

**AGENDA
IRVINE RANCH WATER DISTRICT
BOARD OF DIRECTORS
REGULAR MEETING**

October 22, 2018

PLEDGE OF ALLEGIANCE

CALL TO ORDER

5:00 p.m., Board Room, District Office
15600 Sand Canyon Avenue, Irvine, California

ROLL CALL

Directors Matheis, Withers, Swan, Reinhart, and Vice President LaMar

Douglas Reinhart will participate via conference call.

Agenda posted at least 72 hours in advance at:

Marriott, 6740 Fallsview Boulevard. Niagara Falls, Ontario, Canada

*NOTE: All votes at this meeting will be taken by roll call.

NOTICE

If you wish to address the Board on any item, including Consent Calendar items, please file your name with the District Secretary. Forms are provided on the lobby table. Remarks are limited to three minutes per speaker on each subject. Consent Calendar items will be acted upon by one motion, without discussion, unless a request is made for specific items to be removed from the Calendar for separate action.

COMMUNICATIONS TO THE BOARD

1. A. Written:

B. Oral:

C. Public Comment from Remote location.

2. **ITEMS RECEIVED TOO LATE TO BE AGENDIZED**

Recommendation: Determine the need to discuss and/or take immediate action on item(s).

CONSENT CALENDAR

Next Resolution No. 2018-28

Items 3-10

3. **RATIFY/APPROVE BOARD OF DIRECTORS' ATTENDANCE AT MEETINGS AND EVENTS**

Recommendation: That the Board ratify/approve the meetings and events for Mary Aileen Matheis, Steve LaMar, Peer Swan and John Withers, as described.

4. **MINUTES OF REGULAR BOARD MEETING**

Recommendation: That the minutes of the October 8, 2018 Regular Board Meeting be approved as presented.

CONSENT CALENDAR

Next Resolution No. 2018-28

Items 3-10

5. SEPTEMBER 2018 TREASURY REPORT

Recommendation: That the Board receive and file the Treasurer's Investment Summary Report, the summary of fixed and variable rate debt, the Monthly Interest Rate SWAP Summary for September 2018, and Disclosure Report of Reimbursements to Board members and staff; approve the September 2018 Summary of Payroll ACH payments in the total amount of \$1,983,116 and approve the September 2018 Accounts Payable Disbursement Summary of Warrants 391211 through 392074, Workers' Compensation distributions, wire transfers, payroll withholding distributions and voided checks in the total amount of \$14,129,830.

6. EL MORO RESERVOIR NO. 1 IMPROVEMENTS BUDGET ADDITION

Recommendation: That the Board authorize the addition of Project 10935 in the amount of \$111,000 to the FY 2018-19 Capital Budget for the El Morro Reservoir No. 1 Improvements.

7. MICHELSON WATER RECYCLING PLANT UNIT SUBSTATION T-1 REPLACEMENT CONSULTANT SELECTION

Recommendation: That the Board authorize the General Manager to execute a Professional Services Agreement with Lee & Ro in the amount of \$127,044 for engineering design services for the Michelson Water Recycling Plant Unit Substation T-1 Replacement, Project 10535.

8. MICHELSON WATER RECYCLING PLANT BIOSOLIDS AND ENERGY RECOVERY FACILITIES CONTRACT CHANGE ORDER

Recommendation: That the Board approve Contract Change Order No. 90 in the amount of \$259,999.33 with Filanc/Balfour Beatty for electrical, instrumentation, and control items related to the dryer system, cake storage system, and cake receiving bin local control panel along with site work and architectural modifications for the Michelson Water Recycling Plant Biosolids and Energy Recovery Facilities, Project 04286.

9. INDUCTIVELY COUPLED PLASMA MASS SPECTROMETER REPLACEMENT

Recommendation: That the Board authorize the purchase of a replacement Inductively Coupled Plasma-Mass Spectrometer/High Pressure Liquid Chromatograph from Agilent Technologies in the amount of \$207,442.90.

CONSENT CALENDAR (Continued)	Next Resolution No. 2018-28	Items 3-10
<p>10. <u>FATS, OILS AND GREASE PROGRAM VARIANCE NO. 2</u></p> <p>Recommendation: That the Board authorize the General Manager to execute Variance No. 2 with Environmental Engineering and Contracting, Inc. to provide Fats, Oil and Grease (FOG) Program services in the amount of \$165,950 for the period November 1, 2018, to October 31, 2019 and also for an optional additional year at \$165,950, as may be necessary to transition to the District's new Pretreatment and FOG Programs.</p>		

ACTION CALENDAR

<p>11. <u>PRIMARY DISINFECTION FACILITY SODIUM HYPOCHLORITE STORAGE AND FEED SYSTEM CONSULTANT SELECTION</u></p> <p>Recommendation: That the Board authorize the General Manager to execute a Professional Services Agreement with Carollo Engineers in the amount of \$573,772 for engineering design services for the Primary Disinfection Facility Sodium Hypochlorite Storage and Feed System, Project 06214.</p> <p>12. <u>IRWD COMMENTS ON MUNICIPAL WATER DISTRICT OF ORANGE COUNTY'S 2018 WATER SUPPLY RELIABILITY STUDY UPDATE</u></p> <p>Recommendation: That the Board approve the letter to the Municipal Water District of Orange County providing comments on its 2018 Water Supply Reliability Study Update.</p> <p>13. <u>SAND CANYON PROFESSIONAL CENTER PHASE II OFFICE PROJECT BUDGET INCREASE AND CONSTRUCTION AWARD</u></p> <p>Recommendation: That the Board approve a budget increase in the amount of \$2,731,330, from \$17,624,300 to \$20,355,630, for Project 06210 and authorize the General Manager to execute a construction contract with KPRS Construction Services, Inc. in the amount of \$17,992,969 for the Sand Canyon Professional Center Phase II, Project 06210.</p>		
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OTHER BUSINESS

Pursuant to Government Code Section 54954.2, members of the Board of Directors or staff may ask questions for clarification, make brief announcements, and make brief reports on his/her own activities. The Board or a Board member may provide a reference to staff or other resources for factual information, request staff to report back at a subsequent meeting concerning any matter, or direct staff to place a matter of business on a future agenda. Such matters may be brought up under the General Manager's Report or Directors' Comments.

14. General Manager's Report

15. Directors' Comments

16. Community Updates

Receive an oral update from District liaison(s) regarding communities within IRWD's service area and discuss relevant community happenings.

17. Closed Session:

CLOSED SESSION: Conference with Labor Negotiator pursuant to Government Code Section 54957.6:

Agency Designated Representative: Vice President LaMar

Unrepresented Employee: Paul Cook

18. Open Session

19. Adjourn

Availability of agenda materials: Agenda exhibits and other writings that are disclosable public records distributed to all or a majority of the members of the Irvine Ranch Water District Board of Directors in connection with a matter subject to discussion or consideration at an open meeting of the Board of Directors are available for public inspection in the District's office, 15600 Sand Canyon Avenue, Irvine, California ("District Office"). If such writings are distributed to members of the Board less than 72 hours prior to the meeting, they will be available from the District Secretary of the District Office at the same time as they are distributed to Board Members, except that if such writings are distributed one hour prior to, or during, the meeting, they will be available at the entrance to the Board of Directors Room of the District Office. The Irvine Ranch Water District Board Room is wheelchair accessible. If you require any special disability-related accommodations (e.g., access to an amplified sound system, etc.), please contact the District Secretary at (949) 453-5300 during business hours at least seventy-two (72) hours prior to the scheduled meeting. This agenda can be obtained in alternative format upon written request to the District Secretary at least seventy-two (72) hours prior to the scheduled meeting.

October 22, 2018
Prepared and
Submitted by: K. Swan *KS*
Approved by: Paul A. Cook *PA. Cook*

CONSENT CALENDAR

RATIFY/APPROVE BOARD OF DIRECTORS'
ATTENDANCE AT MEETINGS AND EVENTS

SUMMARY:

Pursuant to Resolution 2006-29 adopted on August 28, 2006, approval of attendance of the following events and meetings are required by the Board of Directors.

Events/Meetings

Steven LaMar

October 25 Southern California Water Coalition Annual Meeting, Long Beach
November 6 OCBC Election Day Luncheon, Anaheim

Mary Aileen Matheis

October 26 NWRI Leaders Tour of the UCI Museum Collection, Irvine
October 26 NWRI Clarke Prize Award Dinner & Lecture, Santa Ana
November 6 OCBC Election Day Luncheon, Anaheim
November 7 OCWD Philip L. Anthony Water Quality Laboratory Dedication

Peer Swan

October 25 NWRI Leaders Networking Reception, Laguna Beach
October 26 NWRI Clarke Prize Award Dinner & Lecture, Santa Ana
November 6 OCBC Election Day Luncheon, Anaheim

John Withers

September 5 OC Forum Sponsor Recognition Event
October 25 NWRI Leaders Networking Reception, Laguna Beach
October 26 NWRI Leaders Tour of the UCI Museum Collection, Irvine
October 26 NWRI Clarke Prize Award Dinner & Lecture, Santa Ana
November 7 OCWD Philip L. Anthony Water Quality Laboratory Dedication

RECOMMENDATION:

THAT THE BOARD RATIFY/APPROVE THE MEETINGS AND EVENTS FOR STEVEN LAMAR, MARY AILEEN MATHEIS, PEER SWAN, AND JOHN WITHERS AS DESCRIBED HEREIN.

LIST OF EXHIBITS:

None.

October 22, 2018
Prepared and
Submitted by: L. Bonkowski
Approved by: Paul A. Cook *P. Cook.*

CONSENT CALENDAR

MINUTES OF BOARD MEETING

SUMMARY:

Provided are the minutes of the October 8, 2018 Regular Board meeting for approval.

FISCAL IMPACTS:

None.

ENVIRONMENTAL COMPLIANCE:

Not applicable.

COMMITTEE STATUS:

Not applicable.

RECOMMENDATION:

THAT THE MINUTES OF THE OCTOBER 8, 2018 REGULAR BOARD MEETING BE APPROVED AS PRESENTED.

LIST OF EXHIBITS:

Exhibit "A" – October 8, 2018 Minutes of Regular Board Meeting

EXHIBIT "A"

MINUTES OF REGULAR MEETING – OCTOBER 8, 2018

The regular meeting of the Board of Directors of the Irvine Ranch Water District (IRWD) was called to order at 5:00 p.m. by President Reinhart on October 8, 2018 in the District office, 15600 Sand Canyon Avenue, Irvine, California.

Directors Present: Reinhart, Matheis, Swan, Withers (arrived at 5:08 p.m.) and LaMar.

Directors Absent: None.

Also Present: General Manager Cook, Executive of Engineering and Water Quality Burton, Executive Director of Water Policy Weghorst, Executive Director of Operations Chambers, Director of Water Recycling Operations Zepeda, Director of Water Resources Sanchez, Director of Water Operations Roberts, Director of Public Affairs Beeman, Director of Human Resources Roney, Public Affairs Manager Fabris, Legal Counsel Collins, Secretary Bonkowski, Assistant Secretary Swan, Government Relations Officer Compton, Principal Engineer Cortez, and members of the public.

WRITTEN COMMUNICATIONS: None.

ORAL COMMUNICATIONS: None.

ITEMS TOO LATE TO BE AGENDIZED: None.

CONSENT CALENDAR

On MOTION by LaMar, seconded by Matheis, and carried (Reinhart, LaMar, Swan, Matheis voting aye, and Withers absent), CONSENT CALENDAR ITEMS 3 THROUGH 8 WERE APPROVED AS FOLLOWS:

3. RATIFY/APPROVE BOARD OF DIRECTORS' ATTENDANCE AT MEETINGS AND EVENTS

Recommendation: That the Board ratify/approve the meetings and events for Mary Aileen Matheis, Doug Reinhart, Steve LaMar, Peer Swan and John Withers, as described.

4. MINUTES OF REGULAR BOARD MEETING

Recommendation: That the minutes of the September 24, 2018 Regular Board Meeting be approved as presented.

5. 2018 LEGISLATIVE AND REGULATORY UPDATE

Recommendation: Receive and file.

CONSENT CALENDAR (CONTINUED)

6. ELECTION OF THE INDEPENDENT SPECIAL DISTRICTS OF ORANGE COUNTY 2019-2020 OFFICERS

Recommendation: That the Board authorize staff to cast IRWD's ballot in favor of Saundra Jacobs (Santa Margarita Water District) for President and Mark Monin (El Toro Water District) for First Vice President as officers of the Independent Special Districts of Orange County for the 2019-2020 term no later than the October 23, 2018, deadline.

7. NEWPORT COAST ZONE 4-2 PRESSURE REGULATING VALVE MODIFICATION CONSTRUCTION AWARD

Recommendation: That the Board authorize a budget increase in the amount of \$41,400, from \$187,100 to \$228,500, for Project 05410 and authorize the General Manager to execute a construction contract with Leed Electric, Inc. in the amount of \$129,208 for the Newport Coast Zone 4-2 PRV Modification, Project 05410.

8. ROCKFIELD ZONE 4-3 AUTOMATED VALVE CONSTRUCTION AWARD

Recommendation: That the Board authorize a budget increase in the amount of \$409,400, from \$187,100 to \$596,500, for Project 07750 and authorize the General Manager to execute a construction contract with Paulus Engineering, Inc. in the amount of \$361,196 for the Rockfield Zone 4-3 Automated Valve, Project 07750.

ACTION CALENDAR

IRVINE INDUSTRIAL COMPLEX EAST ZONE A TO B PUMP STATION UPGRADES CONSULTANT SELECTION AND CONSTRUCTION AWARD

Executive Director of Engineering and Water Quality Burton reported the Recycled Water Distribution System Analysis describes how IRWD's non-potable water distribution system has undergone significant changes in operations, demands, and facility planning over the past several years. During the design phase, staff identified the need for additional improvements at the pump station to replace equipment that has reached the end of its service life. These improvements include replacement of the pump station control panel, motor control center including two new variable frequency drives, and four existing pump motors. With the addition of the new pump, the site electrical service will also be replaced to accommodate the increased electrical load at the facility.

Mr. Burton reported that Lee & Ro performed all elements of the project design including civil, mechanical, structural, electrical, and instrumentation. Staff requested Lee & Ro to submit a proposal for engineering support services during construction. The proposal includes services for submittal reviews, responses to contractor questions, site visits, record drawings, energy control procedures, and construction coordination and engineering support commensurate with the requirements of the project. He said that staff reviewed Lee & Ro's proposal and recommends that a Professional Services Agreement with Lee & Ro be executed.

Mr. Burton said that the project was advertised for construction bids to a select list of 12 contractors including ARB, Archer Western Contractors, Cushman Contracting Corporation, Gateway Pacific Contractors, GSE Construction Company, Olsson Construction, Pacific Hydrotech Corporation, Pascal & Ludwig Constructors, RC Foster Corporation, Schuler Constructors, SS Mechanical Corporation, and Stanek Constructors. The bid opening was held on September 27, 2018 with bids received from Gateway Pacific Contractors, Pacific Hydrotech Corporation, Pascal & Ludwig Constructors, and RC Foster Corporation. RC Foster Corporation is the apparent low bidder with a bid amount of \$1,471,500. The engineer's estimate was \$1,602,000.

Director Matheis reported that the consultant selection recommendation was reviewed by the Engineering and Operations Committee on September 18, 2018. On MOTION by Matheis, seconded and carried (Reinhart, LaMar, Swan, Matheis voting aye, and Withers absent), THE BOARD AUTHORIZED THE GENERAL MANAGER TO EXECUTE A PROFESSIONAL SERVICES AGREEMENT WITH LEE & RO, INC. IN THE AMOUNT OF \$133,750 FOR ENGINEERING SUPPORT SERVICES DURING CONSTRUCTION AND AUTHORIZED THE GENERAL MANAGER TO EXECUTE A CONSTRUCTION CONTRACT WITH RC FOSTER CORPORATION IN THE AMOUNT OF \$1,471,500 FOR THE IRVINE INDUSTRIAL COMPLEX EAST ZONE A TO B PUMP STATION UPGRADES, PROJECT 06198.

AGREEMENT TO COST SHARE EARLY PLANNING ACTIVITIES FOR THE KERN FAN GROUNDWATER STORAGE PROJECT

IRWD and Rosedale-Rio Bravo Water Storage District (Rosedale) jointly submitted to the California Water Commission (CWC) a grant application for the proposed Kern Fan Groundwater Storage Project, and in July 2018, the CWC conditionally awarded \$67.5 million to the project. In order to facilitate the design, construction and operation of the project, IRWD and Rosedale intend to form a Joint Powers Authority (JPA). While the JPA agreement is being developed, staff and legal counsel have prepared an agreement that would require IRWD and Rosedale to cost share early project planning activities.

Director Reinhart reported that this item was reviewed in concept by the Supply Reliability Programs Committee. On MOTION by Swan, seconded and carried (Reinhart, LaMar, Swan, Matheis voting aye, and Withers absent), THE BOARD AUTHORIZED THE GENERAL MANAGER TO EXECUTE THE AGREEMENT BETWEEN ROSEDALE-RIO BRAVO WATER STORAGE DISTRICT AND IRVINE RANCH WATER DISTRICT FOR COST SHARING EARLY PLANNING ACTIVITIES FOR THE KERN FAN GROUNDWATER STORAGE PROJECT, SUBJECT TO NON-SUBSTANTIVE CHANGES OR SUBSTANTIVE CHANGES APPROVED BY THE SUPPLY RELIABILITY PROGRAMS COMMITTEE.

GENERAL MANAGER'S REPORT

General Manager Cook reported on a meeting he held last week with the City of Newport Beach's new Water Manager, Mr. Mark Vukojevic.

Mr. Cook said that this week he will be meeting with the City of Irvine's new City Manager Mr. John Russo and its Assistant City Manager Ms. Marianna Marysheva.

He further said that next week Ms. Christine Compton, Director LaMar and he will be meeting with legislative staff in Washington, DC and will also be working on short listing new Federal Affairs Advocacy firms for the District.

DIRECTORS' COMMENTS

Director Matheis reported that she attended an Irvine Historical Society's evening event, an ISDOC Executive Committee meeting, an ACC-OC-Annual Ballot dinner event, and an MNWD 50th anniversary water recycling event.

Director Withers arrived at 5:08 p.m.

Director Swan reported on his attendance at an ACC-OC Annual Ballot dinner, an Irvine Historical Society's evening event, a Water Dialogue meeting, former MWDOC and IRWD Director Mr. Wayne Clark's funeral, a MWDOC MWD Planning meeting with Director Reinhart, Newport Chamber of Commerce meetings, and a WACO monthly meeting.

Director LaMar reported on his attendance at an ACWA Board budget workshop in Sacramento and noted the hiring of its new Executive Director Dave Eggerton, an ACWA Region 8 meeting in LaVerne, an ACC-OC Annual Ballot dinner, and a monthly WACO meeting.

Director Withers reported on his attendance at a California LAFCO conference in Yosemite.

Director Reinhart reported on his attendance at a South Orange County Agencies' Joint meeting, a monthly discussion on District Activities with the General Manager, a MWDOC Planning and Operations Committee meeting, a MWDOC Board meeting, and a SOCWA Board meeting.

COMMUNITY UPDATES

The District's consultant Bruce Newell provided an update on canyon activities noting a pre-fire meeting and a canyon league meeting.

CLOSED SESSION

President Reinhart said that the following Closed Sessions would be held this evening:

- 1) CLOSED SESSION CONFERENCE WITH LEGAL COUNSEL – EXISTING LITIGATION – Pursuant to Government Code Section 54956.9(d)(1): *Jaimie Davis v. John Robert Blank, et. al.*, Orange County Superior Court Case No. 30-2016-00880719-CU-OR-CJC;
- 2) CLOSED SESSION CONFERENCE WITH LABOR NEGOTIATORS – Pursuant to Government Code Section 54957.6
Designated Agency Representatives: Paul Cook and Jenny Roney
Employee Group: IBEW Local #47 General Unit Employees; and
- 3) CLOSED SESSION CONFERENCE WITH LEGAL COUNSEL – EXISTING LITIGATION – Pursuant to Government Code Section 54956.9(d)(1): *IRWD v. OCWD* Case No. 30-2016-00858584.

OPEN SESSION

Relative to the first Closed Session item, CONFERENCE WITH LEGAL COUNSEL – EXISTING LITIGATION – Pursuant to Government Code Section 54956.9(d)(1): *Jaimie Davis v. John Robert Blank, et. al.*, Orange County Superior Court Case No. 30-2016-00880719-CU-OR-CJC, on MOTION, seconded and unanimously carried, THE BOARD VOTED 5-0 TO AUTHORIZE THE GENERAL MANAGER TO EXECUTE THE PROPOSED SETTLEMENT AGREEMENT WITH MS. JAIMIE DAVIS. President Reinhart said that there was no action to report in open session on items Nos. 2 and 3.

ADJOURNMENT

There being no further business, President Reinhart adjourned the Board meeting.

APPROVED and SIGNED this 22nd day of October, 2018.

President, IRVINE RANCH WATER DISTRICT

Secretary, IRVINE RANCH WATER DISTRICT

APPROVED AS TO FORM:

Claire Hervey Collins, Legal Counsel
– Lewis Brisbois

October 22, 2018

Prepared by: J. Davis/T. Fournier

Submitted by: R. Jacobson/C. Clary

Approved by: Paul A. Cook

CONSENT CALENDAR

SEPTEMBER 2018 TREASURY REPORTS

SUMMARY:

The following is submitted for the Board's information and approval:

- A. The Investment Summary Report for September 2018. This Investment Summary Report is in conformity with the 2018 Investment Policy and provides sufficient liquidity to meet estimated expenditures during the next six months, as outlined in Exhibit "A".
- B. The Summary of Fixed and Variable Debt as of September 30, 2018, as outlined in Exhibit "B".
- C. The Monthly Interest Rate Swap Summary as of September 30, 2018, as outlined in Exhibit "C".
- D. The September 30, 2018 Disbursement Summary of warrants 391211 through 392074, wire transfers, Workers' Compensation distributions, payroll withholding distributions, and voided checks in the total amount of \$14,129,830 as outlined in Exhibit "D".
- E. The Summary of Payroll ACH payments in the total amount of \$1,983,116 as outlined in Exhibit "E".
- F. The Disclosure Report of Reimbursements to Board Members and Staff for September 2018, detailing payments or reimbursements for individual charges of \$100.00 or more per transaction, as outlined in Exhibit "F".

FISCAL IMPACTS:

As of September 30, 2018, the book value of the investment portfolio was \$362,008,436, with a 1.53% rate of return and a market value of \$359,147,605. Based on the District's September 30, 2018 quarterly real estate investment rate of return of 9.05%, the weighted average return for the fixed income and real estate investments was 3.79%.

As of September 30, 2018, the outstanding principal amount of fixed and variable rate debt was \$680,020,000. The monthly weighted average all-in variable rate was 1.69%. Including the District's weighted average fixed rate bond issues of 3.70% and the previous month's negative cash accruals from fixed payer interest rate swaps, which hedge a portion of the District's variable rate debt, the total average debt rate was 3.59%.

As of September 30, 2018, the total notional amount of the interest rate swap portfolio was \$130 million of fixed payer swaps. Cash accrual in September from all swaps was negative \$367,117.

Payroll ACH payments totaled \$1,983,116, and wire transfers, all other ACH payments, and checks issued for debt service, accounts payable, payroll, and water purchases for September totaled \$14,129,830.

ENVIRONMENTAL COMPLIANCE:

This item is not a project as defined in the California Environmental Quality Act Code of Regulations, Title 14, Chapter 3, Section 15378.

COMMITTEE STATUS:

This item was not submitted to a Committee; however, the investment and interest rate swap reports are submitted to the Finance and Personnel Committee on a monthly basis.

RECOMMENDATION:

THAT THE BOARD RECEIVE AND FILE THE TREASURER'S INVESTMENT SUMMARY REPORT, THE SUMMARY OF FIXED AND VARIABLE RATE DEBT, THE MONTHLY INTEREST RATE SWAP SUMMARY FOR SEPTEMBER 2018, AND DISCLOSURE REPORT OF REIMBURSEMENTS TO BOARD MEMBERS AND STAFF; APPROVE THE SEPTEMBER 2018 SUMMARY OF PAYROLL ACH PAYMENTS IN THE TOTAL AMOUNT OF \$1,983,116 AND APPROVE THE SEPTEMBER 2018 ACCOUNTS PAYABLE DISBURSEMENT SUMMARY OF WARRANTS 391211 THROUGH 392074 WORKERS' COMPENSATION DISTRIBUTIONS, WIRE TRANSFERS, PAYROLL WITHHOLDING DISTRIBUTIONS AND VOIDED CHECKS IN THE TOTAL AMOUNT OF \$14,129,830.

