/8/16	9/27/16	19						DMC/AMEC
Engineering Committee	9/27/16	9/29/16	2		9/27/16	9/29/16	2		CVWD
Scope of Work/RFP/Proposal - Design	9/27/16	10/12/16	15		9/29/16	10/7/16	8		CVWD
Staff Report	10/12/16	10/14/16	2						CVWD
Award Contract	10/14/16	10/18/16	4		10/7/16	10/10/16	3		CVWD
Preliminary Design & Meet with LA County	10/19/16	11/11/16	23		10/10/16	10/14/16	4		DMC
Preliminary Geotechnical Report	10/19/16	11/11/16	23		10/14/16	10/18/16	4		AMEC
Design Meeting	11/11/16	11/16/16	5		10/18/16	10/21/16	3		CVWD
Final Design Plans & Specifications	11/16/16	12/16/16	30		10/21/16	11/4/16	14		DMC
Review Design Plans & Specifications	12/16/16	12/23/16	7		11/4/16	11/7/16	3		CVWD
Permits	10/19/16	12/18/16	60		11/4/16	1/3/17	60		CVWD/DMC/AMEC
Staff Report	12/23/16	12/30/16	7		11/7/16	11/11/16	4		CVWD
Advertise for Bids	12/30/16	1/3/17	4		11/11/16	11/15/16	4		CVWD
Pre-Bid meeting	1/3/17	1/24/17	21		11/15/16	12/6/16	21		CVWD/DMC/AMEC
Bid Opening	1/24/17	2/12/17	19		12/6/16	12/25/16	19		CVWD
Staff Report	2/12/17	2/17/17	5		12/25/16	12/30/16	5		CVWD
Award of Contract	2/17/17	2/21/17	4		12/30/16	1/3/17	4		CVWD
Start Construction	2/21/17	3/21/17	28		1/3/17	1/31/17	28		Contractor
End Construction	3/21/17	5/20/17	60		1/31/17	4/1/17	60		Contractor

MEMORANDUM

To: Public Water Agencies Group

From: James D. Ciampa

Re: Senate Bill 814 Compliance

Date: September 27, 2016

On August 29, Governor Brown signed Senate Bill 814 (Hill) into law. This new law adds a chapter to the Water Code to address excessive water use during times of drought. The new law, as discussed below, requires urban retail water suppliers to select between two alternative courses of action to address customers' excessive water use during a drought. In enacting SB 814, the Legislature found it was necessary to "further important state water policies of encouraging water conservation and protecting water resources in the interest of the people and for the public welfare."

This memorandum, in question and answer format, provides guidance to the Group's members in complying with SB 814's new mandates.

1. To Whom does SB 814 Apply? SB 814 applies to "urban retail water suppliers," as defined in Water Code Section 10608.12 as "a water supplier, either publicly or privately owned, that directly provides potable municipal water to more than 3,000 end users or that supplies more than 3,000 acre-feet of potable water annually at retail for municipal purposes." Thus, if your agency has more than 3,000 service connections or supplies more than 3,000 acre-feet of water to retail customers, you must comply with SB 814.

2. When does SB 814 Apply? SB 814 applies in the following three instances:

(i) **Statewide and Local Drought:** during a period when the governor has proclaimed a statewide drought emergency and an urban retail water supplier has moved to a stage of action in its water shortage contingency plan that requires mandatory water use restrictions due to a local water supply shortage;

(ii) **Local Drought (no Governor Declaration)**: where an urban retail water supplier has moved to a stage of action in its water shortage contingency plan that requires mandatory water use restrictions due to a local water supply shortage; or

(iii) **Local Drought (Governor Declaration regarding Local Conditions)**: where an urban retail water supplier is affected by local drought conditions during a period where the governor has declared a state of drought emergency based on local drought conditions.

Thus, SB 814 can apply in situations where the governor proclaims statewide or local drought conditions (subdivisions i and iii, respectively), or where the local water supplier requires mandatory water use restrictions under its water shortage contingency plan due to local water shortage conditions, regardless of the governor's proclamation of drought (subdivision ii).

3. What Actions Must an Urban Retail Water Supplier Take to Comply with SB 814? If one of the conditions specified in Item 2, above, is met, then the urban retail water supplier must establish a method to identify and discourage excessive water use by either:

(i) **Establishing a rate structure that discourages excessive water use.** Such a rate structure may be tiered rates, water budgets or rate surcharges for excessive water use that are over and above base rates, but any such structure must comply with applicable constitutional and statutory limitations (see Item 6, below); or

(ii) **Establishing an excessive water use ordinance or rule, or amending an existing ordinance or rule.** Such an ordinance or rule must include a definition of, or a procedure to identify and address, excessive water use by metered customers (i.e., single-family metered residences or multi-unit housing where each unit is individually metered). That ordinance or rule **may** include a process to issue written warnings to a customer and perform a site audit of customer water usage prior to deeming the customer in violation.

4. What is Considered "Excessive Water Use" for Purposes of SB 814? Under SB 814, the water supplier is to create its own definition as to what constitutes "excessive water use" in its jurisdiction. Water Code Section 366(b)(2)(B) specifies the factors an urban retail water supplier may consider in developing that definition of "excessive water use." Those factors include: (i) average daily use; (ii) full-time occupancy of households; (iii) amount of landscaped land; (iv) rate of evapotranspiration; and (v) seasonal weather changes. SB 814 does not preclude other factors from being considered in that definition.

5. What Penalties are Authorized by SB 814? SB 814 authorizes the water supplier to determine the penalty for an excessive water use violation, but specifically authorizes fines of up to \$500 per 100 cubic foot billing unit used above the supplier's particular excessive water use threshold. The exact fine amount is left up to the discretion

of the water supplier and is not a mandatory amount. Any such fine is to be added to the violating customer's next water bill, to be due and payable with that bill. The water supplier must also have a process in place, consistent with due process (i.e., notice and an opportunity to be heard), with respect to the possible non-payment of the fine, and that process must be reasonably similar to the supplier's existing process for non-payment of a water bill, such as for terminating water service.

6. How does Proposition 218 Impact Compliance with SB 814? As mentioned in Item 3(i), above, one of the ways to comply with SB 814 is to implement a rate structure that discourages excessive water use. However, that rate structure must comply with applicable constitutional and statutory limitations; namely, Proposition 218. Thus, after the *San Juan Capistrano* decision, the rates under any such structure must be justified by the water supplier's costs of service, including any increased costs the supplier incurs by reason of the excessive water use. Such increased costs may, for example, consist of increased water acquisition costs, funding for water conservation programs and peaking costs incurred by reason of the excessive water use.

7. What are a Customer's Appeal Rights under SB 814? The water supplier must establish an appeal process to allow a customer to contest any fine imposed for excessive water use. That appeal process must allow the customer to present evidence that there was not excessive water use or of a bona fide reason for the excessive water use, such as a water leak, a medical reason or any other reasonable justification for the water use. As part of that appeal, the water supplier must provide documentation demonstrating the excessive water use.

8. Can the Urban Retail Water Supplier Recover its Costs for Complying with SB 814? No. Section 2 of SB 814 expressly states that no mandated cost recovery is applicable because any costs to be incurred are due to the fact that SB 814 creates a new crime or infraction, which is exempt from mandated cost recovery under the applicable constitutional provision.

9. How do We Comply with SB 814? SB 814 will take effect on January 1, 2017. Thus, those members who are urban retail water suppliers subject to this new law must take steps to comply with its provisions. We suggest the following:

(i) Determine what alternative your agency will pursue to identify and discourage excessive water use – either by rate structure or by ordinance/rule.

(ii) If you choose the rate structure alternative, you will need to develop that structure in a manner that includes a component that specifically discourages excessive water use and that component must be justified by the costs your agency incurs as a result of the excessive water use (or the penalty component should be separated out from the rate structure so it is a separate charge that would not be interpreted to be a "property-related fee or charge" to which Proposition 218 applies and would be exempt from application of Proposition 26 by reason of it being a fine/penalty). That rate structure must therefore include a determination of what level of use will constitute "excessive water

use.” It would be prudent to engage a rate consultant to assist in developing that structure, or, if your agency already has such a rate structure in place, to determine whether any changes are necessary to ensure compliance with SB 814.

(iii) If you choose to proceed with addressing SB 814’s requirements by adopting a new ordinance or rule, or amending an existing ordinance or rule, then the following steps should be taken:

(a) If you are amending an existing ordinance or rule, you must first review the existing provisions to determine what changes will be required to ensure compliance with SB 814. Such changes likely will include adding the definition of “excessive water use” (including the factors that would apply in making that determination), amending or adding any fine provisions (if so desired), describing any billing issues to be added relative to collection of fines and providing an appeal process.

(b) If you are adopting a new ordinance or rule, you will need to include the same components mentioned in subdivision (a) in that ordinance or rule. You also may want to include other water conservation-related issues in that ordinance or rule.

Conclusion: Each Group member is likely to have different thoughts as to how it desires to comply with SB 814 in light of its unique water supply situation, existing rate structure and existing water shortage or water conservation rules or ordinances. It may be worthwhile to schedule a conference call among those members who are subject to SB 814 to discuss at a more macro level how the Group’s various members foresee complying with these new requirements. We would be happy to facilitate that call.

**CRESCENTA VALLEY WATER DISTRICT
INVESTMENT PORTFOLIO SUMMARY
September 30, 2016**

INVESTMENT TYPE	ACCT/CUSIP I.D. NO.	PURCHASE DATE	*FACE VALUE	INVESTMENT COST	% OF TOTAL	**MARKET VALUE	MATURITY DATE	DATE CALLABLE	EARNED TO DATE	YIELD TO MATURITY
GENERAL FUNDS										
GENERAL FUND-SWEEP ACCOUNT	0631-525246		\$ 55,354	\$ 55,354	0.36%	\$ 55,354	none	n/a	\$ 19	0.02%
GREAT PACIFIC SECURITIES	GPC-804452		\$ -	\$ -	0.00%	\$ -	none	n/a	\$ -	0.02%
BOND DEBT SERVICE FUND	6948-331525		\$ 264,987	\$ 264,987	1.71%	\$ 264,987	none	n/a	\$ 16	0.06%
LOCAL AGENCY INVESTMENT FUND	90-19-007		\$ 2,131,273	\$ 2,131,273	13.77%	\$ 2,131,273	none	n/a	\$ 2,365	0.55%
TRANSFER FROM MTBE RESERVE			\$ 2,000,000	\$ 2,000,000	12.93%	\$ 2,000,000				
FEDERAL FARM CREDIT (83)	3133EAY28	10/9/2012	\$ 500,000	\$ 502,885	3.25%	\$ 499,945	9/21/2017	n/a	\$ 705	0.71%
FEDERAL FARM CREDIT (87)	3133EC4Y7	11/19/2012	\$ 500,000	\$ 500,000	3.23%	\$ 500,005	11/27/2017	n/a	\$ 790	0.93%
FEDERAL FARM CREDIT (101)	31331VY26	6/14/2016	\$ 1,000,000	\$ 1,211,530	7.83%	\$ 1,197,460	8/16/2021	n/a	\$ 9,342	1.26%
FEDERAL FARM CREDIT (103)	31331VQG4	8/2/2016	\$ 1,000,000	\$ 1,287,830	8.32%	\$ 1,273,280	2/6/2026	n/a	\$ 4,132	1.88%
			\$ 7,451,614	\$ 7,953,859		\$ 7,922,304			\$ 17,369	
CONSTRUCTION FUNDS										
COPS RESERVE FUND	108614000		\$ 617,247	\$ 617,247	3.99%	\$ 617,247	none	n/a	\$ 17	0.02%
			\$ 617,247	\$ 617,247		\$ 617,247			\$ 17	
MTBE CONTINGENCY FUNDS										
LOCAL AGENCY INVESTMENT FUND	90-19-007		\$ 4,000,000	\$ 4,000,000	25.85%	\$ 4,000,000	none	n/a	\$ -	0.55%
GREAT PACIFIC SECURITIES	GPC-003670		\$ 94,278	\$ 94,278	0.61%	\$ 94,278	none	n/a	\$ -	0.02%
TRANSFER TO WATER RESERVE			\$ (2,000,000)	\$ (2,000,000)	-12.93%	\$ (2,000,000)				
FEDERAL FARM CREDIT (M-48)	3133ED4U3	5/11/2016	\$ 500,000	\$ 518,915	3.35%	\$ 516,075	10/11/2019	n/a	\$ 1,805	0.99%
FEDERAL FARM CREDIT (M-49)	3133EA5N4	5/11/2016	\$ 1,250,000	\$ 1,260,763	8.15%	\$ 1,256,125	10/22/2019	n/a	\$ 2,654	0.99%
US TREASURY (M-53)	912828R36	7/12/2016	\$ 1,000,000	\$ 1,013,212	6.55%	\$ 1,003,790	5/15/2026	n/a	\$ 2,226	1.48%
US TREASURY (M-54)	912828S76	8/5/2016	\$ 1,000,000	\$ 1,002,175	6.48%	\$ 996,720	7/31/2021	n/a	\$ 801	1.08%
US TREASURY (M-55)	912828R36	8/25/2016	\$ 1,000,000	\$ 1,004,930	6.49%	\$ 1,003,790	5/15/2026	n/a	\$ 267	1.57%
			\$ 6,844,278	\$ 6,894,273		\$ 6,870,778			\$ 7,753	
TOTAL INVESTMENTS			\$ 14,913,139	\$ 15,465,379		\$ 15,410,329			\$ 25,140	
CASH- PAYROLL ACCOUNT	0948-024724		\$ 7,357	\$ 7,357	0.05%	\$ 7,357				
TOTAL CASH AND INVESTMENTS			\$ 14,920,495	\$ 15,472,735	100%	\$ 15,417,685			\$ 25,140	0.64%
						\$ (26,920)	***Unrealized Gain/(Loss) on Investments			

Yield on investments including LAIF but not cash accounts	1.09%
Yield on investments not including LAIF or cash accounts	1.21%

I certify that this report accurately reflects all pooled investments and is in compliance with California Government Code Sections 5922 & 53601 as amended on 1/1/97; are currently in conformity with the investment policy as stated in Resolution No. 728 adopted on December 8, 2015.
As Treasurer of the Crescenta Valley Water District, I, Ron L. Mitchell hereby certify that sufficient investment liquidity and anticipated revenues are available to meet one year of estimated expenditures for the operations of Crescenta Valley Water District.

*Value at investment maturity date.

***Reported in compliance with GASB Standard No. 31, effective July 1, 1997, the "fair value" adjustment necessary between cost and market value.

	July 31, 2016	June 30, 2016	May 31, 2016
Water	\$ 11,266,866.22	\$ 11,245,739.55	\$ 11,210,049.46
Wastewater	\$ 4,453,290.40	\$ 4,764,187.73	\$ 4,404,631.74
Total Funds	\$ 15,720,156.62	\$ 16,009,927.28	\$ 15,614,681.20

September 30, 2016
Date

Ron L. Mitchell, Secretary-Treasurer, CVWD

CRESCENTA VALLEY WATER DISTRICT

BOARD OF DIRECTORS - STAFF REPORT

GM Report
October 4, 2016

To: Honorable President and Members of the Board of Directors
From: Thomas A. Love, General Manager
Subject: General Manager Report

Water Sales Status

The budgeted water production for Fiscal Year 2017 is 3,700 acre-feet, or 6% more than produced in FY 2016. Budgeted water sales revenue is \$6.95 million in FY 2017. While it's early, FY 2017 projected water sales revenue to date is trending at budget. Projected water sales revenue for July through October is \$2.78 million versus \$2.77 million budgeted revenue. Imported water purchase expense is trending slightly higher than budget by about \$47,000. However purchase of water from Glendale is trending about \$38,000 under budget. Other water fund expenditures are trending at or below budget. Additional information and details will be provided with the first quarter budget variance report at the October 18th Board meeting.

Revenue Bond Refunding

The tax exempt municipal bond market has improved in recent years such that a refunding of the 2007 outstanding bond debt (\$8.5 million) could result in future debt payment cost savings. Staff has initiated discussions with our bond legal counsel and financial consultant to evaluate potential savings opportunities. Also, the District's debt coverage ratio for Fiscal Year 2015 was 0.45 which is below the required ratio of 1.2. The Fiscal Year 2016 debt coverage ratio is expected to be above 1.2 pending the completion of the audited annual financial report. The debt coverage ratio was also reviewed with the bond legal counsel and financial consultant. Their conclusion is that the low debt coverage ratio reported for FY 2015 should not be of concern and that many water districts have experienced similar situations due to reduced water sales revenue. In addition the District has taken appropriate steps by prudently raising rates and reducing expenses which is looked on favorably by bond rating agencies.

General Manager Objectives

In November 2015 the Board identified objectives for the District and General Manager. The General Manager is also taking the lead on additional projects. The following is a summary of the progress and status for each objective or project.

Objective	Due Date	Status
Long-term strategic plan	December 31, 2016	Leadership Staff Kick-off Workshop held August 30, 2016
Complete Cost of Service Study for water and wastewater	June 30, 2016	Completed

Continued cost containment and improved financial reporting	On Going	In progress.
Develop a ten-year CIP	June 30, 2016	Draft ten-year CIP has been prepared by the District Engineer and presented to the Engineering Committee.
Develop staff succession plan	December 31, 2016	Included organizational and workforce planning in strategic planning process.

Project		
Recycled water evaluation	July 26, 2016	Consultant retained to review draft conceptual evaluation prepared by GM in 2015.
Solar energy evaluation	August 31, 2016	Request sent to solar vendors for evaluation of solar energy potential and cost for the District.
Main office building master plan	December 31, 2016	List of architectural consultants, including local firms, prepared. Discussed with the Engineering Committee

Staffing

This month there are three employment anniversaries: Jayson Ortega, Maintenance Worker – 3 years, Natalie Bellissimo, Water Conservation Specialist – 10 years, and Jim Halaszynski, Plant Maintenance Specialist -19 years.

As of September 30th, the District has worked 843 days without a lost time accident.

CRESCENTA VALLEY WATER DISTRICT

BOARD OF DIRECTORS - STAFF REPORT

October 4, 2016
Staff Report

To: Honorable President and Members of the Board of Directors
From: David S. Gould, P.E. – District Engineer
Subject: District Engineer – Staff Report

1. Water Production Report

- September 1 – 30 – Water production – 44%/ 56% split – 118.7 MG for the time period.
Average use – 20.2% more than 2015 and 16.7% less than 5-yr average

2. Rainfall Update

- 0.15" for September 2016
- Final rainfall total for Rainfall Year 2015/16 – 13.49"
- 6% less than Rainfall Year 14/15 (14.28")

3. Report on Engineering

- **CIP Projects**

- o Ocean View Chloramination Project
 - Testing – Preliminary set for end of October
- o Pipeline Projects
 - 4200 - 4300 Blocks of Pennsylvania (Mills Pumphouse) – under design
- o Pickens Canyon Pipeline Replacement and Slope Repair
 - See Staff Report
- o Paschall Booster Station Upgrades
 - Staff working on Request for Proposal
- o Seismic Sensors & Valve Actuators at Dunsmore & Pickens Reservoir
 - Construction to start in December 2016
- o Wall at Ordunio Reservoir
 - Completed

- **Nitrate Removal Treatment Facility at Well 2 Project**

- Finalizing 50% technical memorandum
- Setting up meeting with Glendale on permit requirements

- **Crescenta Valley County Park Stormwater Recharge Facility Study**

- Task Force Meeting – Tentatively set for October 14, 2016

- **ULARA**

- Administrative Committee meeting on November 3, 2016

- **Water Meter Replacement Program**

- See Staff Report

4. **Report on Administrative and Field Operations**

- **Wells - Status**
 - Well production capacity down - averaging 1.73 MGD for September 2016.
 - Well 10 out of service due well production less than 15 gpm.

5. **Field Maintenance & Operations –September 17 – September 30, 2016**

▪ **Water Lateral Leaks & Repairs**

2810 Community 5144 La Crescenta 4810 Javier

▪ **Fire Hydrant Repair**

- No Report

▪ **Developer Job**

- 2222-2224 Montrose – 14 Units

▪ **Water Main Leaks**

- No Report

▪ **Booster Pump Maintenance**

- Oak Creek Booster “B” - Waiting on New Motor – Late October 2016

▪ **Reservoir Maintenance**

- No Report

▪ **Sewer Maintenance**

2200 Block of Barton	2200 Block of Luna Lane	4200 - 4300 Blocks of Ocean View	2100 Block of La Canada Crest
2100 – 2200 Blocks of Waltonia		4400 Block of Rockland	

CRESCENTA VALLEY WATER DISTRICT

WATER PRODUCTION REPORT

September 1 - September 30, 2016

Well Production:	38,966,449	Gals		
GWP Production:	11,716,034	Gals		
Gravity Production:	1,219,000	Gals	% GW	44%
Purchased Water:				
FMWD:	66,814,000	Gals		
City of Glendale:	0	Gals	% Import	56%
TOTAL:	118,715,483	Gals		
	364.30	ac-ft		

Glenwood Nitrate Water

Reclamation Plant:*

0

*Included in Well Production

WATER DEMAND COMPARISON

	Average Daily Usage (gals)	Current Period Change
September 1, 2016 - September 30, 2016	3,957,183	
September 1, 2015 - September 30, 2015	3,290,865	20.2%
5-yr Average - September 2011 - 2015	4,748,563	-16.7%

RAINFALL: September 1 - September 30, 2016

0.15"

Season-To-Date:

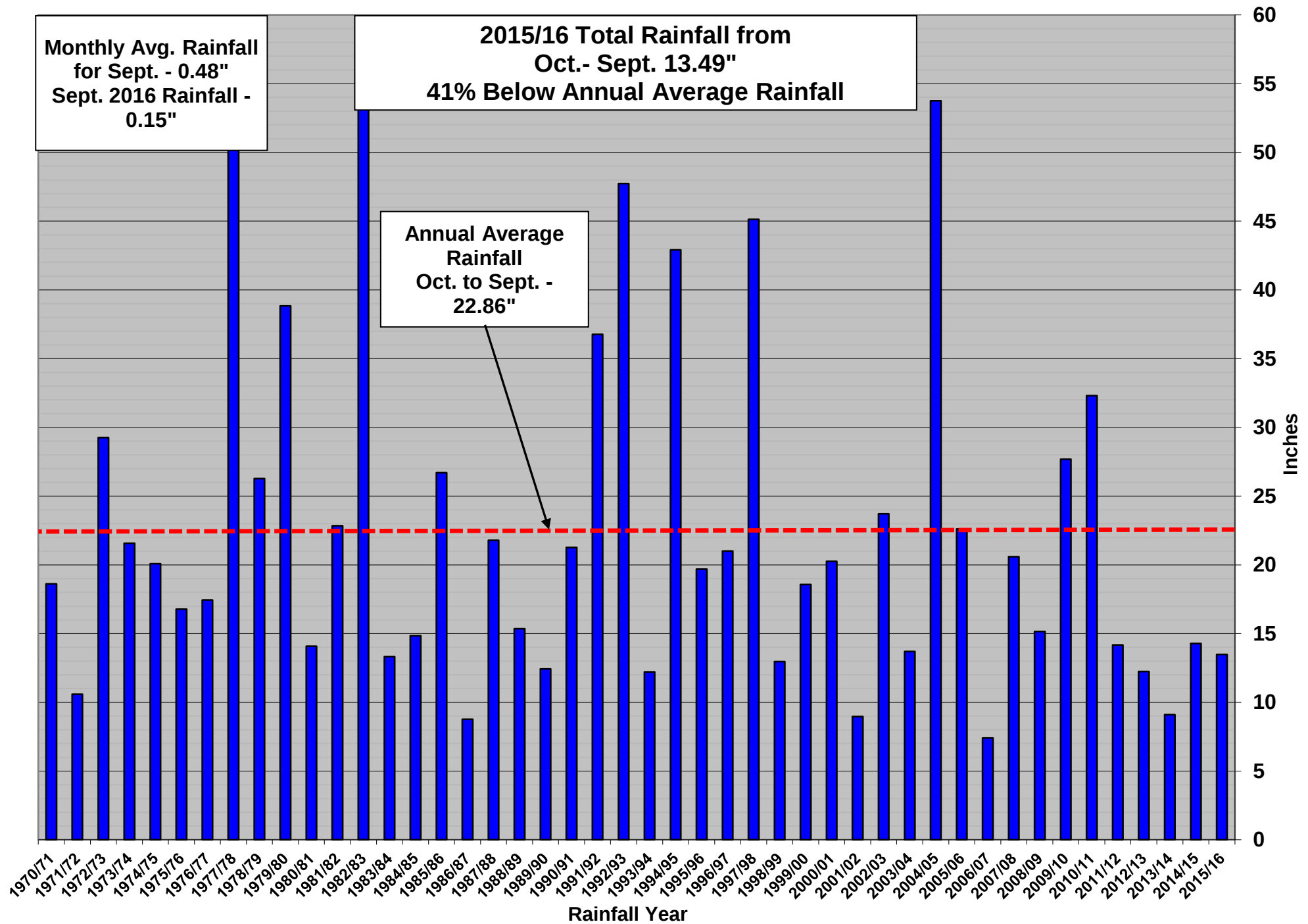
13.49"

2016/17 Fiscal Year Water Production			Groundwater Production Water Rights		GWP (Well 16) Water Production		Purchased Water Production Tier 2 Allocation	
Month	Actual Total Water Production (ac-ft)	Projected Total Water Production (ac-ft)	Month	Month	Month	Well Production (ac-ft)	Month	Imported Water Production (ac-ft)
July	379	315	October	146	January	0	January	109
August	383	345	November	149	February	0	February	100
September	364	325	December	139	March	30	March	78
October		315	January	140	April	50	April	84
November		290	February	158	May	47	May	134
December		250	March	142	June	42	June	153
January		260	April	150	July	13	July	218
February		285	May	127	August	39	August	211
March		330	June	142	September	36	September	205
April		325	July	148	October		October	
May		325	August	133	November		November	
June		335	September	123	December		December	
Total to Date	1,126	985	Total to Date	1,697	Total to Date	258	Total to Date	1,293
Projected	3,841	3,700	Water Rights	3,294			Tier 2	2,154
% of Projected	30.4%	26.6%	% of Rights	52%			% of Allocation	60%
Remaining	2,574	2,715	Remaining	1,597			Remaining	861

NOTE:

1) Blue Numbers = Estimated Water Production

Monthly Rainfall - 1970/71 - 2015/16 (Oct.- Sept.)