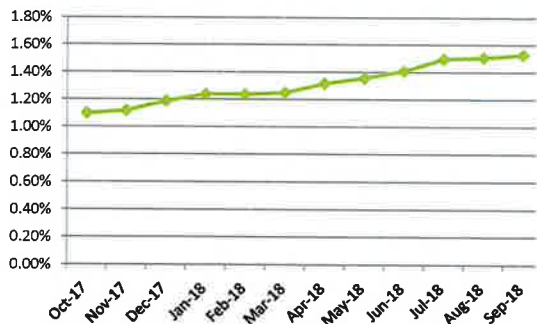
LIST OF EXHIBITS:

- Exhibit "A" – Investment Summary Report
- Exhibit "B" – Summary of Fixed and Variable Debt
- Exhibit "C" – Monthly Interest Rate Swap Summary
- Exhibit "D" – Monthly Summary of District Disbursements
- Exhibit "E" – Monthly Payroll ACH Summary
- Exhibit "F" – Disclosure of Reimbursements to Board Members and Staff

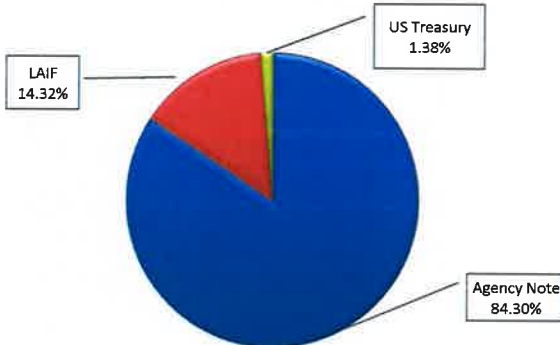
Exhibit "A"

Irvine Ranch Water District Investment Portfolio Summary September 2018

Monthly Fixed Income Yield



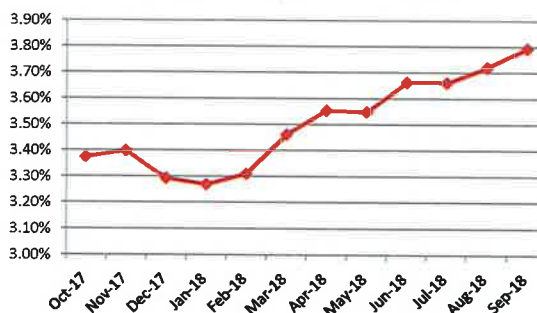
Portfolio Distribution



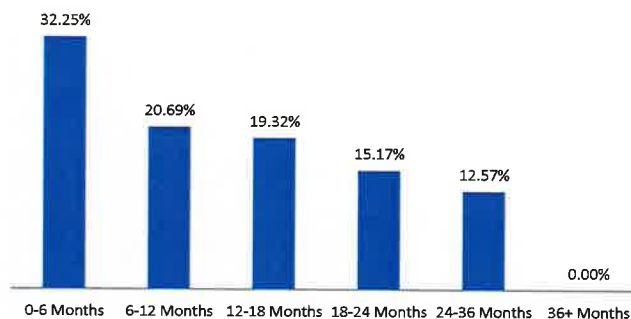
Investment Summary

Type	PAR	Book Value	Market Value
Agency Note	305,550,000	305,219,417	302,454,370
LAIF	51,900,000	51,900,000	51,802,785
US Treasury	5,000,000	4,889,019	4,890,450
Grand Total	362,450,000	362,008,436	359,147,605

**Weighted Average Return
Including Real Estate Portfolio**



Maturity Distribution



Top Issuers

Issuer	PAR	% Portfolio
Fed Natl Mortgage Assoc	80,550,000	22.23%
Fed Home Loan Bank	80,000,000	22.07%
Fed Farm Credit Bank	80,000,000	22.07%
Fed Home Loan Mortgage Corp	65,000,000	17.93%
State of California Treasury - LAIF	51,900,000	14.32%
US Treasury	5,000,000	1.38%
Grand Total	362,450,000	100.00%

IRVINE RANCH WATER DISTRICT
INVESTMENT SUMMARY REPORT

09/30/18

SETTLMT	Call Schedule	Initial Call	Maturity Date	Rating	INVESTMENT TYPE	INSTITUTION / ISSUER	PAR Amount	COUPON DISCOUNT	YIELD	ORIGINAL COST	CARRY VALUE	MARKET VALUE ⁽¹⁾ 9/30/2018	UNREALIZED ⁽²⁾ GAIN/(LOSS)
08/23/17			10/01/18		LAIF	State of California Tsy.	\$51,900,000		1.760%	\$51,900,000.00	\$51,900,000.00	51,802,784.50	(97,215.50)
09/01/16	NA	NA	10/01/18	Aaa/AA+/NR	FFCB - Note	Fed Farm Credit Bank	5,000,000	1.030%	0.925%	5,010,750.00	5,000,000.00	5,000,000.00	
10/12/16	N/A	N/A	10/12/18	Aaa/NR/NR	FFCB - Note	Fed Farm Credit Bank	10,000,000	1.000%	1.041%	9,992,000.00	9,999,660.27	9,996,100.00	(3,560.27)
10/12/16	N/A	N/A	11/27/18	Aaa/AA+/AAA	FNMA - Note	Fed Natl Mortgage Assoc	10,000,000	1.625%	0.956%	10,140,360.00	10,013,927.47	9,990,600.00	(23,327.47)
12/21/16	N/A	N/A	12/05/18	Aaa/AA+/AAA	FFCB - Note	Fed Farm Credit Bank	5,000,000	1.100%	1.319%	4,978,900.00	5,008,100.96	4,988,850.00	(19,250.96)
09/01/16	NA	NA	12/14/18	Aaa/AA+/NR	FHLB - Note	Fed Home Loan Bank	5,000,000	1.750%	0.941%	5,091,300.00	5,004,286.86	4,995,150.00	(9,136.86)
12/27/16	NA	NA	12/14/18	Aaa/AA+/NR	FHLB - Note	Fed Home Loan Bank	5,000,000	1.750%	1.320%	5,041,536.20	4,998,079.13	4,995,150.00	(2,929.13)
09/01/16	One Time	07/30/18	01/30/19	Aaa/AA+/AAA	FHLMC - Note	Fed Home Loan Mortgage Corp	5,000,000	0.950%	1.009%	4,993,000.00	4,999,038.59	4,977,050.00	(21,988.59)
10/26/16	One Time	07/30/18	01/30/19	Aaa/AA+/AAA	FHLMC - Note	Fed Home Loan Mortgage Corp	5,000,000	0.950%	1.035%	4,990,500.00	4,998,539.35	4,977,050.00	(21,489.35)
10/26/16	One Time	07/30/18	01/30/19	Aaa/AA+/AAA	FHLMC - Note	Fed Home Loan Mortgage Corp	5,000,000	0.950%	1.040%	4,990,000.00	4,998,462.47	4,977,050.00	(21,412.47)
10/12/16	Continuous after	02/12/18	02/12/19	Aaa/AA+/NR	FHLB - Note	Fed Home Loan Bank	10,000,000	1.050%	1.093%	9,990,000.00	9,998,194.61	9,954,400.00	(43,794.61)
09/01/16	NA	NA	03/08/19	Aaa/AA+/AAA	FHLB - Note	Fed Home Loan Bank	5,000,000	1.500%	0.964%	5,066,500.00	5,011,445.53	4,981,550.00	(29,895.53)
03/21/18	NA	NA	03/21/19	Aaa/NA/NR	FHLB - Note	Fed Home Loan Bank	10,000,000	2.125%	2.125%	10,000,000.00	10,000,000.00	9,988,300.00	(11,700.00)
10/12/16	N/A	N/A	03/29/19	Aaa/AA+/AAA	FHLMC - Note	Fed Home Loan Mortgage Corp	5,000,000	1.050%	1.050%	4,999,950.00	4,999,988.92	4,966,050.00	(33,938.92)
10/12/16	N/A	N/A	04/15/19	Aaa/AA+/AAA	FHLMC - Note	Fed Home Loan Mortgage Corp	10,000,000	1.125%	0.992%	10,032,800.00	10,007,742.95	9,929,300.00	(78,442.95)
10/31/16	N/A	N/A	04/26/19	Aaa/AA+/AAA	FHLMC - Note	Fed Home Loan Mortgage Corp	5,000,000	1.050%	1.060%	4,998,750.00	4,999,713.34	4,959,300.00	(40,413.34)
09/01/16	N/A	N/A	05/28/19	Aaa/AA+/NR	FHLB - Note	Fed Home Loan Bank	5,000,000	1.030%	1.048%	4,997,550.00	4,999,413.86	4,952,050.00	(47,363.86)
04/19/18	N/A	N/A	05/30/19	Aaa/AA+/AAA	FHLMC - Note	Fed Home Loan Mortgage Corp	5,000,000	1.750%	2.252%	4,972,500.00	4,983,676.11	4,975,050.00	(8,626.11)
09/01/16	NA	NA	06/14/19	Aaa/AA+/NR	FHLB - Note	Fed Home Loan Bank	5,000,000	1.625%	0.987%	5,087,400.00	5,022,022.05	4,968,500.00	(53,522.05)
10/12/16	NA	NA	06/14/19	Aaa/AA+/NR	FHLB - Note	Fed Home Loan Bank	5,000,000	1.625%	1.103%	5,068,515.88	5,019,395.26	4,968,500.00	(50,895.26)
10/12/16	NA	NA	07/19/19	Aaa/AA+/AAA	FHLMC - Note	Fed Home Loan Mortgage Corp	5,000,000	0.875%	1.098%	4,969,652.90	4,990,655.50	4,934,200.00	(56,455.50)
09/01/16	NA	NA	07/26/19	Aaa/AA+/AAA	FNMA - Note	Fed Natl Mortgage Assoc	5,000,000	1.150%	1.180%	4,995,700.00	4,998,788.85	4,940,950.00	(57,838.85)
09/01/16	N/A	N/A	08/28/19	Aaa/AA+/AAA	FNMA - Note	Fed Natl Mortgage Assoc	5,000,000	1.150%	1.160%	4,998,500.00	4,999,544.91	4,934,550.00	(64,994.91)
09/01/16	NA	NA	08/28/19	Aaa/AA+/AAA	FNMA - Note	Fed Natl Mortgage Assoc	5,000,000	1.125%	1.132%	4,999,000.00	4,999,696.61	4,933,450.00	(66,246.61)
09/28/16	Quarterly	03/09/17	09/09/19	Aaa/AA+/AAA	FNMA - Note	Fed Natl Mortgage Assoc	5,000,000	1.125%	1.142%	4,997,500.00	4,999,198.33	4,932,450.00	(66,748.33)
04/10/18	NA	NA	09/13/19	Aaa/AA+/NR	FHLB - Note	Fed Home Loan Bank	5,000,000	2.375%	2.288%	5,006,000.00	5,003,996.16	4,985,550.00	(18,446.16)
09/28/16	Continuous after	12/27/16	09/27/19	Aaa/AA+/NR	FHLB - Note	Fed Home Loan Bank	5,000,000	1.250%	1.189%	5,001,500.00	5,000,494.97	4,931,250.00	(69,244.97)
10/12/16	Continuous after	10/03/17	10/03/19	Aaa/AA+/NR	FHLB - Note	Fed Home Loan Bank	10,000,000	1.125%	1.160%	9,989,780.00	9,996,358.07	9,847,100.00	(149,258.07)
10/12/16	Continuous after	10/11/17	10/11/19	Aaa/AA+/NR	FFCB - Note	Fed Farm Credit Bank	10,000,000	1.120%	1.205%	9,975,000.00	9,990,973.49	9,848,500.00	(142,473.49)
11/08/16	Quarterly	05/08/17	11/08/19	Aaa/AA+/NR	FNMA - Note	Fed Natl Mortgage Assoc	5,000,000	1.250%	1.245%	5,000,750.00	5,000,276.03	4,922,650.00	(77,626.03)
11/28/16	NA	NA	11/15/19	Aaa/AA+/NR	FHLB - Note	Fed Home Loan Bank	5,000,000	1.375%	1.440%	4,990,550.00	4,996,419.13	4,928,250.00	(68,169.13)
11/28/16	Quarterly	05/25/17	11/25/19	Aaa/AA+/NR	FNMA - Note	Fed Natl Mortgage Assoc	5,000,000	1.400%	1.503%	4,985,000.00	4,994,230.77	4,928,850.00	(65,380.77)
12/12/16	NA	NA	12/12/19	Aaa/AA+/NR	FFCB - Note	Fed Farm Credit Bank	5,000,000	1.450%	1.440%	5,001,450.00	5,000,577.88	4,927,900.00	(72,677.88)
12/21/16	NA	NA	12/19/19	Aaa/AA+/NR	FFCB - Note	Fed Farm Credit Bank	5,000,000	1.500%	1.621%	4,982,350.00	4,992,830.19	4,929,300.00	(63,530.19)
12/20/17	NA	NA	01/17/20	Aaa/AA+/AAA	FHLMC - Note	Fed Home Loan Mortgage Corp	5,000,000	1.500%	1.932%	4,956,250.00	4,966,812.34	4,922,000.00	(44,812.34)
10/16/17	NA	NA	02/28/20	Aaa/AA+/AAA	FNMA - Note	Fed Natl Mortgage Assoc	5,000,000	1.500%	1.612%	4,987,025.00	4,992,275.00	4,914,500.00	(77,775.00)

IRVINE RANCH WATER DISTRICT
INVESTMENT SUMMARY REPORT

09/30/18

SETTLMT	Call Schedule	Initial Call	Maturity Date	Rating	INVESTMENT TYPE	INSTITUTION / ISSUER	PAR Amount	COUPON DISCOUNT	YIELD	ORIGINAL COST	CARRY VALUE	MARKET VALUE ⁽¹⁾ 9/30/2018	UNREALIZED ⁽²⁾ GAIN/(LOSS)
12/20/17	NA	NA	03/13/20	Aaa/AA+/NR	FHLB - Note	Fed Home Loan Bank	5,000,000	4.125%	1.940%	5,237,200.00	5,183,873.71	5,093,800.00	(90,073.71)
10/03/17	NA	NA	04/20/20	Aaa/AA+/AAA	FHLMC - Note	Fed Home Loan Mortgage Corp	5,000,000	1.375%	1.630%	4,968,350.00	4,980,703.71	4,893,350.00	(87,353.71)
06/29/18	NA	NA	04/23/20	Aaa/AA+/AAA	FHLMC - Note	Fed Home Loan Mortgage Corp	5,000,000	2.500%	2.544%	4,996,000.00	4,996,583.85	4,976,800.00	(19,783.85)
06/29/18	NA	NA	05/15/20	Aaa/AA+/AAA	FFCB - Note	Fed Farm Credit Bank	5,000,000	2.550%	2.566%	4,998,450.00	4,998,662.39	4,979,900.00	(18,762.39)
11/21/17	Continuous after	02/20/18	05/20/20	Aaa/AA+/AAA	FFCB - Note	Fed Farm Credit Bank	5,000,000	1.830%	1.930%	4,987,500.00	4,978,521.47	4,922,350.00	(56,171.47)
06/11/18	NA	NA	06/11/20	Aaa/NR/AAA	FFCB - Note	Fed Farm Credit Bank	5,000,000	2.500%	2.570%	4,997,100.00	4,997,544.32	4,978,400.00	(19,144.32)
11/10/17	NA	NA	06/22/20	Aaa/AA+/AAA	FNMA - Note	Fed Natl Mortgage Assoc	5,000,000	1.500%	1.750%	4,968,000.00	4,991,959.39	4,893,250.00	(98,709.39)
04/19/18	NA	NA	07/30/20	Aaa/AA+/AAA	FNMA - Note	Fed Natl Mortgage Assoc	5,000,000	1.500%	2.535%	4,886,000.00	4,908,581.03	4,886,200.00	(22,381.03)
06/08/18	NA	NA	07/30/20	Aaa/AA+/AAA	FNMA - Note	Fed Natl Mortgage Assoc	5,000,000	1.500%	2.559%	4,906,100.00	4,906,241.12	4,886,200.00	(20,041.12)
12/20/17	Quarterly	11/10/16	08/10/20	Aaa/AA+/AAA	FHLMC - Note	Fed Home Loan Mortgage Corp	5,000,000	1.450%	2.052%	4,923,000.00	4,937,617.22	4,875,450.00	(62,167.22)
09/14/18	NA	NA	08/24/20	Aaa/AA+/AAA	FFCB - Note	Fed Farm Credit Bank	5,000,000	2.680%	2.789%	4,989,700.00	4,989,946.62	4,986,050.00	(3,896.62)
05/21/18	Continuous after	12/01/17	09/01/20	Aaa/AA+/AAA	FFCB - Note	Fed Farm Credit Bank	5,000,000	1.680%	2.735%	4,884,250.00	4,902,708.93	4,892,950.00	(9,758.93)
09/14/18	NA	NA	09/04/20	Aaa/AA+/AAA	FFCB - Note	Fed Farm Credit Bank	5,000,000	2.690%	2.794%	4,990,050.00	4,990,284.60	4,983,800.00	(6,484.60)
12/12/17	One Time	09/28/18	09/28/20	Aaa/AA+/AAA	FNMA - Note	Fed Natl Mortgage Assoc	5,000,000	2.000%	2.000%	5,000,000.00	5,000,000.00	4,911,300.00	(88,700.00)
10/31/17	One Time	10/30/18	10/30/20	Aaa/NR/AAA	FNMA - Note	Fed Natl Mortgage Assoc	5,550,000	1.850%	1.850%	5,550,000.00	5,550,000.00	5,424,570.00	(125,430.00)
09/28/18	NA	NA	10/31/20		Treasury - Note	US Treasury	5,000,000	1.750%	2.847%	4,889,453.13	4,889,019.05	4,890,450.00	1,430.95
12/13/17	Continuous after	08/23/17	11/23/20	Aaa/AA+/AAA	FFCB - Note	Fed Farm Credit Bank	5,000,000	1.770%	2.060%	4,958,750.00	4,965,765.57	4,887,600.00	(78,165.57)
12/13/17	Quarterly	05/24/18	11/24/20	Aaa/AA+/AAA	FNMA - Note	Fed Natl Mortgage Assoc	5,000,000	1.900%	2.023%	4,982,500.00	4,985,473.54	4,891,600.00	(93,873.54)
11/30/17	NA	NA	11/24/20	Aaa/AA+/AAA	FFCB - Note	Fed Farm Credit Bank	5,000,000	1.850%	1.964%	4,983,550.00	4,988,152.98	4,895,750.00	(92,402.98)
12/20/17	NA	NA	12/28/20	Aaa/AA+/AAA	FNMA - Note	Fed Natl Mortgage Assoc	5,000,000	1.875%	2.023%	4,978,400.00	4,981,980.43	4,893,600.00	(88,380.43)

TOTAL INVESTMENTS

\$362,450,000

\$362,236,673.11

\$362,008,435.90

\$359,147,604.50

Petty Cash
Ck Balance

Bank of America

3,400.00

1,849,167.99

\$364,089,241.10

⁽¹⁾ LAIF market value is as of the most recent quarter-end as reported by LAIF.
Security market values are determined using Bank of New York ("Trading Prices"), Bloomberg and/or broker dealer pricing.
⁽²⁾ Gain (loss) calculated against carry value using the trading value provided by Bank of New York/or Brokers
⁽³⁾ Real estate rate of return is based on most recent quarter end return

Outstanding Variable Rate Debt	\$281,100,000
Net Outstanding Variable Rate Debt (Less \$130 million fixed-payer swaps)	\$151,100,000
Investment Balance:	\$364,089,241
Investment to Variable Rate Debt Ratio:	241%
Portfolio - Average Number of Days To Maturity ⁽⁴⁾	330

	Investment Portfolio	Real Estate ⁽²⁾ Portfolio	Weighted Avg. Return
September	1.53%	9.05%	3.79%
August	1.51%	8.89%	3.72%
Change	0.02%		0.06%

This Investment Summary Report is in conformity with the 2018 Investment Policy and provides sufficient liquidity to meet the next six months estimated expenditures.
*S - Step up

IRVINE RANCH WATER DISTRICT
SUMMARY OF MATURITIES

09/30/18

DATE	TOTAL	%	LAIF	Agency Notes	Agency Discount Notes	Collateral Deposit	US Treasury
09/18	\$51,900,000	14.32%	\$51,900,000				
10/18	15,000,000	4.14%		15,000,000			
11/18	10,000,000	2.76%		10,000,000			
12/18	15,000,000	4.14%		15,000,000		-	
01/19	15,000,000	4.14%		15,000,000			
02/19	10,000,000	2.76%		10,000,000			
03/19	20,000,000	5.52%		20,000,000			
04/19	15,000,000	4.14%		15,000,000			
05/19	10,000,000	2.76%		10,000,000			
06/19	10,000,000	2.76%		10,000,000			
07/19	10,000,000	2.76%		10,000,000			
08/19	10,000,000	2.76%		10,000,000			
SUB-TOTAL	\$191,900,000	52.95%	\$51,900,000	\$140,000,000			
13 Months - 3 YEARS							
9/01/2019 - 11/30/19	50,000,000	13.80%		50,000,000			
12/01/19 - 2/28/2020	20,000,000	5.52%		20,000,000			
3/01/2020 - 5/31/2020	30,000,000	8.28%		30,000,000			
6/01/2020 - 8/31/2020	25,000,000	6.90%		25,000,000			
9/01/2020 -12/31/2020	45,550,000	12.57%		40,550,000			5,000,000
1/01/2021 -2/28/2021	-						
	-						
	-						
	-						
TOTALS	\$362,450,000	100.00%	\$51,900,000	\$305,550,000			\$5,000,000

% OF PORTFOLIO

14.32%

84.30%

1.38%

Irvine Ranch Water District
 Summary of Real Estate - Income Producing Investments
 9/30/2018

	ACQUISITION DATE	PROPERTY TYPE	OWNERSHIP INTEREST	ORIGINAL COST	MARKET VALUE 9/30/2018	ANNUALIZED RATE OF RETURN QUARTER ENDED 9/30/2018
Sycamore Canyon	Dec-92	Apartments	Fee Simple	\$ 43,550,810	\$ 145,000,000	19.02%
Wood Canyon Villas	Jun-91	Apartments	Limited Partner	\$ 6,000,000	\$ 30,670,120	8.55%
ITC (230 Commerce)	Jul-03	Office Building	Fee Simple	\$ 5,739,845	\$ 11,500,000	10.85%
Waterworks Business Pk.	Nov-08	Research & Dev.	Fee Simple	\$ 8,630,577	\$ 9,000,000	5.82%
Sand Canyon Professional Center	Jul-12	Medical Office	Fee Simple	\$ 8,648,594	\$ 11,000,000	8.88%
Total - Income Properties				\$ 72,569,826	\$ 207,170,120	14.73%
OTHER REAL ESTATE						
DESCRIPTION						
Serrano Summit - Promissory Note	Sep-17	NA	NA	\$ 81,600,000	\$ 81,600,000	4.00%
Total - Income Producing Real Estate Investments				\$ 154,169,826	\$ 288,770,120	9.05%

IRVINE RANCH WATER DISTRICT INVESTMENT SUMMARY REPORT
INVESTMENT ACTIVITY
Sep-18

MATURITIES/SALES/CALLS

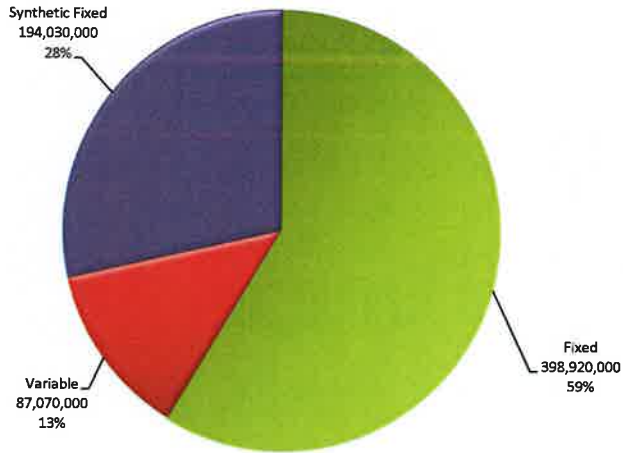
PURCHASES

DATE	SECURITY TYPE	PAR	YIELD	Settlement Date	Maturity Date	SECURITY TYPE	PAR	YIELD TO MATURITY
9/14/2018	FHLB - NOTE	\$5,000,000	0.92%	9/14/2018	8/24/2020	FFCB - NOTE	\$5,000,000	2.79%
9/14/2018	FHLB - NOTE	\$5,000,000	1.23%	9/14/2018	9/4/2020	FFCB - NOTE	\$5,000,000	2.79%
9/27/2018	FHLB - NOTE	\$10,000,000	0.95%	9/28/2018	10/31/2020	US TREASURY	\$5,000,000	2.85%
9/28/2018	FFCB - NOTE	\$5,000,000	0.94%					

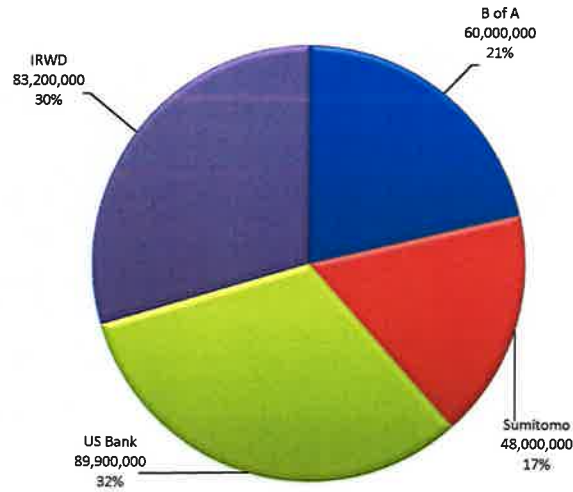
Exhibit "B"

Irvine Ranch Water District
 Summary of Fixed and Variable Rate Debt
 September 2018

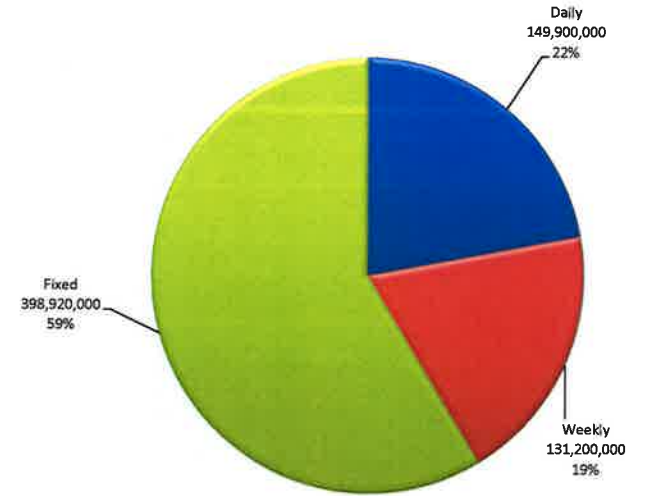
Current Debt Mix By Type



Letters of Credit / Support



Current Debt Rate Reset



Outstanding Par by Series

Series	Issue Date	Maturity Date	Remaining Principal	Percent	Letter of Credit	Rmkt Agent	Mode	Reset
Series 1993	05/19/93	04/01/33	\$29,900,000	4.40%	US Bank	BAML	Variable	Daily
Series 2008-A Refunding	04/24/08	07/01/35	\$48,000,000	7.06%	Sumitomo	BAML	Variable	Weekly
Series 2011-A-1 Refunding	04/15/11	10/01/37	\$49,920,000	7.34%	IRWD	Goldman	Variable	Weekly
Series 2011-A-2 Refunding	04/15/11	10/01/37	\$33,280,000	4.89%	IRWD	Morgan	Variable	Weekly
Series 2009 - A	06/04/09	10/01/41	\$60,000,000	8.82%	US Bank	US Bank	Variable	Daily
Series 2009 - B	06/04/09	10/01/41	\$60,000,000	8.82%	B of A	Goldman	Variable	Daily
2010 Refunding COPS	02/23/10	03/01/20	\$3,775,000	0.56%	N/A	N/A	Fixed	Fixed
2016 COPS	09/01/16	03/01/46	\$116,745,000	17.17%	N/A	N/A	Fixed	Fixed
2010 Build America Taxable Bond	12/16/10	05/01/40	\$175,000,000	25.73%	N/A	N/A	Fixed	Fixed
Series 2016	10/12/16	02/01/46	\$103,400,000	15.21%	N/A	N/A	Fixed	Fixed
Total			\$680,020,000	100.00%				