CRESCENTA VALLEY WATER DISTRICT

BOARD OF DIRECTORS - STAFF REPORT

IT Manager Report
October 4, 2016

To: Honorable President and Members of the Board of Directors
From: Mark E. Hass, IT Manager
Subject: Technology Manager – Staff Report

Third Party Bill Payment Issues

Recently customer service staff has received several complaints and inquiries related to fees and late charges when paying their Water/Wastewater bills online. In these cases the conversation has typically been centered on why the District charged a non-disclosed fee and/or a late fee. This is concerning because we do not charge fees for online bill payments.

Staff investigated and after examining documents provided by our customers it was established that the payments were being fielded by third party providers that design their portals to look similar to the utility or commercial destinations website. Additional discovery established these services are valid and are not nefarious in nature. They are online applications or websites that channel payments for their customers and send a printed check much like other mainstream banking services offer.

The complication is a few customers found these offerings on their smart phone or browser and agreed to the terms of services believing they were using the tools offered on CVWD.com. These sites often customize their portal to look very much like the target vendors website, but never claim to be such.

We have instructed staff to explain that the District does not charge fees for these payments. Conversely if a third party service does not remit their customers check by the due date a late fee can be assessed as in the case with any bank as it is the user's responsibility to remit payment on time. Customer service has waived fees on a case by case basis where applicable.

Although the District has no part or responsibility in these activities staff recommended some extra outreach may prevent more of our customers from making this mistake and avert sizable fees, late fees and frustration.

Staff is employing the following steps to reinforce our payment services are at no cost to the user:

1. Posing reminders on various places on CVWD.com beyond the normal FAQs and policy locations.
2. Including a statement on the remarks block of the billing documents several times a year to reinforce this sentiment.
3. Customer service is designing an insert for the next four billing cycles that stand out and may attract the attention of more customers on this topic. This option is not expensive and will reach every customer eventually that receives a bill from the District.

Staff does not suggest any additional course of action at this time except keeping the Directors notified so that they may field questions when talking to customers if this topic arises.

The Status of the Districts Website

CVWD.com has been redeveloped by a staff and our vendor (CCS Interactive). The site migration was completed without event. The website now resides on a modern, secure and easily configurable platform. Although the site looks much different and many improvements were made, the move was very much “as is” for content to ensure speedy completion due to emerging security concerns on the old code used to develop the previous version. Staff has many topics in review to improve and expand the site as it is now both stable and realistic to make changes and updates.

District Technology Initiatives Update

Physical security – The District staff is currently deploying modern surveillance cameras at the Glenwood facility for customer, facilities and staff safety/security. This system will be in use in October 2016.

Initial AMI studies from multiple vendors will be available for review in the Month of October. This is one component along with the Meter Replacement Program (MRP) that will allow staff to scope both pilot projects and full AMI implementation choices.

Network/Systems Upgrades

- a. Lifecycle replacements of switches, servers and storage are underway. The District is experiencing more data and less paper as time passes which the new infrastructure will support. The Districts and its customers’ needs dictate a smaller outage window during technology disaster recovery events. These improvements will serve the shrinking tolerance for outage time.
- b. Main office electrical upgrades are being performed (starting October 4th 2016) to modernize and correct legacy electrical delivery for the whole office. These repair and upgrade projects are scoped to serve near future IT offerings.

New data and voice options are being vetted as less expensive and more flexible choices are available. Staff objective is to obtain adaptable, stable services for the needs of District and reduce re-occurring expenses when possible.

Website enhancements and public facing services can now be enhanced due to the recent upgrade in platform to CVWD.com.

CRESCENTA VALLEY WATER DISTRICT

2700 FOOTHILL BOULEVARD
LA CRESCENTA, CALIFORNIA

Agenda for the Meeting of the Engineering Committee
of the Crescenta Valley Water District

To be held on

September 29, 2016 at 7:30 AM

Posted September 28, 2016 at 10:00 am

Call to Order

Adoption of Agenda

Information Items

1. Status of Groundwater Wells and Well Capacity
2. Discussion of Conversion of Chlorine to Chloramines Feasibility Study
3. Status of Pickens Canyon Slope Repair and Pipeline Replacement Project
4. Discussion on Stormwater Recharge Project at Crescenta Valley County Park
5. Discussion on 10-year CIP Financing
6. FY 16/17 CIP – Review of Project Schedule

Public Comments

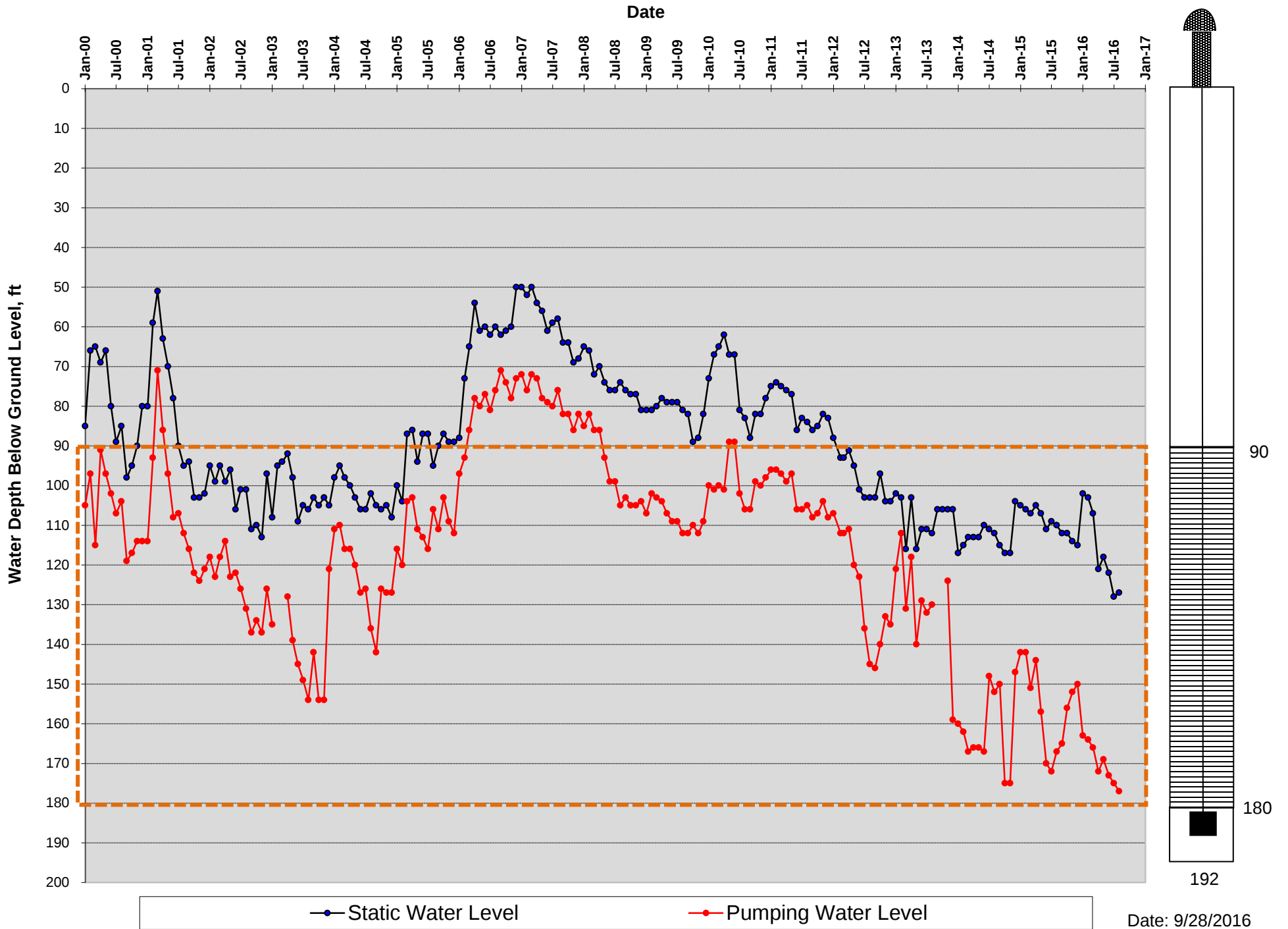
At this time, members of the public shall have an opportunity to address the Committee on items of interest that are within the subject matter jurisdiction of this Committee. This opportunity is non-transferable and speakers are limited to three (3) minutes each.

Committee Member's Request for Future Agenda Items

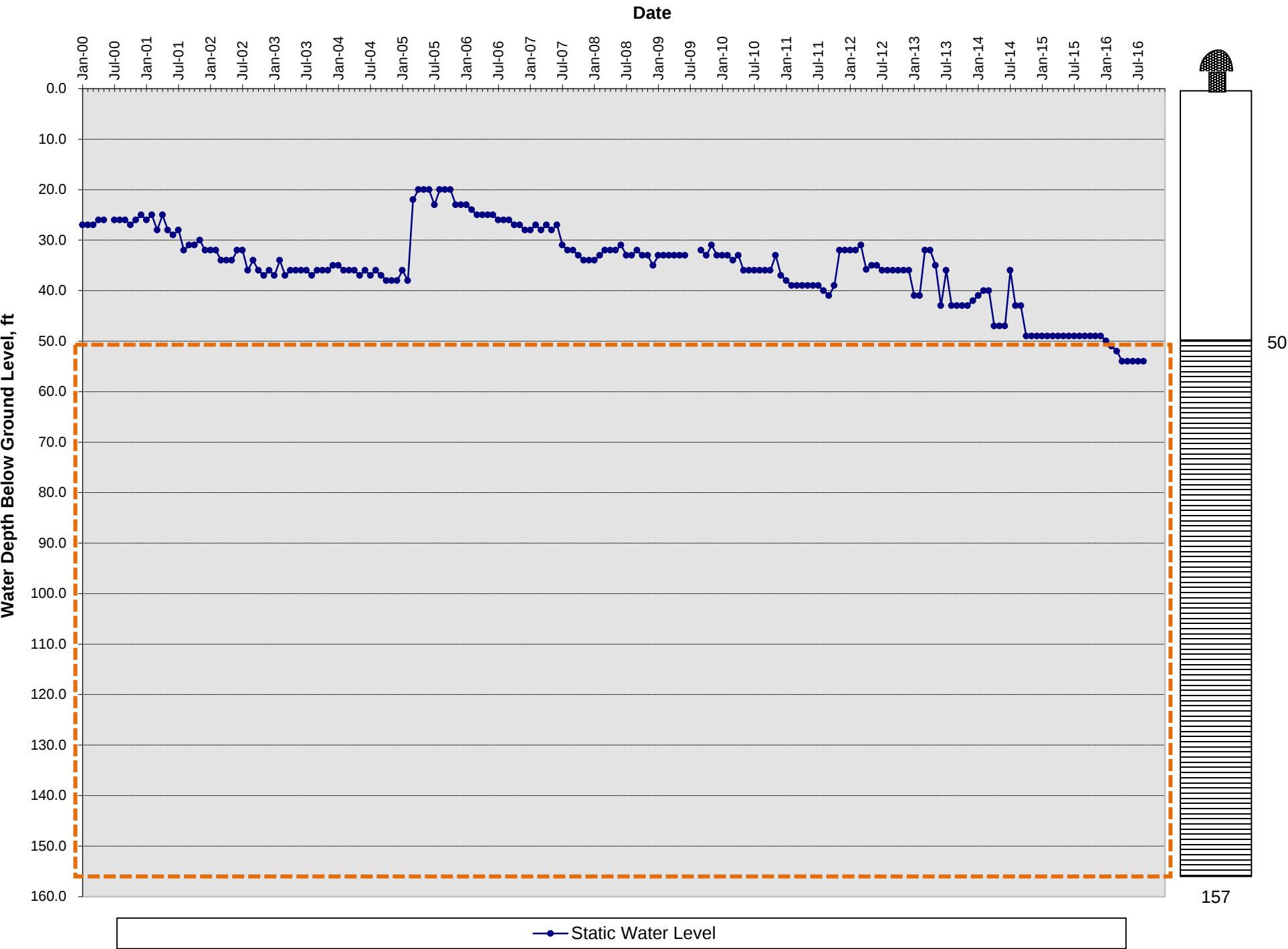
Next Engineering Committee Meeting – November 17, 2016

Adjournment

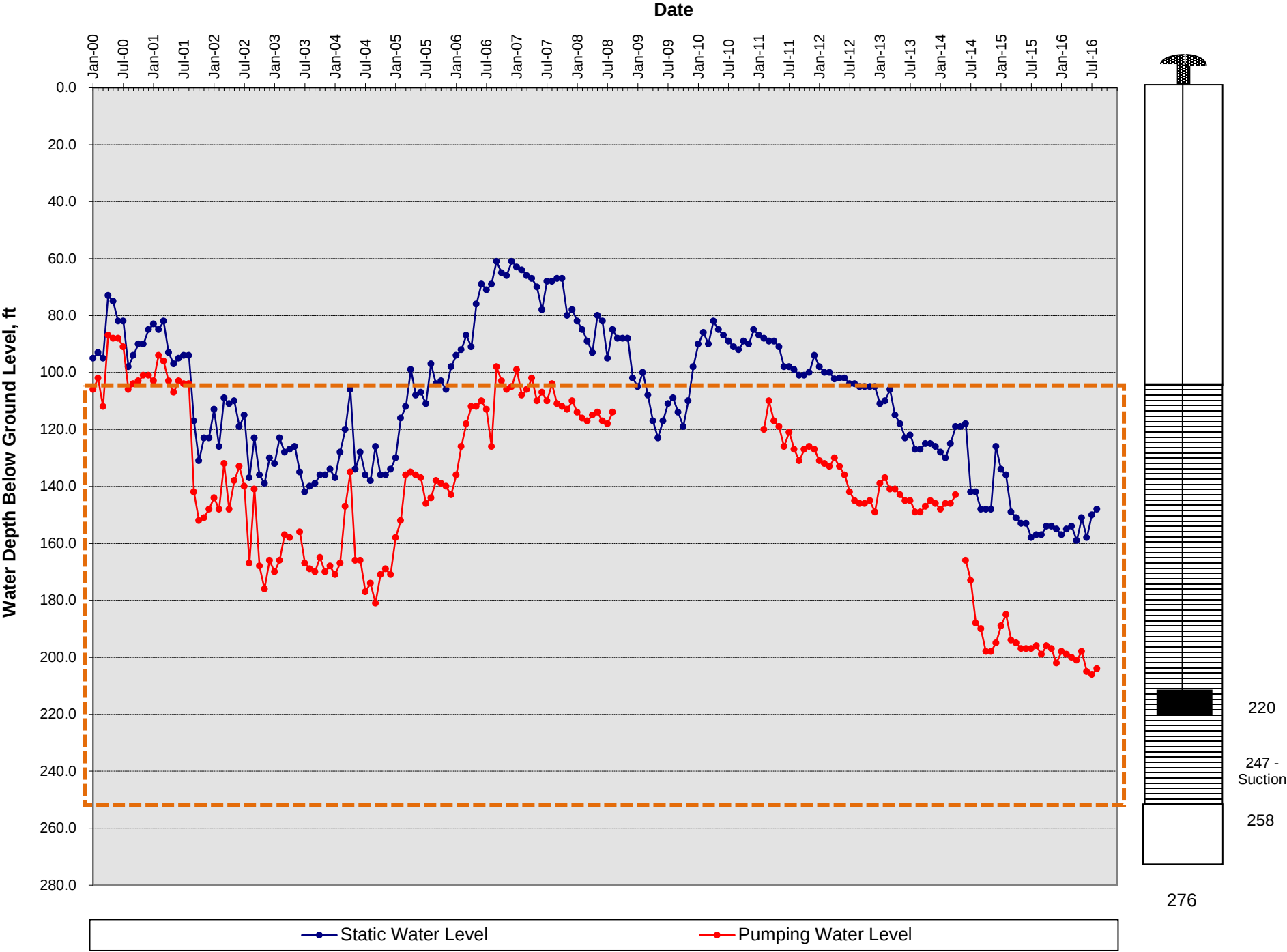
Well 1: 2000 - 2016 - Static and Pumping Levels



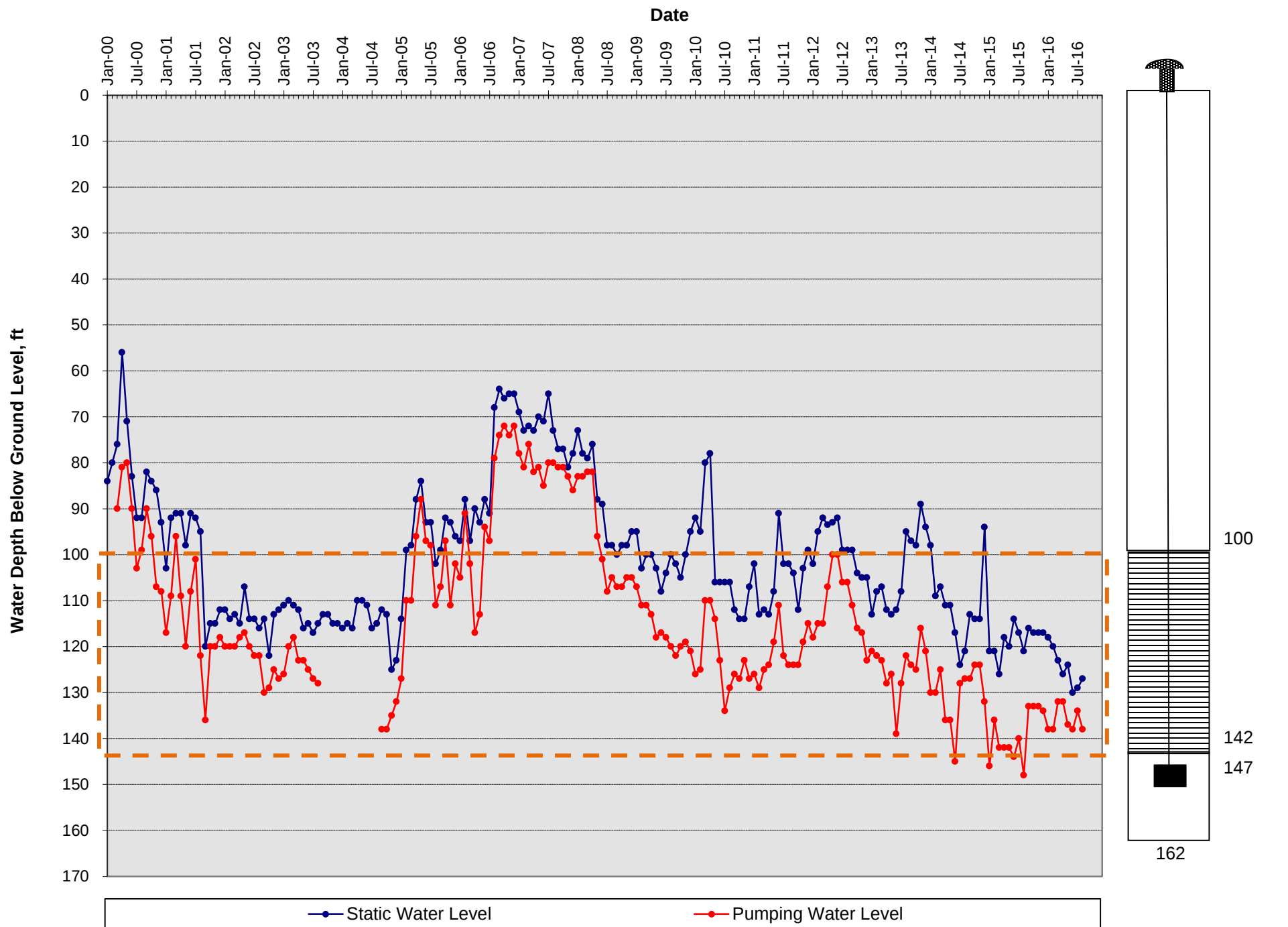
Well 2: 2000 - 2016 - Static Level



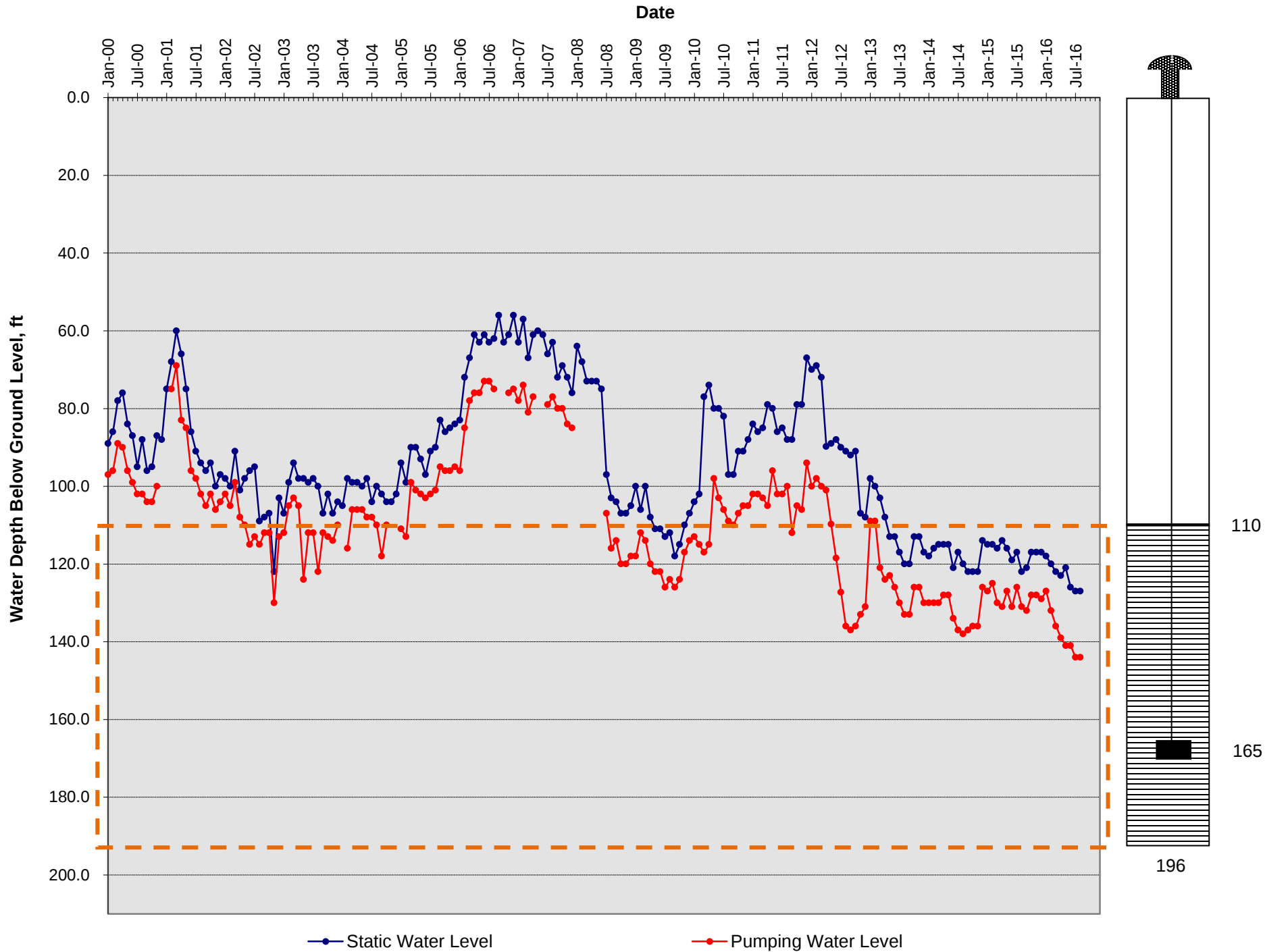
Well 5: 2000 - 2016 - Static and Pumping Levels