**IRVINE RANCH WATER DISTRICT
SUMMARY OF FIXED & VARIABLE RATE DEBT**

September-18

ITN
Daily
Weekly

GENERAL BOND INFORMATION							LETTER OF CREDIT INFORMATION							TRUSTEE INFORMATION							
VARIABLE RATE ISSUES	Issue Date	Maturity Date	Principal Payment Date	Payment Date	Original Par Amount	Remaining Principal	Letter of Credit	Reimbursement Agreement Date	L/C Exp. Date	MOODYS	S&P	FITCH	LOC Stated Amount	LOC Fee	Annual LOC Cost	Rmkt Agent	Reset	Rmkt Fees	Annual Cost	Trustee	
SERIES 1993	05/19/93	04/01/33	APR 1 (2014)	5th Bus. Day	\$38,300,000	\$29,900,000	US BANK	05/07/15	11/07/18	Aa3/VMIG1	AA-/A-1+	N/R	\$30,303,036	0.3300%	\$100,000	BAML	DAILY	0.10%	\$29,900	BANK OF NY	
SERIES 2008-A Refunding	04/24/08	07/01/35	JUL 1	5th Bus. Day	\$60,215,000	\$48,000,000	SUMITOMO	04/01/11	07/21/21	A1/P-1	A/A-1	A/F1	\$48,710,137	0.3150%	\$153,437	BAML	WED	0.07%	\$33,600	BANK OF NY	
SERIES 2011-A-1 Refunding	04/15/11	10/01/37	Oct 1	1st Bus. Day	\$60,545,000	\$49,920,000	N/A	N/A	N/A	Aa1/VMIG1	A-1+	AAA/F1+	N/A	N/A	N/A	Goldman	WED	0.13%	\$62,400	BANK OF NY	
SERIES 2011-A-2 Refunding	04/15/11	10/01/37	Oct 1	1st Bus. Day	\$40,370,000	\$33,280,000	N/A	N/A	N/A	Aa1/VMIG1	A-1+	AAA/F1+	N/A	N/A	N/A	Morgan S.	WED	0.13%	\$41,600	BANK OF NY	
SERIES 2009 - A	06/04/09	10/01/41	Oct 1	1st Bus. Day	\$75,000,000	\$60,000,000	US BANK	04/01/11	12/22/20	Aa2/VMIG 1	AA-/A-1+	AA/F1+	\$60,670,685	0.4100%	\$248,750	US Bank	DAILY	0.07%	\$42,000	US BANK	
SERIES 2009 - B	06/04/09	10/01/41	Oct 1	1st Bus. Day	\$75,000,000	\$60,000,000	B of A	04/01/11	07/15/19	A1/VMIG 1	A/A-1	A1/F1+	\$60,670,685	0.4000%	\$242,683	Goldman	DAILY	0.10%	\$60,000	US BANK	
\$349,430,000						\$281,100,000	SUB-TOTAL VARIABLE RATE DEBT							\$200,354,542	0.3718%	\$744,869					
														(Wt. Avg)			(Wt. Avg)				
FIXED RATE ISSUES																					
2010 REFUNDING COPS	02/23/10	03/01/20	Mar -1	MAR/SEPT	\$85,145,000	\$3,775,000	N/A	N/A	N/A	Aa1	AAA	AAA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	BANK OF NY
2010 GO Build America Taxable Bonds	12/16/10	05/01/40	MAY (2025)	MAY/NOV	\$175,000,000	\$175,000,000	N/A	N/A	N/A	Aa1	AAA	NR	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	US BANK
2016 COPS	09/01/16	03/01/46	Mar - 1	MAR/SEPT	\$116,745,000	\$116,745,000	N/A	N/A	N/A	NR	AAA	AAA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	US BANK
SERIES 2016	10/12/16	02/01/46	Feb - 1	FEB/AUG	\$103,400,000	\$103,400,000	N/A	N/A	N/A	NR	AAA	AAA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	BANK OF NY
\$480,290,000						\$398,920,000	SUB-TOTAL FIXED RATE DEBT														
\$829,720,000						\$680,020,000	TOTAL- FIXED & VARIABLE RATE DEBT														

Remarketing Agents			GO VS COP's		
Goldman	109,920,000	39%	GO:	559,500,000	82%
Morgan Stanley	33,280,000	12%	COPS:	120,520,000	18%
BAML	77,900,000	28%	Total	680,020,000	
US Bank	60,000,000	21%			
	281,100,000				

LOC Banks		Breakdown Between Variable & Fixed Rate Mode	
SUMITOMO	48,000,000	Daily Issues	149,900,000 22%
BANK OF AMERICA	60,000,000	Weekly Issues	48,000,000 7%
US BANK	89,900,000	ITN Issues	83,200,000 12%
	197,900,000	Sub-Total	281,100,000
		Fixed Rate Issues	\$398,920,000 59%
		Sub-Total - Fixed	398,920,000
		TOTAL DEBT	
		FIXED & VAR.	680,020,000 100%

IRVINE RANCH WATER DISTRICT
SUMMARY OF DEBT RATES
Sep-18

Rmkt Agent Mode	GOLDMAN DAILY	GOLDMAN WEEKLY	MORGAN STANLEY WEEKLY	MERRILL LYNCH DAILY	MERRILL LYNCH WEEKLY	US BANK DAILY
Bond Issue	2009 - B	2011 A-1	2011 A-2	1993	2008-A	2009-A
Par Amount	60,000,000	49,920,000	33,280,000	29,900,000	48,000,000	60,000,000
Bank	BOFA	(SIFMA -1)	(SIFMA -1)	US BANK	Sumitomo	US BANK
Reset		Wednesday	Wednesday		Wednesday	
9/1/2018	1.24%	1.55%	1.55%	1.27%	1.34%	1.30%
9/2/2018	1.24%	1.55%	1.55%	1.27%	1.34%	1.30%
9/3/2018	1.24%	1.55%	1.55%	1.27%	1.34%	1.30%
9/4/2018	1.20%	1.55%	1.55%	1.19%	1.34%	1.25%
9/5/2018	1.16%	1.55%	1.55%	1.23%	1.34%	1.20%
9/6/2018	1.18%	1.48%	1.48%	1.18%	1.32%	1.20%
9/7/2018	1.17%	1.48%	1.48%	1.17%	1.32%	1.20%
9/8/2018	1.17%	1.48%	1.48%	1.17%	1.32%	1.20%
9/9/2018	1.17%	1.48%	1.48%	1.17%	1.32%	1.20%
9/10/2018	1.18%	1.48%	1.48%	1.20%	1.32%	1.20%
9/11/2018	1.22%	1.48%	1.48%	1.24%	1.32%	1.20%
9/12/2018	1.22%	1.48%	1.48%	1.24%	1.32%	1.20%
9/13/2018	1.19%	1.48%	1.48%	1.24%	1.27%	1.20%
9/14/2018	1.22%	1.48%	1.48%	1.23%	1.27%	1.20%
9/15/2018	1.22%	1.48%	1.48%	1.23%	1.27%	1.20%
9/16/2018	1.22%	1.48%	1.48%	1.23%	1.27%	1.20%
9/17/2018	1.22%	1.48%	1.48%	1.21%	1.27%	1.22%
9/18/2018	1.22%	1.48%	1.48%	1.25%	1.27%	1.22%
9/19/2018	1.22%	1.48%	1.48%	1.24%	1.27%	1.22%
9/20/2018	1.22%	1.47%	1.47%	1.23%	1.33%	1.22%
9/21/2018	1.23%	1.47%	1.47%	1.24%	1.33%	1.23%
9/22/2018	1.23%	1.47%	1.47%	1.24%	1.33%	1.23%
9/23/2018	1.23%	1.47%	1.47%	1.24%	1.33%	1.23%
9/24/2018	1.23%	1.47%	1.47%	1.24%	1.33%	1.23%
9/25/2018	1.25%	1.47%	1.47%	1.27%	1.33%	1.24%
9/26/2018	1.27%	1.47%	1.47%	1.28%	1.33%	1.30%
9/27/2018	1.29%	1.55%	1.55%	1.28%	1.41%	1.30%
9/28/2018	1.35%	1.55%	1.55%	1.28%	1.41%	1.33%
9/29/2018	1.35%	1.55%	1.55%	1.28%	1.41%	1.33%
9/30/2018	1.35%	1.55%	1.55%	1.28%	1.41%	1.33%
Avg Interest Rates	1.23%	1.50%	1.50%	1.24%	1.33%	1.24%
Rmkt Fee	0.10%	0.13%	0.13%	0.10%	0.07%	0.07%
LOC Fee	0.40%			0.33%	0.32%	0.41%
All-In Rate	1.73%	1.62%	1.62%	1.67%	1.71%	1.72%
Par Amount		109,920,000	33,280,000		77,900,000	60,000,000

Interest Rate Mode	Percent of Total Variable Rate Debt	Par Outstanding	Weighted All-In Average Rate	Base Rate Average
Daily	53.33%	149,900,000	1.71%	1.23%
Weekly	46.67%	131,200,000	1.66%	1.44%
Fixed		\$ 281,100,000	1.69%	1.33%
COPS 2010	0.95%	3,775,000	3.82%	
COPS 2016	29.27%	116,745,000	2.90%	
BABS 2010	43.87%	175,000,000	4.45%	(1)
SERIES 2016	25.92%	103,400,000	3.32%	
	100.00%	\$ 398,920,000	3.70%	
All-In Debt Rate Including \$130 Million Notional Amount of Swaps				3.59%

(1) Rate adjusted up from 4.35% as a result of sequestration reducing BAB's subsidy by 6.2%

**IRVINE RANCH WATER DISTRICT
INTEREST RATE SWAP MONTHLY SUMMARY REPORT - DETAIL
September 30, 2018**

Exhibit "C"

								Prior Mo.	Current Mo.	12-Mo Avg					
								LIBOR Avg %	2.07%	2.18%	1.82%				
Current Fiscal Year Active Swaps								Cash Flow				(Since 6/06)	Mark to Market		
Effective Date	Maturity Date	Years to Maturity	Counter Party	Notional Amt	Type	Base Index	Fixed Rate	Prior Month	Current Month	Fiscal YTD	Cumulative Cash Flow	Current Mark to Market	Notional Difference		
Fixed Payer Swaps - By Effective Date															
6/4/2006	6/4/2019	0.7	ML	\$ 20,000,000	FXP	LIBOR	6.200%	(67,464)	(60,194)	\$ (200,824)	\$ (12,057,216)	\$ 19,505,306	\$ (494,694)		
6/4/2006	6/4/2019	0.7	CG	20,000,000	FXP	LIBOR	6.200%	(67,464)	(60,194)	(200,824)	(12,057,216)	19,505,671	(494,329)		
6/17/2006	6/17/2019	0.7	CG	30,000,000	FXP	LIBOR	6.140%	(100,096)	(89,181)	(297,547)	(17,881,255)	29,234,328	(765,672)		
3/10/2007	3/10/2029	10.4	ML	30,000,000	FXP	LIBOR	5.687%	(88,679)	(78,774)	(263,838)	(16,115,746)	22,839,271	(7,160,729)		
3/10/2007	3/10/2029	10.4	CG	30,000,000	FXP	LIBOR	5.687%	(88,679)	(78,774)	(263,838)	(16,115,746)	22,836,366	(7,163,634)		
Totals/Weighted Avgs				5.2	\$ 130,000,000		5.949%	\$ (412,382)	\$ (367,117)	\$ (1,226,871)	\$ (74,227,177)	\$ 113,920,942	\$ (16,079,058)		
Total Current Year Active Swaps					\$ 130,000,000			\$ (412,382)	\$ (367,117)	\$ (1,226,871)	\$ (74,227,177)	\$ 113,920,942	\$ (16,079,058)		

Current Fiscal Year Terminated Swaps								Cash Flow				Mark to Market	
Effective Date	Maturity Date		Counter Party	Notional Amt	Type	Base Index	Fixed Rate	Prior Month	Current Month	Fiscal YTD	Cumulative Cash Flow	Current Mark to Market	Notional Difference
Total Current Year Terminated Swaps								\$ -	\$ -	\$ -	\$ -	\$ -	\$ -

Current Fiscal Year - Total Swaps								Cash Flow				Mark to Market	
Effective Date	Maturity Date		Counter Party	Notional Amt	Type	Base Index	Fixed Rate	Prior Month	Current Month	Fiscal YTD	Cumulative Cash Flow	Current Mark to Market	Notional Difference
Total Current Year Active & Terminated Swaps								\$ (412,382)	\$ (367,117)	\$ (1,226,871)	\$ (74,227,177)	\$ 113,920,942	\$ (16,079,058)

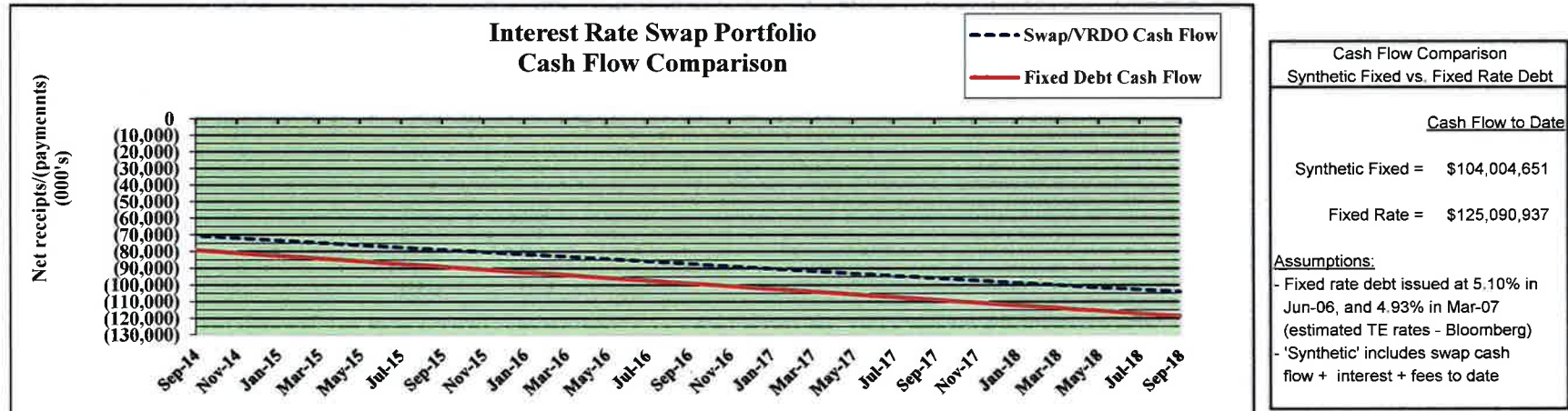


Exhibit "D"

IRWD Ledger Upgrade

Void Payment Register

Report Date: 01-OCT-2018 07:55

Include Zero Amount Payments: Yes
Display Payee Address: No

Period From: 01-SEP-18

Page: 1

To: 30-SEP-18

Date: Void Date

Bank: Bank of America N.A.

Branch: Los Angeles

Account: Checking AP and PR

Bank Account Currency: USD

Payment Currency: USD (US Dollar)

Payment Number	Date	Payee Name	Site	Address	Payment Amount	Void Date
Payment Document: IRWD CHECK						
387649	10-MAY-18	BROADCOM LTD	PAY		1,363.20	27-SEP-18
387847	10-MAY-18	XIAN, ZHUANG	PAY		45.49	14-SEP-18
387897	17-MAY-18	BEHBEHANI, SHERI	PAY		27.00	14-SEP-18
387913	17-MAY-18	CDB INVESTMENTS, L.P.	PAY		567.29	27-SEP-18
387918	17-MAY-18	CHIEN, JULIE	PAY		38.34	14-SEP-18
387920	17-MAY-18	CHUNG, CHENYU	PAY		67.30	14-SEP-18
387922	17-MAY-18	CITY OF IRVINE	PAY		10,682.60	28-SEP-18
387931	17-MAY-18	DAVIS, SANDRA	PAY		31.70	14-SEP-18
387932	17-MAY-18	DING, JUN	PAY		33.18	14-SEP-18
387989	17-MAY-18	KARIMI, MAHYAR	PAY		49.20	14-SEP-18
388003	17-MAY-18	LI, TIAN	PAY		276.98	27-SEP-18
388005	17-MAY-18	LIU MD PHD, BENJAMIN	PAY		59.67	14-SEP-18
388007	17-MAY-18	LUND, PENNY	PAY		17.70	14-SEP-18
388018	17-MAY-18	MOHOS, KRISTINA	PAY		54.52	14-SEP-18
388023	17-MAY-18	MUNOZ, MARIANNA	PAY		26.20	14-SEP-18
388040	17-MAY-18	PARK, ESTHER	PAY		32.70	14-SEP-18
388092	17-MAY-18	TAGHDIRI, HAMID	PAY		170.81	27-SEP-18
388115	17-MAY-18	WALTERS, CINDY	PAY		37.79	14-SEP-18
388129	17-MAY-18	XIE, NIANFEI	PAY		33.40	14-SEP-18
388200	24-MAY-18	FORESZ, ALBERT	PAY		23.88	14-SEP-18
388231	24-MAY-18	KIM, JINYOUNG	PAY		73.57	14-SEP-18
388412	30-MAY-18	REGENCY CENTERS	JACKSONVILLE		130.00	27-SEP-18
388433	30-MAY-18	TORRES, MONICA	PAY		85.12	14-SEP-18
388445	30-MAY-18	VOLVO IRVINE	PAY		18.13	14-SEP-18
388457	30-MAY-18	ZU, SHUHUA	PAY		22.74	14-SEP-18
389694	12-JUL-18	JANG, DUWON	PAY		58.66	28-SEP-18
390918	23-AUG-18	KING, TAYLOR	PAY		188.22	14-SEP-18
391415	05-SEP-18	WENNINGER, CORINA	PAY		103.14	11-SEP-18

Payment Document Subtotal 14,318.53

Bank Account Subtotal 14,318.53

Report Count: 28
IRWD Ledger Upgrade

Report Total 14,318.53 Voids

Include Zero Amount Payments: Yes
Display Payee Address: No

Void Payment Register

Period From: 01-SEP-18

Report Date: 01-OCT-2018 07:55

Page: 2

To: 30-SEP-18

Date: Void Date

*** End of Report ***

IRWD Ledger Upgrade Payment Register For 01-SEP-18 To 30-SEP-18 Report Date: 01-OCT-2018 07:54
 BANK: Bank of America N.A. Branch : Los Angeles Account: Checking AP and PR Page: 1
 Bank Account Currency: USD (US Dollar) Payment Currency: USD (US Dollar)
 Payment Type: All Display Supplier Address: No

Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
Payment Document : IRWD CHECK								
391211		05-SEP-18	Borowski, Michael (Mike)		73.48	18-SEP-18	73.48	Reconciled
391212		05-SEP-18	Castaneda, Natalie N (Natalie)		12.32			Negotiable
391213		05-SEP-18	Clinton, Bryan R (Bryan)		105.00	07-SEP-18	105.00	Reconciled
391214		05-SEP-18	Compton, Christine A		15.26			Negotiable
391215		05-SEP-18	Cortez, Malcolm A (Malcolm)		26.16	13-SEP-18	26.16	Reconciled
391216		05-SEP-18	Donnelly, Stephen P (Stephen)		50.00	10-SEP-18	50.00	Reconciled
391217		05-SEP-18	Hufana, Eugenio D		122.08	06-SEP-18	122.08	Reconciled
391218		05-SEP-18	Moeder, Jacob J (Jacob)		320.00	18-SEP-18	320.00	Reconciled
391219		05-SEP-18	Murphy, Alexander J (Alexander)		1,661.97	10-SEP-18	1,661.97	Reconciled
391220		05-SEP-18	Nash, Joel		52.87	10-SEP-18	52.87	Reconciled
391221		05-SEP-18	Norman, Tammy		88.06	10-SEP-18	88.06	Reconciled
391222		05-SEP-18	Oldewage, Lars D (Lars)		86.02	07-SEP-18	86.02	Reconciled
391223		05-SEP-18	Sciabica, Joseph		347.32	07-SEP-18	347.32	Reconciled
391224		05-SEP-18	Solis, Henry (Henry)		285.00	13-SEP-18	285.00	Reconciled
391225		05-SEP-18	Swan, Peer		219.00	11-SEP-18	219.00	Reconciled
391226		05-SEP-18	Trigg, Tyler		107.74	17-SEP-18	107.74	Reconciled
391227		05-SEP-18	ACCUSOURCE, INC.		1,423.14	14-SEP-18	1,423.14	Reconciled
391228		05-SEP-18	AECOM TECHNICAL SERVICES, INC.		74,275.35	13-SEP-18	74,275.35	Reconciled
391229		05-SEP-18	AIKIN, TERI		69.01	13-SEP-18	69.01	Reconciled
391230		05-SEP-18	AIR TECHNOLOGY LABORATORIES		329.00			Negotiable
391231		05-SEP-18	ALEXANDER'S CONTRACT SERVICES, INC.		118,435.89	12-SEP-18	118,435.89	Reconciled
391232		05-SEP-18	ALPHA TRAFFIC SERVICES, INC.		1,542.50	10-SEP-18	1,542.50	Reconciled
391233		05-SEP-18	AMAZON CAPITAL SERVICES, INC.		307.65	10-SEP-18	307.65	Reconciled
391234		05-SEP-18	AMERICAN WATER CHEMICALS, INC.		5,112.74	11-SEP-18	5,112.74	Reconciled
391235		05-SEP-18	ANTHONY N. LARSEN		450.00	10-SEP-18	450.00	Reconciled
391236		05-SEP-18	ARULRAJ, FREDRIC		30.37	11-SEP-18	30.37	Reconciled
391237		05-SEP-18	AT&T		4,109.93	10-SEP-18	4,109.93	Reconciled
391238		05-SEP-18	AT&T		11.58	11-SEP-18	11.58	Reconciled

IRWD Ledger Upgrade Payment Register For 01-SEP-18 To 30-SEP-18 Report Date: 01-OCT-2018 07:54
 BANK: Bank of America N.A. Branch : Los Angeles Account: Checking AP and PR Page: 2
 Bank Account Currency: USD (US Dollar) Payment Currency: USD (US Dollar)
 Payment Type: All Display Supplier Address: No

Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
Payment Document : IRWD CHECK								
391239		05-SEP-18	AUTOZONE PARTS, INC.		67.85	11-SEP-18	67.85	Reconciled
391240		05-SEP-18	BANGA, RICKEY		273.39			Negotiable
391241		05-SEP-18	BAY, TRENISE		14.27			Negotiable
391242		05-SEP-18	BDC SPECIAL WASTE		1,153.40	10-SEP-18	1,153.40	Reconciled
391243		05-SEP-18	BECKER, NORMAN		49.83			Negotiable
391244		05-SEP-18	BEST POOL SERVICE		5,293.83	10-SEP-18	5,293.83	Reconciled
391245		05-SEP-18	BIOMAGIC INC		17,472.95	11-SEP-18	17,472.95	Reconciled
391246		05-SEP-18	BIOMERIEUX INC		386.11	10-SEP-18	386.11	Reconciled
391247		05-SEP-18	BLAIR, BRIAN		31.94	18-SEP-18	31.94	Reconciled
391248		05-SEP-18	BRAUNSTEIN, JOHN		303.14	11-SEP-18	303.14	Reconciled
391249		05-SEP-18	BUONTEMPO, AMY		65.17	14-SEP-18	65.17	Reconciled
391250		05-SEP-18	BURLINGTON SAFETY LABORATORY OF CALIFORNIA INC		1,049.50	07-SEP-18	1,049.50	Reconciled
391251		05-SEP-18	C WELLS PIPELINE MATERIALS INC		16,817.64	17-SEP-18	16,817.64	Reconciled
391252		05-SEP-18	CAIN, DEBBIE R		58.37			Negotiable
391253		05-SEP-18	CALIFORNIA BARRICADE RENTAL, INC.		4,785.00	10-SEP-18	4,785.00	Reconciled
391254		05-SEP-18	CANON SOLUTIONS AMERICA, INC.		14.94	10-SEP-18	14.94	Reconciled
391255		05-SEP-18	CAPITAL SEAFOOD		73.70	13-SEP-18	73.70	Reconciled
391256		05-SEP-18	CARTER, CHAD		20.51	17-SEP-18	20.51	Reconciled
391257		05-SEP-18	CCL CONTRACTING INC.		353,356.72	17-SEP-18	353,356.72	Reconciled
391258		05-SEP-18	CDW GOVERNMENT LLC		833.92	13-SEP-18	833.92	Reconciled

391259	05-SEP-18	CERVINI, NANCY		109.52	11-SEP-18	109.52	Reconciled
391260	05-SEP-18	CHOW, ALEX		18.62	13-SEP-18	18.62	Reconciled
391261	05-SEP-18	CHWANG, ERIC		23.82	25-SEP-18	23.82	Reconciled
391262	05-SEP-18	CITY OF TUSTIN		1,947.03	07-SEP-18	1,947.03	Reconciled
391263	05-SEP-18	CLA-VAL COMPANY		6,664.61	07-SEP-18	6,664.61	Reconciled
391264	05-SEP-18	CONSTELLATION NEWENERGY, INC.		186,567.66	12-SEP-18	186,567.66	Reconciled
391265	05-SEP-18	COX COMMUNICATIONS, INC.		261.21	10-SEP-18	261.21	Reconciled
391266	05-SEP-18	COXCO LLC		21,383.52	20-SEP-18	21,383.52	Reconciled
391267	05-SEP-18	DANIELSON, ASHLEY		16.00	11-SEP-18	16.00	Reconciled
391268	05-SEP-18	DEBROSSE, GAYLE		25.00	18-SEP-18	25.00	Reconciled
391269	05-SEP-18	DELL MARKETING LP		5,947.17	10-SEP-18	5,947.17	Reconciled
391270	05-SEP-18	DRAEGER, INC.		3,781.71	17-SEP-18	3,781.71	Reconciled
391271	05-SEP-18	E.J. MEYER COMPANY, INC.		28,500.00	12-SEP-18	28,500.00	Reconciled
391272	05-SEP-18	EDDY, PARK		11.33			Negotiable

IRWD Ledger Upgrade Payment Register For 01-SEP-18 To 30-SEP-18 Report Date: 01-OCT-2018 07:54
 BANK: Bank of America N.A. Branch : Los Angeles Account: Checking AP and PR Page: 3
 Bank Account Currency: USD (US Dollar) Payment Currency: USD (US Dollar)
 Payment Type: All Display Supplier Address: No

Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
Payment Document : IRWD CHECK								
391273		05-SEP-18	ENDRESS AND HAUSER INC		8,916.46	10-SEP-18	8,916.46	Reconciled
391274		05-SEP-18	ENVIRONMENTAL SCIENCE ASSOCIATES		10,147.93	14-SEP-18	10,147.93	Reconciled
391275		05-SEP-18	EVANTEC CORPORATION		215.50	07-SEP-18	215.50	Reconciled
391276		05-SEP-18	FERRULLI, TONY		72.00			Negotiable
391277		05-SEP-18	FISHER SCIENTIFIC COMPANY LLC		299.28	07-SEP-18	299.28	Reconciled
391278		05-SEP-18	FOGERTY, TIM		131.03			Negotiable
391279		05-SEP-18	FRESENIUS USA INC		18.55			Negotiable
391280		05-SEP-18	FRONTIER CALIFORNIA INC.		273.30	13-SEP-18	273.30	Reconciled
391281		05-SEP-18	FUSCOE ENGINEERING, INC.		1,690.00	07-SEP-18	1,690.00	Reconciled
391282		05-SEP-18	GERMAN, SARAH		42.46	14-SEP-18	42.46	Reconciled
391283		05-SEP-18	GHD INC.		1,230.00	10-SEP-18	1,230.00	Reconciled
391284		05-SEP-18	GILL, MARK		1,835.53	10-SEP-18	1,835.53	Reconciled
391285		05-SEP-18	GRAINGER		4,842.93	10-SEP-18	4,842.93	Reconciled
391286		05-SEP-18	GRANT, RONI		40.22	10-SEP-18	40.22	Reconciled
391287		05-SEP-18	GRAYBAR ELECTRIC COMPANY		49.50	10-SEP-18	49.50	Reconciled
391288		05-SEP-18	HAAKER EQUIPMENT COMPANY		380.78	18-SEP-18	380.78	Reconciled
391289		05-SEP-18	HACH COMPANY		29,882.96	13-SEP-18	29,882.96	Reconciled
391290		05-SEP-18	HALL, JOHN		33.64	07-SEP-18	33.64	Reconciled
391291		05-SEP-18	HARRINGTON INDUSTRIAL PLASTICS LLC		5,651.43	10-SEP-18	5,651.43	Reconciled
391292		05-SEP-18	HCL LABELS, INC.		65.03	11-SEP-18	65.03	Reconciled
391293		05-SEP-18	HELPMATES STAFFING SERVICES		16,896.17	12-SEP-18	16,896.17	Reconciled
391294		05-SEP-18	HERC RENTALS INC.		3,259.01	10-SEP-18	3,259.01	Reconciled
391295		05-SEP-18	HERNANDEZ, VERONICA		13.02			Negotiable
391296		05-SEP-18	HILL BROTHERS CHEMICAL COMPANY		11,454.06	18-SEP-18	11,454.06	Reconciled
391297		05-SEP-18	HINSILBLON LTD		5,407.00	17-SEP-18	5,407.00	Reconciled
391298		05-SEP-18	HOME DEPOT USA INC		761.97	11-SEP-18	761.97	Reconciled
391299		05-SEP-18	HONG, LYDIA		82.15			Negotiable
391300		05-SEP-18	HOPKINS TECHNICAL PRODUCTS INC		10,981.88	13-SEP-18	10,981.88	Reconciled
391301		05-SEP-18	HORIBA, DAN		45.65			Negotiable
391302		05-SEP-18	HOWDEN ROOTS LLC		17,190.20	14-SEP-18	17,190.20	Reconciled
391303		05-SEP-18	HU, XIANGWANG		22.36	13-SEP-18	22.36	Reconciled
391304		05-SEP-18	HYDROTECH ELECTRIC		6,970.00	10-SEP-18	6,970.00	Reconciled

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 BANK: Bank of America N.A. Branch : Los Angeles Account: Checking AP and PR Page: 4
 Bank Account Currency: USD (US Dollar) Payment Currency: USD (US Dollar)
 Payment Type: All Display Supplier Address: No

Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
Payment Document : IRWD CHECK								
391305		05-SEP-18	IBM CORPORATION		2,970.00	10-SEP-18	2,970.00	Reconciled
391306		05-SEP-18	INFOSYS LIMITED		38,780.00	13-SEP-18	38,780.00	Reconciled
391307		05-SEP-18	INTERNATIONAL PAVING SERVICES, INC.		1,492.81	10-SEP-18	1,492.81	Reconciled
391308		05-SEP-18	IRVINE PACIFIC		74.82	11-SEP-18	74.82	Reconciled
391309		05-SEP-18	IRVINE PIPE & SUPPLY INC		828.14	07-SEP-18	828.14	Reconciled
391310		05-SEP-18	IRWD-PETTY CASH		1,038.68	10-SEP-18	1,038.68	Reconciled

Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
391311	05-SEP-18		CUSTODIAN					
391312	05-SEP-18		JOHNSTONE SUPPLY		352.39	10-SEP-18	352.39	Reconciled
391313	05-SEP-18		KANG, EILEEN		39.18			Negotiable
391314	05-SEP-18		KAZARIANS & ASSOCIATES, INC.		2,065.47	18-SEP-18	2,065.47	Reconciled
391315	05-SEP-18		KILL-N-BUGS TERMITE AND PEST CONTROL SERVICES		3,000.00	10-SEP-18	3,000.00	Reconciled
391316	05-SEP-18		KURRA, BHANUSREE		37.20	11-SEP-18	37.20	Reconciled
391317	05-SEP-18		LAGUNA BEACH COUNTY WATER DISTRICT		17,597.92	19-SEP-18	17,597.92	Reconciled
391318	05-SEP-18		LANDCARE HOLDINGS, INC.		4,942.43	10-SEP-18	4,942.43	Reconciled
391319	05-SEP-18		LD BUILDERS, CORP.		1,502.65	18-SEP-18	1,502.65	Reconciled
391320	05-SEP-18		LENNAR HOMES		129.38	07-SEP-18	129.38	Reconciled
391321	05-SEP-18		LEVENSON, LAUREN		25.55	11-SEP-18	25.55	Reconciled
391322	05-SEP-18		LGC GEOTECHNICAL, INC.		1,271.00	07-SEP-18	1,271.00	Reconciled
391323	05-SEP-18		LINKEDIN CORPORATION		6,131.25	10-SEP-18	6,131.25	Reconciled
391324	05-SEP-18		MAGLIOLA, CLARA		39.42	18-SEP-18	39.42	Reconciled
391325	05-SEP-18		MARTINEZ, CARLA		22.28	07-SEP-18	22.28	Reconciled
391326	05-SEP-18		MBC AQUATIC SCIENCES, INC.		1,350.00	11-SEP-18	1,350.00	Reconciled
391327	05-SEP-18		MC FADDEN-DALE INDUSTRIAL		30.39	10-SEP-18	30.39	Reconciled
391328	05-SEP-18		MC MASTER CARR SUPPLY CO		851.44	10-SEP-18	851.44	Reconciled
391329	05-SEP-18		MCR TECHNOLOGIES INC		4,864.76	17-SEP-18	4,864.76	Reconciled
391330	05-SEP-18		METTLER-TOLEDO INC		401.06	07-SEP-18	401.06	Reconciled
391331	05-SEP-18		MOBIL OIL CORP		53.16	25-SEP-18	53.16	Reconciled
391332	05-SEP-18		MOBILE MODULAR MANAGEMENT CORPORATION		1,212.19	10-SEP-18	1,212.19	Reconciled
391332	05-SEP-18		MOSCOS, NICK		38.48			Negotiable

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 Bank Account Currency: USD (US Dollar) Payment Currency: USD (US Dollar)
 Payment Type: All Display Supplier Address: No

Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
Payment Document : IRWD CHECK								
391333	05-SEP-18		MRO ELECTRIC & SUPPLY CO.		13,333.00	17-SEP-18	13,333.00	Reconciled
391334	05-SEP-18		MSC INDUSTRIAL SUPPLY CO		330.16	11-SEP-18	330.16	Reconciled
391335	05-SEP-18		MUTUAL PROPANE		88.20	11-SEP-18	88.20	Reconciled
391336	05-SEP-18		NAM, EUNSOO		43.92	14-SEP-18	43.92	Reconciled
391337	05-SEP-18		NCH CORPORATION		701.44	11-SEP-18	701.44	Reconciled
391338	05-SEP-18		NEPTUNE TECHNOLOGY GROUP, INC.		167,676.24	13-SEP-18	167,676.24	Reconciled
391339	05-SEP-18		NEW PIG CORPORATION		981.43	13-SEP-18	981.43	Reconciled
391340	05-SEP-18		NEWMARK, JACQUELINE		106.41			Negotiable
391341	05-SEP-18		NMG GEOTECHNICAL INC		36,060.30	19-SEP-18	36,060.30	Reconciled
391342	05-SEP-18		NORTHWESTERN MUTUAL		138.72	12-SEP-18	138.72	Reconciled
391343	05-SEP-18		O'HAREN GOVERNMENT RELATIONS		6,500.00	10-SEP-18	6,500.00	Reconciled
391344	05-SEP-18		O.C. SUPERIOR CUSTOM CLEANING SERVICES		832.00	11-SEP-18	832.00	Reconciled
391345	05-SEP-18		OLIN CORPORATION		18,707.02	13-SEP-18	18,707.02	Reconciled
391346	05-SEP-18		OMAR DANDASHI		1,661.73	10-SEP-18	1,661.73	Reconciled
391347	05-SEP-18		ONESOURCE		284.76	10-SEP-18	284.76	Reconciled
391348	05-SEP-18		DISTRIBUTORS LLC					
391348	05-SEP-18		ORACLE AMERICA, INC.		2,994.00	11-SEP-18	2,994.00	Reconciled
391349	05-SEP-18		ORANGE COUNTY AUTO PARTS CO		353.41	07-SEP-18	353.41	Reconciled
391350	05-SEP-18		PACIFIC COAST BOLT CORP		6,326.01	12-SEP-18	6,326.01	Reconciled
391351	05-SEP-18		PARK, DONG KYUN		40.26			Negotiable
391352	05-SEP-18		PARK, JOHN W		63.44	18-SEP-18	63.44	Reconciled
391353	05-SEP-18		PARKHOUSE TIRE INC		2,758.64	11-SEP-18	2,758.64	Reconciled
391354	05-SEP-18		PASCAL & LUDWIG CONSTRUCTORS		11,127.01	12-SEP-18	11,127.01	Reconciled
391355	05-SEP-18		PASCAL & LUDWIG CONSTRUCTORS		211,413.20	12-SEP-18	211,413.20	Reconciled
391356	05-SEP-18		PATEL, DIPAN		36.63	14-SEP-18	36.63	Reconciled
391357	05-SEP-18		PEYKOFF, VIRGINIA		34.85			Negotiable
391358	05-SEP-18		PHAM, JOANN		97.71	12-SEP-18	97.71	Reconciled
391359	05-SEP-18		PINNACLE TOWERS LLC		720.39	10-SEP-18	720.39	Reconciled
391360	05-SEP-18		POWERS BROS. MACHINE, INC.		7,704.13	10-SEP-18	7,704.13	Reconciled

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BANK: Bank of America N.A. Branch : Los Angeles Account: Checking AP and PR Page: 6
 Bank Account Currency: USD (US Dollar) Payment Currency: USD (US Dollar)
 Payment Type: All Display Supplier Address: No

Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
Payment Document : IRWD CHECK								
391361		05-SEP-18	PRAXAIR		1,170.70	10-SEP-18	1,170.70	Reconciled
391362		05-SEP-18	DISTRIBUTION INC					
			PREMIER PAVING INC.		401.06	10-SEP-18	401.06	Reconciled
391363		05-SEP-18	PRESTIGE COLLISION		1,169.24	11-SEP-18	1,169.24	Reconciled
			AUTO BODY					
391364		05-SEP-18	PSOMAS		3,907.50	10-SEP-18	3,907.50	Reconciled
391365		05-SEP-18	PURE EFFECT INC		7,823.80	11-SEP-18	7,823.80	Reconciled
391366		05-SEP-18	RAM AIR		3,717.41	10-SEP-18	3,717.41	Reconciled
			ENGINEERING INC					
391367		05-SEP-18	RANCHO TIERRA APTS		13.22			Negotiable
391368		05-SEP-18	RED WING SHOE		183.16	10-SEP-18	183.16	Reconciled
			STORE					
391369		05-SEP-18	RELIANCE SAFETY		2,150.00	11-SEP-18	2,150.00	Reconciled
			CONSULTANTS, INC.					
391370		05-SEP-18	RENTOKIL NORTH		22,014.00	13-SEP-18	22,014.00	Reconciled
			AMERICA					
391371		05-SEP-18	ROBERT CHU		27.62	10-SEP-18	27.62	Reconciled
391372		05-SEP-18	RUTLEND, DOREY		17.41			Negotiable
391373		05-SEP-18	RYLAND HOMES OF		55.27			Negotiable
			CALIFORNIA INC					
391374		05-SEP-18	S & J SUPPLY CO		30,978.13	13-SEP-18	30,978.13	Reconciled
			INC					
391375		05-SEP-18	SAN REMO APTS		44.62			Negotiable
391376		05-SEP-18	SANTA ANA BLUE		948.96	11-SEP-18	948.96	Reconciled
			PRINT					
391377		05-SEP-18	SANTA MARGARITA		275.95	13-SEP-18	275.95	Reconciled
			FORD					
391378		05-SEP-18	SANTA MARGARITA		38,276.45	13-SEP-18	38,276.45	Reconciled
			WATER DISTRICT					
391379		05-SEP-18	SCHINDLER ELEVATOR		214.92	12-SEP-18	214.92	Reconciled
			CORPORATION					
391380		05-SEP-18	SHAMROCK SUPPLY CO		2,374.85	11-SEP-18	2,374.85	Reconciled
			INC					
391381		05-SEP-18	SHERMAN MARSHALL		41.99			Negotiable
			AND CANDICE					
			MARSHALL					
391382		05-SEP-18	SOUTHERN		304,963.03	10-SEP-18	304,963.03	Reconciled
			CALIFORNIA EDISON					
			COMPANY					
391383		05-SEP-18	SPARLING		690.96	10-SEP-18	690.96	Reconciled
			INSTRUMENTS LLC					
391384		05-SEP-18	SPEIR, JAMES		31.18	27-SEP-18	31.18	Reconciled
391385		05-SEP-18	STREAKWAVE		679.58	14-SEP-18	679.58	Reconciled
			WIRELESS, INC.					

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 BANK: Bank of America N.A. Branch : Los Angeles Account: Checking AP and PR Page: 7
 Bank Account Currency: USD (US Dollar) Payment Currency: USD (US Dollar)
 Payment Type: All Display Supplier Address: No

Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
Payment Document : IRWD CHECK								
391386		05-SEP-18	SUPPORT PRODUCT		8,837.14	11-SEP-18	8,837.14	Reconciled
			SERVICES, INC					
391387		05-SEP-18	T.E. ROBERTS, INC.		275,927.50	14-SEP-18	275,927.50	Reconciled
391388		05-SEP-18	TALLEY INC		191.35	10-SEP-18	191.35	Reconciled
391389		05-SEP-18	TEMPLIN, PAM		100.00			Negotiable
391390		05-SEP-18	TETRA TECH, INC		887.00	10-SEP-18	887.00	Reconciled
391391		05-SEP-18	THERMO ELECTRON		628.88	10-SEP-18	628.88	Reconciled
			NORTH AMERICA LLC					
391392		05-SEP-18	THOMPSON		256.78	11-SEP-18	256.78	Reconciled
			INDUSTRIAL SUPPLY					
391393		05-SEP-18	THYSSENKRUPP		191.94	10-SEP-18	191.94	Reconciled
			ELEVATOR					
			CORPORATION					
391394		05-SEP-18	TOLL BROS., INC.		44.74	19-SEP-18	44.74	Reconciled
391395		05-SEP-18	TOTALFUNDS		2,000.00	11-SEP-18	2,000.00	Reconciled
391396		05-SEP-18	TRI COUNTY PUMP		11,382.95	12-SEP-18	11,382.95	Reconciled
			COMPANY					
391397		05-SEP-18	TRI POINTE HOMES,		76.50	14-SEP-18	76.50	Reconciled
			INC.					
391398		05-SEP-18	TROPICAL PLAZA		7,100.00	10-SEP-18	7,100.00	Reconciled
			NURSERY INC					
391399		05-SEP-18	TROUNG, SHEILA		32.76	10-SEP-18	32.76	Reconciled
391400		05-SEP-18	TRUCPARCO		437.91	13-SEP-18	437.91	Reconciled
391401		05-SEP-18	TTS ENGINEERING,		1,161.12	10-SEP-18	1,161.12	Reconciled
			INC					
391402		05-SEP-18	TTS ENGINEERING,		1,083.10	10-SEP-18	1,083.10	Reconciled
			INC.					
391403		05-SEP-18	UNITED PARCEL		112.55	10-SEP-18	112.55	Reconciled
			SERVICE INC					

391404	05-SEP-18	UNITED SAMPLES		118.76	10-SEP-18	118.76	Reconciled
391405	05-SEP-18	UNIVAR USA INC		5,766.13	07-SEP-18	5,766.13	Reconciled
391406	05-SEP-18	USA BLUEBOOK		265.94	18-SEP-18	265.94	Reconciled
391407	05-SEP-18	VASEI, FAYE		36.76	07-SEP-18	36.76	Reconciled
391408	05-SEP-18	VERIZON WIRELESS SERVICES LLC		4,208.63	10-SEP-18	4,208.63	Reconciled
391409	05-SEP-18	VUNNAMADALA, SYAMP		604.08	10-SEP-18	604.08	Reconciled
391410	05-SEP-18	VWR INTERNATIONAL, LLC		208.37	10-SEP-18	208.37	Reconciled
391411	05-SEP-18	WANG, MEI-HUI		24.86	13-SEP-18	24.86	Reconciled
391412	05-SEP-18	WANG, NATHAN		99.22			Negotiable
391413	05-SEP-18	WATERLINE TECHNOLOGIES INC		15,152.32	11-SEP-18	15,152.32	Reconciled
391414	05-SEP-18	WEB, BRIDGET		44.05	24-SEP-18	44.05	Reconciled
391415	05-SEP-18	WENNINGER, CORINA		103.14			Voided

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 BANK: Bank of America N.A. Branch : Los Angeles Account: Checking AP and PR Page: 8
 Bank Account Currency: USD (US Dollar) Payment Currency: USD (US Dollar)
 Payment Type: All Display Supplier Address: No

Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
Payment Document : IRWD CHECK								
391416	05-SEP-18	WOODRUFF, SPRADLIN & SMART APC			1,273.50	10-SEP-18	1,273.50	Reconciled
391417	05-SEP-18	WORKFORCE SAFETY LLC			1,572.00	14-SEP-18	1,572.00	Reconciled
391418	05-SEP-18	WU, WEN			194.05	07-SEP-18	194.05	Reconciled
391419	05-SEP-18	YANG, BIYI			38.02			Negotiable
391420	05-SEP-18	YIM, YOUNG			27.60	27-SEP-18	27.60	Reconciled
391421	05-SEP-18	ZELLER, JOSEPH			15.03	11-SEP-18	15.03	Reconciled
391422	05-SEP-18	ZHANG, SHUOQI			101.90	19-SEP-18	101.90	Reconciled
391423	05-SEP-18	ZHENG, ALLAN			15.94	24-SEP-18	15.94	Reconciled
391424	05-SEP-18	ZHOU, HAODONG			33.02			Negotiable
391425	10-SEP-18	UNITED STATES POSTAL SERVICE	IRVINE		25,000.00	13-SEP-18	25,000.00	Reconciled
391426	12-SEP-18	JESUS MASTACHE PURCHASE			835.00	13-SEP-18	835.00	Reconciled
391427	13-SEP-18	Bertsch, Frederick J (Jeff)			94.63			Negotiable
391428	13-SEP-18	Martinez, Jose A III (Jose)			180.00	28-SEP-18	180.00	Reconciled
391429	13-SEP-18	Orozco, Linda			1,489.36	24-SEP-18	1,489.36	Reconciled
391430	13-SEP-18	Schreiner, Terrance M Jr (Terrance)			290.00	20-SEP-18	290.00	Reconciled
391431	13-SEP-18	Sinclair, Todd C (Todd)			80.00			Negotiable
391432	13-SEP-18	Tettemer, John M (Mark)			161.32	21-SEP-18	161.32	Reconciled
391433	13-SEP-18	Wang, Peter (Peter)	HOME		163.53	20-SEP-18	163.53	Reconciled
391434	13-SEP-18	RED WING SHOE STORE	DALLAS		1,067.24	19-SEP-18	1,067.24	Reconciled
391435	13-SEP-18	A STITCH ON TIME.COM			219.27	17-SEP-18	219.27	Reconciled
391436	13-SEP-18	A&Y ASPHALT CONTRACTORS, INC.			5,492.00	17-SEP-18	5,492.00	Reconciled
391437	13-SEP-18	AANO LLC			36.21	25-SEP-18	36.21	Reconciled
391438	13-SEP-18	ABM INDUSTRY GROUPS, LLC			20,605.01	19-SEP-18	20,605.01	Reconciled
391439	13-SEP-18	ACCESS TECHNOLOGIES, INC.			4,299.64	18-SEP-18	4,299.64	Reconciled
391440	13-SEP-18	ACCUSOURCE, INC.			732.20	19-SEP-18	732.20	Reconciled
391441	13-SEP-18	AECOM TECHNICAL SERVICES, INC.			20,678.57	20-SEP-18	20,678.57	Reconciled
391442	13-SEP-18	AGILENT TECHNOLOGIES, INC.			1,408.94	17-SEP-18	1,408.94	Reconciled
391443	13-SEP-18	AM CONSERVATION GROUP, INC.			1,526.47	18-SEP-18	1,526.47	Reconciled

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 BANK: Bank of America N.A. Branch : Los Angeles Account: Checking AP and PR Page: 9
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 Payment Type: All Display Supplier Address: No

Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
Payment Document : IRWD CHECK								
391444	13-SEP-18	AMERICAN WATER CHEMICALS, INC.			15,707.06	24-SEP-18	15,707.06	Reconciled
391445	13-SEP-18	APEX LIFE SCIENCES, LLC			3,570.00	17-SEP-18	3,570.00	Reconciled
391446	13-SEP-18	APPLIED ENGINEERING CONCEPTS			3,200.00	17-SEP-18	3,200.00	Reconciled
391447	13-SEP-18	ARCADIS U.S., INC.			92,006.48	20-SEP-18	92,006.48	Reconciled
391448	13-SEP-18	ARIZONA INSTRUMENT LLC			186.04	17-SEP-18	186.04	Reconciled
391449	13-SEP-18	ASHFORD, WALT			810.67	19-SEP-18	810.67	Reconciled

391450	13-SEP-18	ASSOCIATION OF CALIFORNIA WATER AGENCIES/JPIA	34,246.99	20-SEP-18	34,246.99	Reconciled
391451	13-SEP-18	AT&T	1,665.91	18-SEP-18	1,665.91	Reconciled
391452	13-SEP-18	AT&T	48.90	19-SEP-18	48.90	Reconciled
391453	13-SEP-18	AT&T	6,263.19	19-SEP-18	6,263.19	Reconciled
391454	13-SEP-18	ATHENS SERVICES	1,563.60	17-SEP-18	1,563.60	Reconciled
391455	13-SEP-18	AUSTIN HARDWOODS, INC	3,104.67	19-SEP-18	3,104.67	Reconciled
391456	13-SEP-18	AUTOZONE PARTS, INC.	626.45	18-SEP-18	626.45	Reconciled
391457	13-SEP-18	BEST DRILLING AND PUMP, INC.	31,955.62	19-SEP-18	31,955.62	Reconciled
391458	13-SEP-18	BEST DRILLING AND PUMP, INC.	3,000.00	17-SEP-18	3,000.00	Reconciled
391459	13-SEP-18	BIBEAU, PAUL	18.81	20-SEP-18	18.81	Reconciled
391460	13-SEP-18	BILL'S SWEEPING SERVICE INC	962.50	19-SEP-18	962.50	Reconciled
391461	13-SEP-18	BLAIRS TOWING INC	375.00	18-SEP-18	375.00	Reconciled
391462	13-SEP-18	BORCHARD SURVEYING & MAPPING, INC.	1,177.50	20-SEP-18	1,177.50	Reconciled
391463	13-SEP-18	BRENNTAG PACIFIC INC	26,301.73	17-SEP-18	26,301.73	Reconciled
391464	13-SEP-18	BRIAN HOMSEY	1,791.20	17-SEP-18	1,791.20	Reconciled
391465	13-SEP-18	BROWN AND CALDWELL	2,283.70	18-SEP-18	2,283.70	Reconciled
391466	13-SEP-18	BURLINGTON SAFETY LABORATORY OF CALIFORNIA INC	54.09	17-SEP-18	54.09	Reconciled
391467	13-SEP-18	BUTLER BOX & STAKE INC	257.74	18-SEP-18	257.74	Reconciled
391468	13-SEP-18	C WELLS PIPELINE MATERIALS INC	126,117.30	20-SEP-18	126,117.30	Reconciled
391469	13-SEP-18	CABELA'S MARKETING AND BRAND MANAGEMENT INC	297.47	18-SEP-18	297.47	Reconciled

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 BANK: Bank of America N.A. Branch : Los Angeles Account: Checking AP and PR Page: 10
 Bank Account Currency: USD (US Dollar) Payment Currency: USD (US Dollar)
 Payment Type: All Display Supplier Address: No

Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
Payment Document : IRWD CHECK								
391470		13-SEP-18	CALATLANTIC HOMES		227.96	18-SEP-18	227.96	Reconciled
391471		13-SEP-18	CALIFORNIA BARRICADE RENTAL, INC.		7,537.94	18-SEP-18	7,537.94	Reconciled
391472		13-SEP-18	CALIFORNIA DEPARTMENT OF TAX AND FEE ADMINISTRATION		2,821.62	18-SEP-18	2,821.62	Reconciled
391473		13-SEP-18	CALIFORNIA NEWSPAPER PARTNERSHIP		1,216.00	21-SEP-18	1,216.00	Reconciled
391474		13-SEP-18	CANON FINANCIAL SERVICES, INC		1,312.40	18-SEP-18	1,312.40	Reconciled
391475		13-SEP-18	CANON SOLUTIONS AMERICA, INC.		40.00	18-SEP-18	40.00	Reconciled
391476		13-SEP-18	CAPTIVE AUDIENCE MARKETING INC.		79.00	18-SEP-18	79.00	Reconciled
391477		13-SEP-18	CBS SAFARI, LLC		13.57	17-SEP-18	13.57	Reconciled
391478		13-SEP-18	CHAIREL CUSTOM HAY, INC.		2,735.26	19-SEP-18	2,735.26	Reconciled
391479		13-SEP-18	CHEM TECH INTERNATIONAL INC		16,233.80	20-SEP-18	16,233.80	Reconciled
391480		13-SEP-18	CHO DESIGN ASSOCIATES, INC		9,000.00	17-SEP-18	9,000.00	Reconciled
391481		13-SEP-18	CITY OF IRVINE		2,160.00	17-SEP-18	2,160.00	Reconciled
391482		13-SEP-18	CIVIL SOURCE, INC.		1,666.29	18-SEP-18	1,666.29	Reconciled
391483		13-SEP-18	CLIFFORD MORIYAMA		4,000.00	19-SEP-18	4,000.00	Reconciled
391484		13-SEP-18	CNC ENGINEERING		5,510.00	19-SEP-18	5,510.00	Reconciled
391485		13-SEP-18	COLUMBIA SQ MAINTENANCE ASSN		1,117.45	17-SEP-18	1,117.45	Reconciled
391486		13-SEP-18	CONSTELLATION NEWENERGY, INC.		31,542.17	19-SEP-18	31,542.17	Reconciled
391487		13-SEP-18	CONSUMERS PIPE & SUPPLY CO.		1,583.49	17-SEP-18	1,583.49	Reconciled
391488		13-SEP-18	COUNTY OF ORANGE		20,085.00	18-SEP-18	20,085.00	Reconciled
391489		13-SEP-18	CR & R INCORPORATED		389.96	17-SEP-18	389.96	Reconciled
391490		13-SEP-18	CREW, INC.		739.40	18-SEP-18	739.40	Reconciled
391491		13-SEP-18	CULLIGAN OF SANTA ANA		8,000.00	18-SEP-18	8,000.00	Reconciled
391492		13-SEP-18	CURTIS, DAN		13.88	24-SEP-18	13.88	Reconciled
391493		13-SEP-18	D & G SIGNS		9,890.70	19-SEP-18	9,890.70	Reconciled
391494		13-SEP-18	D & H WATER SYSTEMS INC.		6,563.83	18-SEP-18	6,563.83	Reconciled
391495		13-SEP-18	DEE JASPAR & ASSOCIATES, INC.		199.35	18-SEP-18	199.35	Reconciled

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 BANK: Bank of America N.A. Branch : Los Angeles Account: Checking AP and PR Page: 11
 Bank Account Currency: USD (US Dollar) Payment Currency: USD (US Dollar)

Payment Type: All

Display Supplier Address: No

Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
Payment Document : IRWD CHECK								
391496		13-SEP-18	DELL MARKETING LP		40,958.21	19-SEP-18	40,958.21	Reconciled
391497		13-SEP-18	DEMESEY, TERRY		17.44	18-SEP-18	17.44	Reconciled
391498		13-SEP-18	DISCOUNT COURIER SERVICE INC.		91.32	17-SEP-18	91.32	Reconciled
391499		13-SEP-18	DRUSCHEL, HENRY		14.71			Negotiable
391500		13-SEP-18	DURHAM GEO SLOPE INDICATOR		3,978.77	17-SEP-18	3,978.77	Reconciled
391501		13-SEP-18	EAST ORANGE COUNTY WATER DISTRICT		11,811.19	24-SEP-18	11,811.19	Reconciled
391502		13-SEP-18	EBERHARD EQUIPMENT		207.79	17-SEP-18	207.79	Reconciled
391503		13-SEP-18	EI&C ENGINEERING INC		58,859.00	24-SEP-18	58,859.00	Reconciled
391504		13-SEP-18	ELNABLI, TAREK		39.97	17-SEP-18	39.97	Reconciled
391505		13-SEP-18	ENVIRONMENTAL RESOURCE ASSOCIATES		158.71	19-SEP-18	158.71	Reconciled
391506		13-SEP-18	EVANTEC CORPORATION		4,894.70	17-SEP-18	4,894.70	Reconciled
391507		13-SEP-18	EXCEL PAVING CO.		47,167.50	20-SEP-18	47,167.50	Reconciled
391508		13-SEP-18	EXECUTIVE LIGHTING & ELECTRIC		1,868.32	18-SEP-18	1,868.32	Reconciled
391509		13-SEP-18	FARRELL & ASSOCIATES		416.30	17-SEP-18	416.30	Reconciled
391510		13-SEP-18	FEDEX		477.44	17-SEP-18	477.44	Reconciled
391511		13-SEP-18	FERGUSON ENTERPRISES, INC.		368.51	17-SEP-18	368.51	Reconciled
391512		13-SEP-18	FIDELITY SECURITY LIFE INSURANCE COMPANY		7,258.22	18-SEP-18	7,258.22	Reconciled
391513		13-SEP-18	FISHER SCIENTIFIC COMPANY LLC		2,675.30	17-SEP-18	2,675.30	Reconciled
391514		13-SEP-18	FLEET SOLUTIONS LLC		4,261.68	17-SEP-18	4,261.68	Reconciled
391515		13-SEP-18	FOUGHT, CYNTHIA J.		3,159.23	17-SEP-18	3,159.23	Reconciled
391516		13-SEP-18	FREEWAY MACHINE & WELDING SHOP		570.00	19-SEP-18	570.00	Reconciled
391517		13-SEP-18	FRONTIER CALIFORNIA INC.		51.76	19-SEP-18	51.76	Reconciled
391518		13-SEP-18	FUSCOE ENGINEERING, INC.		348.00	17-SEP-18	348.00	Reconciled
391519		13-SEP-18	GANAHL LUMBER CO.		150.55	19-SEP-18	150.55	Reconciled
391520		13-SEP-18	GENTERRA CONSULTANTS INC		1,676.00	17-SEP-18	1,676.00	Reconciled
391521		13-SEP-18	GEORGE HILLS COMPANY, INC.		170.00	19-SEP-18	170.00	Reconciled
391522		13-SEP-18	GRAINGER		397.77	18-SEP-18	397.77	Reconciled
IRWD Ledger Upgrade								
BANK: Bank of America N.A.			Payment Register For 01-SEP-18 To 30-SEP-18			Report Date: 01-OCT-2018 07:54		
Branch : Los Angeles			Account: Checking AP and PR			Page: 12		
Bank Account Currency: USD (US Dollar)			Payment Currency: USD (US Dollar)					
Payment Type: All			Display Supplier Address: No					

Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
Payment Document : IRWD CHECK								
391523		13-SEP-18	GRAYBAR ELECTRIC COMPANY		53.74	17-SEP-18	53.74	Reconciled
391524		13-SEP-18	HARMSWORTH ASSOCIATES		1,600.00			Negotiable
391525		13-SEP-18	HARRINGTON INDUSTRIAL PLASTICS LLC		10,059.41	19-SEP-18	10,059.41	Reconciled
391526		13-SEP-18	HDR ENGINEERING INC		9,995.00	18-SEP-18	9,995.00	Reconciled
391527		13-SEP-18	HE, SHUMING		22.61			Negotiable
391528		13-SEP-18	HELPMATES STAFFING SERVICES		14,815.55	19-SEP-18	14,815.55	Reconciled
391529		13-SEP-18	HILALA, HUSAM		56.94			Negotiable
391530		13-SEP-18	HILL BROTHERS CHEMICAL COMPANY		8,780.52	24-SEP-18	8,780.52	Reconciled
391531		13-SEP-18	HILTS CONSULTING GROUP, INC.		4,220.00	19-SEP-18	4,220.00	Reconciled
391532		13-SEP-18	HOME DEPOT USA INC		906.51	20-SEP-18	906.51	Reconciled
391533		13-SEP-18	HORIZON LIGHTING, INC.		9,980.51	17-SEP-18	9,980.51	Reconciled
391534		13-SEP-18	HUMANA INSURANCE COMPANY		73.80	18-SEP-18	73.80	Reconciled
391535		13-SEP-18	IBM CORPORATION		925.00	18-SEP-18	925.00	Reconciled
391536		13-SEP-18	IRVINE PIPE & SUPPLY INC		588.07	17-SEP-18	588.07	Reconciled
391537		13-SEP-18	JCI JONES CHEMICALS INC		5,489.39	20-SEP-18	5,489.39	Reconciled
391538		13-SEP-18	JOHN MICHAEL COVAS		173.20	24-SEP-18	173.20	Reconciled
391539		13-SEP-18	KIMBALL MIDWEST		1,105.64	18-SEP-18	1,105.64	Reconciled
391540		13-SEP-18	KLEINFELDER, INC.		15,132.80	20-SEP-18	15,132.80	Reconciled

391541	13-SEP-18	KONECRANES INC		1,525.00	18-SEP-18	1,525.00	Reconciled
391542	13-SEP-18	LAN, VICKI		37.76	21-SEP-18	37.76	Reconciled
391543	13-SEP-18	LEADERSHIP TOMORROW		1,500.00	20-SEP-18	1,500.00	Reconciled
391544	13-SEP-18	LENNAR HOMES		1,589.40	18-SEP-18	1,589.40	Reconciled
391545	13-SEP-18	LGC GEOTECHNICAL, INC.		715.50	17-SEP-18	715.50	Reconciled
391546	13-SEP-18	MADDAUS WATER MANAGEMENT, INC.		7,885.38	17-SEP-18	7,885.38	Reconciled
391547	13-SEP-18	MAP COMMUNICATIONS, INC.		1,083.83	19-SEP-18	1,083.83	Reconciled
391548	13-SEP-18	MARK ENTERPRISES, INC.		39,950.00	19-SEP-18	39,950.00	Reconciled
391549	13-SEP-18	MC MASTER CARR SUPPLY CO		220.64	17-SEP-18	220.64	Reconciled

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 BANK: Bank of America N.A. Branch : Los Angeles Account: Checking AP and PR Page: 13
 Bank Account Currency: USD (US Dollar) Payment Currency: USD (US Dollar)
 Payment Type: All Display Supplier Address: No

Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
Payment Document : IRWD CHECK								
391550		13-SEP-18	METTLER-TOLEDO INC		1,400.14	17-SEP-18	1,400.14	Reconciled
391551		13-SEP-18	MISSION COMMUNICATIONS, LLC		347.40	20-SEP-18	347.40	Reconciled
391552		13-SEP-18	MUNICIPAL MAINTENANCE EQUIPMENT INC		390.22	17-SEP-18	390.22	Reconciled
391553		13-SEP-18	NADEAU, LYNNE		40.86			Negotiable
391554		13-SEP-18	NATIONAL READY MIXED CONCRETE CO.		1,281.59	17-SEP-18	1,281.59	Reconciled
391555		13-SEP-18	NATURALWELL, LLC		467.50	17-SEP-18	467.50	Reconciled
391556		13-SEP-18	NINYO & MOORE		2,348.25	17-SEP-18	2,348.25	Reconciled
391557		13-SEP-18	NORTHWESTERN MUTUAL LIFE INSURANCE		49.76	17-SEP-18	49.76	Reconciled
391558		13-SEP-18	NOVACOAST INC		5,250.00	18-SEP-18	5,250.00	Reconciled
391559		13-SEP-18	O.C. SUPERIOR CUSTOM CLEANING SERVICES		3,600.00	18-SEP-18	3,600.00	Reconciled
391560		13-SEP-18	OLIN CORPORATION		19,168.74	20-SEP-18	19,168.74	Reconciled
391561		13-SEP-18	ONESOURCE DISTRIBUTORS LLC		859.10	17-SEP-18	859.10	Reconciled
391562		13-SEP-18	ORANGE COUNTY AUTO PARTS CO		686.05	17-SEP-18	686.05	Reconciled
391563		13-SEP-18	ORANGE COUNTY MOSQUITO AND VECTOR CONTROL DISTRICT		2,953.30	28-SEP-18	2,953.30	Reconciled
391564		13-SEP-18	OSTS, INC		1,150.00	18-SEP-18	1,150.00	Reconciled
391565		13-SEP-18	PACIFIC COAST BOLT CORP		683.20	19-SEP-18	683.20	Reconciled
391566		13-SEP-18	PACIFIC HYDROTECH CORPORATION		16,560.31	19-SEP-18	16,560.31	Reconciled
391567		13-SEP-18	PACIFIC HYDROTECH CORPORATION		314,645.83	19-SEP-18	314,645.83	Reconciled
391568		13-SEP-18	PARKHOUSE TIRE INC		1,763.45	18-SEP-18	1,763.45	Reconciled
391569		13-SEP-18	PELLETIER & ASSOCIATES, INC.		1,459.00	17-SEP-18	1,459.00	Reconciled
391570		13-SEP-18	PIVOT INTERIORS INC		355.66	17-SEP-18	355.66	Reconciled
391571		13-SEP-18	PRAXAIR DISTRIBUTION INC		908.38	18-SEP-18	908.38	Reconciled
391572		13-SEP-18	PRUDENTIAL OVERALL SUPPLY		7,580.54	17-SEP-18	7,580.54	Reconciled
391573		13-SEP-18	RAINBOW DISPOSAL CO INC		357.36	26-SEP-18	357.36	Reconciled

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 BANK: Bank of America N.A. Branch : Los Angeles Account: Checking AP and PR Page: 14
 Bank Account Currency: USD (US Dollar) Payment Currency: USD (US Dollar)
 Payment Type: All Display Supplier Address: No

Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
Payment Document : IRWD CHECK								
391574		13-SEP-18	RAM AIR ENGINEERING INC		8,259.93	18-SEP-18	8,259.93	Reconciled
391575		13-SEP-18	RCE CONSULTANTS, INC.		1,020.30	24-SEP-18	1,020.30	Reconciled
391576		13-SEP-18	REACH EMPLOYEE ASSISTANCE INC		1,013.60	17-SEP-18	1,013.60	Reconciled
391577		13-SEP-18	RED WING SHOE STORE		2,447.80	19-SEP-18	2,447.80	Reconciled
391578		13-SEP-18	REMAX OF IRVINE		89.10	28-SEP-18	89.10	Reconciled
391579		13-SEP-18	RENTOKIL NORTH AMERICA		8,038.50	20-SEP-18	8,038.50	Reconciled

391580	13-SEP-18	RINCON TRUCK CENTER INC.	1,373.23	17-SEP-18	1,373.23	Reconciled
391581	13-SEP-18	RLG ENTERPRISES, INC	995.27	17-SEP-18	995.27	Reconciled
391582	13-SEP-18	RODER, JACOB	20.82	24-SEP-18	20.82	Reconciled
391583	13-SEP-18	RODRIGUEZ, FRANK	31.29	21-SEP-18	31.29	Reconciled
391584	13-SEP-18	ROYAL INDUSTRIAL SOLUTIONS	1,721.81	17-SEP-18	1,721.81	Reconciled
391585	13-SEP-18	SAFETY CENTER INCORPORATED	2,880.00	20-SEP-18	2,880.00	Reconciled
391586	13-SEP-18	SANDERS PAVING INC	400.00	17-SEP-18	400.00	Reconciled
391587	13-SEP-18	SANTA ANA BLUE PRINT	1,039.96	19-SEP-18	1,039.96	Reconciled
391588	13-SEP-18	SEAL ANALYTICAL INC	180.64	17-SEP-18	180.64	Reconciled
391589	13-SEP-18	SECURITAS SECURITY SERVICES USA, INC.	58,653.29	19-SEP-18	58,653.29	Reconciled
391590	13-SEP-18	SHAMROCK SUPPLY CO INC	16,311.72	20-SEP-18	16,311.72	Reconciled
391591	13-SEP-18	SHERWIN WILLIAMS COMPANY	546.29	19-SEP-18	546.29	Reconciled
391592	13-SEP-18	SITMATIC	4,557.19	20-SEP-18	4,557.19	Reconciled
391593	13-SEP-18	SMITH SYSTEM DRIVER IMPROVEMENT INSTITUTE, INC.	1,448.53	18-SEP-18	1,448.53	Reconciled
391594	13-SEP-18	SOUTH COAST WATER CO.	90.00	21-SEP-18	90.00	Reconciled
391595	13-SEP-18	SOUTHERN CALIFORNIA EDISON COMPANY	38,315.89	18-SEP-18	38,315.89	Reconciled
391596	13-SEP-18	SOUTHERN CALIFORNIA GAS COMPANY	6,700.92	20-SEP-18	6,700.92	Reconciled
391597	13-SEP-18	SOUTHERN COUNTIES LUBRICANTS LLC	997.39	18-SEP-18	997.39	Reconciled

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 BANK: Bank of America N.A. Branch : Los Angeles Account: Checking AP and PR Page: 15
 Bank Account Currency: USD (US Dollar) Payment Currency: USD (US Dollar)
 Payment Type: All Display Supplier Address: No

Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
Payment Document : IRWD CHECK								
391598		13-SEP-18	SOUTHLAND WATER TECHNOLOGIES LLC		521.19	24-SEP-18	521.19	Reconciled
391599		13-SEP-18	STANTEC CONSULTING SERVICES INC.		18,119.50	20-SEP-18	18,119.50	Reconciled
391600		13-SEP-18	START TRAFFIC INC.		3,902.00	18-SEP-18	3,902.00	Reconciled
391601		13-SEP-18	STATE INDUSTRIAL PRODUCTS CORPORATION		926.95	18-SEP-18	926.95	Reconciled
391602		13-SEP-18	STREAKWAVE WIRELESS, INC.		159.10	18-SEP-18	159.10	Reconciled
391603		13-SEP-18	SUKLE ADVERTISING INC.		68,610.60	24-SEP-18	68,610.60	Reconciled
391604		13-SEP-18	SUN, QING		139.65			Negotiable
391605		13-SEP-18	SUPERIOR WATER TECHNOLOGIES		4,111.74	26-SEP-18	4,111.74	Reconciled
391606		13-SEP-18	SURF CITY OPTOMETRY		225.00	18-SEP-18	225.00	Reconciled
391607		13-SEP-18	SUSAN A. SIROTA		8,790.00			Negotiable
391608		13-SEP-18	SWAINS ELECTRIC MOTOR SERVICE		11,754.90			Negotiable
391609		13-SEP-18	TASSIN SCIENTIFIC SERVICES, LLC.		1,125.00	25-SEP-18	1,125.00	Reconciled
391610		13-SEP-18	TESTAMERICA LABORATORIES, INC		496.12	20-SEP-18	496.12	Reconciled
391611		13-SEP-18	TETRA TECH, INC		11,406.00	20-SEP-18	11,406.00	Reconciled
391612		13-SEP-18	THE FURMAN GROUP, INC.		12,540.00	21-SEP-18	12,540.00	Reconciled
391613		13-SEP-18	TRIFA, MIHAELA		143.10	20-SEP-18	143.10	Reconciled
391614		13-SEP-18	TRIPAC MARKETING INC		2,393.23	17-SEP-18	2,393.23	Reconciled
391615		13-SEP-18	TROPICAL PLAZA NURSERY INC		443.43	17-SEP-18	443.43	Reconciled
391616		13-SEP-18	TRUCPARCO		117.13	21-SEP-18	117.13	Reconciled
391617		13-SEP-18	TURNBULL, KIRA		21.73			Negotiable
391618		13-SEP-18	TUSTIN TOYOTA		132.76	19-SEP-18	132.76	Reconciled
391619		13-SEP-18	UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA		1,348.15	19-SEP-18	1,348.15	Reconciled
391620		13-SEP-18	UNITED HEALTHCARE INSURANCE COMPANY		264.27	19-SEP-18	264.27	Reconciled
391621		13-SEP-18	UNITED PARCEL SERVICE INC		54.77	18-SEP-18	54.77	Reconciled
391622		13-SEP-18	UNITED STATES POSTAL SERVICE		25,000.00	20-SEP-18	25,000.00	Reconciled
391623		13-SEP-18	UNIVAR USA INC		5,719.59	17-SEP-18	5,719.59	Reconciled

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 BANK: Bank of America N.A. Branch : Los Angeles Account: Checking AP and PR Page: 16
 Bank Account Currency: USD (US Dollar) Payment Currency: USD (US Dollar)

Payment Type: All

Display Supplier Address: No

Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
Payment Document : IRWD CHECK								
391624		13-SEP-18	VAUGHAN'S INDUSTRIAL REPAIR CO INC		22,782.45	19-SEP-18	22,782.45	Reconciled
391625		13-SEP-18	VERIZON WIRELESS SERVICES LLC		968.69	17-SEP-18	968.69	Reconciled
391626		13-SEP-18	VERTECH INDUSTRIAL SYSTEMS, LLC		13,950.00	21-SEP-18	13,950.00	Reconciled
391627		13-SEP-18	VHG LABS, INC		135.00	18-SEP-18	135.00	Reconciled
391628		13-SEP-18	VOGEL, CALVIN W		31.51	18-SEP-18	31.51	Reconciled
391629		13-SEP-18	WALKER, PHILIP		1,317.88	17-SEP-18	1,317.88	Reconciled
391630		13-SEP-18	WASTE MANAGEMENT OF ORANGE COUNTY		2,120.97	18-SEP-18	2,120.97	Reconciled
391631		13-SEP-18	WATERLINE TECHNOLOGIES INC		2,840.00	17-SEP-18	2,840.00	Reconciled
391632		13-SEP-18	WAXIE'S ENTERPRISES, INC		512.96	17-SEP-18	512.96	Reconciled
391633		13-SEP-18	WECK LABORATORIES INC		2,245.00	24-SEP-18	2,245.00	Reconciled
391634		13-SEP-18	WESTERN WATER WORKS SUPPLY COMPANY		3,414.85	18-SEP-18	3,414.85	Reconciled
391635		13-SEP-18	WIRELESS WATCHDOGS, LLC		948.00	20-SEP-18	948.00	Reconciled
391636		13-SEP-18	WOODBRIDGE MEDICAL CENTER		7,289.90	18-SEP-18	7,289.90	Reconciled
391637		13-SEP-18	XU, LEILEI		21.18	20-SEP-18	21.18	Reconciled
391638		13-SEP-18	YP LLC		91.00	19-SEP-18	91.00	Reconciled
391639		13-SEP-18	YUEH, RUOYING		23.53			Negotiable
391640		13-SEP-18	PASCAL & LUDWIG CONSTRUCTORS	ONTARIO	157,587.45	20-SEP-18	157,587.45	Reconciled
391641		13-SEP-18	PASCAL & LUDWIG CONSTRUCTORS	ESR 243289424	8,294.07	18-SEP-18	8,294.07	Reconciled
391642		13-SEP-18	STATE WATER RESOURCES CONTROL BOARD	SACRAMENTO 3	652.00	25-SEP-18	652.00	Reconciled
391643		14-SEP-18	IRWD-PETTY CASH CUSTODIAN	IRVINE	1,160.49	14-SEP-18	1,160.49	Reconciled
391644		20-SEP-18	Barboza, Armando		85.00	28-SEP-18	85.00	Reconciled
391645		20-SEP-18	Beltran, Benjamin Vega		264.00	27-SEP-18	264.00	Reconciled
391646		20-SEP-18	Bonilla, Courtney		167.02	24-SEP-18	167.02	Reconciled
391647		20-SEP-18	Bonkowski, Thomas J (Thomas)		27.36	21-SEP-18	27.36	Reconciled
391648		20-SEP-18	Gates, Laura		28.78			Negotiable
391649		20-SEP-18	Hayes, John H (John)		105.00	28-SEP-18	105.00	Reconciled

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Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
Payment Document : IRWD CHECK								
391650		20-SEP-18	Marcacci, Mark		673.03	24-SEP-18	673.03	Reconciled
391651		20-SEP-18	Martinez, Jose A III (Jose)		90.00	28-SEP-18	90.00	Reconciled
391652		20-SEP-18	Tettemer, John M (Mark)		870.42	21-SEP-18	870.42	Reconciled
391653		20-SEP-18	AEGIS ENGINEERING MANAGEMENT, INC.		17,696.00	26-SEP-18	17,696.00	Reconciled
391654		20-SEP-18	ALL STAR GLASS		276.48	25-SEP-18	276.48	Reconciled
391655		20-SEP-18	AMAZON CAPITAL SERVICES, INC.		373.39	24-SEP-18	373.39	Reconciled
391656		20-SEP-18	AMERICAN GEOTECHNICAL, INC.		1,075.00	24-SEP-18	1,075.00	Reconciled
391657		20-SEP-18	ANAND, TARUN		71.49			Negotiable
391658		20-SEP-18	APCO GRAPHICS INC		107.75	24-SEP-18	107.75	Reconciled
391659		20-SEP-18	APPLIED ENGINEERING CONCEPTS		11,580.00	26-SEP-18	11,580.00	Reconciled
391660		20-SEP-18	AQUA BEN CORPORATION		38,193.07	27-SEP-18	38,193.07	Reconciled
391661		20-SEP-18	ARMORCAST PRODUCTS COMPANY		7,398.12	24-SEP-18	7,398.12	Reconciled
391662		20-SEP-18	AT&T		173.53	25-SEP-18	173.53	Reconciled
391663		20-SEP-18	AT&T		7,777.05	27-SEP-18	7,777.05	Reconciled
391664		20-SEP-18	ATHENS SERVICES		977.25	24-SEP-18	977.25	Reconciled
391665		20-SEP-18	ATHENS SERVICES		7,781.82	25-SEP-18	7,781.82	Reconciled
391666		20-SEP-18	AUTOZONE PARTS, INC.		330.42	25-SEP-18	330.42	Reconciled
391667		20-SEP-18	BARRY SAYWITZ PROPERITES ONE LP		6,145.28	24-SEP-18	6,145.28	Reconciled
391668		20-SEP-18	BATTERIES PLUS AND		1,052.88	26-SEP-18	1,052.88	Reconciled

Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
			BATTERIES PLUS BULBS					
391669	20-SEP-18	20-SEP-18	BDC SPECIAL WASTE		372.00	24-SEP-18	372.00	Reconciled
391670	20-SEP-18	20-SEP-18	BELL TOWER FLORIST & GIFTS		96.96			Negotiable
391671	20-SEP-18	20-SEP-18	BENNETT, KAITLYN		36.36			Negotiable
391672	20-SEP-18	20-SEP-18	BERK, SUSAN		10,000.00			Negotiable
391673	20-SEP-18	20-SEP-18	BLAIRS TOWING INC		975.00	27-SEP-18	975.00	Reconciled
391674	20-SEP-18	20-SEP-18	BLOOMBERG FINANCE LP		12,735.00	26-SEP-18	12,735.00	Reconciled
391675	20-SEP-18	20-SEP-18	BLYTHE REALTY INC.		2,371.00	28-SEP-18	2,371.00	Reconciled
391676	20-SEP-18	20-SEP-18	BRENNTAG PACIFIC INC		3,680.00	24-SEP-18	3,680.00	Reconciled
391677	20-SEP-18	20-SEP-18	BRITHINEE ELECTRIC		313.85	24-SEP-18	313.85	Reconciled
391678	20-SEP-18	20-SEP-18	BROWNELL, ROBERT		22.30			Negotiable

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Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
Payment Document : IRWD CHECK								
391679	20-SEP-18	20-SEP-18	BSI SERVICES AND SOLUTIONS (WEST), INC.		2,058.00	25-SEP-18	2,058.00	Reconciled
391680	20-SEP-18	20-SEP-18	BURKE, WILLIAMS & SORENSEN, LLP		12,740.00	27-SEP-18	12,740.00	Reconciled
391681	20-SEP-18	20-SEP-18	BUSH & ASSOCIATES INC		2,136.00			Negotiable
391682	20-SEP-18	20-SEP-18	C WELLS PIPELINE MATERIALS INC		11,865.45	26-SEP-18	11,865.45	Reconciled
391683	20-SEP-18	20-SEP-18	CABELA'S MARKETING AND BRAND MANAGEMENT INC		404.48	25-SEP-18	404.48	Reconciled
391684	20-SEP-18	20-SEP-18	CALATLANTIC HOMES CALIFORNIA		321.96	25-SEP-18	321.96	Reconciled
391685	20-SEP-18	20-SEP-18	BARRICADE RENTAL, INC.		10,297.50	27-SEP-18	10,297.50	Reconciled
391686	20-SEP-18	20-SEP-18	CANON FINANCIAL SERVICES, INC		9,200.24	25-SEP-18	9,200.24	Reconciled
391687	20-SEP-18	20-SEP-18	CHAO, ANNIE		29.54			Negotiable
391688	20-SEP-18	20-SEP-18	CHO DESIGN ASSOCIATES, INC		3,550.00	28-SEP-18	3,550.00	Reconciled
391689	20-SEP-18	20-SEP-18	CHOI, HONG		20.82	25-SEP-18	20.82	Reconciled
391690	20-SEP-18	20-SEP-18	CLAROS, SABRINA		32.64	27-SEP-18	32.64	Reconciled
391691	20-SEP-18	20-SEP-18	CLAYTON CONTROLS, INCORPORATED		8,390.14	24-SEP-18	8,390.14	Reconciled
391692	20-SEP-18	20-SEP-18	CLEMENTE, MARIA		25.94	24-SEP-18	25.94	Reconciled
391693	20-SEP-18	20-SEP-18	COASTLINE EQUIPMENT COMPANY		50.97	25-SEP-18	50.97	Reconciled
391694	20-SEP-18	20-SEP-18	CONSTELLATION NEWENERGY, INC.		25,217.02	25-SEP-18	25,217.02	Reconciled
391695	20-SEP-18	20-SEP-18	CORELOGIC INC		93.38	25-SEP-18	93.38	Reconciled
391696	20-SEP-18	20-SEP-18	CRAMER FISH SCIENCES		4,420.00	27-SEP-18	4,420.00	Reconciled
391697	20-SEP-18	20-SEP-18	CROSS CREEK APTS		106.42			Negotiable
391698	20-SEP-18	20-SEP-18	CS-AMSCO		4,122.88	27-SEP-18	4,122.88	Reconciled
391699	20-SEP-18	20-SEP-18	D & G SIGNS		102.36			Negotiable
391700	20-SEP-18	20-SEP-18	DATA CLEAN CORPORATION		534.00	25-SEP-18	534.00	Reconciled
391701	20-SEP-18	20-SEP-18	DATASITE INC		5,792.00			Negotiable
391702	20-SEP-18	20-SEP-18	DEE JASPAR & ASSOCIATES, INC.		517.23	28-SEP-18	517.23	Reconciled
391703	20-SEP-18	20-SEP-18	DENG, XIUJUAN		10.88	27-SEP-18	10.88	Reconciled
391704	20-SEP-18	20-SEP-18	DIRECTV INC		129.98	26-SEP-18	129.98	Reconciled
391705	20-SEP-18	20-SEP-18	DISCOUNT COURIER SERVICE INC.		67.47	24-SEP-18	67.47	Reconciled
391706	20-SEP-18	20-SEP-18	DM CHANDLER, LLC		114.67	26-SEP-18	114.67	Reconciled

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Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
Payment Document : IRWD CHECK								
391707	20-SEP-18	20-SEP-18	DODD, JOEY		37.25			Negotiable
391708	20-SEP-18	20-SEP-18	DOLLARD, KYLE		13.64			Negotiable
391709	20-SEP-18	20-SEP-18	DONGJENG SHIEH AND WANG LING SHIEH		73.95	28-SEP-18	73.95	Reconciled
391710	20-SEP-18	20-SEP-18	DUAN, XIAOYIN		564.16			Negotiable
391711	20-SEP-18	20-SEP-18	DUDLEY, PAUL		232.11	24-SEP-18	232.11	Reconciled
391712	20-SEP-18	20-SEP-18	DUERR, THOMAS		51.32	24-SEP-18	51.32	Reconciled
391713	20-SEP-18	20-SEP-18	DUKE CULTURAL RESOURCES MANAGEMENT, LLC		8,049.28	24-SEP-18	8,049.28	Reconciled
391714	20-SEP-18	20-SEP-18	DURAN, JENNIFER		97.83			Negotiable
391715	20-SEP-18	20-SEP-18	EDUCATION &		4,291.00			Negotiable

Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
391716	20-SEP-18	20-SEP-18	TRAINING SERVICES, LLC		9,815.00	26-SEP-18	9,815.00	Reconciled
391717	20-SEP-18	20-SEP-18	ENDRESS AND HAUSER INC		3,872.83	24-SEP-18	3,872.83	Reconciled
391718	20-SEP-18	20-SEP-18	ENTERPRISE SECURITY, INC		89.44	24-SEP-18	89.44	Reconciled
391719	20-SEP-18	20-SEP-18	EVANTEC CORPORATION		9,504.44	25-SEP-18	9,504.44	Reconciled
391720	20-SEP-18	20-SEP-18	EVERETT DOREY LLP		247.39	25-SEP-18	247.39	Reconciled
391721	20-SEP-18	20-SEP-18	EXECUTIVE LIGHTING & ELECTRIC		148.02	25-SEP-18	148.02	Reconciled
391722	20-SEP-18	20-SEP-18	FARRELL & ASSOCIATES		36.94			Negotiable
391723	20-SEP-18	20-SEP-18	FARZANEH, FARRAH		3,199.11	24-SEP-18	3,199.11	Reconciled
391724	20-SEP-18	20-SEP-18	FELKER INDUSTRIES INC.		2,519.74	24-SEP-18	2,519.74	Reconciled
391725	20-SEP-18	20-SEP-18	FERGUSON ENTERPRISES, INC.		1,178.26			Negotiable
391726	20-SEP-18	20-SEP-18	FERRADO BAYVIEW LLC		28,608.75	27-SEP-18	28,608.75	Reconciled
391727	20-SEP-18	20-SEP-18	FIONA HUTTON & ASSOCIATES, INC.		1,303.26	25-SEP-18	1,303.26	Reconciled
391728	20-SEP-18	20-SEP-18	FIRST CHOICE SERVICES		21,027.80	27-SEP-18	21,027.80	Reconciled
391729	20-SEP-18	20-SEP-18	FISERV		4,398.85	24-SEP-18	4,398.85	Reconciled
391730	20-SEP-18	20-SEP-18	FISHER SCIENTIFIC COMPANY LLC		478.86	27-SEP-18	478.86	Reconciled
391731	20-SEP-18	20-SEP-18	FRONTIER CALIFORNIA INC.		125.38	24-SEP-18	125.38	Reconciled
391732	20-SEP-18	20-SEP-18	FRUM, JOY		4,956.25	24-SEP-18	4,956.25	Reconciled
391733	20-SEP-18	20-SEP-18	FUSCOE ENGINEERING, INC.		404.39	28-SEP-18	404.39	Reconciled
391734	20-SEP-18	20-SEP-18	GANAHL LUMBER CO.		750.00	24-SEP-18	750.00	Reconciled
			GARDENSOFT CORP					

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Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
Payment Document : IRWD CHECK								
391735	20-SEP-18	20-SEP-18	GEIGER BROS		5,388.58	25-SEP-18	5,388.58	Reconciled
391736	20-SEP-18	20-SEP-18	GEMBA, MARIE		91.42			Negotiable
391737	20-SEP-18	20-SEP-18	GEORGE HILLS COMPANY, INC.		1,250.00	26-SEP-18	1,250.00	Reconciled
391738	20-SEP-18	20-SEP-18	GOEBEL, SHANAH		71.86	26-SEP-18	71.86	Reconciled
391739	20-SEP-18	20-SEP-18	GRAINGER		3,555.19	25-SEP-18	3,555.19	Reconciled
391740	20-SEP-18	20-SEP-18	GRAYBAR ELECTRIC COMPANY		3,929.82	24-SEP-18	3,929.82	Reconciled
391741	20-SEP-18	20-SEP-18	GREUSEL, AARON		44.53	24-SEP-18	44.53	Reconciled
391742	20-SEP-18	20-SEP-18	HAAKER EQUIPMENT COMPANY		1,268.28	25-SEP-18	1,268.28	Reconciled
391743	20-SEP-18	20-SEP-18	HACH COMPANY		2,829.92	25-SEP-18	2,829.92	Reconciled
391744	20-SEP-18	20-SEP-18	HAMMOND, JARED		51.42			Negotiable
391745	20-SEP-18	20-SEP-18	HARVEST REALTY GROUP - BEI HU		64.31			Negotiable
391746	20-SEP-18	20-SEP-18	HDR ENGINEERING INC		30,081.25	28-SEP-18	30,081.25	Reconciled
391747	20-SEP-18	20-SEP-18	HELP/SYSTEMS, LLC		2,527.62	25-SEP-18	2,527.62	Reconciled
391748	20-SEP-18	20-SEP-18	HELPMATES STAFFING SERVICES		15,170.30	26-SEP-18	15,170.30	Reconciled
391749	20-SEP-18	20-SEP-18	HILL BROTHERS CHEMICAL COMPANY		8,017.03			Negotiable
391750	20-SEP-18	20-SEP-18	HOME DEPOT USA INC		1,894.22	25-SEP-18	1,894.22	Reconciled
391751	20-SEP-18	20-SEP-18	HORIZON LIGHTING, INC.		9,870.67	24-SEP-18	9,870.67	Reconciled
391752	20-SEP-18	20-SEP-18	HOWELL, JENNIFER		70.78			Negotiable
391753	20-SEP-18	20-SEP-18	HSIA, JESSE		106.96			Negotiable
391754	20-SEP-18	20-SEP-18	HSIEH, YING-YING		32.26			Negotiable
391755	20-SEP-18	20-SEP-18	HUSSAINI, SYED		27.97			Negotiable
391756	20-SEP-18	20-SEP-18	IHSAN, GHASSAN		66.16	24-SEP-18	66.16	Reconciled
391757	20-SEP-18	20-SEP-18	ION WAVE TECHNOLOGIES, INC.		20,100.00			Negotiable
391758	20-SEP-18	20-SEP-18	IRON MOUNTAIN INFORMATION MANAGEMENT INC		1,671.64	24-SEP-18	1,671.64	Reconciled
391759	20-SEP-18	20-SEP-18	IRVINE PACIFIC		416.30	27-SEP-18	416.30	Reconciled
391760	20-SEP-18	20-SEP-18	IRVINE PIPE & SUPPLY INC		8,109.47	24-SEP-18	8,109.47	Reconciled
391761	20-SEP-18	20-SEP-18	IRWD-PETTY CASH CUSTODIAN		889.96	24-SEP-18	889.96	Reconciled
391762	20-SEP-18	20-SEP-18	JACKSON TIDUS, A LAW CORPORATION		42.00	24-SEP-18	42.00	Reconciled
391763	20-SEP-18	20-SEP-18	JCI JONES CHEMICALS INC		5,255.25	25-SEP-18	5,255.25	Reconciled
391764	20-SEP-18	20-SEP-18	JIG CONSULTANTS		2,160.00			Negotiable

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Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
Payment Document : IRWD CHECK								
391765		20-SEP-18	JOON-TAE HWANG AND IN GAJIN		37.27			Negotiable
391766		20-SEP-18	KAKAR, NASRAT		51.05			Negotiable
391767		20-SEP-18	KEY, TAYLER		27.61			Negotiable
391768		20-SEP-18	KILL-N-BUGS TERMITE AND PEST CONTROL SERVICES		200.00	25-SEP-18	200.00	Reconciled
391769		20-SEP-18	KING, TAYLOR		154.40	24-SEP-18	154.40	Reconciled
391770		20-SEP-18	KOELLER NEBEKER CARLSON & HALUCK, LLP		1,484.45	24-SEP-18	1,484.45	Reconciled
391771		20-SEP-18	KONG, DIANA		541.74	25-SEP-18	541.74	Reconciled
391772		20-SEP-18	KRONICK MOSKOVITZ TIEDEMANN & GIRARD		15,805.15	26-SEP-18	15,805.15	Reconciled
391773		20-SEP-18	LAGUNA BEACH COUNTY WATER DISTRICT		5,011.71			Negotiable
391774		20-SEP-18	LAWS, COLLEEN		716.45	27-SEP-18	716.45	Reconciled
391775		20-SEP-18	LCS TECHNOLOGIES, INC.		9,585.00	24-SEP-18	9,585.00	Reconciled
391776		20-SEP-18	LENNAR HOMES		462.46	25-SEP-18	462.46	Reconciled
391777		20-SEP-18	LEWIS BRISBOIS BISGAARD AND SMITH, LLP		100.00			Negotiable
391778		20-SEP-18	LINSENBARD, COURTNEY		45.27			Negotiable
391779		20-SEP-18	LITTLEFIELD, SEAN		51.50			Negotiable
391780		20-SEP-18	LUO, PENGCHENG		45.27			Negotiable
391781		20-SEP-18	LUONG, REBECA		326.66			Negotiable
391782		20-SEP-18	LUPISON, ALDRIN		41.67			Negotiable
391783		20-SEP-18	MAILFINANCE INC		542.94	26-SEP-18	542.94	Reconciled
391784		20-SEP-18	MARTIN, PAUL		119.00			Negotiable
391785		20-SEP-18	MASSEY, RANDY		47.64			Negotiable
391786		20-SEP-18	MC FADDEEN-DALE INDUSTRIAL		85.61	25-SEP-18	85.61	Reconciled
391787		20-SEP-18	MC MASTER CARR SUPPLY CO		861.83	24-SEP-18	861.83	Reconciled
391788		20-SEP-18	MCCALL'S METERS, INC.		1,707.42	28-SEP-18	1,707.42	Reconciled
391789		20-SEP-18	MERRIMAC PETROLEUM, INC.		21,758.04	24-SEP-18	21,758.04	Reconciled
391790		20-SEP-18	MICHAEL BAKER INTERNATIONAL, INC.		574.00	24-SEP-18	574.00	Reconciled
391791		20-SEP-18	MOSICH, KAREN		49.57			Negotiable
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Bank Account Currency: USD (US Dollar)			Payment Currency: USD (US Dollar)					
Payment Type: All			Display Supplier Address: No					

Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
Payment Document : IRWD CHECK								
391792		20-SEP-18	MSC INDUSTRIAL SUPPLY CO		238.68	26-SEP-18	238.68	Reconciled
391793		20-SEP-18	MUTUAL PROPANE		63.00	25-SEP-18	63.00	Reconciled
391794		20-SEP-18	NEPTUNE TECHNOLOGY GROUP, INC.		65,374.08	27-SEP-18	65,374.08	Reconciled
391795		20-SEP-18	NEWPORT REAL ESTATE SERVICES		13,518.18	27-SEP-18	13,518.18	Reconciled
391796		20-SEP-18	NGUYEN, KELLY		21.55			Negotiable
391797		20-SEP-18	NIELSEN, LISA		32.42			Negotiable
391798		20-SEP-18	NOONA, DARCY		57.50	25-SEP-18	57.50	Reconciled
391799		20-SEP-18	NORDSTROM STORE PLANNING		281.06			Negotiable
391800		20-SEP-18	OCTA		560.00	25-SEP-18	560.00	Reconciled
391801		20-SEP-18	OLIN CORPORATION		20,268.60	27-SEP-18	20,268.60	Reconciled
391802		20-SEP-18	ONESOURCE DISTRIBUTORS LLC		340.93	24-SEP-18	340.93	Reconciled
391803		20-SEP-18	ORACLE AMERICA, INC.		3,062.00	24-SEP-18	3,062.00	Reconciled
391804		20-SEP-18	ORANGE COUNTY MOSQUITO AND VECTOR CONTROL DISTRICT		9,559.23	28-SEP-18	9,559.23	Reconciled
391805		20-SEP-18	PACIFIC PARTS & CONTROLS INC		3,641.99	24-SEP-18	3,641.99	Reconciled
391806		20-SEP-18	PADUA, ROWENA		25.00			Negotiable
391807		20-SEP-18	PALLERINO, NANCY		170.88	24-SEP-18	170.88	Reconciled
391808		20-SEP-18	PANWAR, SURENDER		33.60			Negotiable
391809		20-SEP-18	PAPER DEPOT DOCUMENT DESTRUCTION LLC		450.00			Negotiable
391810		20-SEP-18	PARK, CHUN		33.30			Negotiable
391811		20-SEP-18	PELLETIER & ASSOCIATES, INC.		1,560.00	24-SEP-18	1,560.00	Reconciled

391812	20-SEP-18	PHAN, LISA	12.30	24-SEP-18	12.30	Reconciled
391813	20-SEP-18	PINNACLE TOWERS LLC	720.39	24-SEP-18	720.39	Reconciled
391814	20-SEP-18	PIVOT INTERIORS INC	491.66	24-SEP-18	491.66	Reconciled
391815	20-SEP-18	FRAXAIR DISTRIBUTION INC	232.14	25-SEP-18	232.14	Reconciled
391816	20-SEP-18	PROCARE WORK INJURY CENTER	225.95	25-SEP-18	225.95	Reconciled
391817	20-SEP-18	FSOMAS	1,565.01	24-SEP-18	1,565.01	Reconciled
391818	20-SEP-18	QUINN RENTAL SERVICES	6,632.11	24-SEP-18	6,632.11	Reconciled

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 Bank Account Currency: USD (US Dollar) Payment Currency: USD (US Dollar)
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Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
Payment Document : IRWD CHECK								
391819		20-SEP-18	RANCHO MARIPOSA APTS		31.70			Negotiable
391820		20-SEP-18	REAL WATER CONSULTANTS INC.		16,827.00	27-SEP-18	16,827.00	Reconciled
391821		20-SEP-18	RED WING SHOE STORE		306.04	25-SEP-18	306.04	Reconciled
391822		20-SEP-18	REFRIGERATION SUPPLIES DISTRIBUTOR		1,038.61	24-SEP-18	1,038.61	Reconciled
391823		20-SEP-18	RELIABLE WATER SOLUTIONS, LLC		4,125.32	27-SEP-18	4,125.32	Reconciled
391824		20-SEP-18	RENTOKIL NORTH AMERICA		210.00	24-SEP-18	210.00	Reconciled
391825		20-SEP-18	RESPONSE ENVELOPE, INC		2,740.29	25-SEP-18	2,740.29	Reconciled
391826		20-SEP-18	RINCON TRUCK CENTER INC.		420.10	25-SEP-18	420.10	Reconciled
391827		20-SEP-18	ROLBIN, MARINA		45.41			Negotiable
391828		20-SEP-18	ROSEMOUNT INC.		859.25	25-SEP-18	859.25	Reconciled
391829		20-SEP-18	ROSENBERG, JULIE		105.58	24-SEP-18	105.58	Reconciled
391830		20-SEP-18	ROYALTY CARPET MILLS		268.95	25-SEP-18	268.95	Reconciled
391831		20-SEP-18	SABAHI, MOJTADA		239.26			Negotiable
391832		20-SEP-18	SAFETY-KLEEN SYSTEMS, INC		976.94	25-SEP-18	976.94	Reconciled
391833		20-SEP-18	SALVADOR, ANTHONY		42.69			Negotiable
391834		20-SEP-18	SAN MARCO APARTMENTS		63.72			Negotiable
391835		20-SEP-18	SANTA ANA BLUE PRINT		241.23	25-SEP-18	241.23	Reconciled
391836		20-SEP-18	SANTA MARGARITA FORD		1,368.53			Negotiable
391837		20-SEP-18	SCHWEITZER ENGINEERING LABORATORIES, INC.		8,189.00	25-SEP-18	8,189.00	Reconciled
391838		20-SEP-18	SEAL ANALYTICAL INC		2,125.95	25-SEP-18	2,125.95	Reconciled
391839		20-SEP-18	SHAMROCK SUPPLY CO INC		5,000.50	25-SEP-18	5,000.50	Reconciled
391840		20-SEP-18	SHEA HOMES, LIMITED PARTNERSHIP		1,200.33	26-SEP-18	1,200.33	Reconciled
391841		20-SEP-18	SHOETERIA		295.75			Negotiable
391842		20-SEP-18	SIDERIS, REGINA		30.08			Negotiable

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Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
Payment Document : IRWD CHECK								
391843		20-SEP-18	SIMI VALLEY LANDFILL AND RECYCLING CENTER		381.56	24-SEP-18	381.56	Reconciled
391844		20-SEP-18	SINGHAL, RUCHI		30.76			Negotiable
391845		20-SEP-18	SITEONE LANDSCAPE SUPPLY, LLC		481.13	25-SEP-18	481.13	Reconciled
391846		20-SEP-18	SITMATIC		1,287.50	27-SEP-18	1,287.50	Reconciled
391847		20-SEP-18	SNYDER LANGSTON L.P.		1,390.07			Negotiable
391848		20-SEP-18	SNYDER LANGSTON, L.P.		2,192.46			Negotiable
391849		20-SEP-18	SNYDER, SHARON		92.42			Negotiable
391850		20-SEP-18	SOFTWAREONE INC		13,945.34	27-SEP-18	13,945.34	Reconciled
391851		20-SEP-18	SOLIMON, PETER		40.01	25-SEP-18	40.01	Reconciled
391852		20-SEP-18	SOUTH BAY FOUNDRY, INC		4,040.63	28-SEP-18	4,040.63	Reconciled
391853		20-SEP-18	SOUTH COAST WATER		90.00	28-SEP-18	90.00	Reconciled

391854	20-SEP-18	CO. SOUTH ORANGE COUNTY REGIONAL CHAMBERS OF COMMERCE	2,500.00				Negotiable
391855	20-SEP-18	SOUTHERN CALIFORNIA EDISON COMPANY	656,092.80	25-SEP-18	656,092.80		Reconciled
391856	20-SEP-18	SOUTHERN CALIFORNIA EDISON COMPANY	52.92	24-SEP-18	52.92		Reconciled
391857	20-SEP-18	SOUTHERN CALIFORNIA GAS COMPANY	942.30	26-SEP-18	942.30		Reconciled
391858	20-SEP-18	SPARKLETT'S	297.87	27-SEP-18	297.87		Reconciled
391859	20-SEP-18	SPATIAL WAVE, INC.	1,800.00	24-SEP-18	1,800.00		Reconciled
391860	20-SEP-18	SUKLE ADVERTISING INC.	8,745.50	24-SEP-18	8,745.50		Reconciled
391861	20-SEP-18	SWAINS ELECTRIC MOTOR SERVICE	4,456.85				Negotiable
391862	20-SEP-18	TAKEDA, LINDSAY	11.22				Negotiable
391863	20-SEP-18	TANG, MICHAEL	194.80	26-SEP-18	194.80		Reconciled
391864	20-SEP-18	THERMO ELECTRON NORTH AMERICA LLC	2,125.00	25-SEP-18	2,125.00		Reconciled
391865	20-SEP-18	TIC-RETAIL PROPERTIES	108.15	21-SEP-18	108.15		Reconciled
391866	20-SEP-18	TOLL BROS., INC.	388.54				Negotiable
391867	20-SEP-18	TONG, HUIXIAN	53.75	26-SEP-18	53.75		Reconciled