Well 6: 2000 - 2016 - Static and Pumping Levels

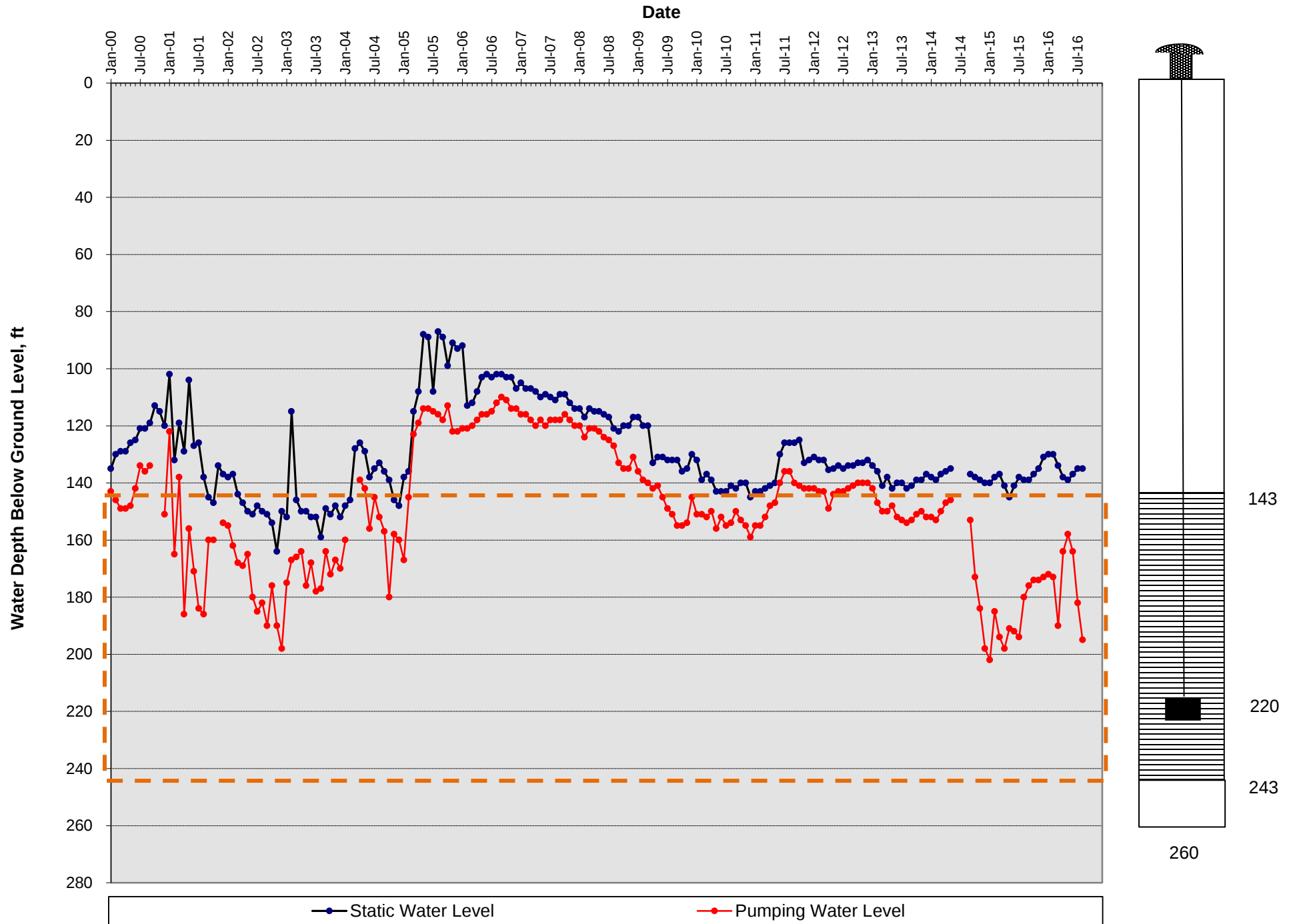


Well 7: 2000 - 2016 - Static and Pumping Levels



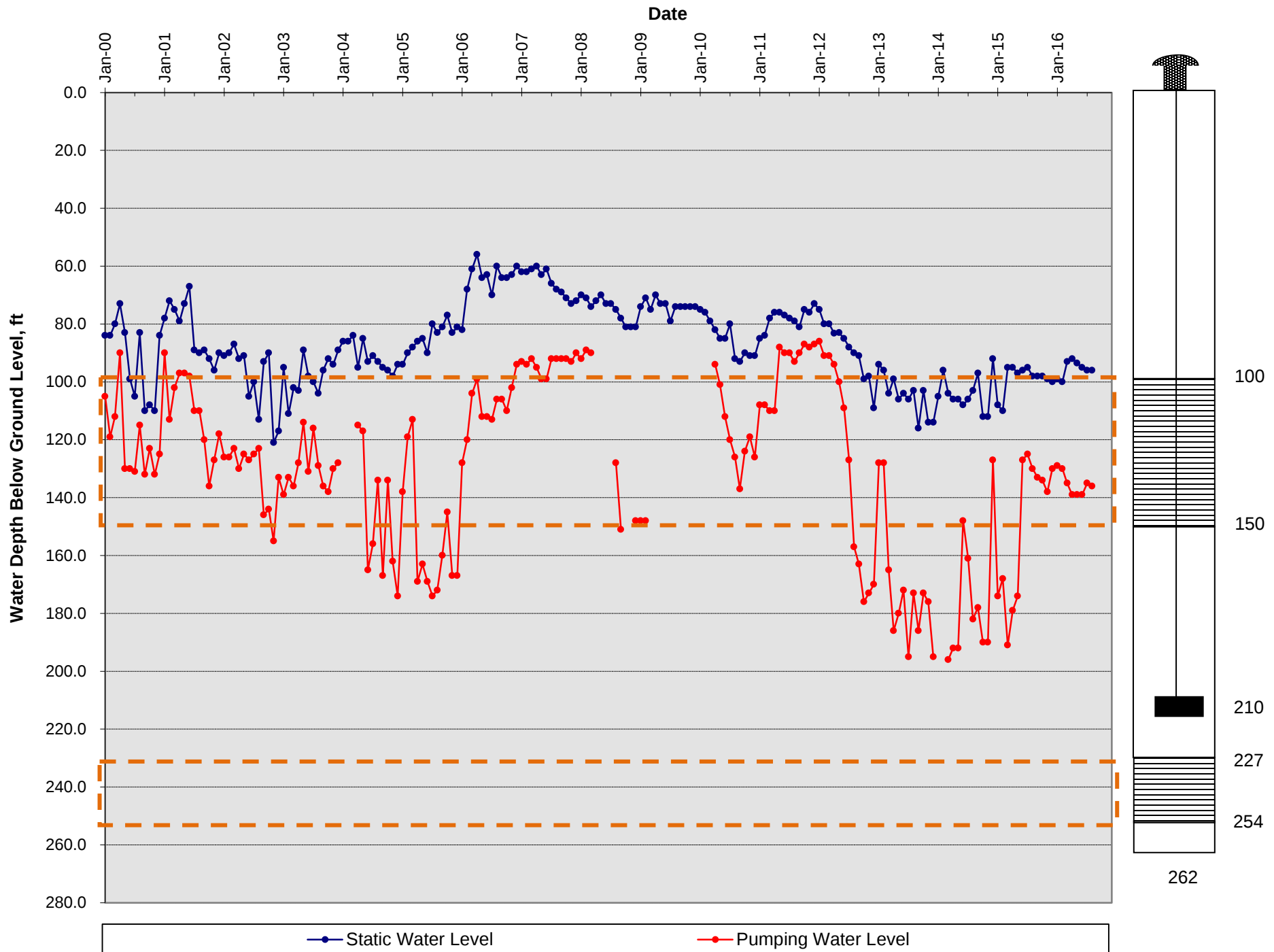
Date: 9/28/2016

Well 8: 2000 - 2016 - Static and Pumping Levels

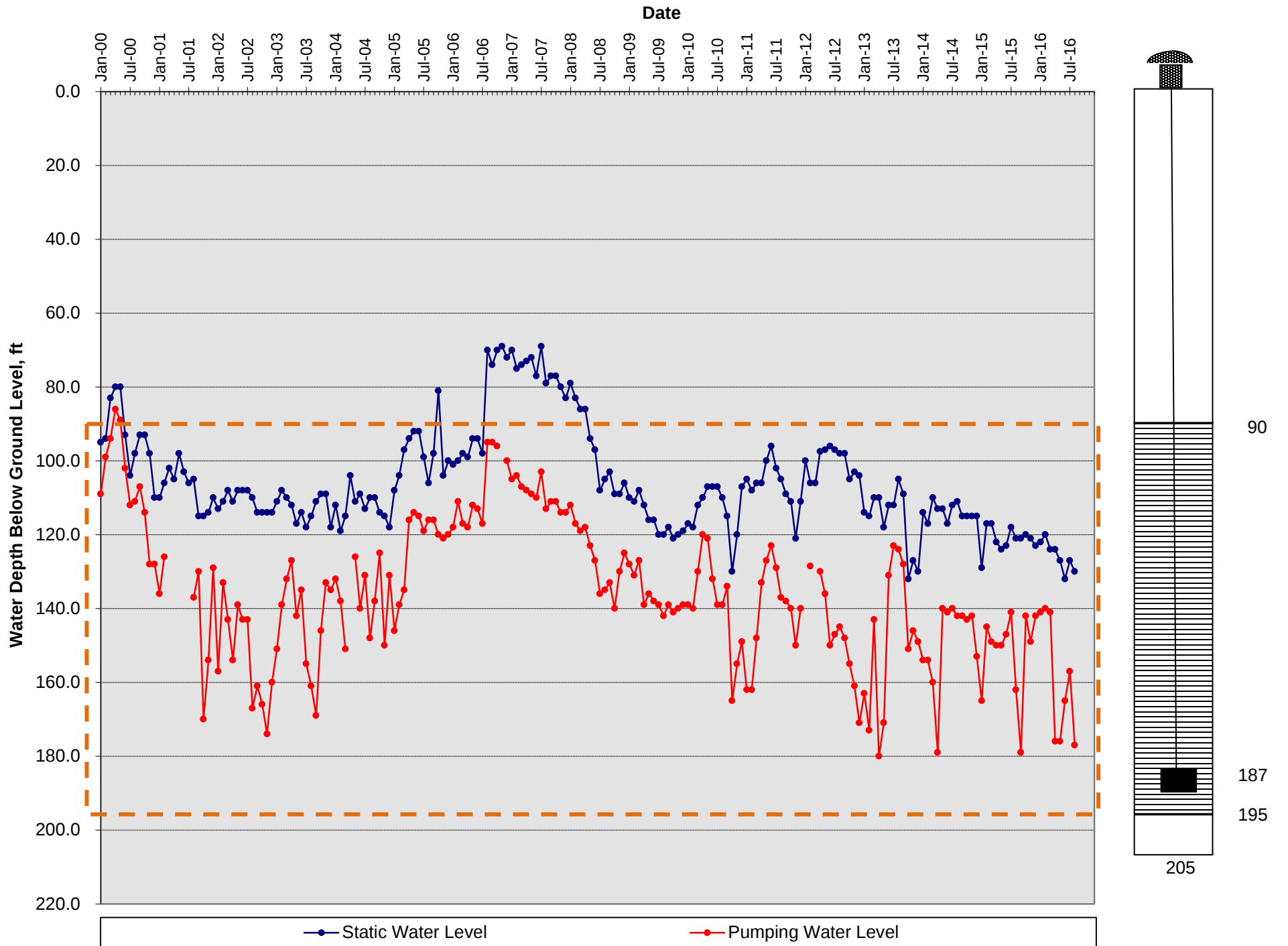


Date: 9/28/2016

Well 9: 2000 - 2016 - Static and Pumping Levels

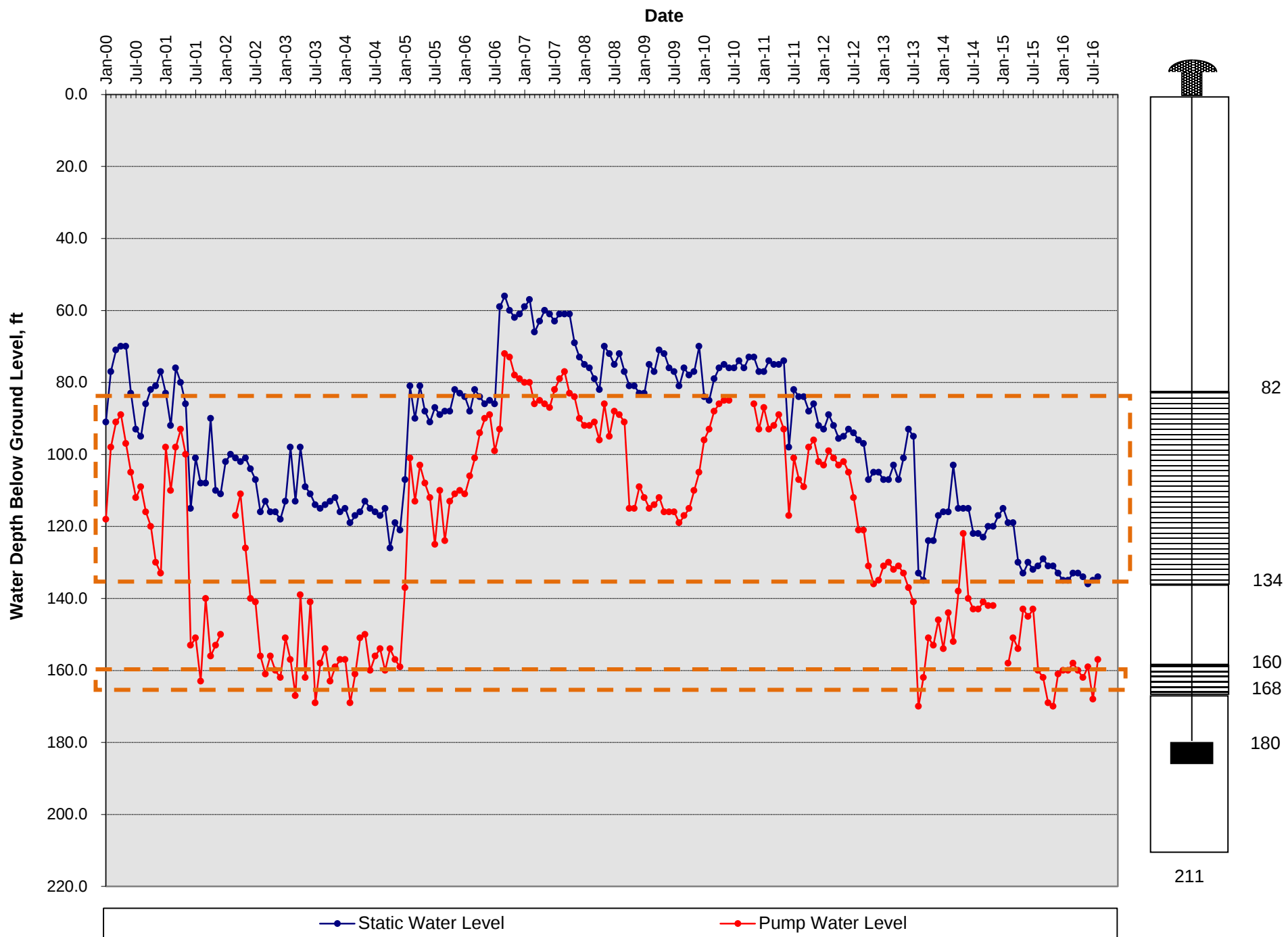


Well 10: 2000 - 2016 - Static and Pumping Levels



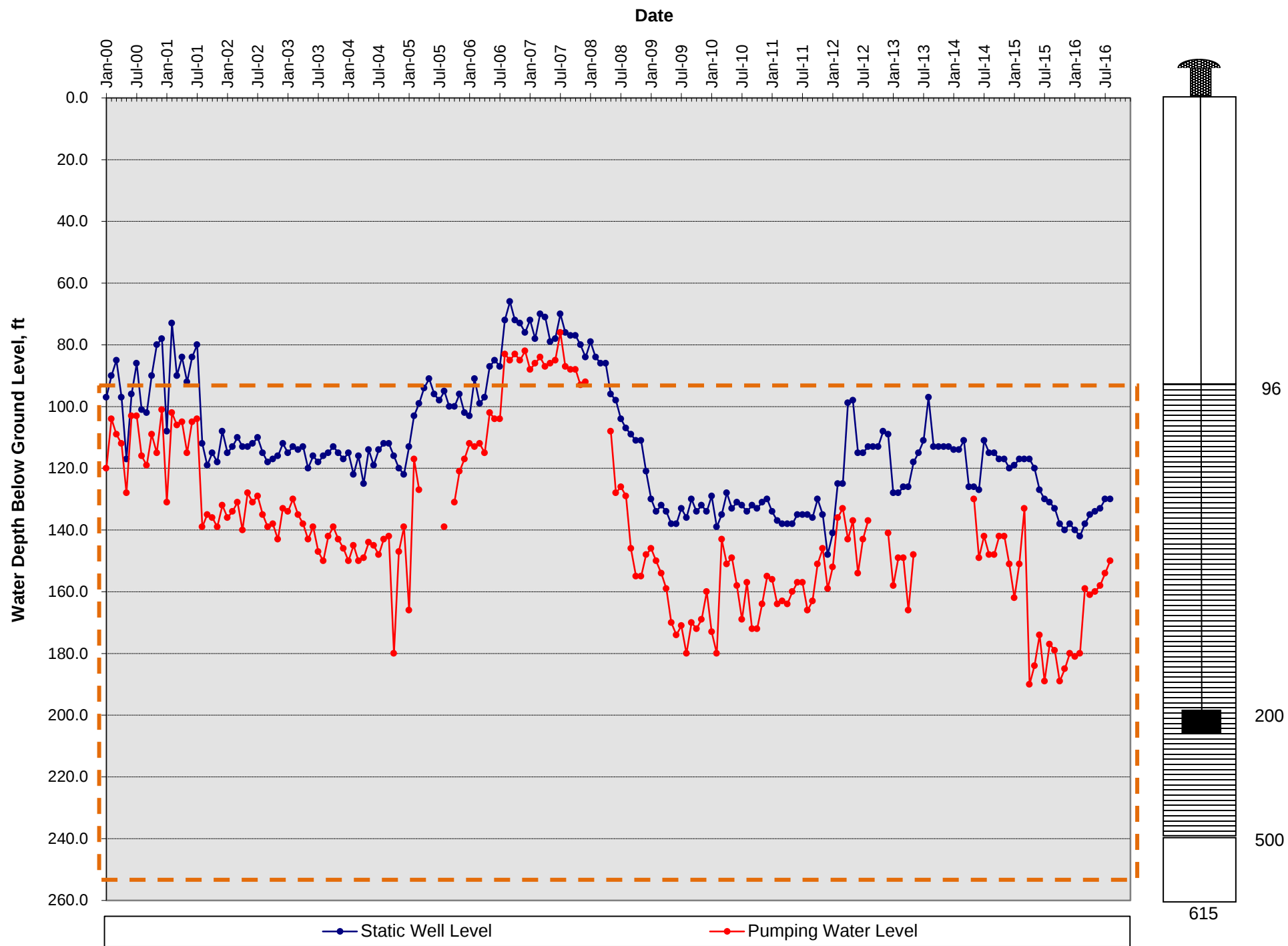
Date: 9/28/2016

Well 11: 2000 - 2016 - Static and Pumping Levels



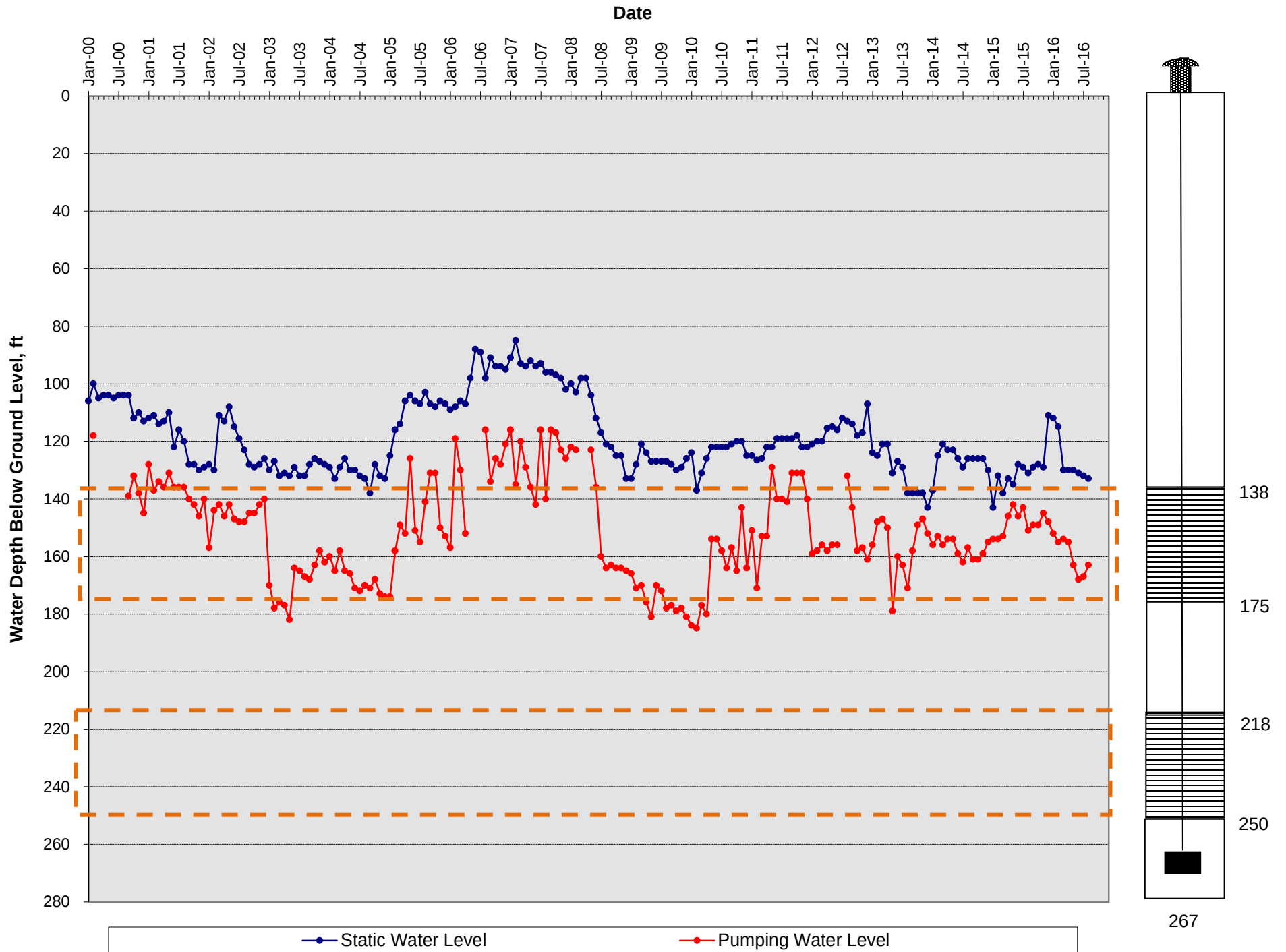
Date: 9/28/2016

Well 12: 2000 - 2016 - Static and Pumping Levels



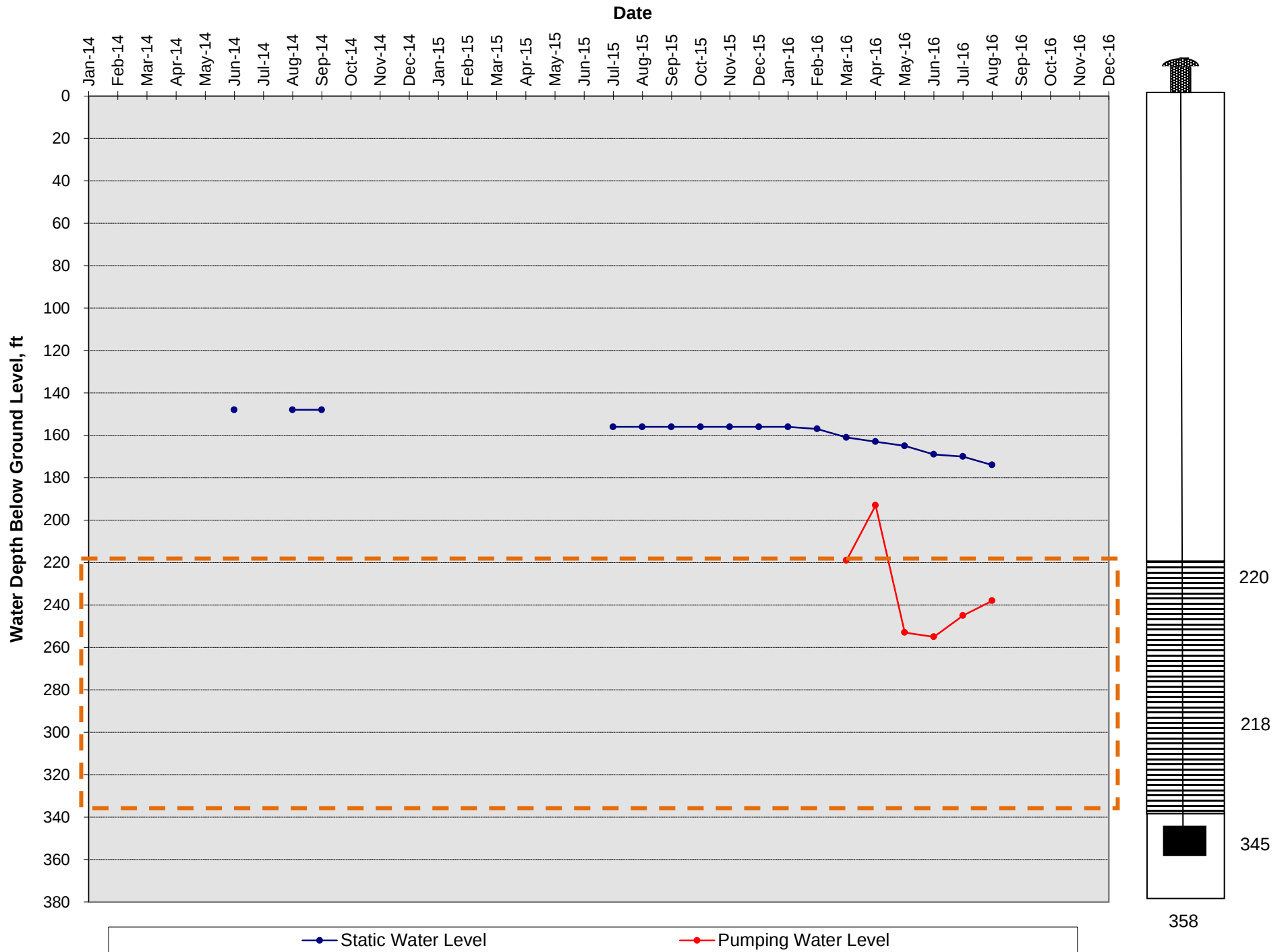
Date: 9/28/2016

Well 14: 2000 - 2016 - Static and Pumping Levels



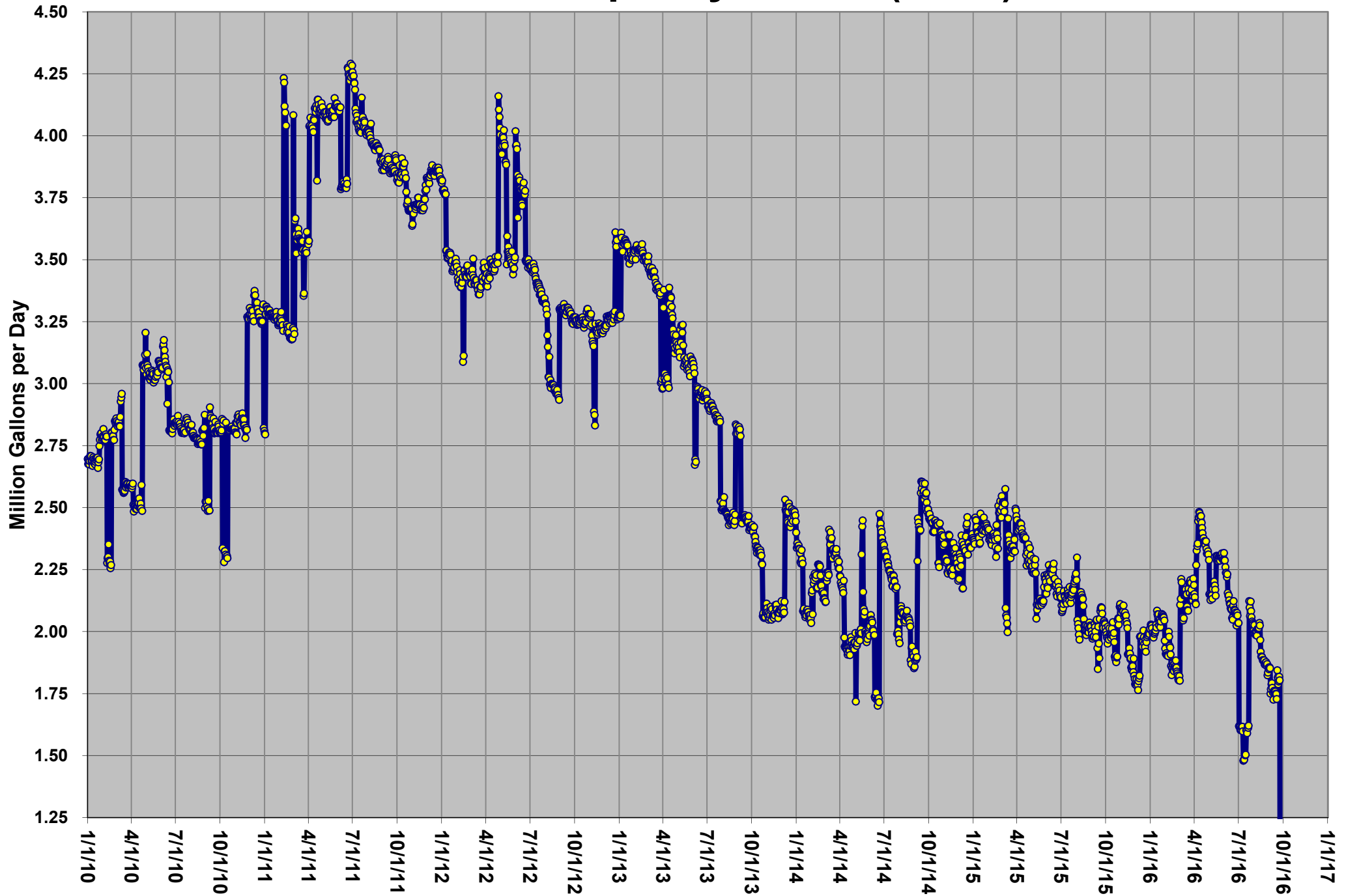
Date: 9/28/2016

Well 16: 2014 - 2016 - Static and Pumping Levels



Date: 9/28/2016

Crescenta Valley Water District 2010-16 Well Capacity Status (MGD)



CRESCENTA VALLEY WATER DISTRICT

STAFF REPORT

Information Item No. 2
September 29, 2016

To: Engineering Committee
From: David S. Gould, P.E. – District Engineer
Subject: Conversion of Chlorine to Chloramines Feasibility Study

ITEM:

Discussion of Conversion of Chlorine to Chloramines Feasibility Study

BACKGROUND:

Staff has been requested to investigate the feasibility to convert the District's disinfection process from free chlorine to chloramines, which is a combination of chlorine and ammonia. Chloramine has shown to maintain longer chlorine residual and does not promote disinfection byproducts (DBP) such as total trihalomethanes (TTHM) and haloacetic acids (HAA5) in the distribution system.