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Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
Payment Document : IRWD CHECK								
391868		20-SEP-18	TRABUCO CANYON WATER DISTRICT		83,227.28	25-SEP-18	83,227.28	Reconciled
391869		20-SEP-18	TRACY TAYLOR AND CLAKIE CHATLIN		47.20			Negotiable
391870		20-SEP-18	TRIPAC MARKETING INC		3,017.00	24-SEP-18	3,017.00	Reconciled
391871		20-SEP-18	TROPICAL PLAZA NURSERY INC		4,674.64	24-SEP-18	4,674.64	Reconciled
391872		20-SEP-18	TRUCPARCO		66.98	27-SEP-18	66.98	Reconciled
391873		20-SEP-18	TRUJILLO, CHRISTOPHER		57.48			Negotiable
391874		20-SEP-18	TYCO FIRE & SECURITY (US) MANAGEMENT INC		4,245.14	27-SEP-18	4,245.14	Reconciled
391875		20-SEP-18	UNITED PARCEL SERVICE INC		58.48	25-SEP-18	58.48	Reconciled
391876		20-SEP-18	UNITED SITE SERVICES OF CALIFORNIA INC		665.15	25-SEP-18	665.15	Reconciled
391877		20-SEP-18	V&A CONSULTING ENGINEERS		21,706.28	26-SEP-18	21,706.28	Reconciled
391878		20-SEP-18	VADEN, BETSY		148.89			Negotiable
391879		20-SEP-18	VAZHAPULLY JACOB, LAWRENCE		21.96	24-SEP-18	21.96	Reconciled
391880		20-SEP-18	VILLALOBOS, MAURO		15.34	27-SEP-18	15.34	Reconciled
391881		20-SEP-18	WANG, KUNXIANG		17.16	24-SEP-18	17.16	Reconciled
391882		20-SEP-18	WARMINGTON HOMES		10.99			Negotiable
391883		20-SEP-18	WATERLINE TECHNOLOGIES INC		5,680.00	24-SEP-18	5,680.00	Reconciled
391884		20-SEP-18	WATERSMART SOFTWARE, INC		13,597.50	26-SEP-18	13,597.50	Reconciled
391885		20-SEP-18	WAXIE'S ENTERPRISES, INC		171.16	24-SEP-18	171.16	Reconciled
391886		20-SEP-18	WECK LABORATORIES INC		7,675.00	27-SEP-18	7,675.00	Reconciled
391887		20-SEP-18	WELLS TAPPING SERVICE INC		350.00	26-SEP-18	350.00	Reconciled
391888		20-SEP-18	WERT, LEON		35.17			Negotiable
391889		20-SEP-18	WEST COAST SAFETY SUPPLY INC		8,669.57			Negotiable
391890		20-SEP-18	WESTAMERICA COMMUNICATIONS, INC.		3,339.50	24-SEP-18	3,339.50	Reconciled
391891		20-SEP-18	WIELAND		1,450.33	25-SEP-18	1,450.33	Reconciled
391892		20-SEP-18	WILSON, JEFF		87.44	24-SEP-18	87.44	Reconciled
391893		20-SEP-18	XU, ANNA		81.71			Negotiable

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Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
Payment Document : IRWD CHECK								

391894	20-SEP-18	XYLEM WATER SOLUTIONS USA, INC.	216.28	25-SEP-18	216.28	Reconciled
391895	20-SEP-18	YU, AMY	287.36			Negotiable
391896	20-SEP-18	YUXING SHEN	67.11	25-SEP-18	67.11	Reconciled
391897	20-SEP-18	ZHANG, AMANDA	88.21			Negotiable
391898	20-SEP-18	IDEA HALL	284.40			Negotiable
391899	24-SEP-18	JCI JONES CHEMICALS INC	3,338.90	28-SEP-18	3,338.90	Reconciled
391900	27-SEP-18	Barboza, Armando	80.00	28-SEP-18	80.00	Reconciled
391901	27-SEP-18	Bowers, Marie	90.06			Negotiable
391902	27-SEP-18	Guzman, Juan (Juan)	107.07			Negotiable
391903	27-SEP-18	Hoffman, Michael S (Mike)	97.00			Negotiable
391904	27-SEP-18	Mossbarger, Anthony J (Tony)	126.97	27-SEP-18	126.97	Reconciled
391905	27-SEP-18	Pan, Jenny W (Jenny)	16.99			Negotiable
391906	27-SEP-18	Valencia, Reynaldo (Rey)	49.60			Negotiable
391907	27-SEP-18	20051 BIRCH ST LLC	30.83			Negotiable
391908	27-SEP-18	A STITCH ON TIME.COM	219.27	28-SEP-18	219.27	Reconciled
391909	27-SEP-18	AGILENT TECHNOLOGIES, INC.	103.01			Negotiable
391910	27-SEP-18	ALLIANT INSURANCE SERVICES, INC	9,863.57	28-SEP-18	9,863.57	Reconciled
391911	27-SEP-18	AMAZON CAPITAL SERVICES, INC.	433.99			Negotiable
391912	27-SEP-18	ANDERSONPENNA PARTNERS, INC.	83,653.25			Negotiable
391913	27-SEP-18	ANTHEM BLUE CROSS	546.33			Negotiable
391914	27-SEP-18	ANTHEM BLUE CROSS	546.33			Negotiable
391915	27-SEP-18	ANTHEM BLUE CROSS	214.68			Negotiable
391916	27-SEP-18	ANTHEM BLUE CROSS	290.43			Negotiable
391917	27-SEP-18	ANTHONY N. LARSEN	450.00			Negotiable
391918	27-SEP-18	ARMADILLO AUTOMATION INC T/A ONYX VALVE CO	2,473.36			Negotiable
391919	27-SEP-18	AT&T	4,198.73			Negotiable
391920	27-SEP-18	AUSTIN HARDWOODS, INC	199.35			Negotiable
391921	27-SEP-18	AUTOZONE PARTS, INC.	1,035.65			Negotiable
391922	27-SEP-18	BDC SPECIAL WASTE	207.20			Negotiable

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Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
Payment Document : IRWD CHECK								
391923		27-SEP-18	BEST DRILLING AND PUMP, INC.		3,204.06			Negotiable
391924		27-SEP-18	BILL'S SWEEPING SERVICE INC		460.00			Negotiable
391925		27-SEP-18	BIOMAGIC INC		12,304.19			Negotiable
391926		27-SEP-18	BLAIRS TOWING INC		525.00			Negotiable
391927		27-SEP-18	BSI SERVICES AND SOLUTIONS (WEST), INC.		12,267.50			Negotiable
391928		27-SEP-18	C WELLS PIPELINE MATERIALS INC		1,319.94			Negotiable
391929		27-SEP-18	CALIFORNIA BARRICADE RENTAL, INC.		10,334.48			Negotiable
391930		27-SEP-18	CANON SOLUTIONS AMERICA, INC.		500.72			Negotiable
391931		27-SEP-18	CHEM TECH INTERNATIONAL INC		13,868.80			Negotiable
391932		27-SEP-18	CHING, MANDY		21.08			Negotiable
391933		27-SEP-18	CHOW, ANDREW		62.53			Negotiable
391934		27-SEP-18	CITY OF IRVINE		4,362.80			Negotiable
391935		27-SEP-18	CITY OF NEWPORT BEACH		1,460.12			Negotiable
391936		27-SEP-18	CITY OF SANTA ANA		118.17	28-SEP-18	118.17	Reconciled
391937		27-SEP-18	CITY OF TUSTIN		241,267.44			Negotiable
391938		27-SEP-18	CIVIL SOURCE, INC.		33,040.00			Negotiable
391939		27-SEP-18	CLA-VAL COMPANY		12,718.88			Negotiable
391940		27-SEP-18	CLARKE MOSQUITO CONTROL PRODUCTS, INC.		1,358.88			Negotiable
391941		27-SEP-18	COMMERCIAL COATING RESOURCE INC		2,725.00			Negotiable
391942		27-SEP-18	CONSTELLATION NEWENERGY, INC.		21,064.52			Negotiable
391943		27-SEP-18	COX COMMUNICATIONS, INC.		3,386.33			Negotiable

391944	27-SEP-18	CRUZ, TIFFANY	120.62		Negotiable
391945	27-SEP-18	CULLIGAN OF SANTA ANA	12,000.00		Negotiable
391946	27-SEP-18	DAO, VAN	32.39		Negotiable
391947	27-SEP-18	DELL MARKETING LP	5,785.97	28-SEP-18	5,785.97 Reconciled
391948	27-SEP-18	DENALI WATER SOLUTIONS LLC	7,689.08		Negotiable
391949	27-SEP-18	DIAMOND JAMBOREE LTD	345.67		Negotiable

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Payment Document : IRWD CHECK								
391950		27-SEP-18	DILYTICS INC		85,100.00			Negotiable
391951		27-SEP-18	DIVITA BUILDERS, INC.		1,186.03			Negotiable
391952		27-SEP-18	EHS INTERNATIONAL, INC		1,500.00			Negotiable
391953		27-SEP-18	ENTERPRISE RIDESHARE		18,406.95			Negotiable
391954		27-SEP-18	ENVIRONMENTAL SCIENCE ASSOCIATES		7,680.80			Negotiable
391955		27-SEP-18	EVANTEC CORPORATION		258.60	28-SEP-18	258.60	Reconciled
391956		27-SEP-18	EXCEL PAVING CO.		2,482.50			Negotiable
391957		27-SEP-18	FARWEST CORROSION CONTROL COMPANY		5,165.40			Negotiable
391958		27-SEP-18	FEDEX		422.09			Negotiable
391959		27-SEP-18	FERGUSON ENTERPRISES, INC.		2,265.55			Negotiable
391960		27-SEP-18	FISHER SCIENTIFIC COMPANY LLC		1,817.87			Negotiable
391961		27-SEP-18	FRESENIUS USA INC		37.11			Negotiable
391962		27-SEP-18	FRONTIER CALIFORNIA INC.		100.12			Negotiable
391963		27-SEP-18	GANAHL LUMBER CO.		1,432.15			Negotiable
391964		27-SEP-18	GEIGER BROS		1,046.41			Negotiable
391965		27-SEP-18	GLENN LUKOS ASSOCIATES, INC		985.83	28-SEP-18	985.83	Reconciled
391966		27-SEP-18	GM SAGER CONSTRUCTION CO, INC.		18,600.00			Negotiable
391967		27-SEP-18	GONZALEZ, CINDY		23.95			Negotiable
391968		27-SEP-18	GRAINGER		4,111.65			Negotiable
391969		27-SEP-18	GRAYBAR ELECTRIC COMPANY		4,977.75			Negotiable
391970		27-SEP-18	GUIDA SURVEYING INC.		1,409.20			Negotiable
391971		27-SEP-18	HAAKER EQUIPMENT COMPANY		590.02			Negotiable
391972		27-SEP-18	HABITAT RESTORATION SCIENCES, INC.		1,183.00			Negotiable
391973		27-SEP-18	HACH COMPANY		5,616.78			Negotiable
391974		27-SEP-18	HALDEMAN INC		2,020.31			Negotiable
391975		27-SEP-18	HAMILTON, KURT		1,671.59			Negotiable
391976		27-SEP-18	HARRINGTON INDUSTRIAL PLASTICS LLC		499.21			Negotiable

IRWD Ledger Upgrade Payment Register For 01-SEP-18 To 30-SEP-18 Report Date: 01-OCT-2018 07:54
 BANK: Bank of America N.A. Branch : Los Angeles Account: Checking AP and PR Page: 29
 Bank Account Currency: USD (US Dollar) Payment Currency: USD (US Dollar)
 Payment Type: All Display Supplier Address: No

Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
Payment Document : IRWD CHECK								
391977		27-SEP-18	HATHAWAY DINWIDDIE		1,190.00			Negotiable
391978		27-SEP-18	HELPMATES STAFFING SERVICES		12,588.44			Negotiable
391979		27-SEP-18	HERITAGE FIELDS EL TORO, LLC		403,739.78			Negotiable
391980		27-SEP-18	HILL BROTHERS CHEMICAL COMPANY		6,826.31			Negotiable
391981		27-SEP-18	HOME DEPOT USA INC		180.80			Negotiable
391982		27-SEP-18	HORNER, STEPHEN		94.73			Negotiable
391983		27-SEP-18	INDUSTRIAL NETWORKING SOLUTIONS		1,936.07			Negotiable
391984		27-SEP-18	IRVINE PIPE & SUPPLY INC		622.77	28-SEP-18	622.77	Reconciled
391985		27-SEP-18	IRWD-PETTY CASH CUSTODIAN		844.70	28-SEP-18	844.70	Reconciled
391986		27-SEP-18	KAYUGA SOLUTION INC		19,710.00			Negotiable

391987	27-SEP-18	KILL-N-BUGS TERMITE AND PEST CONTROL SERVICES	4,185.00	Negotiable
391988	27-SEP-18	KIMBALL MIDWEST	1,441.77	Negotiable
391989	27-SEP-18	KLEINFELDER, INC.	9,283.75	Negotiable
391990	27-SEP-18	KONECRANES INC	690.00	Negotiable
391991	27-SEP-18	LABWORKS, LLC	4,300.00	Negotiable
391992	27-SEP-18	LEE, WON SANG	35.37	Negotiable
391993	27-SEP-18	LEWIS BRISBOIS BISGAARD AND SMITH, LLP	62,079.62	Negotiable
391994	27-SEP-18	LIU, PING	56.37	Negotiable
391995	27-SEP-18	LO, HUNG-TIEN	72.34	Negotiable
391996	27-SEP-18	LOS ANGELES AIR CONDITIONING, INC.	13,335.63	Negotiable
391997	27-SEP-18	MARIA LUISA, AMPIL	49.09	Negotiable
391998	27-SEP-18	MORALES, KAHIL	66.61	Negotiable
391999	27-SEP-18	MORGAN, DAVID	163.42	Negotiable
392000	27-SEP-18	MR CRANE INC	1,074.60	Negotiable
392001	27-SEP-18	NATIONAL READY MIXED CONCRETE CO.	2,085.68	Negotiable
392002	27-SEP-18	NEPTUNE TECHNOLOGY GROUP, INC.	98,061.12	Negotiable
392003	27-SEP-18	NINYO & MOORE	2,060.25	Negotiable
392004	27-SEP-18	NOVACOAST INC	865.00	Negotiable
392005	27-SEP-18	O'HAREN GOVERNMENT RELATIONS	6,500.00	Negotiable
392006	27-SEP-18	OCTA	5,525.00	Negotiable

IRWD Ledger Upgrade
 BANK: Bank of America N.A. Branch : Los Angeles Account: Checking AP and PR Report Date: 01-OCT-2018 07:54
 Bank Account Currency: USD (US Dollar) Payment Currency: USD (US Dollar) Page: 30
 Payment Type: All Display Supplier Address: No

Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
Payment Document : IRWD CHECK								
392007		27-SEP-18	OLIN CORPORATION		32,258.69			Negotiable
392008		27-SEP-18	ORANGE COUNTY AUTO PARTS CO		1,059.43	28-SEP-18	1,059.43	Reconciled
392009		27-SEP-18	ORANGE COUNTY SANITATION DISTRICT		1,890.00	28-SEP-18	1,890.00	Reconciled
392010		27-SEP-18	ORANGE COUNTY TREASURER		71.42			Negotiable
392011		27-SEP-18	PIPELINE PRODUCTS INC		243.91			Negotiable
392012		27-SEP-18	PLUMBERS DEPOT INC.		1,034.40			Negotiable
392013		27-SEP-18	PRAXAIR DISTRIBUTION INC		1,579.66			Negotiable
392014		27-SEP-18	PTI SAND & GRAVEL INC		484.28			Negotiable
392015		27-SEP-18	PUREWORKS, INC.		20,000.00			Negotiable
392016		27-SEP-18	QUINCY COMPRESSOR LLC		13,358.98			Negotiable
392017		27-SEP-18	R.J. NOBLE COMPANY		1,268.95			Negotiable
392018		27-SEP-18	RAM AIR ENGINEERING INC		8,508.55			Negotiable
392019		27-SEP-18	REGENCY CENTERS		250.00			Negotiable
392020		27-SEP-18	RELIANCE SAFETY CONSULTANTS, INC.		23,663.99			Negotiable
392021		27-SEP-18	RELIANCE STANDARD LIFE INSURANCE COMPANY		30,446.81			Negotiable
392022		27-SEP-18	RESPONSE ENVELOPE, INC		1,185.00			Negotiable
392023		27-SEP-18	RICHMOND AMERICAN HOMES OF MARYLAND, INC		64.57			Negotiable
392024		27-SEP-18	RINCON TRUCK CENTER INC.		1,250.01	28-SEP-18	1,250.01	Reconciled
392025		27-SEP-18	RODNEY MEDLER		381.27			Negotiable
392026		27-SEP-18	RS HUGHES COMPANY, INC.		2,510.58			Negotiable
392027		27-SEP-18	S & J SUPPLY CO INC		531.56			Negotiable
392028		27-SEP-18	SAFETY CENTER INCORPORATED		1,400.00			Negotiable
392029		27-SEP-18	SANDERS PAVING INC		18,675.00			Negotiable
392030		27-SEP-18	SANTA ANA BLUE PRINT		298.57			Negotiable

IRWD Ledger Upgrade
 BANK: Bank of America N.A. Branch : Los Angeles Account: Checking AP and PR Report Date: 01-OCT-2018 07:54
 Bank Account Currency: USD (US Dollar) Payment Currency: USD (US Dollar) Page: 31
 Payment Type: All Display Supplier Address: No

Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
Payment Document : IRWD CHECK								

392031	27-SEP-18	SANTA MARGARITA FORD	310.53	Negotiable
392032	27-SEP-18	SCHINDLER ELEVATOR CORPORATION	214.92	Negotiable
392033	27-SEP-18	SEAL ANALYTICAL INC	51.34	Negotiable
392034	27-SEP-18	SHI, RU	55.51	Negotiable
392035	27-SEP-18	SITMATIC	710.51	Negotiable
392036	27-SEP-18	SMITH SYSTEM DRIVER IMPROVEMENT INSTITUTE, INC.	1,448.53	Negotiable
392037	27-SEP-18	SOUTHERN CALIFORNIA EDISON COMPANY	690.00	Negotiable
392038	27-SEP-18	SOUTHERN CALIFORNIA EDISON COMPANY	192,467.40	Negotiable
392039	27-SEP-18	SOUTHERN CALIFORNIA GAS COMPANY	50.00	Negotiable
392040	27-SEP-18	SOUTHERN CALIFORNIA SECURITY CENTERS, INC.	866.16	Negotiable
392041	27-SEP-18	SPARKLETTS	92.36	Negotiable
392042	27-SEP-18	STILLWAGON, ROBERT B	312.16	Negotiable
392043	27-SEP-18	SULLY-MILLER CONTRACTING CO.	1,406.85	Negotiable
392044	27-SEP-18	SUN, QING	512.86	Negotiable
392045	27-SEP-18	SUNSHINE SUPPLY COMPANY, INC.	2,734.70	Negotiable
392046	27-SEP-18	SURV-KAP LLC	309.55	Negotiable
392047	27-SEP-18	TALLEY INC	644.77	Negotiable
392048	27-SEP-18	TESTAMERICA LABORATORIES, INC	192.15	Negotiable
392049	27-SEP-18	TETRA TECH, INC	1,772.50	Negotiable
392050	27-SEP-18	THE NEW HOME COMPANY SOUTHERN CALIFORNIA LLC	8,889.74	Negotiable
392051	27-SEP-18	THERMO ELECTRON NORTH AMERICA LLC	14.10	Negotiable
392052	27-SEP-18	TOLL BROS., INC.	1,590.79	Negotiable
392053	27-SEP-18	TOTAL RESOURCE MANAGEMENT, INC.	26,443.00	Negotiable

IRWD Ledger Upgrade Payment Register For 01-SEP-18 To 30-SEP-18 Report Date: 01-OCT-2018 07:54
 BANK: Bank of America N.A. Branch : Los Angeles Account: Checking AP and PR Page: 32
 Bank Account Currency: USD (US Dollar) Payment Currency: USD (US Dollar)
 Payment Type: All Display Supplier Address: No

Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
Payment Document : IRWD CHECK								
392054		27-SEP-18	TRI POINTE HOMES, INC.		14.55			Negotiable
392055		27-SEP-18	TROPICAL PLAZA NURSERY INC		41,853.85			Negotiable
392056		27-SEP-18	TRUCPARCO		1,907.39			Negotiable
392057		27-SEP-18	UNITED PARCEL SERVICE INC		64.23			Negotiable
392058		27-SEP-18	UNIVAR USA INC		5,760.32			Negotiable
392059		27-SEP-18	US BANK NAT'L ASSOCIATION NORTH DAKOTA		81,873.09			Negotiable
392060		27-SEP-18	USA HOME MANAGEMENT		38.74			Negotiable
392061		27-SEP-18	VANTRESE, PRESTON		38.29			Negotiable
392062		27-SEP-18	VIKING BILLING SERVICE		2,292.77			Negotiable
392063		27-SEP-18	VULCAN MATERIALS COMPANY		1,838.89			Negotiable
392064		27-SEP-18	VWR INTERNATIONAL, LLC		1,267.61			Negotiable
392065		27-SEP-18	WALTERS WHOLESALE ELECTRIC		301.39			Negotiable
392066		27-SEP-18	WARMINGTON RESIDENTIAL		165.42			Negotiable
392067		27-SEP-18	WAXIE'S ENTERPRISES, INC		2,716.49			Negotiable
392068		27-SEP-18	WECK LABORATORIES INC		4,401.00			Negotiable
392069		27-SEP-18	WORKFORCE SAFETY LLC		3,072.00			Negotiable
392070		27-SEP-18	ZHOU, YUJIE		496.45			Negotiable
392071		27-SEP-18	PERS LONG TERM CARE	PASADENA	538.89			Negotiable
392072		27-SEP-18	INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS LOCAL 47	DIAMOND BAR	1,385.00			Negotiable
392073		27-SEP-18	ORANGE COUNTY SHERIFF'S OFFICE	4601 JAMBOREE	224.50			Negotiable

12795	27-SEP-18	MELLON TRUST COMPANY NA BANK OF NEW YORK NEWARK	3,736.11	Negotiable
12796	27-SEP-18	MELLON TRUST COMPANY NA U.S. BANK NATIONALST. LOUIS	30,973.12	Negotiable
12797	27-SEP-18	ASSOCIATION SUMITOMO MITSUI NEW YORK	51,669.04	Negotiable
12798	27-SEP-18	BANKING CORPORATION MERRILL LYNCH CHARLOTTE	552,502.87	Negotiable
12799	27-SEP-18	CAPITAL SERVICES, INC CITIGROUP GLOBAL NEW YORK	552,502.87	Negotiable
12800	27-SEP-18	MARKETS INC. YORK INSURANCE PAY	7,233.78	Negotiable
12801	28-SEP-18	SERVICES GROUP INC - CA BANK OF NEW YORK NEWARK	35,903.53	Negotiable
		MELLON TRUST COMPANY NA		

IRWD Ledger Upgrade
 BANK: Bank of America N.A. Branch : Los Angeles
 Bank Account Currency: USD (US Dollar)
 Payment Type: All

Payment Document Subtotal: 6,478,531.15
 Payment Register For 01-SEP-18 To 30-SEP-18
 Account: Checking AP and PR
 Payment Currency: USD (US Dollar)
 Display Supplier Address: No

Report Date: 01-OCT-2018 07:54
 Page: 35

Payment Number	Sequence Num	Date	Supplier Name	Site	Payment Amount	Cleared Date	Cleared Amount	Status
Bank Account Subtotal :					14,144,148.83		5,686,546.18	
Report Count : 904		Report Total:			14,144,148.83		5,686,546.18	

Disbursements

*** End of Report ***

\$ 14,144,148.83 Disbursements
 <14,318.53> Voids
 \$ 14,129,830.30 Total Voids and Disbursements

Exhibit "E"

MONTHLY SUMMARY OF PAYROLL ACH PAYMENTS

September
2018

	AMOUNT	VENDOR	PURPOSE
9/14/2018	1,019,239.01	BANK OF AMERICA	ACH Payments for Payroll
9/28/2018	963,877.00	BANK OF AMERICA	ACH Payments for Payroll
	<u>\$1,983,116.01</u>		

Exhibit "F"

IRWD Gov Code 53065.5 Disclosure Report

Payment or Reimbursements for Individual charges of \$100 or more per transaction for services or product received.

01-SEP-18 to 30-SEP-18

NAME	CHECK NO.	CHECK	AMOUNT	ITEM DESCRIPTION	EXPENSE JUSTIFICATION
Beltran, Benjamin	391645	20-Sep-18	188.00	Membership Renewal	CWEA membership
Bonilla, Courtney	391646	20-Sep-18	167.02	Other(Misc)	Safety shoe allowance
Clinton, Bryan	391213	5-Sep-18	105.00	Certification Renewal	SWRCB Water Treatment Opertor Grade IV
Guzman, Juan	391902	27-Sep-18	107.07	Other(Misc)	Safety shoe allowance
Hayes, John	391649	20-Sep-18	105.00	Certification Renewal	SWRCB Water Treatment Opertor Grade IV
Marcacci, Mark	391650	20-Sep-18	287.85	Lodging	WateReuse 33rd Annual Symposium, Austin, TX - Sept. 9, 2018
Marcacci, Mark	391650	20-Sep-18	287.85	Lodging	WateReuse 33rd Annual Symposium, Austin, TX - Sept. 10, 2018
Martinez, Jose A III	391428	13-Sep-18	180.00	Membership Renewal	CWEA membership
Moeder, Jacob	391218	5-Sep-18	320.00	Membership Renewal	WEF Renewal
Orozco, Linda	391429	13-Sep-18	148.85	Lodging	HACH 2018 Claros WIMS National User Conf., Loveland, CO - Aug. 28, 2018
Orozco, Linda	391429	13-Sep-18	148.85	Lodging	HACH 2018 Claros WIMS National User Conf., Loveland, CO - Aug. 29, 2018
Orozco, Linda	391429	13-Sep-18	148.85	Lodging	HACH 2018 Claros WIMS National User Conf., Loveland, CO - Aug. 30, 2018
Orozco, Linda	391429	13-Sep-18	148.85	Lodging	HACH 2018 Claros WIMS National User Conf., Loveland, CO - Aug. 31, 2018
Orozco, Linda	391429	13-Sep-18	750.00	Registration Fees	HACH 2018 Claros WIMS National User Conf., Loveland, CO - Aug. 28-
Schreiner, Terrance	391430	13-Sep-18	290.00	Certification Renewal	CWEA Electrical/Instrumentation Grade IV
Sciabica, Joseph	391223	5-Sep-18	295.00	Certification Renewal	Bureau of Auto Repair and Smog recertification
Solis, Henry	391224	5-Sep-18	285.00	Certification Renewal	CWEA Collection Systems Supervisor Grade III
Tettemer, Mark	391652	20-Sep-18	287.85	Lodging	WateReuse 33rd Annual Symposium, Austin, TX - Sept. 9, 2018
Tettemer, Mark	391652	20-Sep-18	287.85	Lodging	WateReuse 33rd Annual Symposium, Austin, TX - Sept. 10, 2018
Tettemer, Mark	391652	20-Sep-18	287.85	Lodging	WateReuse 33rd Annual Symposium, Austin, TX - Sept. 11, 2018
Trigg, Tyler	391226	5-Sep-18	107.74	Other(Misc)	Wireless device case reimbursement
Wang, Peter	391433	13-Sep-18	163.53	Registration Fees	Sacramento State Office of Water Programs Water Treatment Plant
Total Amount:			\$5,098.01		

October 22, 2018

Prepared by: R. Mori

Submitted by: K. Burton *(KLB)*

Approved by: Paul A. Cook *(PAC)*

CONSENT CALENDAR

EL MORRO RESERVOIR NO. 1 IMPROVEMENTS BUDGET ADDITION

SUMMARY:

El Morro Reservoir No. 1 is jointly owned by IRWD and Laguna Beach County Water District (LBCWD) and is managed and operated by LBCWD under a Joint Powers Agreement. In accordance with the agreement, IRWD is responsible for a portion of the costs associated with the reservoir and any associated improvements. LBCWD recently completed two improvement projects at the reservoir and is requesting reimbursement for IRWD's share of the costs. Staff recommends that the Board approve the addition of Project 10935 in the amount of \$111,000 to the FY 2018-19 Capital Budget to fund IRWD's share of the improvement costs.