CVWD's imported water supply provided by Foothill Municipal Water District (FMWD) via Metropolitan Water District of Southern California (MWD) is disinfected with chloramines. CVWD uses "breakpoint chlorination", which adds additional chlorine at CVWD's mixing stations to break down the chloramines into free chlorine which is used in the water distribution system.

The goals of this feasibility study would be to look into the costs and benefits to convert to chloramines relative to 1) reduce the levels of THM's; 2) eliminate "breakpoint" chlorination; 3) maintain total chlorine residual in the water distribution system and 4) match the disinfection process from FMWD/MWD.

DISCUSSION:

Staff met with Dr. Helene Baribeau from AQUALity Engineering, Inc. on August 11, 2016 to discuss a proposal from her firm based on the District's preliminary scope of work (See Exhibit "A" – Preliminary Scope of Work) to provide a feasibility study regarding converting to chloramines. At this meeting, staff provided additional information about CVWD's water distribution system, water supply, and chlorination process.

Dr. Baribeau provided a proposal on August 16, 2016 to CVWD, which included an extensive study regarding the challenges to convert the District's disinfection process from free chlorine to chloramines at a cost of \$60,000. However, after reviewing the proposal, staff felt the scope and cost of the proposal was more than anticipated.

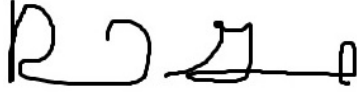
Staff met again with Dr. Baribeau and requested that she concentrates her efforts on tasks such as the benefits to CVWD to convert to chloramines and to look at the costs for the installation of new Aqueous Ammonia feed systems. This scope of work should give CVWD a better understanding of the costs and benefits to convert to chloramines. Dr. Baribeau revised the proposal on September 26, 2016 for \$19,695, which is attached for your review (See Exhibit "C") and includes a discussion on the benefits and costs to CVWD.

SUMMARY:

Staff reviewed the revised proposal from AQUALity Engineering and it meets the District's request to perform a feasibility study on the benefits and costs to convert to chloramines. CVWD has sufficient funding available in the Administrative Consultants Budget account for this study.

This study will provide a direction for CVWD to either continue looking at converting to chloramines or maintain the current chlorine disinfection process.

Prepared by:



David S. Gould, P.E.
District Engineer

Submitted by:

Thomas A. Love
General Manager

Attachments:

1. Exhibit "A" - District's preliminary scope of work
2. Exhibit "B" - AQUAlity Engineering proposal dated August 26, 2016

g:\engineering committee\2016 ec memo\09-29-16 ecm memo -chlorine conversion.docx

Exhibit “A”

Crescenta Valley Water District

Preliminary Scope of Work for Conversion to Chloramines

1. Introduction
 - a. Goals
 - i. Reduce THM's
 - ii. Eliminate "Breakpoint" Chlorination
 - iii. Maintain Total Chlorine Residual
 - iv. Match Disinfection from FMWD/MWD
 - b. Objectives
2. Background
 - a. CVWD existing chlorination system
 - b. FMWD/MWD conversion to chloramines
 - c. Existing Reservoirs and Water Distribution System
3. Conversion
 - a. Adding Ammonia to Water Distribution System
 - i. Locations
 - ii. Ammonia feed system
 - b. Capital Improvements
 - i. Re-pipe of common inlet/outlet Reservoirs
 - ii. Reservoir mixers
 - iii. Install Ammonia feed system
 - iv. Additional chlorine analyzers and/or replacement of existing chlorine analyzers
 - c. Operations
 - i. Training
 - d. Maintenance
 - i. Flush out Program
 - ii. Nitrification
 - e. Training
 - f. WQ Monitoring
 - g. Cost Analysis
 - h. Project Schedule
 - i. Regulations (DPH, RWQCB, etc...)
 - i. Amend Permit
 - ii. Discharge Permit
 - iii. Action Plan
 - j. Public Outreach
 - i. Public Notification
 - ii. WQ Complaints
4. Summary
5. Recommendation

Exhibit "B"



Crescenta Valley Water District

**Conversion to Chloramines:
Analyses and Feasibility
Proposal**

September 26, 2016

AQUALity
Engineering, Inc.

TYLIN INTERNATIONAL
engineers | planners | scientists

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Appendix A: Resumes



Conversion to Chloramines – Analyses and Feasibility

This proposal pertains to the initial phase of the Conversion to Chloramines Project for the Crescenta Valley Water District (District). Our proposal begins by presenting our understanding of the District's potable water system and the Conversion to Chloramines Project, followed by the goals and objectives for this initial project, and a proposed Scope of Work. This document also presents the two submitting firms: AQUAlity Engineering and T.Y. Lin International (TYLI), along with the key staff members that will be involved in the project. Our proposed project schedule and budget are shown at the end of this proposal.

1. The Water System

The District provides potable water to approximately 8,100 service connections, which represent a population of nearly 32,400 people between the San Fernando and San Gabriel valleys. More specifically, the District serves the unincorporated communities of La Crescenta, Montrose, Verdugo City, and portions of the City of Glendale and La Cañada-Flintridge. The customer base is primarily residential with some light commercial/industrial/institutional areas along Foothill Boulevard and Honolulu Avenue, which represent less than 10% of the total water demand.

Normally, approximately 60% of the District's water demand is supplied by groundwater from the Verdugo Groundwater Basin, and the remaining 40% is supplied by the Metropolitan Water District of Southern California (MWD) via the Foothill Municipal Water District (FMWD). However, recent supply availability has seen the District using approximately 40% groundwater and 60% imported water from MWD. The District also uses water drawn from a mountain tunnel (the Pickens Tunnel), which is located in the northeast part of the service area, and emergency connections with the City of Glendale and La Cañada Irrigation District. The District is currently developing another emergency connection with the City of Los Angeles (Los Angeles Department of Water and Power, LADWP), which should be completed by the end of 2016.

The District's groundwater is drawn from 12 wells (including the new Well 16) located along the Verdugo Wash in the southern part of the District's service area. The City's groundwater sources are impaired by the presence of nitrate, as well as volatile organic chemicals (VOCs) and methyl tertiary-butyl ether (MTBE) in certain wells. Nitrate is treated by blending with water containing lower nitrate concentrations at the Mills Plant and Forebay, and by ion exchange at the Glenwood Plant. The District is in the process of installing a biological nitrate removal treatment system at Well 2, which will allow this well to be used again. The District does not currently treat for MTBE and the impacted wells have been removed from service, but a granular activated carbon (GAC) treatment system could be deployed rapidly to remove MTBE if these wells were needed.

Regarding imported water, the District receives water from the F.E. Weymouth Water Treatment Plant through its connection with FMWD and emergency connection with La Cañada Irrigation District. The Weymouth Plant has been mainly supplied by the Colorado River Water (CRW) in the recent years, although it can also receive State Project Water (SPW). The City of Glendale is supplied by the Joseph Jensen Water Treatment Plant, which mainly receives SPW. Generally, the CRW contains higher concentrations of total dissolved solids (TDS) and lower levels of organic material, while the SPW contains lower TDS concentrations and higher levels of organic materials.

The District's service area is relatively small, i.e., approximately 4 square miles, but the terrain is steep, ranging from 1200 feet to almost 3000 feet above sea level. As a result, the distribution system is separated into 11 pressure zones that are served by 14 pumping stations. To supply these pressure zones and ensure sufficient water storage for emergency flow and fire requirements, the District maintains 20 storage reservoirs.

1.1. Challenges

The District's groundwater sources are free chlorinated at approximately 1.0 mg/L Cl_2 , whereas all of the imported water supplies contain monochloramine at a residual of approximately 2.0 mg/L Cl_2 . To prevent blending of both disinfectants, the imported water supplies are breakpoint chlorinated in mixing stations before distribution. Breakpoint chlorination presents several challenges, including high chlorine dose requirements and the formation of disinfection byproducts (DBPs).

Because the District uses free chlorine as distribution system residual disinfectant, the disinfectant residual is often low in the more remote areas of the system, which forces the District to rely on a booster chlorination station at the Oak Creek Plant.

The District has also observed increasing DBP concentrations. If concentrations of haloacetic acids (HAA5) are low and within the regulatory limit of 0.060 mg/L, the trihalomethanes (THMs) have shown concentrations near their maximum contaminant level (MCL) of 0.080 mg/L (Figure 1).

The geography of the District's service area requires multiple pressure zones and storage reservoirs, which increases water age in the distribution system. This challenge is exacerbated by the fact that the District needs to maintain sufficient water storage for emergency flow and fire requirements. Because these reservoirs are

located in the more remote areas of the distribution system, where water demand is lower, the District is limited in its ability to cycle water in these reservoirs.

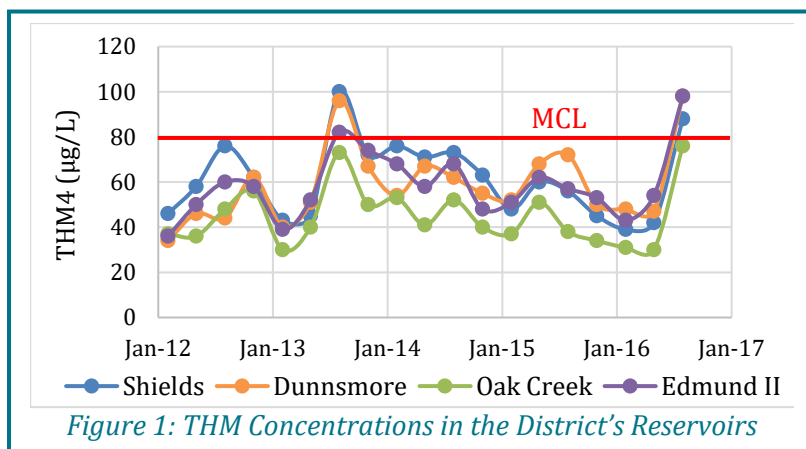


Figure 1: THM Concentrations in the District's Reservoirs

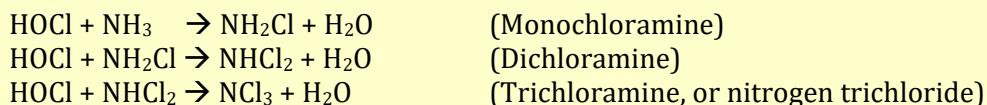
2. Goals and Objectives

Based on the challenges presented above, converting from free chlorine to monochloramine as distribution system residual disinfectant appears as the most suitable solution. This is justified by the characteristics and advantages of chloramines, as presented in the textbox below and in Table 1 (on the next page). Other alternatives may meet some of the District's goals (e.g., aeration in reservoirs can decrease THM concentrations), but would not meet *all* of the District's goals for this project, which are the following:

- A. Decrease THM concentrations;
- B. Eliminate the need to breakpoint chlorinate imported water;
- C. Maintain chlorine residual throughout the entire distribution system;
- D. Use the same disinfectant as MWD and FMWD.

Chloramines

When chlorine reacts with ammonia, it rapidly forms chloramines, more specifically referred to as inorganic chloramines. These chloramines can be found in three forms depending on the chlorine-to-ammonia ratio, temperature, pH and contact time:



Monochloramine is the preferred species for drinking water disinfection.

If monochloramine appears as the most suitable solution for the District, it can present important drawbacks, as shown in Table 1.

In consideration for the above benefits and challenges of chloramines, a phased approach is proposed. This first phase, i.e., Analyses and Feasibility, will assess whether converting to chloramines would allow the District to meet the goals listed above, and will provide cost estimates for the most critical elements of a potential chloramine conversion, i.e., the ammonia dosing systems.

The objectives of this initial phase are the following:

1. Assess whether converting to chloramines would allow the District to carry a chlorine residual to its most remote areas and decrease DBP concentrations;
2. Evaluate the impact of a chloramine conversion on corrosion potential.
3. Develop preliminary cost estimates for the ammonia dosing systems.

These objectives were used to prepare the Scope of Work presented below.

Table 1: Typical Advantages and Disadvantages of Chloramines

Advantages	Disadvantages
• More stable residual than free chlorine • Do not form regulated DBPs, such as THMs and HAAs • Better at inactivating certain biofilm microorganisms due to better penetration inside biofilms • Monochloramine presents less chlorinous flavors (lower taste and odor thresholds) than free chlorine	• Not as effective as other disinfectants to inactivate microorganisms; not a good primary disinfectant • Weak oxidant to remove or breakdown chemicals • Reacts with bromide to form hypobromous acid, hypobromite, and bromamines • Form non-regulated DBPs (e.g., nitrosamines, cyanogen halides) • Require additional oversight and monitoring during treatment and distribution when compared to free chlorine • Responsible for nitrification in distribution systems, particularly in areas with higher water age and temperature • More toxic to aquatic life than free chlorine; dechloramination is necessary when flushing • Present risks to sensitive users (e.g., dialysis patients, fish) • Attack most rubber materials, and results in faster deterioration of pipe seals and gaskets • Di- and tri-chloramines present more offensive tastes and odors than free chlorine, and decay rapidly once formed

3. Scope of Work

For this initial phase of the Conversion to Chloramines Project, we propose to focus on an assessment of whether a chloramine conversion would meet the District's goals, and estimation of the cost of ammonia dosing systems. We believe that this information is the most crucial to help the District decide to convert to monochloramine or not. A cursory evaluation of the potential impact of chloramine conversion on corrosion potential will also be conducted.

Task 1 – Benefits of Converting to Chloramines

For this first task, we propose to conduct an objective evaluation of the benefits and challenges of converting to chloramines with regards to the District's specific characteristics, and whether the conversion would allow the District to meet its goals.

Objectives of Task 1:

Confirm that converting to monochloramine would allow the District to meet its goals, using existing water quality data and bench-scale experiments.

Task 1.1 – Benefits and Challenges

In a cursory desktop analysis, we will examine the District's groundwater quality and treatment processes used to remove nitrate, VOCs and MTBE to identify potential interference with monochloramine. Although the reaction between chloramines and organic materials is not as intense as the reaction between free chlorine and organic constituents, chloramines still react with organic and inorganic materials. This assessment will also guide the subsequent Tasks 1.2 and 1.3, as described below.

In this task, we will also evaluate the impact of the conversion to monochloramine on corrosion potential of distribution system piping. This desktop evaluation will be based on water quality parameters that affect corrosion (e.g., pH, alkalinity, dissolved inorganic carbon, TDS, chloride, sulfate), and indices of corrosion and aggressiveness. We propose to examine the indices that are based on corrosion control through calcium carbonate (CaCO_3) saturation, i.e., the Langelier Saturation Index and the Calcium Carbonate Precipitation Potential. These indices will be calculated using the Rothberg, Tamburini and Winsor (RTW) Model. Because CaCO_3 saturation is *not* directly linked to corrosion of metallic pipes and metal release, other indices will be considered, i.e., the Larson Ratio (or Larson Index) and the Chloride-to-Sulfate Mass Ratio. These indices will be calculated directly from the chloride, sulfate and bicarbonate concentrations of the District's various water sources.

The District has already provided a lot of water quality data, which should be sufficient to conduct this cursory assessment. Additional information that may be deemed necessary will be discussed at the Kickoff Meeting.



Task 1.2 – Disinfection Byproducts Formation Tests

One of the District's goals for this project is to decrease THM concentrations. Although chloramine users have lower DBP concentrations than free chlorine users, DBPs are still formed during the chlorination process before ammonia is added, and some DBPs continue

to form as water travels in the distribution system. Batch incubations in bottles can be used to examine DBP formation potential of the District's groundwater sources and imported water supplies. These results will allow the District to obtain a quantitative assessment of DBP formation potential that would result from a chloramine conversion, and compare with DBP concentrations that are currently measured.

A detailed experimental plan will be submitted to the District for its review and approval before any tests are undertaken. This plan will present the exact sampling sites, chloramination conditions of the groundwater samples (chlorine and ammonia doses, chlorine-to-ammonia ratios, etc.), monitoring parameters, incubation times, and the water quality parameters that will be measured after each incubation time. The District will be responsible for conducting the tests and performing the water quality analyses. We will be responsible for analyzing the data obtained.

Task 1.3 – Monochloramine Stability Tests

Another District's goal for this project is to ensure that a total chlorine residual is maintained all the way to the most remote areas of the distribution system. Although monochloramine is more stable than free chlorine, it reacts with organic and inorganic compounds that are present in the water and on pipe walls, and it decomposes by a natural decay process. pH is an important parameter that drives monochloramine decomposition.

This task will use bench-scale tests to assess monochloramine stability in the District's groundwater sources and imported water supplies. It will provide the District with chlorine residuals that are likely to be obtained throughout its distribution system if it converts to monochloramine, and compare with its current dataset. Results obtained during these tests will also dictate whether booster chloramination stations would be required in the District's distribution system.

These tests can be conducted at the same time than the DBP formation potential tests described in Task 1.2, thereby maximizing project resources and limiting expenditures. Because monochloramine is more stable at pH values that are higher than the District's groundwater pH, certain samples may also be incubated at higher pH to examine the benefits and challenges of these conditions. Many water systems have also observed that high-pH waters are less prone to nitrification.

A detailed experimental plan will be submitted to the District for its review and approval before any tests are undertaken. As described in Task 1.2, the experimental plan will include all information necessary to conduct the monochloramine stability tests. The District will be responsible for conducting the tests and performing the water quality analyses. We will be responsible for analyzing the data obtained.

Task 2 – Ammonia Addition Systems

For the District to distribute chloraminated water, ammonia feed systems would be required where the groundwater is currently free chlorinated. Because

Objectives of Task 2:

Conduct a conceptual study and complete a schematic design of ammonia dosing systems with preliminary cost estimates.

monochloramine is a weaker disinfectant than free chlorine, greater doses are required to ensure proper disinfection. The added benefit of these greater doses is that often times, booster chlorination stations are not needed to ensure a chlorine residual all the way to the most remote areas of the distribution system. For the District, a total chlorine concentration similar to the residual measured at its connections with FMWD should be targeted, i.e., approximately 2.0 mg/L Cl₂. The District's Emergency Chlorination Plan indicates that all of the District's chlorination systems can meet this requirement, as they can feed chlorine up to 5.0 mg/L. The chlorine-to-ammonia-N ratio would be 4.5:1 Cl₂:NH₃-N, which is similar to the ratio used by MWD and LADWP.

The purpose of this task is to provide the District with a schematic design of ammonia addition systems based on a 1 to 15% level of effort. This task will be completed by conducting a conceptual study and performing a schematic design based on pre-packaged chemical addition systems.

The proposed type and dosing systems will be as similar as possible to the one that the District currently has at the Williams Reservoir. The team will query District operators to learn what they like and dislike about the existing ammonia feed system, and if there are any preferences for new features.

The ammonia addition systems will need to be sized for different flow rates at the four sites where groundwater is currently chlorinated, as listed in Table 2 (information presented in Table 2 is based on the District's hydraulic profile). Table 2 clearly shows that a one-size-fits-all approach for sizing the four ammonia addition systems will not work. Four separate ammonia feed systems will be designed specifically for the target ammonia doses and water flow rates at the four individual stations.

The District has confirmed that the four sites have sufficient space available and ancillary components to accommodate the ammonia feed systems. Thus this task does not include an evaluation of the most suitable locations for the ammonia dosing systems. Therefore, electrical service, system integration, SCADA monitoring, chemical delivery and waste disposal designs for each ammonia addition system will not be included as part of this effort.

Table 2: Ammonia Feed Locations and Flow Rates at Booster Stations

Location	Booster Pumps	Total Flow Rate
Glenwood Plant	Booster 32; Q32 = 800 gpm Booster 33; Q33 = 800 gpm Booster 34; Q34 = 800 gpm	240 gpm
Mills Plant	Booster A; QA = 720 gpm Booster B; QB = 720 gpm	1,440 gpm
Pickens Tunnel	No booster pumps	30 gpm
Oak Creek Reservoir	Booster A; QA = 1500 gpm Booster B; QB = 500 gpm Booster C; QC = 850 gpm Booster D; QD = 850 gpm	3,700 gpm

We will prepare Class 4 cost estimates for the four separately sized ammonia feed systems. The characteristics of a typical Class 4 estimate are defined in the textbox below. Normally, Class 4 estimates are commensurate with feasibility studies for owners and stakeholders to determine their next level of action in regards to the project.

Class 4 Cost Estimates

The cost estimates for the ammonia feed systems will reflect Class 4 estimates modeled after the Cost Estimate Classification System. The primary characteristic of a Class 4 estimate represents a 1 to 15% range of maturity level of project definition. This class estimate is suitable for a study or feasibility end usage. The estimating methodology, as a secondary characteristic will be relative to schematic design or concept study based on an equipment factored or a parametric model of each ammonia feed system comprising stochastic (containing multiple unknown) variables.

The expected accuracy ranges for a typical Class 4 estimate for the low end varies from -15 to -30%, and the high end varies from +20 to +50%. Given the relatively straightforward nature of developing such a generic chemical feed system, we expect our accuracy of the estimates for each of the systems to range from -15 to -20% on the low end to +20 to +25% on the high end.

Task 3 – Project Deliverables and Meetings

This task summarizes the deliverables and meetings proposed for this project.

Task 3.1 – Deliverables

A Technical Memorandum (TM) is proposed to summarize work conducted during this project. This TM will include the advantages and disadvantages of chloramines tailored to the District's characteristics, observations made during the evaluation of water quality data, effect of monochloramine on corrosion of distribution system piping, the final versions of the experimental plans, and results obtained during the bench-scale tests. The TM will also include a conceptual schematic design representing a 1 to 15% design level of the ammonia feed systems, and the preliminary cost estimates for the ammonia addition systems. The District has confirmed that the four sites can accommodate ammonia feed systems, therefore, the TM will not include layout plans of the proposed systems at the four sites. However the deliverables package may include vendor product data sheets and brochures of their ammonia feed systems for reference purposes.

We will submit the Draft TM to the District for review, and discuss results obtained and comments from the District during the Project Review Meeting (presented in Task 3.2). We will incorporate comments received into the Final TM.

Task 3.2 – Meetings

The following meetings are proposed:

Objectives of Task 3:

- Prepare comprehensive deliverables;
- Maintain open communication throughout the project.

- **Kickoff Meeting:** This meeting will confirm the terms of the project (i.e., project goals and objectives, scope of work, schedule, deliverables and lines of communication), and better understand the District's challenges, opportunities, past relevant studies, and future plans that may affect this project and may not have been discussed earlier.
- **Project Review Meeting:** A final meeting is proposed at the conclusion of the project and after submission of the Draft TM to discuss comments from the District.

Meeting agendas will be distributed at least one week prior to each meeting, along with any additional meeting documents that may be needed. Meeting notes will be submitted within one week, and will include a list of meeting participants and action items.

Optional Task – Reservoir Configuration

Reservoirs are particularly prone to water quality degradation, which may lead to low disinfectant residuals, microbial growth, increased DBP concentrations, nitrification in systems using monochloramine as distribution system residual disinfectant, and many others. Proper cycling (i.e., turnover) and mixing is important to prevent water quality degradation in reservoirs. Reservoir mixing refers to the level of stratification inside a reservoir (Figure 2), which can be caused by under-utilization, insufficient water cycling and/or short-circuiting. To increase reservoir mixing, improvements may include passive mixing (i.e., increase water momentum and flow rate at the inlets, decrease inlet diameters to increase water velocity, separate common inlets and outlets, and evaluate the orientation and location of inlets), or the installation of active mixers (e.g., SolarBee, PAX).

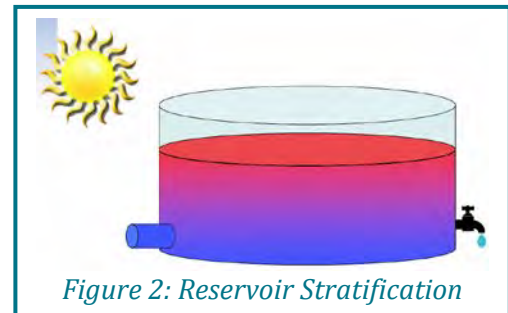


Figure 2: Reservoir Stratification

We recognize that the District is concerned about the 10 reservoirs with common inlets and outlets. In this optional task, we offer a review of the District's estimated costs to separate these inlets and outlets, as presented in their Reservoir Summary Table dated August 15, 2016. This desktop evaluation would be based on the as-built drawings of the District's reservoirs, and would lead to Class 4 cost estimates, as described above. This task would be budgeted separately at the request of the District.

Out of Scope Items

The following items are *not* included in this Scope of Work for the Analysis and Feasibility phase of the Conversion to Chloramines Project:

1. Performing a geotechnical subsurface investigation in the field, or providing a geotechnical engineering report.
2. Providing a topographical survey of the project site.
3. Mitigating any known, unknown or unforeseen on-site hazardous materials or contaminated groundwater.
4. Providing construction documents.
5. Providing site plan drawings and exhibits.

4. Team

AQUALity Engineering and T.Y. Lin International (TYLI) have partnered to provide complimentary experience to address all aspects of this project. AQUAlity will be responsible for the water quality aspects of this Conversion to Chloramines Project, and will be the main contact point. TYLI will be responsible for the design components of the project. Our firms are presented below, with brief biographies of the proposed staff members. Our resumes are shown in appendix.

4.1. AQUAlity Engineering

AQUALity Engineering, Inc. provides professional consulting services in water quality. The corporation specializes in a number of fields, including water treatment processes, disinfectants and DBPs, microbial control, distribution system water quality (such as microbiological challenges, nitrification, corrosion, and blending of water from different sources), and regulatory compliance. Thus the firm is particularly well suited for this Conversion to Chloramine Project.

AQUALity is insured with A+ rated companies. The firm holds small-business enterprise (SBE) certificates from the California Department of General Services, the County of Los Angeles, and the Coalition of Southern California Public Agencies. AQUAlity is recognized as a Local Small Business Enterprise by the City of Los Angeles and the Los Angeles County, and as a Women-Owned Business Enterprise (WBE) by the California Public Utilities Commission (CPUC). These certificates are available upon request.

Hélène Baribeau, Ph.D., P.E.

Hélène has 25 years of experience gained from working in organizations that allowed her to approach drinking water supply and quality from various angles, including academia, a water provider (Metropolitan Water District of Southern California), a large engineering firm (Carollo Engineers, Inc.), and as an independent consultant. Hélène is currently the president and founder of AQUAlity Engineering. She has conducted or participated in over 75 projects, including municipal and research studies. She has managed projects of all sizes, and has also served as project engineer and technical advisor.

Hélène's background includes engineering, chemistry and microbiology, which makes her particularly well suited to address the complex challenges that are encountered during drinking water treatment and distribution. The projects that are most relevant to this initial phase of the Conversion to Chloramines Project and in which she was involved are listed in her resume, which is shown in appendix. Other related initiatives in which she is/was involved include the following:

- Co-author of the Water Research Foundation's manual title "Optimizing Chloramine Treatment", which is considered the most important reference document to water providers using monochloramine as distribution system disinfectant.

- Author of two chapters in both editions of the American Water Works Association (AWWA) Manual of Water Supply Practices M56 “Nitrification Prevention and Control in Drinking Water” (first publication in 2006, and revised edition in 2013).
- Lead author of the “Disinfectants and DBPs” chapter for the upcoming AWWA Manual of Water Supply Practices M68 on Distribution System Water Quality (anticipated publication in 2017).
- Instructor for the California-Nevada Section of AWWA. She teaches the Water Quality Workshop and the Drinking Water Regulations Workshop since 2013, and she is currently developing the curriculum for the Water Laboratory Analyst Workshop.

4.2. T.Y. Lin International

T.Y. Lin International (TYLI) is a global, full-service professional engineering firm focused on planning, design, and construction of infrastructure solutions for public and private clients worldwide. The firm is an internationally recognized pioneer in solving the most difficult engineering challenges. Headquartered in San Francisco, TYLI has 125 staff members within Southern California, and offices in Los Angeles, Irvine, Ontario, San Diego and Las Vegas.

TYLI provides engineering services including planning, design, permitting, and construction management and inspection of new, rehabilitated, and upgraded water and wastewater conveyance systems, water storage reservoirs and tanks, and related facilities.

Daniel Aruta, P.E.

Daniel has 31 years of experience designing, managing and overseeing construction of water and wastewater infrastructure, utilities, transportation, and renewable energy projects. His background encompasses condition assessments, unit cost estimating, feasibility studies, preliminary engineering, final engineering, and construction support services for water and wastewater infrastructure. Relevant experience is highlighted in his resume.

David Holman, P.E.

David has 13 years of professional experience in project management, master planning, design, permitting, and construction oversight of capital projects focusing on water and wastewater infrastructure. His experience encompasses water supply facilities, regional transmission pipelines, pump stations, and groundwater wells. David’s emphasis has been in the assessment, rehabilitation, design and constructability of over 100 miles of water and sewer pipeline systems up to 60-inches in diameter for public utility systems. His extensive pipeline experience primarily consists of standard cut and cover construction, but also includes rehabilitation and alternative construction methods such as jack and bore, burst and insert, horizontal directional drilling (HDD), point repairs, joint replacements, cured-in-place pipe (CIPP) and micro-tunneling.

5. Schedule

Our proposed schedule for this Analysis and Feasibility phase of the Conversion to Chloramines Project is summarized in Table 3. AQUAlity and TYLI are available to start this project immediately.

Tasks 1 and 2 will be conducted concurrently and will start as soon as Notice to Proceed is received. The duration of the bench-scale tests (Task 1) will be representative of the maximum water age observed in the District's distribution system. A maximum duration of four weeks is proposed for this tentative schedule.

The Draft TM will be submitted after all bench tests are completed, at the conclusion of the data analysis. A Project Review Meeting is proposed after submission of the Draft TM to discuss results obtained from the bench-scale testing and the preliminary design of the ammonia dosing systems. The Final Report will be submitted thereafter.

Table 3: Schedule for the Conversion to Chloramines – Analyses and Feasibility Project

Task	Duration from Notice to Proceed
Task 1 – Benefits of Converting to Chloramines • Benefits and challenges, and experimental plans • Bench-scale tests • Data analysis	2 weeks 6 weeks 7 weeks
Task 2 – Ammonia Addition Systems	6 weeks
Task 3 – Project Deliverables and Meetings • Draft TM • Final TM • Kickoff meeting • Project review meeting	8 weeks 10 weeks 1 week 9 weeks

6. Budget

Our proposed budget shown below is a not-to-exceed amount for the above described tasks, and is based on time and materials.

For Task 1, the estimated cost includes the water quality evaluation (Task 1.1), preparation of the experimental plans for the bench-scale tests (Tasks 1.2 and 1.3), assistance from H       Baribeau to initiate the bench tests, and time for data analysis. The District will be responsible for conducting the tests, and the required materials, reagents and analytical costs will be provided by the District. We are available to discuss other arrangements that may better suit the District for this task, in which case, the budget may be revised accordingly. For Task 2, the proposed budget will provide the preliminary design representing a 1 to 15% design level for the ammonia feed systems, and Class 4 cost estimates for these systems.

Three (3) trips to the District are proposed for H       Baribeau: one trip for the Kickoff Meeting, one trip to initiate the bench-scale tests, and one trip for the Project Review Meeting. Mileage was budgeted at \$0.54 per mile (Task 1), consistent with the 2016 allowance established by the Internal Revenue Service (IRS). H       Baribeau will conduct the meetings in-person, and the TYLI staff will participate via conference call. AQUAlity will not impose a markup on its subconsultant TYLI.

The optional task to review the cost estimates for the reservoirs' inlets and outlets would be budgeted separated at the request of the District.

Estimated Budget for the Conversion to Chloramine – Analysis and Feasibility Project

Task	Number of hours		Estimated Budget
	AQUAlity	TYLI Support	
1. Benefits of Converting to Chloramines	24 hours		\$4,080
2. Ammonia Addition Systems	4 hours	45 hours	\$9,920
3. Project Deliverables and Meetings	18 hours	12 hours	\$5,640
Travel			\$55
Total	46 hours	57 hours	\$19,695

Note 1: The hour rates of the main staff involved in this project are the following:

- H       Baribeau, AQUAlity: \$170
- Daniel Aruta, TYLI: \$220
- David Holman, TYLI: \$200



Appendix A Resumes

Qualifications

The background of Dr. Baribeau includes engineering, chemistry and microbiology, which makes her particularly well suited to address the complex challenges that are encountered during water treatment and distribution. With this background, Dr. Baribeau has focused on disinfection processes and disinfection byproducts (DBPs), microbial control, various treatment processes, water quality in distribution systems (including disinfectant stability, DBP formation and decay, nitrification, corrosion, and blending of water from different sources), and regulatory issues.

Licenses and Registrations:

- Professional Engineer (Civil), State of California, U.S. Board for Professional Engineers and Land Surveyors, License No. C60630.
- Water Treatment Operator – Grade 3, State of California, State Water Resources Control Board, License No. 21876.

Dr. Baribeau has 25 years of experience, gained from working in organizations that allowed her to approach drinking water supply from various angles, including academia, a water provider (the Metropolitan Water District of Southern California), an engineering firm (Carollo Engineers, Inc.), and as an independent consultant.

Relevant Education and Training

Date	Institution	Field / Department	Degree
May 1992 to February 1995	École Polytechnique of Montréal, Québec, Canada	Civil Engineering – Environment	Doctorate degree (Ph.D.)
January 1997	University of Tennessee / Oak Ridge National Laboratory, Knoxville, Tennessee, USA	Center for Environmental Biotechnology	Visiting Researcher
September 1990 to May 1992	École Polytechnique of Montréal, Québec, Canada	Civil Engineering – Environment	Master of Applied Science (M.A.S.)
March to June 1991	École Supérieure d'Ingénieurs de Poitiers (University of Poitiers), France	Laboratoire de Chimie de l'Eau et des Nuisances (Laboratory of Water Chemistry and Environment)	Visiting Student
September 1986 to May 1990	École Polytechnique of Montréal, Québec, Canada	Civil Engineering	Bachelor degree

Professional Experience

January 2013 to date: President of AQUALity Engineering, Inc., and owner of Baribeau Environmental Engineering (Baribeau Environmental Engineering, a DBA, was incorporated into AQUALity Engineering, Inc. in January 2015).

March 2008 to the end of 2012: Independent contractor for North America projects, and international development in water and sanitation.

September 2000 to February 2008: Research Engineer and Associate with Carollo Engineers, Inc.

July 1995 to November 2000: Research Microbiologist at the Water Quality Laboratory, Metropolitan Water District of Southern California, La Verne, California.

March 1992 to January 1995: Research Associate in Environment (Civil Engineering), École Polytechnique of Montréal, Québec, Canada.

Experience that Pertains to this Project

Dr. Baribeau has contributed to over 75 projects, either as a project manager or engineer. Projects were commissioned by municipal clients and/or research organizations. A selection of the most representative projects is presented here.

Corrosion Control Study – Desktop Study; City of Torrance, California; May 2016 to date.

The purpose of this first part of the Corrosion Control Study is to assess the corrosiveness and aggressiveness of the City's water sources with regards to distribution system piping materials, examine lead and copper data and customer complaints, and identify the most suitable corrosion control strategies to limit water corrosiveness and metal release.

Nitrification Control Study; Mesa Water District, California; June 2015 to date.

The overall goal of this project is to develop a dynamic plan to control nitrification, preserve disinfectant stability, and limit microbial growth in Mesa Water's distribution system. One of the strategies considered by Mesa Water is to switch to free chlorine for distribution system residual disinfectant. Thus this project included bench-scale tests to assess DBP formation potential of Mesa Water's water sources.

Dr. Baribeau has conducted over 10 studies on nitrification, including both research initiatives and projects for municipal clients throughout the USA. Only the most recent projects are listing in this resume. Others were conducted for the Palm Beach County Water Utilities Department in Florida; the City of Beaumont and the City of Corpus Christi in Texas; and the Newhall County Water District, Santa Clarita Water Division, and Yorba Linda Water District in California.

Citation for Failure to Comply with the Ground Water Rule Monitoring Requirements; City of Torrance, California; May to July 2015

The City received a citation for failure to monitor as part of the Ground Water Rule (GWR). The project involved the development of appropriate internal control mechanisms to ensure that compliance samples are collected in a timely manner. A training session was provided to the City's staff responsible for collecting samples, monitoring and reporting. The session focused on the GWR, the Total Coliform Rule (TCR) and the Revised TCR, and their respective monitoring, reporting and notification requirements.

La Sierra Pipeline Project – Blending Study; Western Municipal Water District; November 2014 to date.

This project examined the disinfectant stability and corrosion/ aggressiveness of the potable water distributed by the District as it undergoes changes in water disinfection (i.e., implementation of chloramination) and distribution strategies (i.e., addition of a new water source). The corrosiveness and aggressiveness of the various water sources used by the District and their blends were evaluated.

Corrosion Control Study Report, Nitrification Monitoring and Action Plan, and Blending of Free Chlorinated and Chloraminated Water; City of Sierra Madre, California; June 2014 to November 2015.

This project was separated in three parts. This first two parts pertained to corrosion and nitrification. The third part involved blending of water sources with different disinfectants (i.e., free chlorine and chloramine), the possibility of separating the service areas of the water sources with different disinfectants, breakpoint chlorinating the chloraminated water, and adding ammonia feed systems to the water sources that are currently free chlorinated.

Water Distribution System Water Quality Analysis, Nitrification Occurrences, and Corrosion Control; Collier County, Florida; June 2013 to July 2015

The goal of these projects was to assist the County in its efforts to address nitrification and recurring losses of disinfectant residual in its distribution system. The initial project included a thorough review of the County's water quality, evaluation of the occurrence of nitrification in the distribution systems, review of water treatment strategies and distribution system operation, development of nitrification prevention and monitoring programs, and identification of water system options to prevent or limit nitrification. The second part of the project involved bench-scale testing of chloramine decay, examination of potential occurrences of cross connections, and development of flushing procedures for the entire distribution system. The last part of the project examined the corrosiveness and aggressiveness of the County's water supplies and the current corrosion control practices, and included pilot testing using pipe racks with coupons to identify suitable corrosion inhibitors.

Conveyance and Disinfection System Project; Otay Water District, California; April 2013 to February 2014.

The goal of this project was to evaluate the potential effects of introducing desalinated seawater into an existing potable water distribution system that formerly used treated surface water. The study examined water quality properties of potential blends of existing water supplies and desalinated seawater, and assessed the effects of these blends on distribution system water quality.

Start-up Assistance of the Surface Water Treatment Facility; City of Lodi, California; July to October 2013.

The City started blending treated surface water from a new facility with its existing groundwater in 2012. This project evaluated the impact of finished water quality on distribution system piping, assessed the corrosion potential of both types of water and a selection of their blends, and developed a plan to control distribution system corrosion.

Rarotonga Treatment and Distribution System Recommendations; Cook Islands; June to October 2013.

This project recommended water treatment unit processes, distribution system infrastructure and operations strategies to provide and maintain drinking water quality in the Rarotonga water supply system. The approach focused on appropriate storage systems, treatment strategies including packaged membrane treatment systems, adequate disinfection to offer a multi-barrier approach to contaminant removal, and water quality monitoring.

Disinfection Byproduct Improvements; City of Ashland, Oregon; April to October 2013.

This project identified water treatment process changes that could readily be implemented to control DBP formation. Simulated distribution system (SDS) tests were conducted to evaluate three coagulants, various chlorination protocol, and pH adjustment.

Bulk Water Disinfection Targets Study; SEQWater, Queensland, Australia; January 2013.

Persistent drought conditions have significantly decreased water usage in the South East Queensland Water Grid (SEQWater) system, leading to greater concentrations of DBPs and lower disinfectant residuals due to longer water detention times. The study offered goals, needs, and disinfection target values for the water delivery system of the SEQ Water Grid.

System-wide Corrosion Control Study; Lee County Utilities, Florida; October 2012 to January 2013

This project involved a comprehensive corrosion control study of Lee County's distribution system. The effectiveness of a number of corrosion control strategies was examined, and conceptual-level cost estimates for the recommended capital improvements were developed.

Effect of Nitrification on Corrosion in the Distribution System (Project 4015); Water Research Foundation and U.S. EPA; January 2007 to August 2009 (report published in 2010).

The objective of this project was to identify the role and significance of nitrification-induced changes to water quality that may affect corrosion in the distribution system, including lead and copper release.

An Electrochemical Reactor to Minimize Brominated Disinfection Byproducts (DBPs): Impact on Coagulation and Ozonation (Project 3182); Water Research Foundation; January 2006 to March 2008.

The goal of this project was to advance the design and understanding of an electrolytic reactor used to remove bromide and DBPs, and examine potential synergies with other drinking water treatment processes.

Preparation or Review of the Initial Distribution System Evaluation (IDSE) Plans and Reports; City of Buena Park, City of Pasadena Water and Power, City of Glendale, Palmdale Water District, City of Orange, City of Upland, City of Santa Barbara, and City of Tracy, California; and Punta Gorda, Florida; 2006 to 2008.

The Initial Distribution System Evaluation (IDSE) was one of the first steps that were required to comply with the Stage 2 Disinfectants and Disinfection Byproducts Rule (Stage 2 DBPR) published in 2006. The purpose of the IDSE was to identify locations in the drinking water distribution system where high DBP concentrations would be encountered. A number of approaches were used to prepare the IDSE Plans for the above listed clients.

Advanced Water Treatment of Estuarine Water Supplies for Improving Water Quality; U.S. EPA, Water Research Foundation, and Contra Costa Water District; 2004 to 2007 (report published in 2007).

The goal of this project was to fill the knowledge gaps with respect to treatment of estuarine water supplies (i.e., fresh waters under tidal influence) using existing and advanced technologies (granular activated carbon, powder activated carbon, MIEC® resin, and membranes), as well as disinfectant combinations (chlorine, chloramines, chlorine dioxide, ozone, and ultraviolet light).

Project Technical Report (PTR) for the Reservoir Management System Project; Irvine Ranch Water District, California; April to June 2006.

The PTR was a requirement of the District's application to receive a Proposition 50 grant. The District was successful in receiving this funding to implement Severn Trent's ClorTec Reservoir Management Systems (RMS™) to provide real-time automated monitoring, chloramine disinfection, and adequate mixing in their reservoirs. During this project, 18 reservoirs were examined and prioritized, costs were estimated, and conceptual designs were prepared.

Investigation of Brown Water Complaints in the Drinking Water Distribution System; Eastern Municipal Water District, California; August 2005 to August 2007.

This project aimed at determining the origin and causes of recurring brown water occurrences that had been observed in a section of the District's drinking water distribution system, along with accumulations of sediments and deposits. Alternatives to resolve these problems were presented.

Evaluation of Water Mixing in Three Reservoirs Located in Santa Clarita Water Division, California, Using Impellers Developed by PAX Scientific, Inc.; January to July 2005.

PAX Scientific has developed a mechanical mixer with a novel impeller design that provides greater performance, higher output and lower energy usage. The purpose of this study was to conduct full-scale testing of the effectiveness of the PAX mixer in three drinking water reservoirs.

Formation and Decay of Disinfection Byproducts in the Distribution System (Project 2770); U.S. EPA, Water Research Foundation; 2001 to 2005.

The goal of this project was to understand the formation and decay of selected DBPs (four THMs, nine HAAs, and NDMA) in full-scale distribution systems.

Optimizing Chloramine Treatment; Water Research Foundation (Project 2760); 2001-2003 (published in 2004).

The objective of this project was to synthesize the relevant research, operational and practical information regarding the use of chloramine in water treatment, and develop new utility case studies. This manual synthesizes all relevant research, and operational and practical information regarding the use of monochloramine in water treatment.

Conversion of Chlorination Facilities to Chloramination Facilities at the Sunset and Windsor Reservoirs; City of Pasadena Water and Power Department, California; August 2001 to April 2002.

Participated in the evaluation of the chloramine conversion approach.

Publications and Presentations

Dr. Baribeau has produced 8 book chapters (5 as main author, and 3 as co-author), 10 research reports (5 as main author, and 5 as co-author), 13 peer-reviewed publications (3 as main author, and 10 as co-author), and numerous reports to clients.

Dr. Baribeau has given over 100 conference presentations at local, national, and international venues, including presentations as invited, guest, and keynote speaker. She is an instructor for the California-Nevada Section of the American Water Works Association (AWWA), for which she teaches the Water Quality Workshop and the Drinking Water Regulations Workshop since March 2013.

Selected Professional Affiliations:

- American Water Works Association (AWWA)
- WaterReuse Association
- Southern California Water Utilities Association (SCWUA)
- California Association of Mutual Water Companies (CAMWC).

Daniel Aruta, PE
Senior Civil Engineer | Project Manager

Registrations:
Civil Engineer in CA, No. 56417, Expires: 6/30/17

Academic Achievements:
BS, Civil Engineering, California State University, Long Beach, 1985

Mr. Aruta has 31 years of design and construction experience in water resources, transportation, civil infrastructure, and renewable energy. His background encompasses condition assessments, unit cost estimating, feasibility studies, preliminary engineering, final engineering, and construction support services for water and wastewater infrastructure. His relevant experience includes:

Utility Relocation, California High-Speed Rail Authority, California

Project Engineer responsible for design of wet and dry utility relocations for the conceptual design of two contiguous segments of the high-speed rail project totaling 100 miles. Developed a quantities estimate for all high risk and critical wet and dry utilities. The estimate consisted of primary and secondary unit quantities for each utility and total quantities. Responsible for developing relocations of wet utilities within the footprints relative to the different alignment alternatives.

Client: California High-Speed Rail Authority

Sheffield Water Quality – Temporary Reservoirs, Santa Barbara, California

Project Manager/Project Engineer for the design of a new facility for temporary storage of 3 MG of potable water using two 1.5-MG tanks at an existing reservoir. Mr. Aruta designed layout and dimensions of the tank foundations, two retaining walls, and mechanical piping for the two tanks. He coordinated piping and appurtenances with tank manufacturers in compliance with AWWA standards for aboveground bolt up steel tanks, as well as coordinated the design of a new below ground valve vault with subconsultant, with civil site development, to eliminate impacts of existing pipelines and interference with operations during construction of the vault. Mr. Aruta was responsible for construction administration including meetings, submittal review, Request for Information (RFI) responses, special field inspections, and coordinating with City staff.

Client: City of Santa Barbara

Sheffield Water Quality - Permanent Reservoirs, Santa Barbara, California

Project Manager/Project Engineer for the design of a new reservoir facility for permanent storage of 13 MG of potable water to replace an existing reservoir. The new facility includes two pre-stressed concrete buried reservoirs, each with a capacity of 6.5 MG, an associated operation valve vault, and a control building. The reservoirs were designed in compliance with AWWA standards. Mr. Aruta coordinated design of the hydraulic operation of the reservoirs based on the water distribution system. He designed the layout and dimensions of the access structures, appurtenances, security features, and piping for the reservoirs. He also designed the layout and dimensions of the valve vault including access and mechanical piping, as well as the rehabilitation of 570 feet of existing 18-inch cast iron pipe specifying trenchless technologies. The 75-year-old pipe was rehabilitated with an 18-inch HDPE tight-fit liner specifying roll-down and swage-line processes for optional methods of liner insertion into the host pipe. Pipeline rehabilitation included removal of an existing HDPE liner and grout from a previous rehabilitation. The pipeline was located 24-feet deep beneath a 70-year-old concrete filtration building with valves and fittings inside a vault below the building's basement floor. Mr. Aruta provided construction administration including meetings, submittal reviews, RFIs, special field inspections, and coordinating with City staff.

Client: City of Santa Barbara

Carlsbad Desalination Conveyance Pipeline, San Diego, California

Project Engineer was responsible for reviewing design and overseeing construction of 52,050 feet of 54-inch diameter steel pipeline. The pipeline was designed to convey 54 mgd desalinated seawater with a design flow HGL from 550 to 514 psi, and an operating HGL from 530 to 489 psi. The pipeline had 12 sections of various wall thicknesses with cement mortar lined and coated steel pipe conforming to AWWA C200. Design reviews considered constructability, open trench, and microtunneling methods of construction, utility conflicts, and conformance with Water Authority standards. Construction supervision consisted of quality assurance and adherence to contract documents.

Client: San Diego County Water Authority

Hill View Reservoir Temporary Chlorination Facility, Yonkers, New York

Project Manager responsible for coordinating design of a new temporary chlorination facility for treating 1.5 billion gallons per day for the existing City Water Tunnel No. 3 as part of the main water supply system for the City of New York. Design included a retrofit layout of a new pump station for three raw water lines, a new pump station for an orthophosphate chemical line, dual chemical storage tanks in an existing dewatering chamber, and four new chlorine solution lines connecting to an existing tunnel shaft for disinfection. This \$2 million multiple-contract project required contract documents, civil and site engineering, and coordinating mechanical engineering for a sodium hypochlorite disinfection system. Mr. Aruta coordinated the architectural design of the building to obtain approval by the City of New York Arts Commission.
Client: City of New York Department of Environmental Protection

Recycled Water Master Plan, San Diego County, California

Project Engineer developed eight alternative pipeline routing studies for supplying recycled water to identified potential users. The alternatives involved pipeline distribution networks ranging from 142,000 feet to 265,000 feet (26.9 to 50.2 miles) of 6- to 30-inch pipelines. Work included field reconnaissance to identify feasible utility corridors for routing new pipelines, including identification of trenchless construction needs. Horizontal directional drilling, auger boring, and hydraulic jacking were considered as feasible trenchless technologies. A major project component was the evaluation of brine disposal, which included identifying brine sources, flows, and regulatory discharge requirements, and developing the brine disposal system, which included 82,750 feet of pipeline. A key task of the master plan was developing a cost model for preparing construction cost estimates based on unit costs for pipeline construction for recycled water lines and the brine disposal pipeline. Mr. Aruta performed quantity take-offs for the cost model conforming to standard details for the City of San Diego and the City of Chula Vista. The cost estimate model included steel and plastic piping material alternatives for trench construction and pavement restoration alternatives within major and minor streets in San Diego and Chula Vista.
Client: Sweetwater Authority

San Nicolas Island Water System Study, Ventura County, California

Project Engineer performed a preliminary study and value engineering of a new potable water system for the entire naval base on the island. Mr. Aruta designed the preliminary layout of the water system and location of its components comprising a pressurized water supply pipeline system from its delivery terminal of two water storage reservoirs, and a gravity flow water distribution pipeline network to 13 service points spread across the island. He conducted the system-wide hydraulics study to develop eight separate gravity-based pressure zones based on piping flow velocities and pressures to serve identified existing fire flow demands and general domestic water needs. Mr. Aruta selected piping materials, pressure classes and sizes of the complete water system to serve five specified fire flow demand service points and the island-wide domestic water service system. Sized the nominal volume capacity of the two new above-ground water storage reservoirs based on their vertical proximity within the hydraulic profile of the distribution system, and their relation to the fire and domestic water demands.
Client: Ventura County Naval Base

F.E. Weymouth Water Treatment Plant – Oxidation Retrofit Program, Los Angeles, California

Project Engineer responsible for design of large conduits and large-diameter pipelines within the plant. The conduits consisted of 122 feet of 147 inch diameter steel pipeline and 216 feet of 15 foot by 13 foot cast-in-place concrete box for the Plant Influent Conduit, and 1,527 feet of 15 foot by 13 foot cast-in-place concrete box for the Ozone Effluent Conduit. The pipelines consisted of 900 feet of 96-inch RCP rejection pipeline, four rejection laterals each eight feet of 54-inch steel piping, and 809 feet of 42-inch storm drain piping. Design of the 96-inch rejection pipeline included connection to an existing flood control channel with a new tie-in structure. Designing the tie-in to the channel included laying out the configuration and size of the structure, as well as

demolition of the existing flood control channel conforming to the standards of the Los Angeles County Flood Control District. A key feature of this project was developing a sequence of construction and alternative schedules to connect the new plant influent conduit to an existing plant feeder pipeline to be performed during a scheduled plant shut down period. Developing the schedules consisted of identifying all the critical work tasks and assigning time durations to each task. Design of all the conduits and pipelines included hydraulic analysis, thrust restraint, and interface connections to new and existing structures and conduits.

Client: Metropolitan Water District of Southern California

Groton Water Pressure Zone Consolidation, Burbank, California

Project Manager/Project Engineer for the design of 812 feet of new eight inch potable water main using trenchless technology. The pipeline connects a separate small water distribution zone to a larger zone to increase the zone's operating pressure for fire flow and eliminates the need for two aged storage tanks in the smaller zone. The alignment traverses through inaccessible, steep terrain, up to 100 feet deep under a hillside ridge. Two key features of the project were installing the pipeline using horizontal directional drilling (a trenchless technology) and designing a sound attenuating system to mitigate noise impacts of the rock-drilling operation. The project also included a geotechnical study, resident engineering, and inspection.

Client: City of Burbank

Water Transmission Pipeline for the Robert A. Weese Filtration Plant Expansion, Oceanside, California

As Project Engineer, Mr. Aruta was responsible for the preliminary design of a new transmission pipeline to supply a new plant expansion with raw water for treatment. The new 1,000 foot pipeline will connect to an existing stub-out from the San Diego County's aqueduct and route into the plant, avoiding conflicts with existing underground utilities with minimal disruption to plant activities. Design included sizing a 36-inch pipe to serve various flow demands for current and future expansions.

Client: City of Oceanside

Cater Cross-Tie/South Coast Booster Station Improvements, Santa Barbara, California

Project Manager/Project Engineer for design of a new potable water pump station and improvements to the adjacent potable water pump station. The new cross-tie pump station lifts potable water 600 feet in elevation from a treatment plant to a reservoir and enhances the City's water distribution system. The cross tie pump station featured three 300 hp vertical turbine pumps, each with a capacity of 1,350 gpm. Mr. Aruta designed the layout, dimensions, and mechanical piping of the pump station, a meter vault, and a pressure reducing station, and interface connections with existing piping. Design included pump selection, a surge arrestor system, and buried piping in the public right-of-way. The booster pump station featured two 100 hp pumps, one 200 hp pump, and one 300 hp pump to supply potable water to a neighboring water district. He coordinated electrical and instrumentation design of the existing booster pump station including replacing existing VFDs with new equipment, replacing hydraulic oil valve actuators with electrical valve operators, replacing a 24-inch pump control ball valve on the 200 hp pump, and exchanging an existing standby power generator with a new, larger unit. He also investigated a valve refurbishment option as an alternative for replacing the existing 20-inch and 24-inch ball valves and saved the client \$100,000 in replacement costs. Mr. Aruta coordinated with design engineers and directed subconsultants studies for a pipeline surge analysis and ambient sound monitoring program.

Client: City of Santa Barbara

Source Water Transmission System Rehabilitation, Santa Cruz, California

Technical Advisor for the preliminary design to rehabilitate a 70-year-old water transmission system comprised of 16.5 miles of pipelines. The preliminary design report analyzed the conditions and operation of the existing system and made recommendations for a rehabilitation program. Mr. Aruta identified and evaluated

various methods of rehabilitation, replacement, and repair including pipe materials, methods of installation, and constructability.
Client: City of Santa Cruz

Ocean Outfall Permanent Repair, Aliso Water Management Agency, California

Project Engineer for the analysis of existing conditions and design of a preliminary repair for a damaged ocean outfall. Mr. Aruta developed the scope of marine geophysical survey to map bathymetry and isopachs of the seafloor. Offshore geologic conditions were analyzed and alternative repair methods were evaluated to include methods using trenchless technologies, outfall alignments and hydraulics, and commercially available pipe repair products.
Client: Aliso Water Management Agency

El Estero Wastewater Treatment Plant, Santa Barbara, California

Project Engineer responsible for conducting a preliminary feasibility analysis for equalizing influent peak wet weather flows prior to treatment to improve wastewater treatment quality. Mr. Aruta developed two potential sites within the plant for locating a new equalization basin to provide eight hours of storage with a capacity of 2 MG. He also analyzed the schematic operation of filling each basin during wet weather flows, then returning stored wastewater to the influent stream after peak events. Conceptual design included geometry of the two concrete basins and yard piping.
Client: City of Santa Barbara

Mid-Coast Corridor Transit Project, San Diego, California

Project Engineer responsible for reviewing designs, cost estimates, and construction scheduling of proposed relocations and abandonments of 55 wet utility systems consisting of water, sewer, and an aviation fuel line for Metropolitan Transit Systems, and expanding existing heavy rail service for North County Transit District. The utilities were located within a shared railroad corridor and involved right-of-way from MTS, City of San Diego, and Caltrans. Mr. Aruta developed a new protect-in-place alternative for an existing 60-inch sewer interceptor, in lieu of relocating as originally proposed by others. He also developed an abandonment alternative for a sewer manhole located between two tracks and trenchless bore-and-jack installation for a new 8-inch sewer as a safer alternative to the deep sewer proposed by the designer. His three alternatives, accepted by the City, resulted in a project savings of about \$4.5 million. Responsible for coordinating with NCTD to identify its buried signal cable networks at control points and intermediate areas along 9.5 miles of the MTS right-of-way for survey and as-built documentation efforts.
Client: SANDAG

David Holman, PE
Project Engineer

Registrations:

*Civil Engineer in
California No. 80164,
Expires 9/30/2016*

*Civil Engineer in Arizona
No. 47544, Expires
3/31/17*

Academic

Achievements:

*BS, Civil Engineering,
Arizona State University,
2004*

*Minor, Urban Planning,
Arizona State University,
2004*

Mr. Holman has 13 years of civil engineering experience in project management, design, permitting, and construction of water, wastewater, transportation, land development, and energy projects. His relevant experience includes:

Tartesso Water Supply Facility, Buckeye, Arizona

Design Engineer for the Tartesso Unit 1 water campus including a well site, booster station, storage reservoir, hydropneumatic tank, and onsite disinfection. The booster station consists of five horizontal split case pumps with a total capacity of 9,165 gpm (13.2 mgd), and 2.05 MG above-ground steel tank for storage. Cost: \$3.5M
Client: Town of Buckeye

Rancho Gabriela Water Supply Facility, Surprise, Arizona

Design Engineer for four expansions of the Rancho Gabriela Water Supply Facility including a 2.0 MG reservoir, drainage improvements, expansion of the existing hypochlorite generation system, and upsizing of the existing low-flow booster pumps. The second expansion included a second bank of booster pumps, hydropneumatic tank, electrical building, generator, and another expansion of the disinfection system. The new bank of pumps included seven new cans with two new pumps allowing the facility to have an ultimate pumping capacity of 21,000 gpm (30.2 mgd). Mr. Holman provided construction oversight and administration services. Cost: \$6.5M
Client: City of Surprise

Lift Station No. 72, Phoenix, Arizona

Project Engineer for this regional lift station with ultimate capacity of 2.9 mgd. The pump station included wet scrubber odor control system for the wet well and a bioxide injection odor control system for the 2 mile stretch of 12-inch force main. Mr. Holman oversaw all construction including inspection, submittal reviews, RFI's, pump station commissioning, and record drawing approvals. He also developed the Standard Operating Procedures (SOP) manual for the pump station, commissioning plan, and performed training for City staff. The City of Phoenix used several aspects of Mr. Holman's design in the development of its Lift Station Design Manual. Cost: \$3.7M
Client: City of Phoenix

Lift Stations Nos. 12, 16, and 17, Scottsdale, Arizona

Project Engineer for the rehabilitation of three lift stations for the City of Scottsdale. The lift stations were located within a mountainous residential community within private residential easements with capacities up to 0.2 mgd. Mr. Holman coordinated with homeowners to develop landscaping plans to mitigate the impacts of the upgraded pump stations. Graphic models were developed to facilitate community support and private property easement agreements. Cost: \$2.3M
Client: City of Scottsdale

Santa Cruz Water Company Well Upgrades, Maricopa, Arizona

Design Engineer for seven ground water well upgrades including raw water transmission pipelines and control valve stations. Cost: \$350,000
Client: Santa Cruz Water Company

Cortessa Well No. 1, Maricopa County, Arizona

Design Engineer for groundwater well consisting of a 1,500 gpm submersible pump, de-sanding equipment, and arsenic removal treatment. Cost: \$250,000
Client: Arizona American Water Company

Otay 1st and 2nd Pipelines west of Highland Avenue, San Diego, California

Project Manager for this water transmission pipeline project for the City of San Diego consisting of the replacement of 5 miles of 16- to 42-inch water transmission pipelines and approximately 2.3 miles of 8- to 12-inch water distribution mains. The project

included a new PRV station and control valve station at the University Heights Reservoir, as well as Caltrans permitting for three trenchless 60-inch tunnel crossings of the I-805 freeway. Design cost: \$2.2M
Client: City of San Diego

30th Street Pipeline, San Diego, California

Project Engineer for this water transmission pipeline replacement project involving 3.5 miles of 36- to 42-inch transmission mains and 2 miles of 12- to 16-inch distribution mains. Design cost: \$1.8M
Client: City of San Diego

Sewer and Water Group 814, San Diego, California

Project Engineer for this design-build pipeline replacement project for the City of San Diego that involved 3.5 miles of 8-, 10-, and 12-inch water and sewer mains. The project included new water and sewer service connections, trenchless pipe replacement and rehabilitation, and 44 sewer lateral replumbs. The project involved new AC pavement street overlay and construction of 101 curb ramps compliant with the Americans with Disabilities Act (ADA). Cost: \$6.5M
Client: City of San Diego

Water Group 3012 Water Main Replacement, San Diego, California

Project Engineer for this design-build project for the City of San Diego that replaced 8 miles of water main in the Pacific Beach area. Cost: \$11.8M
Client: City of San Diego

Tatum Boulevard Water System Improvements, Phoenix, Arizona

Project Engineer for 2 miles of 24-inch water transmission pipeline including a 112-foot utility bridge over an existing irrigation canal. Cost: \$3.5M
Client: City of Phoenix

Scottsdale Water Distribution System Improvements, Scottsdale, Arizona

Project Engineer for a six year on-call contract involving master planning, design, and construction oversight services. Projects included water distribution pipelines, transmission pipelines, pipeline rehabilitation, pump station design, reservoir rehabilitation, and PRV station upgrades. Design cost: \$6M
Client: City of Scottsdale

Tartesso Units 1 and 2 Infrastructure, Buckeye, Arizona

Project Engineer for infrastructure master planning, design, and construction oversight for a 5,000 acre development. The infrastructure improvements consisted of two water supply campuses, five groundwater wells sites, 12 miles of waterline, two PRV stations, and 5 miles of sewer pipelines. Design cost: \$2.3M
Client: Town of Buckeye

Santa Cruz Water Company, Water Master Plan, Maricopa, Arizona

Project Engineer for this water master plan with a service area encompassing 208 square miles. The overall master plan included integration of several smaller water models and master plans into an overall system. The planning effort modeled existing facilities and used projected growth models to size and locate ultimate infrastructure improvements including transmission pipeline alignments, water supply facilities, and groundwater well fields. The overall system included 45 water supply facilities, 60 PRV stations, and over 5.2 million linear feet of pipeline. Design cost: \$450,000
Client: Santa Cruz Water Company

Montiere Water and Wastewater Master Plan, Buckeye, Arizona

Prepared the water and wastewater master plan for the 600 acre development, which is located within the Sun Valley Parkway corridor. Design cost: \$350,000
Client: Stardust

Balterra Water and Wastewater Master Plan, Maricopa County, Arizona

Project Engineer for this 1,110-acre master planned community. Design included water supply, wastewater collection system, and reclaimed water infrastructure improvements required for the Balterra service area. The master plan also discusses three potential discharge options for the proposed Balterra Water Reclamation Facility. Groundwater recharge would serve as the primary method. The proposed wastewater collection system consists of approximately 17.5 miles of gravity sewer line ranging in size from 8 to 27 inches. Design cost: \$200,000

Client: Trillium Development Company

Amaranth Water and Wastewater Master Plan, Goodyear, Arizona

Project Engineer for water and wastewater master planning of this 10,000 acre master planned community within the City of Goodyear. Planning efforts included development of unit demand forecasting for the area, land use planning, and hydraulic models to size the backbone infrastructure. Cost: \$1.5M

Client: City of Goodyear

CRESCENTA VALLEY WATER DISTRICT

STAFF REPORT

Information Item No. 3
September 29, 2016

To: Engineering Committee
From: David S. Gould, P.E. – District Engineer
Subject: Lower Pickens Canyon Pipeline Crossing Repair, Project E-957

ITEM:

Lower Pickens Canyon Pipeline Crossing Repair, Project E-957 – Status of Pickens Canyon Slope Repair and Pipeline Replacement Project

Background:

On May 30, 2015, a water main break occurred on the Lower Pickens Canyon pipeline crossing which is located on the slope near 5481 Ocean View Blvd. This pipeline is one of three pipelines which cross Pickens Canyon at three locations. This pipeline was installed in 1956 and repaired in 1972.

The pipeline was repaired with a stainless steel clamp to restore water to the area. The pressure in the pipeline is approximately 150 psi and the natural slope above and below the pipeline was severely eroded by the water. The existing pipeline was also undermined and there is no soil supporting it.

Staff determined that the pipeline would have to be repaired or replaced to prevent any future leaks. Staff also concluded that the slope would have to be replaced to provide a structural base for the pipeline to prevent any future erosion of slope.

Staff worked with DMC Engineering and AMEC Foster Wheeler on the design of the pipe & slope stabilization and erosion control plan. This plan was an interim plan to install sand bags with slurry to support the exposed pipeline and to prevent further erosion of the slope during the rainy season. The installation of the pipe & slope stabilization and erosion control plan was performed by West End Engineering and was completed on February 19, 2016.

Staff met with Mr. Jack Tasso, property owner at 5481 Ocean View Blvd in September 2016. Mr. Tasso expressed his concerns about the construction schedule and how it will affect his property. Staff had indicated construction may begin in January or February 2017.

In addition, the City of La Canada Flintridge is doing a pavement replacement project on Ocean View Blvd. from Foothill Blvd to the top of Ocean View. The project also includes restoration of the existing slope on a portion of Ocean View Blvd, just north of the project site. Staff will be meeting with LCF to get more information.

Discussion:

Staff has met with DMC Engineering and AMEC Foster Wheeler in July and August 2016 regarding alternatives for the replacement of the pipeline and final repair of the existing slope. In September 2016, a team of geologists from AMEC Foster Wheeler visited the site to observe the slope after the interim plan was completed (see Exhibit “A” Slope Stabilization Observations presentation). The photos show that the interim plan of sand bags, slurry-filled berms, and plastic sheeting have held over the last seven (7) months.

From the discussions with the consultant team, Staff is presenting three (3) options for the Slope Repair and Pipeline Replacement, which are as follows:

Option 1: Repair the slope and install a new 8-inch pipeline from the bottom of the slope and reconnect to the existing water main on Ocean View Blvd. (See Exhibit “B” for location map).

- a. Repair the existing slope by installing additional slurry-filled berms and add additional slurry to within 24-inches of finish surface.
- b. Install an 8-inch HDPE pipeline on top of the slurry from the exposed pipeline near the bottom of the channel to within 4 – 8 feet of the top of the slope; trench from the top of slope in a new alignment within 5481 Ocean View to install the new pipeline and reconnect with a new valve on Ocean View Blvd.
- c. Place 24-inches of fill soil with erosion control matting from the top of the slurry to the existing finish grade using the slurry-filled berms as benches to contain the soil.

Option 2: Repair the slope and install a new 8-inch from the bottom of the slope and reconnect at the angle point where the pipeline goes underground and through the easement. (See Exhibit “B” for location map).

- a. Repair the existing slope by installing additional slurry-filled berms and add additional slurry to within 24-inches of finish surface.
- b. Install an 8-inch HDPE pipeline on top of the slurry from the exposed pipeline near the bottom of the channel to within 4 – 8 feet of the top of the slope and reconnect to the existing pipeline within the easement area on 5474 Ocean View.
- c. Place 24-inches of fill soil with erosion control matting from the top of the slurry to the existing finish grade using the slurry-filled berms as benches to contain the soil.

Option 3: Repair the slope, replace a small section of pipeline where the break occurred and bury the existing pipeline with the slurry. (See Exhibit “B” for location map).

- a. Repair the existing slope by installing additional slurry-filled berms and add additional slurry to within 24-inches of finish surface.
- b. Repair the existing water main by installing a small section (about 6 feet) 8-inch steel pipeline where the break occurred.
- c. Bury the exposed portions of the pipeline with slurry.
- d. Place 24-inches of fill soil with erosion control matting from the top of the slurry to the existing finish grade using the slurry-filled berms as benches to contain the soil.

Staff and its consultants evaluated each option and developed a list of advantages and disadvantages for each option as shown below:

Option 1	
Advantage	Disadvantage
Replace pipeline installed in 1956 (60 years) and repaired in 1972 (44 years)	New alignment would require a new waterline easement at 5481 Ocean View
New pipeline should last for an additional 40 to 50 years	Existing driveway would have to be removed and replaced
New alignment will provide for easier access for pipeline maintenance	Project would require permits from LCF
Slope will be repaired	Project could affect LCF’s paving project on Ocean View
	Construction costs will be higher than Options 2 & 3
	Estimated construction schedule 3 - 5 months

Option 2	
Advantage	Disadvantage
Replace a portion of the pipeline installed in 1956 (60 years) and repaired in 1972 (44 years)	Portion of the pipeline along 5474 Ocean View will still be the 1956 pipeline (risk of future failure)
New pipeline should last for an additional 40 to 50 years	Need access to 5481 Ocean View for construction
Pipeline would remain in same alignment and easement area within property at 5474 Ocean View	Construction costs will be higher than Option 3
Existing driveway would not have to be removed and replaced	Estimated construction schedule 1 - 2 months
Project would not require permits from LCF	
Project would not affect LCF’s paving project on Ocean View	
Slope will be repaired	
Construction costs will be lower than Option 1	

Option 3	
Advantage	Disadvantage
Pipeline encased in slurry backfill	1956 & 1970 pipeline will not be replaced & risk of future failure
Pipeline would remain in same alignment	Need access to 5481 Ocean View for construction
Existing driveway would not have to be removed and replaced	Estimated construction schedule 1 month
Project would not require permits from LCF	
Project would not affect LCF's paving project on Ocean View	
Construction costs will be lower than Option 1 & 2	
Slope will be repaired	

Permits: Meet with the following to discuss permits:

- o City of La Canada Flintridge
- o Los Angeles County
- o U.S. Army Corps of Engineers
- o California Department of Fish and Wildlife
- o California Regional Water Quality Control Board

Pipeline Replacement: Staff to meet with HDPE or PVC Pipe contractors to discuss access, constructability and preliminary costs.

Project Schedule: See attached project schedule (See Exhibit "C").for discussion

Recommendation:

Staff recommends proceeding with Option 2, which has less impact to the property at 5481 Ocean View, and the pipeline remains within the easement on 5474 Ocean View.

Staff is planning to complete the following next steps:

1. Request AMEC & DMC Engineering to provide proposals for design services
2. Meet with the permitting agencies
3. Meet with the pipeline contractors for preliminary costs
4. Meet with the property owners on the proposed slope repair and pipeline replacement
5. Prepare construction cost estimate
6. Proceed with design of the slope repair and pipeline replacement project

Prepared by:



David S. Gould, P.E.
District Engineer

Submitted by:

Thomas A. Love
General Manager

Attachment:

1. Exhibit "A" - Slope Stabilization Observations
2. Exhibit "B" - Location Map
3. Exhibit "C" - Project Schedule

From: [Jack Tasso](#)
To: [David Gould](#)
Cc: [Thomas Love](#); [Bryan Jones](#)
Subject: RE: 5481 Ocean View Blvd
Date: Sunday, September 18, 2016 6:46:44 PM

David,

After our conversation on Friday (9/16) I wanted to put in writing the serious problems that we will be facing with the permanent replacement of the new water line. I am retiring at the end of the year and we are relocating in the Spring of 2017 to Arizona as our daughter is having her 3rd child in April and we need to be there to help her. We are putting our house up for sale at the end of February, so we talked to a real estate specialist this weekend concerning our issues. She confirmed that it would be impossible to sell the house with a construction project going on. She also said that we would not be able to sell the house with the project pending, even with disclosure of the project, as potential buyers would be put off or it would greatly impact the sale price of the house (of which we cannot afford). This puts us in a very bad financial situation as we have invested heavily in this property with purchase and full renovation with our retirement funds and we cannot relocate without the funds from the sale of the house.

In addition, you discussed the possibility of running the pipe on our property, where currently it is on our neighbor's property. We realize that we granted permission for access through our property but never thought that you would consider running the pipeline through our property. We urge you to consider other alternatives.

As you know, the pipe broke in May 2015 (16 months ago) and we have been very co-operative in allowing you access to the area for the temporary fix. Please take into account our problems as this is a major issue for us and we need you to **complete** the permanent pipeline project as soon as possible so that we can proceed with the sale of the house in the 1st quarter of 2017, which is the prime time to sell this property.

Please advise us of the outcome of your upcoming project review meeting and what your schedule will be.

Sincerely,
John & Joyce Tasso

From: David Gould [mailto:dgould@cvwd.com]
Sent: Wednesday, May 04, 2016 2:35 PM
To: jtasso@tsryarns.com
Cc: Thomas Love; Bryan Jones; Derek McGregor (dmcgregor@dmcceng.com); Hamer, Greg
Subject: RE: 5481 Ocean View Blvd

Jack –

Good afternoon.

The next step will be to work on the design to replace the slope and pipeline.

We plan on meeting with our design team this month to layout a project schedule and options.

After we meet, I'll get back to you on the status of the project.

Thanks,

David S. Gould, P.E.
District Engineer
Crescenta Valley Water District
2700 Foothill Blvd.
La Crescenta, CA 91214
(818) 248-3925
(818) 236-4119 (direct)
(818) 284-5813 (cell)
(818) 248-1659 (fax)

From: Jack Tasso [mailto:jtasso@tsryarns.com]
Sent: Tuesday, May 3, 2016 9:20 AM
To: David Gould
Cc: Thomas Love; Bryan Jones
Subject: 5481 Ocean View Blvd

David,
Please provide us with an update regarding the schedule for the permanent repair of the pipe/hillside project.
Thank you, Jack & Joyce Tasso

This email has been scanned for email related threats and delivered safely by Mimecast.
For more information please visit <http://www.mimecast.com>

Pickens Canyon

Slope Stabilization Observations

September 22, 2016

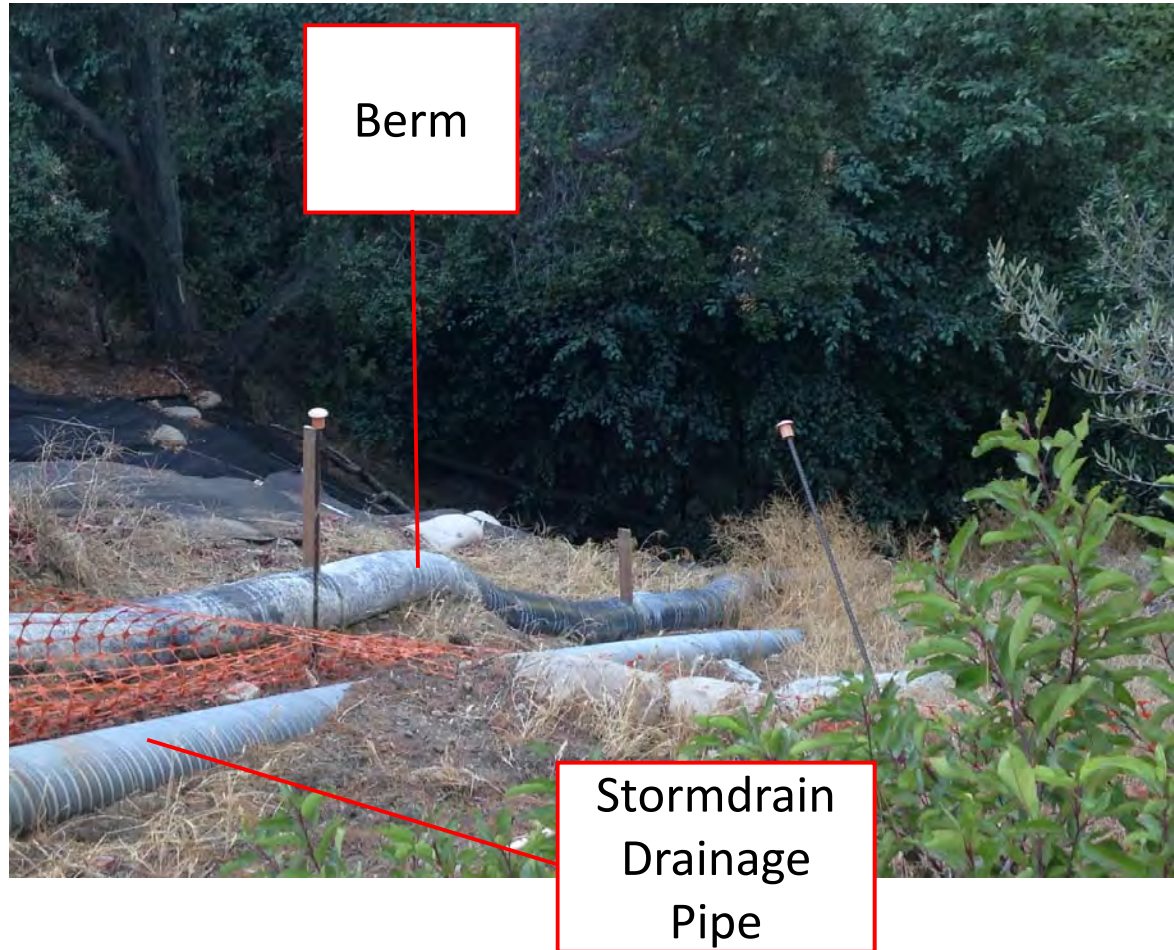
VIEW LOOKING SOUTH AT SLOPE REPAIR.



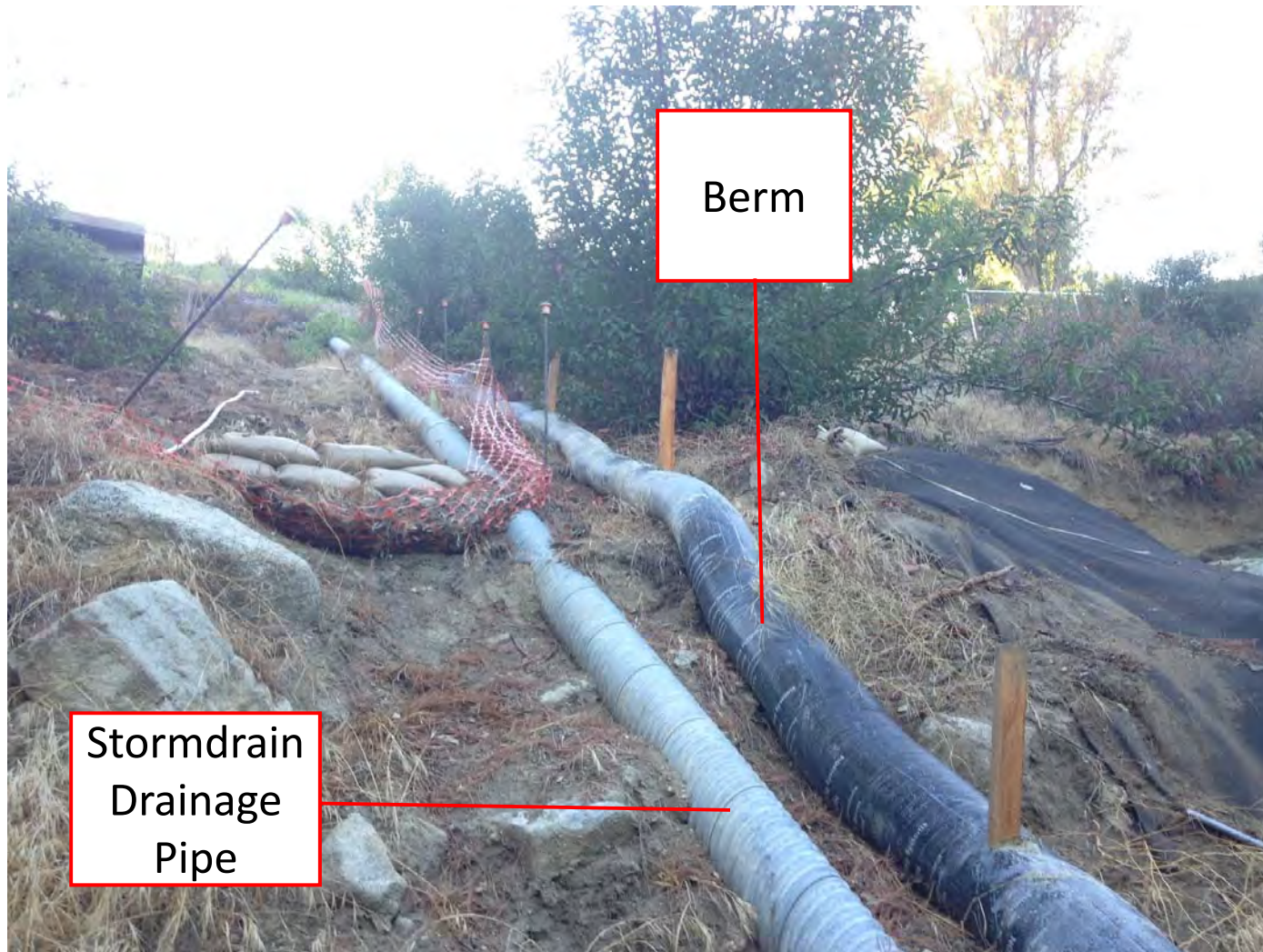
DOUBLE
SANDBAG

VIEW FROM THE WEST SLOPE LOOKING DOWN INTO THE CANYON

- Slurry-filled berm tube is secured along the slope with wooden stakes.
- This mechanism acts as a berm to prevent erosion of the slope and protect the integrity of the water pipe.



View standing on the western slope and looking up the slope



A tear was observed in the plastic covering and likely developed because of the jagged rock underlying rock.



Close-up image of a rock that pierced through the plastic covering.



VIEW LOOKING UPWARDS WHILE STANDING NEAR THE BOTTOM OF THE SLOPE REPAIR.

Water
pipeline



Double
sandbag

Supersacks

ABS
Drainage
Pipe



Water
pipeline

Double
Sandbag

Original
Concrete

ABS
Drainage
Pipe

VIEW STANDING NEAR THE BOTTOM OF THE CANYON.



Double
Sandbag

Western Slope:
Lowest exposed
portion of water
main pipe is
approximately 20
feet above the
canyon bottom.

Original
concrete
over pipe



Double
Sandbag

ABS
Drainage
Pipe

View from western slope looking down into the canyon: Double row of sandbags observed in place.

Double
Sandbag



Location where pipeline crosses the canyon bottom: the pipeline is not exposed, but the concrete encasement is. **Red lines show edges of concrete encasement**



View facing upstream: concrete encasement where water pipe crosses the channel. Concrete exposure is an estimated 3 to 4-feet in long and 1-foot in wide.



View from west-bank of creek: concrete encasement protecting the pipe crosses the channel. Large boulder observed nearby.



Direction of water
flow in canyon
bottom

A view of the slope stabilization from the bottom of the canyon. Creek flow is to viewer's back.

Water
pipeline



Original
Concrete

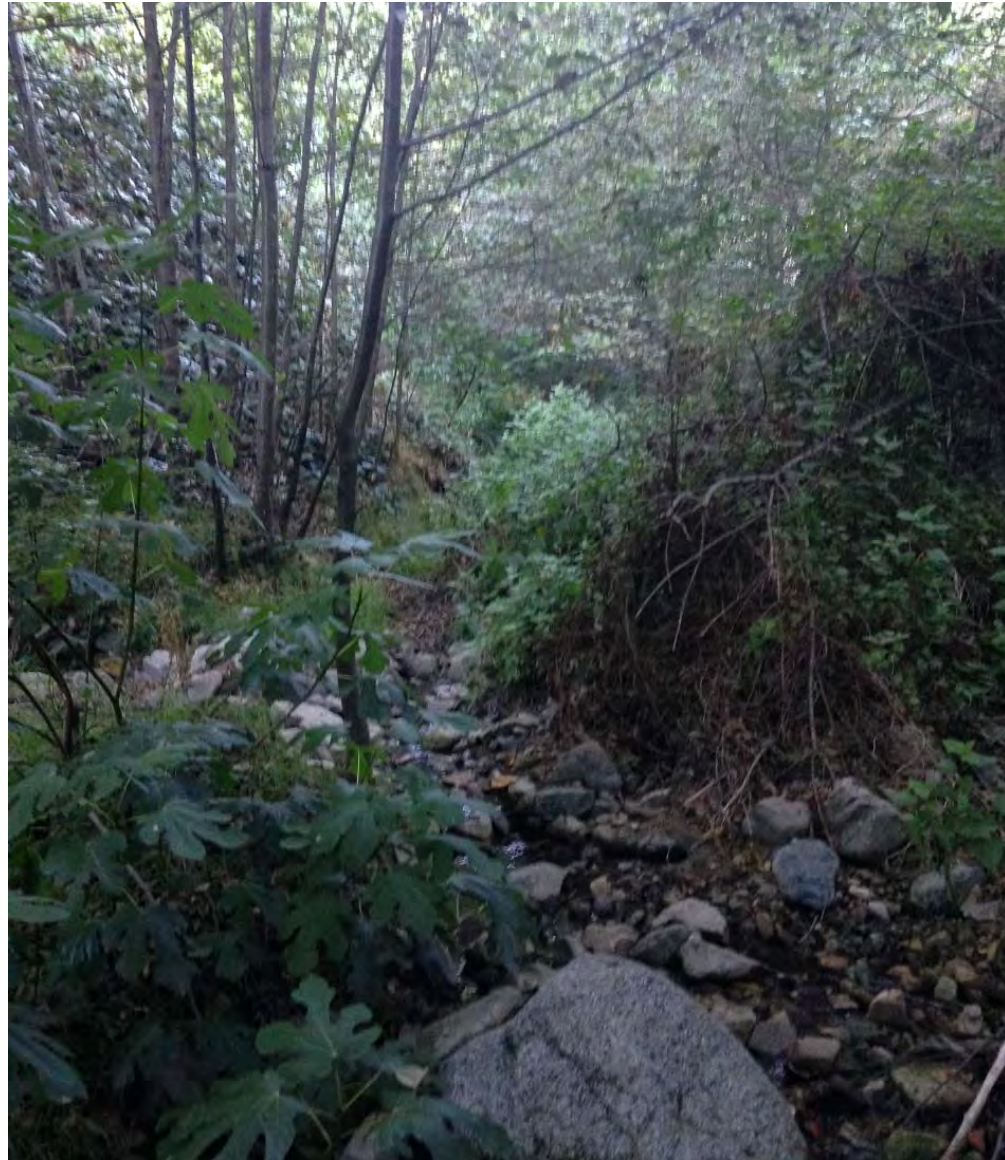
View from canyon bottom looking up east-facing slope

East-Facing
slope Water
Main
Exposed



Flagged
location of
buried water
line

Upstream of the
intersection
between the
pipeline and creek.



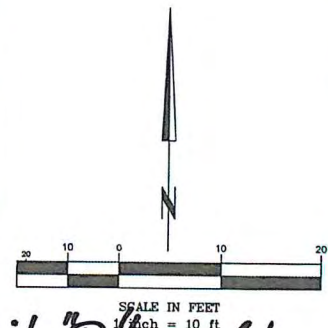
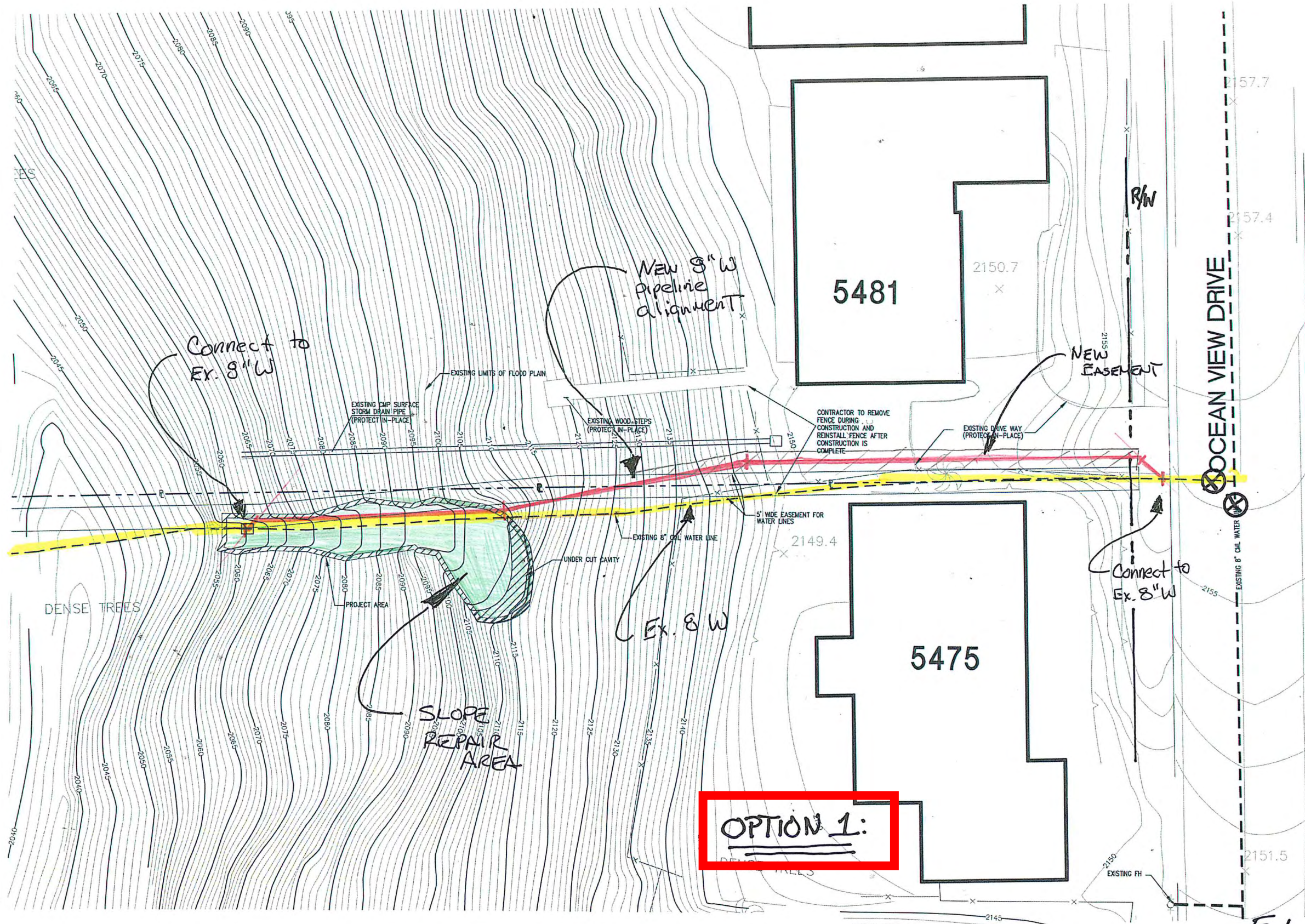
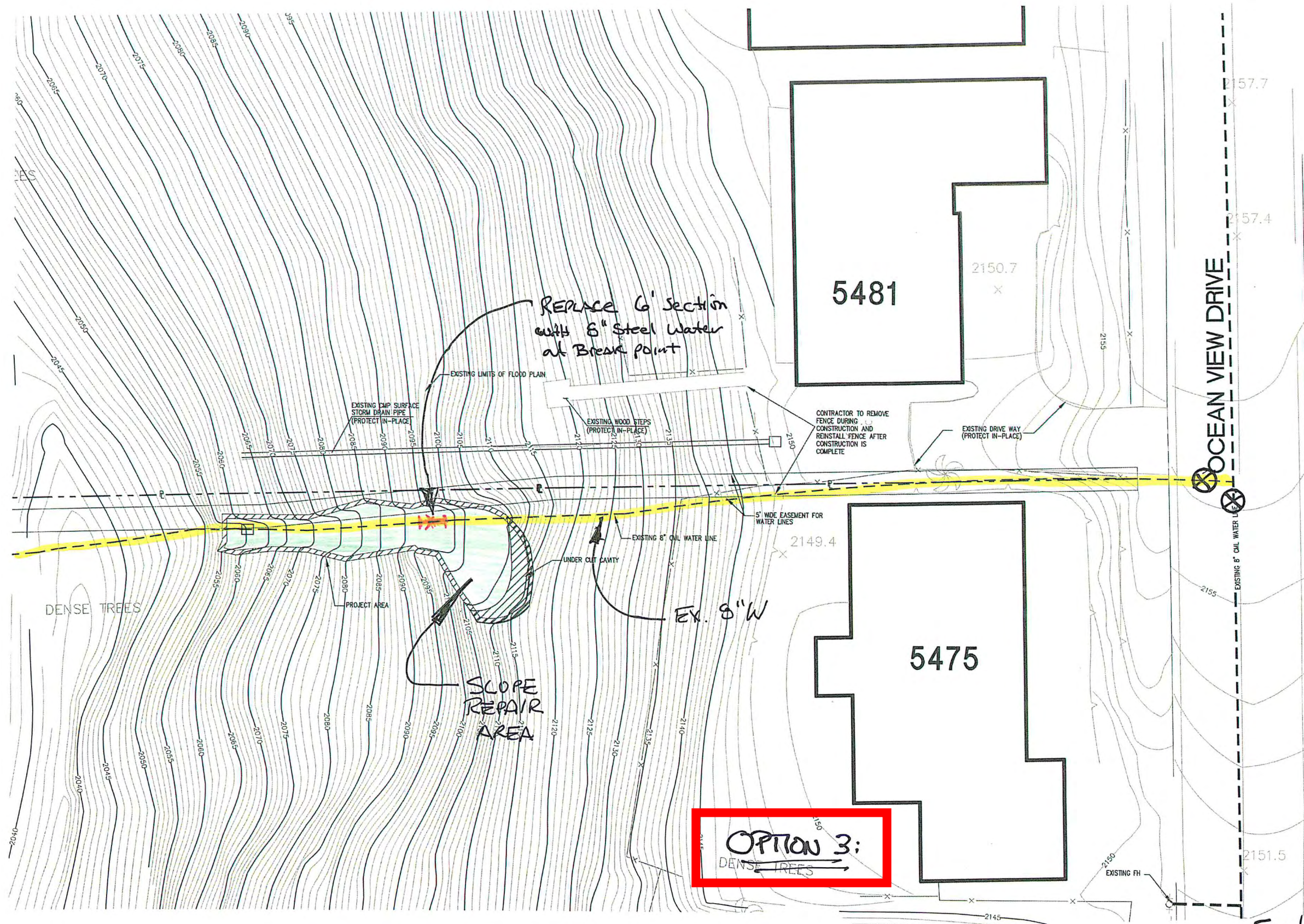


Exhibit "B" 1/3

UNDERGROUND SERVICE ALERT DIG ALERT PLAY IT SAFE. DIAL BEFORE YOU DIG! AT LEAST TWO WORKING DAYS PRIOR TO EXCAVATING		REVISIONS DESCRIPTION APP. DATE	PREPARED BY: DMC ENGINEERING Civil • Surveying • Planning • Construction 18 Technology Drive, Suite 100 Irvine, CA 92618 949-733-9393 • www.dmceng.com	SEAL: 	SCALE: AS SHOWN DATE: OCT. 2015 DRAWN BY: M. RAMOS DESIGNED BY: DJM APPROVED: AS BUILT:	CRESCENTA VALLEY WATER DISTRICT PIPE AND SLOPE STABILIZATION AND EROSION CONTROL SITE PLAN	SHT. 2 OF 4 SHTS. COMPLETION DATE: JOB NO. 1245-02 FILE NO.
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OPTION 3:
DENSE TREES

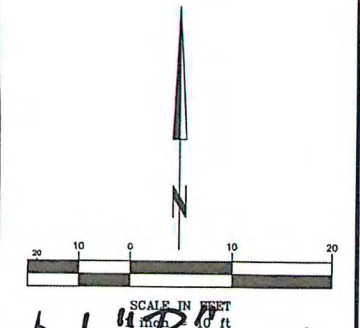


Exhibit "B" 3/3

UNDERGROUND SERVICE ALERT DIG ALERT PLAY IT SAFE. DIAL BEFORE YOU DIG! AT LEAST TWO WORKING DAYS PRIOR TO EXCAVATING	REVISIONS NO. DESCRIPTION APP. DATE		PREPARED BY: DMC ENGINEERING Civil • Surveying • Planning • Construction 18 Technology Drive, Suite 100 Irvine, CA 92618 949-733-9393 • www.dmceng.com	SEAL: REGISTERED PROFESSIONAL ENGINEER DEREK J. MCGREGOR No. 33483 Exp. 3-31-17 CIVIL STATE OF CALIFORNIA	SCALE: AS SHOWN DATE: OCT. 2015 DRAWN BY: M. RAMOS DESIGNED BY: D.J.M. APPROVED: AS BUILT:	CRESCENTA VALLEY WATER DISTRICT PIPE AND SLOPE STABILIZATION AND EROSION CONTROL SITE PLAN	SHT. 2 OF 4 SHTS. COMPLETION DATE: JOB NO. 1245-02 FILE NO.
	01.18.15 01.15.15 02.28.15						

Exhibit "C"
Preliminary Project Schedule
Lower Pickens Canyon Crossing Repair, Project E-957

TASK	Start Date	End Date	Calendar Days		Revised Start Date	Revised End Date	Calendar Days		Project Manager
Preliminary Design Mtg #1	7/14/16	7/14/16	0						CVWD/DMC
Preliminary Design Mtg #2 - Discuss Options	9/8/16	9/8/16	0						CVWD/DMC/AMEC
Preliminary Design Memo	9/8/16	9/27/16	19						DMC/AMEC
Engineering Committee	9/27/16	9/29/16	2		9/27/16	9/29/16	2		CVWD
Scope of Work/RFP/Proposal - Design	9/27/16	10/12/16	15		9/29/16	10/7/16	8		CVWD
Staff Report	10/12/16	10/14/16	2						CVWD
Award Contract	10/14/16	10/18/16	4		10/7/16	10/10/16	3		CVWD
Preliminary Design & Meet with LA County	10/19/16	11/11/16	23		10/10/16	10/14/16	4		DMC
Preliminary Geotechnical Report	10/19/16	11/11/16	23		10/14/16	10/18/16	4		AMEC
Design Meeting	11/11/16	11/16/16	5		10/18/16	10/21/16	3		CVWD
Final Design Plans & Specifications	11/16/16	12/16/16	30		10/21/16	11/4/16	14		DMC
Review Design Plans & Specifications	12/16/16	12/23/16	7		11/4/16	11/7/16	3		CVWD
Permits	10/19/16	12/18/16	60		11/4/16	1/3/17	60		CVWD/DMC/AMEC
Staff Report	12/23/16	12/30/16	7		11/7/16	11/11/16	4		CVWD
Advertise for Bids	12/30/16	1/3/17	4		11/11/16	11/15/16	4		CVWD
Pre-Bid meeting	1/3/17	1/24/17	21		11/15/16	12/6/16	21		CVWD/DMC/AMEC
Bid Opening	1/24/17	2/12/17	19		12/6/16	12/25/16	19		CVWD
Staff Report	2/12/17	2/17/17	5		12/25/16	12/30/16	5		CVWD
Award of Contract	2/17/17	2/21/17	4		12/30/16	1/3/17	4		CVWD
Start Construction	2/21/17	3/21/17	28		1/3/17	1/31/17	28		Contractor
End Construction	3/21/17	5/20/17	60		1/31/17	4/1/17	60		Contractor

CRESCENTA VALLEY WATER DISTRICT

STAFF REPORT

Information Item No. 4
September 29, 2016

To: Engineering Committee
From: David S. Gould, P.E. – District Engineer
Subject: Discussion of Crescenta Valley County Park Stormwater Feasibility Study

INFORMATION ITEM:

Discussion of Crescenta Valley County Park Stormwater Feasibility Study, Project E-903

BACKGROUND:

CVWD received a Local Groundwater Assistance Grant from the Department of Water Resources to gather data and geologic information which are essential to determining the feasibility of capturing and infiltrating stormwater and dry-weather flow to Crescenta Valley County Park (CVC Park) for recharge of the Verdugo Basin.

This study will monitor groundwater levels, test the recharge capacity of the soil, gage flow and quality of source water, and model groundwater flow. The study is the first phase of a two-phased project. The second phase of the project will be the actual construction of infiltration galleries to capture runoff and recharge the Basin.

Staff and AMEC Foster Wheeler have completed the work on the Feasibility Study which included a topographic survey of the CVC Park, installing flow monitoring devices at two (2) locations in the Verdugo Wash, installing two (2) monitoring wells, installing infiltration pits to test soil percolation and groundwater modeling of the Verdugo Basin within CVC Park.

Staff has reviewed the draft Feasibility Study and the results show that approximately 300 ac-ft of stormwater per year could be recharged back into the Verdugo Basin (see Exhibit "A"). The final report should be completed by the end of October 2016.

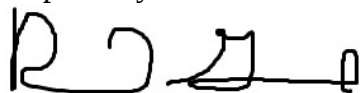
DISCUSSION:

Staff is working with AMEC Foster Wheeler to prepare preliminary design plans and cost estimates to determine the location of the infiltration galleries. This information will also be used to apply for a Proposition 1 Integrated Regional Water Management (IRWM) Grant from the California Department of Water Resources (DWR) for the implementation of the project. The tentative schedule from DWR is that grant applications will be due in November 2017.

Two important elements of the grant application will be approval from the ULARA Watermaster's office to put stormwater into the ground and a completed CEQA documentation.

The 1979 San Fernando Judgement, which governs the Verdugo Basin, states the City of Los Angeles (LA) has "Pueblo" rights to all the surface water within the Upper Los Angeles River area. While LA has not exercised these rights in the Verdugo Basin, Staff is planning to meet with representatives from LA, Glendale, and the ULARA Watermaster's office to discuss this issue further regarding using stormwater to recharge the Verdugo Basin. The meeting is set for September 28, 2016 and staff will report the results of the meeting at the Engineering Committee meeting.

Prepared by:



David S. Gould, P.E.
District Engineer

Submitted by:

Thomas A. Love
General Manager

Attachments:

1. Exhibit "A" – Preliminary Location Map

g:\engineering committee\2016 ec memo\09-29-16 ecm memo - m-903 cvc park grant.docx

Plot Date: 8/04/2016 8:58:38 AM. Plotted by: joanna.worker. Drawing Path: W:\Projects\009231.000.0 (CVWD)\009231.007.0 (2014, 2015, 2016)\ACAD\CV Park Site W Wells_v2.dwg. Depth Bedrock-Wells



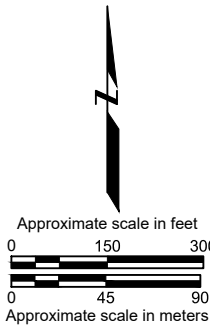
Explanation

- Crescenta Valley County Park boundary
- Project Area boundary
- Off Leash Dog Park boundary
- L.A. County Maintenance Yard
- Verdugo Wash
- Dunsmore Channel

- CVWD MW17** Approximate location of monitoring well (AMEC, 2015)
- CVWD-9** Approximate location of CVWD pumping well
- M-1** Approximate location of existing monitoring well
- CVWD-4** Approximate location of destroyed CVWD well

ft bgs feet below ground surface

Note:
All locations are approximate.

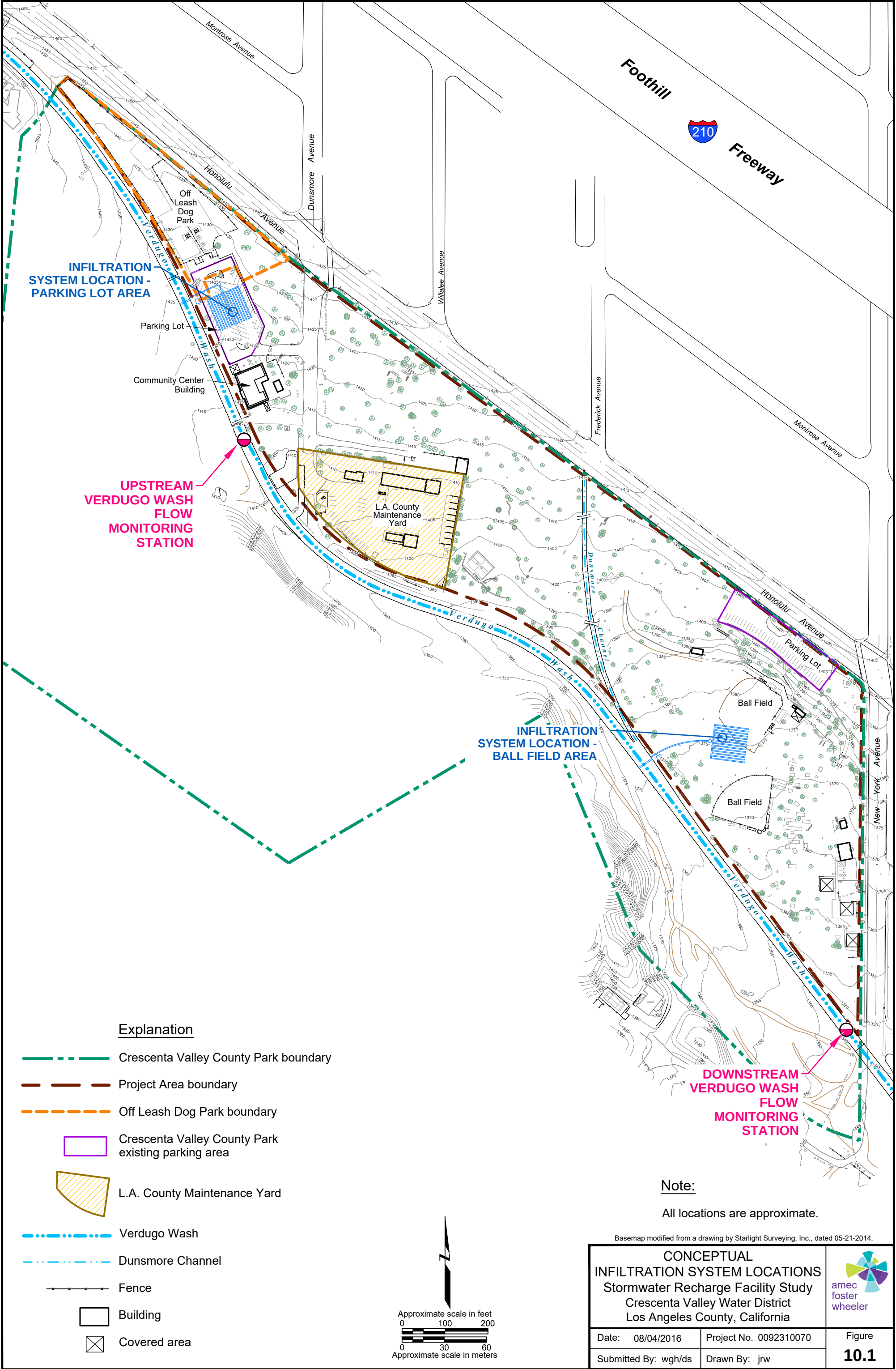


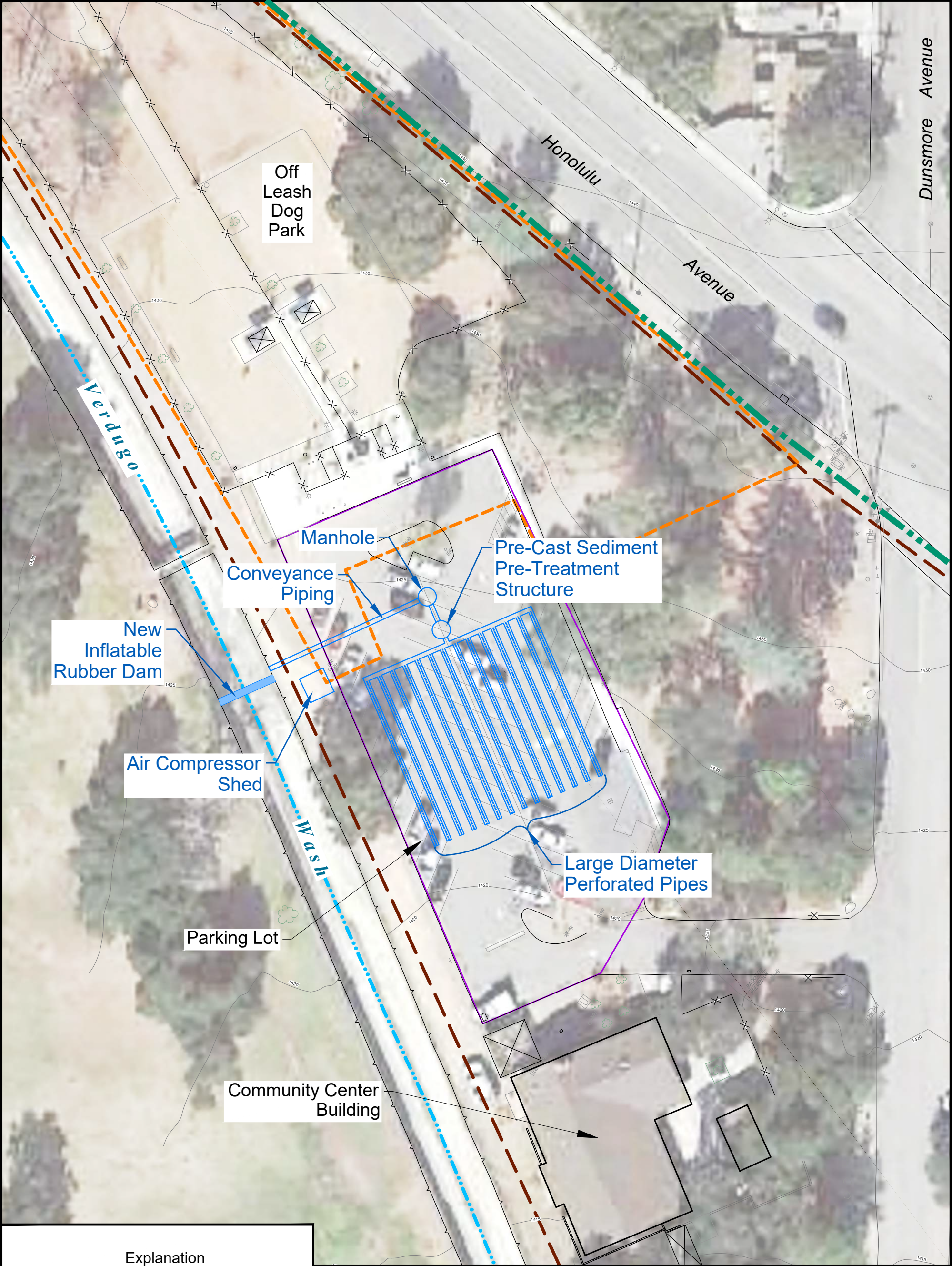
Basemap modified from an aerial photo from BING Maps, © 2015 Microsoft Corporation, © 2015 Nokia, dated April 2014, a drawing by County of Los Angeles Department of Parks and Recreation, Sheet No. L-0.1, "Off Leash Dog Park Site Plan", dated 08/01/11, and a survey by Starlight Surveying, Inc. dated 03-06-2015.

DEPTH TO BEDROCK AT WELLS
Crescenta Valley County Park
Stormwater Recharge Facility Study
Crescenta Valley Water District
Los Angeles County, California



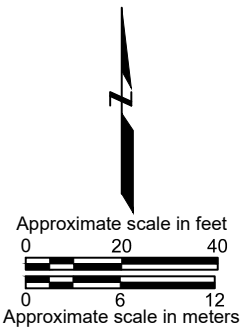
Date: 08/04/2016	Project No. 0092310070	Figure
Submitted By: wgh	Drawn By: jrw	10.3





Explanation

-  Crescenta Valley County Park boundary
-  Project Area boundary
-  Off Leash Dog Park boundary
-  Crescenta Valley County Park existing parking area
-  Verdugo Wash



Note:

All locations are approximate.
Basemap modified from a drawing by Starlight Surveying, Inc., dated 05-21-2014, and an aerial photo from Google™ Earth, dated 2-2-2016 .

INFILTRATION SYSTEM LOCATION -
PARKING LOT
Stormwater Recharge Facility Study
Crescenta Valley Water District
Los Angeles County, California



Date: 08/04/2016

Project No. 0092310070

Figure

Submitted By: wgh/ds

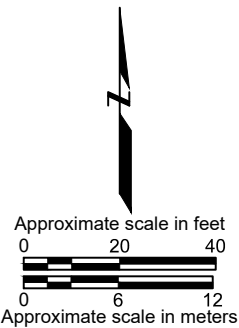
Drawn By: jrw

10.7



Explanation

- Crescenta Valley County Park boundary
- Project Area boundary
- Crescenta Valley County Park existing parking area
- Verdugo Wash
- Dunsmore Channel



Note:

All locations are approximate.
Basemap modified from a drawing by Starlight Surveying, Inc., dated 05-21-2014, and an aerial photo from Google™ Earth, dated 2-2-2016 .

INFILTRATION SYSTEM LOCATION -
BALL FIELD AREA
Stormwater Recharge Facility Study
Crescenta Valley Water District
Los Angeles County, California



Date: 08/04/2016

Project No. 0092310070

Figure

Submitted By: wgh/ds

Drawn By: jrw

10.8

CRESCENTA VALLEY WATER DISTRICT

BOARD OF DIRECTORS - STAFF REPORT

To: Engineering Committee
From: Thomas A. Love, General Manager
Subject: Capital Improvement Program Funding Options

September 29, 2016

ACTION ITEM:

Capital Improvement Program – Discussion regarding funding options for the Districts Ten Year Capital Improvement Program (TYCIP).

BACKGROUND

The Districts' TYCIP is based on staffs' evaluation of the District's assets and the anticipated future needs for replacements, enhancements and improvements. These capital improvement projects total \$38 million, however the adopted Fiscal Year 2016-17 Budget ten year projections includes a reduced CIP funding amount of \$31.5 million which is based on the estimated available rate revenue (pay-go funding). In addition the District is currently funding \$100,000 of its \$576,000 OPEB liability annually, if fully funded this would add \$4.76 million to the ten year expenditures.

The estimates and projections of TYCIP cost and rate revenue available for capital improvements are based on certain assumptions for construction cost, water sales, groundwater production and other factors. Staff has evaluated these assumptions and their net financial impact over the next ten years. The following is a summary of this evaluation:

Assumption	Range	Net 10-yr Budget Impact
CIP Cost	15% Higher	(\$5.7 Million)
Total Demands	5% Lower	(\$2.5 Million)
Total Demands and Groundwater Production	Both 5% Lower	(\$4.6 Million)

DISCUSSION:

There are a number of long term financial planning options that can be considered ranging from continued pay-go funding with prudent deferral of expenditures to fully funding the projected expenditures with long term debt financing. Long term debt financing options include revenue bonds (30 years at 3.5%), State low interest loans (20 years at 1.5%), other construction loans or inter-fund loans. Debt financing typically results in lower initial rate increases but higher long term rate impacts due to ongoing debt payments.

RECOMMENDATION:

That the committee discusses the projected TYCIP and other projected expenditures, funding options and provide staff direction for further evaluation. In addition long term financial planning should be considered for inclusion in the strategic planning discussion.

Submitted by:



Thomas A. Love
General Manager

CRESCENTA VALLEY WATER DISTRICT

STAFF REPORT

Information Item No. 6
September 29, 2016

To: Engineering Committee
From: David S. Gould, P.E. – District Engineer
Subject: FY 16/17 - Capital Improvement Project Program - Update

FY 16/17 – CIP Project Schedule & Cost Estimate - The FY 16/17 Capital Improvement Project (CIP) program includes the following projects which are summarized below:

1. **Rehabilitation of Well 7** – Well 7 is still producing more water than four (4) other wells. Staff is re-evaluating the project schedule for Well 7 and will report back at the next Engineering Committee meeting.

Project Schedule Update: The project is on hold as staff re-evaluates the overall groundwater well production.

Cost Estimate: - \$60,000

2. **Nitrate Removal Treatment Plant at Well 2** – CVWD received a grant under Proposition 84 2015 IRWM Implementation Grant with the Department of Water Resources (DWR) to install a new nitrate removal treatment plant to re-activate Well 2.

Staff is working with SA Associates on the design of the project and APTwater on the design of the new nitrate removal treatment plant. The 90% design submittal should be completed by the end of October 2016 as well as meeting with the City of Glendale on permit requirements.

Project Schedule Update: The project is on schedule as the design should be completed by the end of December 2016. Construction should begin May 2017 and completed by November 2017.

Cost Estimate: - FY 16/17 - \$720,000 and remainder to be included in FY 17/18 CIP Budget

3. **Proposition 50 - Emergency Water Supply Interconnection Between LADWP, CVWD, and FMWD** - The new interconnection will allow CVWD to receive an alternative water supply from LADWP water and the water transferred to the FMWD's System via existing piping, reservoirs and upgrades to existing FMWD interconnections. The project will give CVWD and FMWD the capability to offset the impact of a shutdown of the Metropolitan Water District's (MWD) Weymouth Plant, located in La Verne, which is the only source of water to FMWD during a planned or unplanned emergency.

The overall project is near completion with the construction at Ordunio Reservoir and the Chloramination Station at Ocean View Reservoir is nearly completed.

Project Schedule Update: Testing of the interconnection system between the three agencies and obtaining final approval from the State Water Resources Control Board Construction is ongoing and should be completed by December 2016.

Cost Estimate: - Carry over from FY 15/16 - \$125,000

4. **Crescenta Valley County Park Storm Water Recharge Facility Study** - Crescenta Valley County Park Stormwater Recharge Project Facility Study (Study) was conducted to provide important data and geologic information to determine if portions of Crescenta Valley County Park in the La Crescenta area of Los Angeles County can be utilized for storm-water capture for groundwater recharge. The Study will investigate CVWD's ability to construct facilities to divert stormwater flow and dry weather runoff to infiltration basins for groundwater recharge within the Verdugo Basin, and reduce surface water runoff from the existing parking areas.

Project Schedule Update: The Study should be completed by October 2016 and submitted to the DWR for approval.

Cost Estimate: - Carry over from FY 15/16 - \$28,270

5. **Crescenta Valley County Park Storm Water Recharge Facility Preliminary Design** – Staff will be utilizing the information from the Study to create preliminary design plans and cost estimates. Staff is planning on applying for a DWR – Proposition 1 Stormwater Recharge Grant.

Project Schedule Update: Proposition 1 Stormwater Recharge Grant Application is tentatively due in October 2017. Staff is working with the ULARA Watermaster and City of Los Angeles on a stormwater rights issue.

Cost Estimate: - \$60,000

6. **Steel Reservoir Rehabilitation at Oak Creek Reservoir** - The District has two (2) 1.6 MG steel tanks at its Oak Creek Reservoir site which were built in 1958 and 1961. The Oak Creek Reservoirs were re-coated and seismic structural upgrades in 2001. In 2005, the reservoirs were inspected and the report indicated random general corrosion on the roof and rafters. The 2011 inspection report stated that the underside of the roof and structural elements are in poor condition.

The 2016 inspection recommended sand blasting, removing the coating and corrosion, and re-coating the interior roof and shell. In addition, replace structural members damaged by the corrosion and add additional air vents.

Project Schedule Update: Harper & Associates is working on the design of the project. The schedule is to advertise for bids in October 2016, award the contract in November 2016, and construction to start in January 2017 during the winter low demand season.

Cost Estimate: - \$320,000

7. **Pipeline Replacement - Mills Plant Pumpline Replacement** –Staff recommended replacing the Mills Pumpline on Pennsylvania Ave. from the 210 Freeway overpass, north to Community Avenue, due to the critical nature of this pipeline relative to CVWD's water supply and its current condition. Staff is working with GEI Consultants on the hydraulic and surge design of the pipeline.

Project Schedule Update: GEI completed the surge analysis on the pipeline and recommended installation of a surge protection system at the Mills Plant and at the Paschall Booster Station. The design of the pipeline replacement should be completed in October 2016 and advertising for bids in November 2016. The contract will be awarded in December 2016 and construction will start in January 2017.

Cost Estimate: - \$600,000 Budget; will be revised after analysis of the pipeline.

8. **Lower Pickens Canyon Pipeline and Slope Replacement Project** – In May 2015, the 8-inch Lower Pickens Canyon Pipeline located within the easterly slope of Pickens Canyon, near the 5800 Block of Ocean View had a water main break which caused damage to the existing slope. An interim slope repair project was completed in February 2016 to stabilize the exposed pipeline and the exposed slope.

The design and construction of this project is discussed in Information Item No. 4.

Project Schedule Update: Staff has met with the consultants regarding the scope of work for the project. Design should be completed by November 2016, and advertising for bids in December 2016. The contract will be awarded in January 2017 and construction will start in February 2017.

Cost Estimate: - \$500,000 Budget; will be revised after analysis of design from consultants.

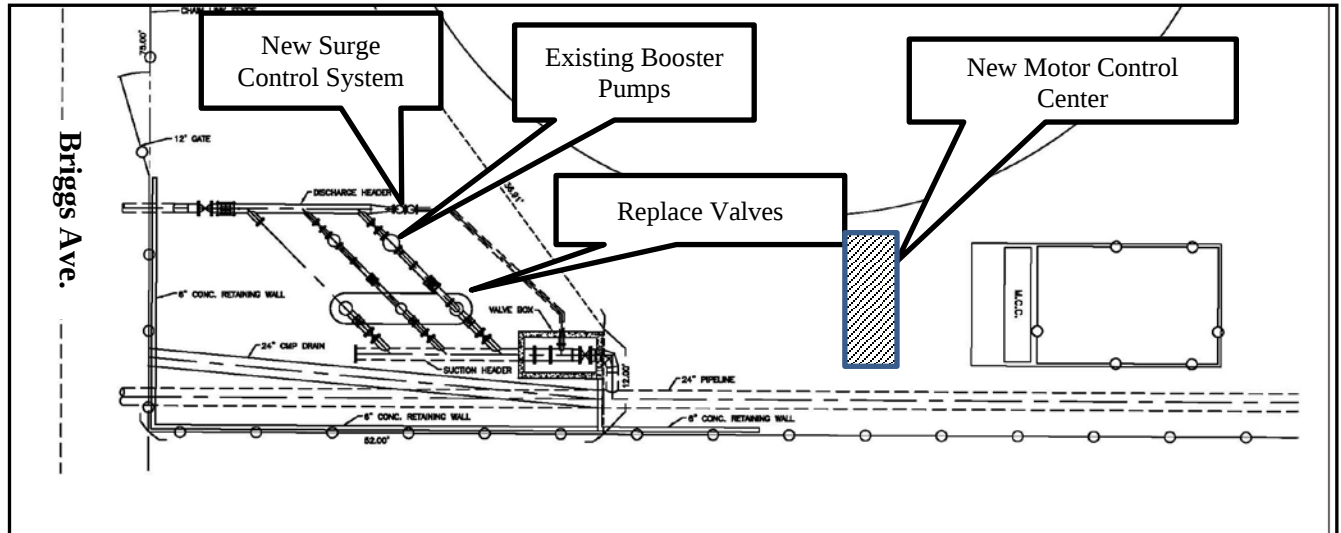
9. **Annual Booster Pump Replacement** – Staff plans on replacing one or two booster pumps per year as part of the annual budget. For FY 16/17, Booster 12 at Markridge will be replaced.

General Pump Company provided an inspection report stating that the pump assembly should be replaced and the motor should be refurbished. Staff has reviewed the recommendations and is proceeding with the pump replacement.

Project Schedule Update: Project completed in September 2016.

Cost Estimate: - \$50,000 Budget; will be revised after final costs from General Pump.

10. **Paschall Booster Station Piping Upgrades and New Motor Control Center** – The Paschall Booster Station located on Briggs Avenue was constructed in 1955 and it's one of three CVWD connections to FMWD. Staff's goal is to re-design the station to replace the valves and create easier access to the valves in the future. In addition, a storm drain was constructed over the valve area, which will need to be relocated. Staff also wants to take this opportunity to re-evaluate the layout of the Station for ease of use and future maintenance and investigate possible hydraulic surges at the station and include it as part of the design.



Another portion of this project will be the replacement of the electrical motor control center (MCC) with a modern MCC which will include variable frequency speed drivers for the existing pumps which will increase the efficiency of water flow out of the Station. The replacement of the MCC is part of CVWD's ongoing MCC replacement program.

The project will be a two-year project with the design being completed in FY 16/17 and construction in FY 17/18.

Project Schedule Update: Prepare request for proposal for a consultant by October 2016, award the consultant contract in November 2016, and complete the design for bidding by April 2017.

Cost Estimate: - \$150,000 for Design Services.

11. **Rehabilitation Surge Tanks at Glenwood** – CVWD has an existing surge tank for three (3) booster pumps located at the Glenwood Plant. The purpose of the surge tank is to defuse a water surge wave during an outage event and protect the booster pumps. Staff has been working with GEI Consultants on the design of this project. The recommendations included resizing the piping and replacing the surge tank equipment. This project was deferred from FY 15/16 CIP to the FY 16/17.

Project Schedule Update: Prepare plans and specifications by October 2016; advertise for bids in November 2016, award contract in December 2016, and construction beginning in February 2017.

Cost Estimate: - \$65,000 for construction.

12. **Seismic Sensors & Valve Actuators at Dunsmore and Pickens Reservoirs** – The District has been working on installing seismic sensors and valve actuators on the outlet valves for each reservoir to prevent water loss during an earthquake event. The seismic sensor detects ground movement and the valve actuators will automatically close the valve and thereby containing the water for public health. The program is to install 2 seismic sensors each year for the next three years.

CVWD will order the equipment from AES, Inc, who will assist with the installation and staff will install the concrete pads and electrical conduits for the system.

Project Schedule Update: Purchase the equipment in November 2016 and install in January 2017.

Cost Estimate: - \$75,000

The attached project schedule shows the schedule for FY 16/17 and the carry-over projects from FY 15/16 for discussion with the Engineering Committee.

Prepared by:



David S. Gould, P.E.
District Engineer

Submitted by:

Thomas A. Love
General Manager

Attachments:

1. FY 16/17 CIP Project Schedule Updated 09-29-16

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Crescenta Valley Water District

Design and Construction Schedule for FY 16/17									
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