BACKGROUND:

In May 1984, the Irvine Company assigned, quitclaimed, and transferred to IRWD all of its remaining rights, title, and interest in and to the Coast Supply Line (CSL) and El Morro Reservoir No. 1. Per the 1984 Agreement, reservoir ownership is set at 32.74% for IRWD and 67.26% for LBCWD. The pipeline and reservoir are managed and operated by LBCWD under a Joint Powers Agreement. The CSL and reservoir are located along Pacific Coast Highway between the cities of Newport Beach and Laguna Beach as shown in the Location Map attached as Exhibit "A". IRWD utilizes the facilities to serve domestic water and to provide fire flow to customers south of Pacific Coast Highway and as a back-up supply to the Newport Coast Zone 1 to 2 Booster Pump Station.

El Morro Reservoir No. 1 Improvements:

LBCWD recently completed two improvement projects at the El Morro Reservoir site that require reimbursement by IRWD. The first project included construction of a water quality management system consisting of chemical addition, in-tank mixing, and associated water quality instrumentation and controls. This system is similar to the reservoir management systems that IRWD uses to maintain water quality within its potable water tanks. The second project included construction of a pumping system to provide adequate water flow and water pressure to the onsite fire hydrants and to the irrigation system for the surrounding landscaped areas.

Both projects are complete, and LBCWD is requesting reimbursement for IRWD's share of the costs. The total cost of the water quality management system project is \$529,053, and the total cost of the pumping system project is \$68,063. The total combined cost of both improvement projects is \$597,116.

LBCWD also owns, operates, and maintains a second reservoir at the site in which IRWD does not have any rights, title, or interest. Since these improvement projects benefit both reservoirs, and IRWD only has interest and obligations in El Morro Reservoir No. 1, LBCWD proposed, and staff concurs, that IRWD's cost share responsibility for the improvement projects be reduced in half from 32.74% to 16.37%. As a result, IRWD will reimburse LBCWD in the amount of \$97,748, which equates to 16.37% of the total project cost of \$597,116.

FISCAL IMPACTS:

Staff requests that Project 10935 in the amount of \$111,000 be added to the FY 2018-19 Capital Budget as shown in the table below. The project will be funded through regional potable water funds.

Project No.	Current Budget	Addition <Reduction>	Total Budget
10935	\$0	\$111,000	\$111,000

ENVIRONMENTAL COMPLIANCE:

This project is a minor alteration of the existing facilities and is statutorily exempt from the California Environmental Quality Act (CEQA) under Section 15301(b). LBCWD is the lead agency for CEQA compliance and is therefore responsible for filing the Notice of Exemption with the County Clerk-Recorder.

COMMITTEE STATUS:

This item was reviewed by the Engineering and Operations Committee on October 15, 2018.

RECOMMENDATION:

THAT THE BOARD AUTHORIZE THE ADDITION OF PROJECT 10935 IN THE AMOUNT OF \$111,000 TO THE FY 2018-19 CAPITAL BUDGET FOR THE EL MORRO RESERVOIR NO. 1 IMPROVEMENTS.

LIST OF EXHIBITS:

Exhibit "A" – Location Map

EXHIBIT "A"
LOCATION MAP



EXHIBIT "A"

October 22, 2018

Prepared by: J. Nash/R. Mori

Submitted by: K. Burton *(K.B.)*

Approved by: Paul A. Cook *(P.A. Cook)*

CONSENT CALENDAR

MICHELSON WATER RECYCLING PLANT UNIT SUBSTATION T-1 REPLACEMENT CONSULTANT SELECTION

SUMMARY:

The Michelson Water Recycling Plant (MWRP) Unit Substation T-1 has settled over the past 20-plus years since its installation and is now leaning beyond the manufacturer's recommended angle. This project will replace Unit Substation T-1 in kind, on an appropriately designed structural foundation, to ensure future settling will be minimized. Staff recommends that the Board authorize the General Manager to execute a Professional Services Agreement in the amount of \$127,044 with Lee & Ro for engineering design services for the MWRP Unit Substation T-1 Replacement.

BACKGROUND:

The electrical service at MWRP uses 10 onsite unit substations to transform the 5 kV plant distribution power to 480 volt power. The 480 volt power is then used to power the majority of equipment and treatment processes at the plant. Each unit substation is equipped with two 5 kV load breaks and is fed from Switchgear-A and Switchgear-B for redundancy.

The existing Unit Substation T-1 has settled over the past 20-plus years since its installation and is now leaning beyond the manufacturer's recommended angle. The project will replace Unit Substation T-1 in kind, on an appropriately designed structural foundation, to ensure future settling will be minimized. The existing equipment will be replaced at the same location to accommodate the alignment and length of the existing conduits and conductors. The project also includes geotechnical exploration activities to characterize the soils in the vicinity of Unit Substation T-1 and the development of a comprehensive construction phasing plan to ensure that the plant remains fully operational throughout the construction phase.

Consultant Selection:

Staff received proposals for engineering design services from GHD, Lee & Ro, Spec Services, and Tetra Tech. Lee & Ro's proposal demonstrated a detailed understanding of both the complexity associated with the project and the construction phasing that will be necessary to ensure a successful project. Lee & Ro also presented original design concepts and identified potential equipment clearance issues that will need to be addressed and resolved. Lee & Ro's proposed design team has the most relevant overall electrical design experience, and the staff proposed for Lee & Ro's team successfully completed previous District projects including the recently completed Irvine Industrial Complex East Zone A-B Pump Station Upgrades. After reviewing the proposals, staff met with Lee & Ro to negotiate and finalize the scope of work and overall fee. The consultant selection matrix is attached as Exhibit "A", and Lee & Ro's scope of work and fee proposal are attached as Exhibit "B".

Staff recommends that the Board authorize the General Manager to execute a Professional Services Agreement in the amount of \$127,044 with Lee & Ro since its design approach, schedule, and staff hours are consistent with the project goals and objectives.

Design Schedule:

The design phase will be completed in accordance with the following schedule milestones:

Notice of Award (anticipated)	October 23, 2018
Kick-off Meeting	November 2018
Final Basis of Design Report Submittal	January 2019
Final Plans Approved	April 2019
Bid Opening and Notice of Award (Construction)	May 2019

FISCAL IMPACTS:

The MWRP Unit Substation T-1 Replacement, Project 10535, is included in the FY 2018-19 Capital Budget and will be funded through replacement funds. The existing budget is sufficient to fund the engineering services recommended herein.

ENVIRONMENTAL COMPLIANCE:

This project is subject to the California Environmental Quality Act (CEQA). In conformance with the California Code of Regulations Title 14, Chapter 3, Section 15004, the appropriate environmental document will be prepared when “meaningful information” becomes available.

COMMITTEE STATUS:

This item was reviewed by the Engineering and Operations Committee on October 15, 2018.

RECOMMENDATION:

THAT THE BOARD AUTHORIZE THE GENERAL MANAGER TO EXECUTE A PROFESSIONAL SERVICES AGREEMENT WITH LEE & RO IN THE AMOUNT OF \$127,044 FOR ENGINEERING DESIGN SERVICES FOR THE MICHELSON WATER RECYCLING PLANT UNIT SUBSTATION T-1 REPLACEMENT, PROJECT 10535.

LIST OF EXHIBITS:

Exhibit “A” – Consultant Selection Matrix
Exhibit “B” – Lee & Ro’s Scope of Work and Fee

EXHIBIT "A"

CONSULTANT SELECTION MATRIX

MWRP Unit Substation T-1 Replacement									
Item	Description	Weights	Spec Services	Tetra Tech Inc	GHD	Lee and Ro			
A	TECHNICAL APPROACH								
1	Project Understanding	30%	4	3	2	1			
2	Project Approach	40%	4	3	2	1			
3	Project Team	30%	4	3	2	1			
	<u>Weighted Score</u>		4.0	3.0	2.0	1.0			
	Ranking of Consultants		4	3	2	1			
B	SCOPE OF WORK								
TASK		Task Hours	Fee	Task Hours	Fee	Task Hours	Fee	Task Hours	Fee
1	Project Management	79	\$14,200	114	\$26,000	144	\$32,274	56	\$12,784
2	Preliminary Design	676	\$120,500	262	\$57,500	166	\$56,287	276	\$77,633
3	Final Design	743	\$113,200	874	\$114,500	445	\$79,740	231	\$36,627
	Total Engineering Services Fee	1,498	\$247,900	1,250	\$198,000	757	\$168,301	563	\$127,044
C	OTHER								
	Number of Drawings		19	29	14	24			
	Engineering Design Services Fee per Drawing		\$13,047	\$6,828	\$12,022	\$5,294			
	Sub Consultants								
	Geotech		NMG Geotechnical Inc	NMG Geotechnical Inc	NMG Geotechnical	Ninyo and Moore			
	Survey		In-House	Metz Surveying Inc	Bush and Associates Inc	The Prizm Group			
	Potholing		None	None	None	BESS Testlab Inc			
	Exceptions taken to IRWD Std. Contract		Yes	None	Yes	None			
	DIR Numbers Provided		Yes	No	Yes	Yes			
	Insurance (Professional & General Liability)		Yes	Yes	Yes	Yes			

EXHIBIT "B"

MICHELSON WATER RECYCLING PLANT UNIT SUBSTATION T-1 REPLACEMENT IRVINE RANCH WATER DISTRICT

Section 1: SCOPE

BACKGROUND

One of the existing unit substations, Unit Substation T-1, has settled over the past 20-plus years since its installation and is now leaning beyond the manufacturer's recommended angle. The Project will replace Unit Substation T-1 in kind, on an appropriately designed structural foundation, to ensure future settling will be minimized.

Unit Substation T-1 is comprised of two 5kV load breaks, a 1000kVA transformer, and multiple 480V distribution sections. The existing equipment shall be replaced in kind and at the same location to accommodate the existing conduits and conductors. The F1 and F2 feeders will be interrupted during construction, which will affect downstream Unit Substations T-2, T-9, T-3, and T-10 and the recently-installed battery energy storage system (BESS). The 5kV power to the downstream unit substations and BESS shall be maintained during construction. Substation T-1 also distributes 480V power to DSB-200 and MCC-301, which provides power to critical treatment processes. The 480V power shall be maintained during the construction process without the extended use of temporary generators. A primary component of the Project will be the development of a construction phasing plan to ensure continuous, uninterrupted operation of MWRP during the construction period.

The MWRP is located in a relatively low-lying area underlain by unconsolidated alluvial deposits. The upper alluvial deposits are comprised predominantly of soft, silty clay and organic clay with scattered peat layers. These deposits are highly compressible under fill and foundation loads. Relatively shallow groundwater conditions are also present on site with historic water levels observed at approximately five feet below grade. Over the years, IRWD has conducted various onsite geotechnical investigations including the MWRP Phase 2 Expansion Geotechnical Evaluation (Ninyo & Moore, 2008) and the Geotechnical Design Report for Proposed Energy Storage System at MWRP (NMG Geotechnical, 2017).

METHODOLOGY

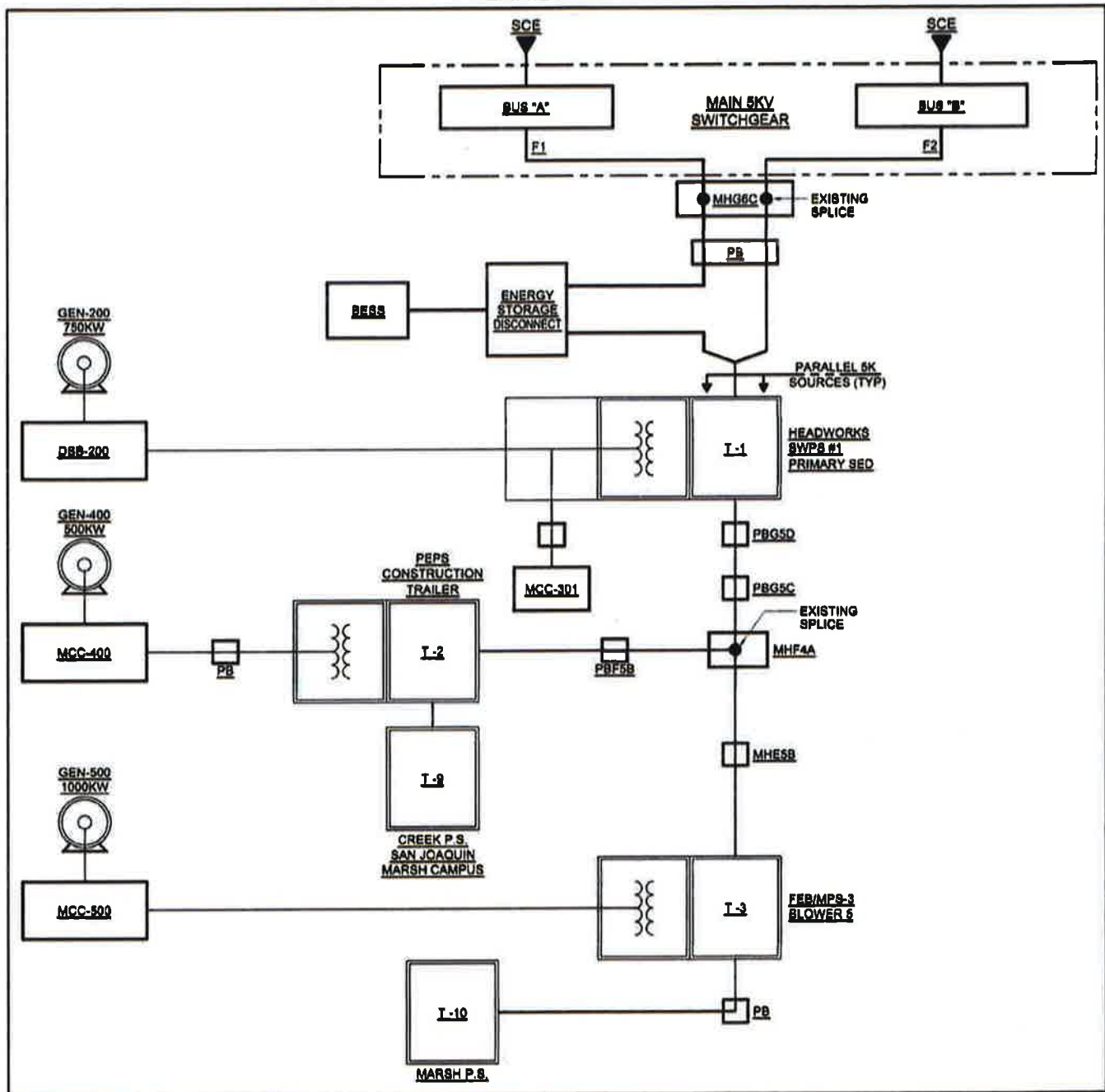
To better understand the system, a simplified schematic of the impacted 5KV systems is shown in *Exhibit 1-1*, on the following page.

Unit Substation, T-1 Replacement, Basis of Design Memorandum (BOD) Focus:

- **NEC Working Clearance:** NEC requires a minimum of four feet in front of the unit sub-station. Based on observations made during the site walk, the existing T-1 unit is not code compliant. The Unit will need to either be adjusted for greater working clearance, or the retaining wall adjusted. Additionally, the unit can also be flipped around to face the parking lot.
- **Foundation Settlement:** The geotechnical engineer will make recommendations for foundation improvements to mitigate future settlements. Recommended remediations will allow for quick construction methods to limit the duration of any interim facilities that are keeping the 5KV system operational.
- **Conduit Stub-ups:** It is unlikely that the new substation configuration will be compatible with the existing conduits stub-ups locations. It is anticipated that the existing conduit will need to be adjusted to align properly with the new substation compartments.
- **Existing Cables:** The system is over 20 years old. Medium-voltage dielectric cables typically have a life expectancy of only around 30 years. Hi-pot tests are not typically recommended for older cables since the test could further damage cables that have existing insulating fractures. Furthermore, we have been advised that conduit settlement damage has likely occurred between pull box PBG5C and manhole MHF4A, see *Exhibit 1-1* for location. This information is concerning since this type of settlement leads to a high probability of damage to the existing cables, in addition to considering the cables age. Re-pulling cables through that portion of conduit will not be recommended and a new duct bank through that stretch will likely need to be recommended.



EXHIBIT 1-1



- Construction Sequence of Work:** Our initial thoughts and focus on constructability is to maintain the 5KV system. This can be achieved in several different ways. The most straight forward solution appears to simply string temporary 5KV cable from the existing splice located in MHG6C all the way to the existing splice in MHF4A. This would completely bypass the T-1 unit and allow flow of 5KV power from the source, SCE, all the way down to substations T-2, T-3, T-9, and T-10. This interim bypass would also allow the plant to maintain the 5KV parallel feeds, Bus A and B options, as well as allow the "BESS" system to stay functional. This bypass approach would not introduce anymore splices to the system that don't already exist. These splices could be done in a few hours' duration. We will coordinate with operations staff to see what process limitations there are to have a short duration outage, and assure there is temporary 480VAC backup to the required MCCs and process loads during the cutover to interim power.



LEE & RO will document all the critical process loads that will be impacted by these two types of foreseeable shutdowns, summarized below:

Type 1, Interim cutovers, lasting a few hours: During the splicing of the 5KV bypass of T-1, each impacted system may require the use of backup generators for double redundancy to the plant's 480VAC generators (i.e. GEN-200, GEN-400, and GEN-500) located at each critical downstream MCC. Based on operational needs, the amount to backup redundancy versus risk can be adjusted.

Type 2, T-1 Out of Service, lasting a few weeks: The bypass of T-1 will directly affect DSB-200 and MCC-301. These can either be powered by rental diesel generators, or temporary 5KV feeds and temporary stepdown transformers. A cost benefit analysis will be performed to determine the most cost-effective solution, as well as make recommendations for the least risk adverse method.

Once T-1 is safely bypassed, construction can begin unabated. The new T-1 foundation can be stabilized per the geotechnical recommendations, conduits adjusted, the pad structure formed and poured, the new unit set, and new cables pulled in. In addition to the work at the T-1 location, a new duct bank will likely need to be constructed between pull box PBG5C and manhole MHF4A.

Several rehabilitation options as well as sequence of work options will be thoroughly vetted during the Basis of Design Report. For example, additional considerations will be given to possible reuse of existing cables, options that don't include new duct banks, minor modifications to existing gear to accommodate interim power options, possible new locations of the T-1 unit, and minor relocation of potential conflicting utilities. All options will consider working safety first, followed by operational readiness. Geotechnical remediations will also assure no damage will occur to adjacent infrastructure such as the critical forcemain over the southern berm.

Construction Package: Most of the effort and engineering time will occur during the Basis of Design Report. Once the BOD report is finished, the construction package will not take too much time and effort to complete. Due to several possible options at this time, the drawing count could vary quite a bit and will be based upon the outcome of the requirements set by the BOD report. We anticipate the Construction package to require up to 24 drawing sheets. The effort assumes general sheets, demolition drawings, interim drawings, civil work, and electrical drawings. We assume existing CAD files will be provided from previous IRWD projects.

Additional Scope Clarifications: Regarding Task 2.F, we suggest adjusting the scope to a budgetary amount of contingency support for survey and potholes. The actual scope for survey will likely need to be adjusted and clarified based on the decisions made during the draft BOD as well as the potential accuracy of the existing as-builts. In addition, we see the possible need for potholing due to congested below grade utilities. Our fee for subs in Task 2.F is reflected in this budgetary approach.

Based on the recommendations from the geotechnical engineer, the proposal includes deeper borings extending down to approximately 40 feet below finished grade.

Additional Scope Items: We will provide engineering and design services for the replacement of 5KV cables from T-1 to T-2 unit substations. In addition, MCC-301 does not currently have 480VAC backup emergency power generation. We will provide engineering and design services to reconfigure the existing generator GEN-200 to feed MCC-301 through a spare breaker at DSB-200. There are 6 conduits feeding DSB-200 from T-1. We will utilize 4 of the 6 conduits to re-feed DSB-200 from T-1. The remaining 2 conduits we will back feed emergency power to MCC-301. We will utilize existing duct banks, intercept the ducts, and add a new manhole near T-1 and/or MCC-301. We anticipate some conduit extensions may be required in the Central Electrical Building to route the spare breaker feed over to the existing duct bank location. MCC-301 will require the addition of a NEMA-3R ATS to safely and reliability implement this new scheme.



LEE & RO has developed a preliminary list of drawings demonstrating the anticipated level of effort. We estimate approximately 25 drawings will be required for this project.

ANTICIPATED DRAWING EFFORT

SHEET	DWG #	DESCRIPTIONS
GENERAL		
1	G-1	TITLE SHEET
2	G-2	LOCATION & VICINITY MAPS & DRAWING INDEX
3	G-3	GENERAL NOTES
4	G-4	SYMBOLS & ABBREVIATIONS
DEMOLITION		
5	D-1	DEMOLITION PLAN
6	D-2	T-1 DEMOLITION SINGLE LINE
7	D-3	DEMOLITION DETAILS
TEMPORARY FACILITIES		
8	T-1	TEMPORARY POWER SITE PLAN & GENERAL CUTOVER NOTES
9	T-2	TEMPORARY CONNECTIONS, SINGLE LINE & ELEVATION: BESS
10	T-3	TEMPORARY CONNECTIONS, SINGLE LINE & ELEVATION: T-2/ MCC-400
11	T-4	TEMPORARY CONNECTIONS, SINGLE LINE & ELEVATION: T-3/ MCC-500
12	T-5	TEMPORARY CONNECTIONS, SINGLE LINE & ELEVATION: T-9
13	T-6	TEMPORARY CONNECTIONS, SINGLE LINE & ELEVATION: T-10
14	T-7	TEMPORARY AND PERMANENT CONNECTIONS, SINGLE LINE & ELEVATION: DSB-200
15	T-8	TEMPORARY AND PERMANENT CONNECTIONS, SINGLE LINE & ELEVATION: MCC-301
16	T-9	TEMPORARY CONNECTION (MANHOLE) DETAILS
CIVIL		
17	C-1	SITE IMPROVEMENT PLAN
18	C-2	CIVIL DETAILS
ELECTRICAL		
19	E-1	ELECTRICAL SYMBOLS & ABBREVIATIONS
20	E-2	ELECTRICAL OVERALL SITE PLAN
21	E-3	T-1 PLAN
22	E-4	ELECTRICAL SINGLE LINE DIAGRAM & ELEVATIONS - T-1
23	E-5	CENTRAL ELECTRICAL BUILDING PLAN
24	E-6	DETAILS - 1
25	E-7	DETAILS - 2

TASK 1 PROJECT MANAGEMENT

The Engineer shall conduct project management activities to ensure adherence to scope, schedule, and budget; promote efficient communication between the Engineer, IRWD, and others as required; and implement an effective quality assurance/quality control (QA/QC) program.

- A. **PREPARATION OF PROJECT STATUS REPORTS.** The Engineer shall prepare weekly and monthly status reports. Each weekly status report shall be submitted on Monday and shall consist of a brief (one to two paragraphs) e-mail summarizing the activities completed the previous week, the activities planned for the upcoming week, and critical decisions that need to be made. Each monthly status report shall be submitted along with the billing invoice for that month and shall provide more detail, summarizing the work completed and reviewing work status relative to budget and schedule. The project schedule shall also be updated on a monthly basis for inclusion in the monthly status report.



- B. MEETINGS AND WORKSHOPS.** The Engineer shall organize, attend, and conduct meetings and workshops as required; prepare and submit meeting agendas for IRWD review and concurrence at least five days prior to the meeting; and prepare draft and final minutes for all meetings and workshops and submit them to IRWD within one week of the meeting.

For budgeting purposes, the Engineer shall budget for the following meetings at a minimum.

MEETINGS AND WORKSHOPS

MEETING/WORKSHOP	DESCRIPTION
General project management and design development meetings	Fourteen (14) two-hour meetings
Site Visits	Three (3) two-hour site visits
Present draft Basis of Design Memorandum	One (1) two-hour workshop
Present the 90% design, discuss IRWD's comments, and discuss how the comments were addressed	One (1) two-hour meeting
Present the 100% design, discuss IRWD's comments, and discuss how the comments were addressed	One (1) two-hour meeting

- C. QUALITY ASSURANCE/QUALITY CONTROL.** The Engineer shall develop and implement proven QA/QC measures throughout the project to ensure ongoing and consistent quality control throughout all project phases.

TASK 2 PRELIMINARY DESIGN

The Engineer shall perform the following subtasks as part of the preliminary design phase. The subtasks shall be documented and compiled into a Basis of Design Memorandum (BOD) as summarized below.

- A. BACKGROUND INFORMATION.** The Engineer shall review existing MWRP record drawings, geotechnical reports, other existing reports, and any other information related to the Project. The Engineer shall also conduct at least one of the site visits indicated above to establish an initial site reconnaissance and understanding of existing facilities.
- B. UTILITY RESEARCH.** The Engineer shall research and identify the location of existing underground and aboveground utilities and/or other physical features in the immediate vicinity of the Project. Information on utilities including type, material, size, and horizontal and vertical locations shall be identified. The Engineer shall determine if any existing utilities need to be relocated as part of the Project.
- C. SITE PLAN.** The Engineer shall develop a detailed site plan for the proposed Project. The detailed site plan shall include the proposed improvements and all existing facilities and utilities in the vicinity of the work. The site plan shall show all required phasing, including siting of any temporary generators/facilities needed to facilitate continuous, uninterrupted operation of MWRP during construction. The replacement Unit Substation T-1 shall be located in the same location as the existing unit substation.
- D. PRELIMINARY GRADING PLAN.** The Engineer shall prepare a preliminary grading plan for the recommended site layout, accounting for both existing and proposed facilities. A minimum slope of 1.5% for asphalt drainage is preferred.
- E. GEOTECHNICAL INVESTIGATION.** The Engineer shall review the existing geotechnical investigations attached hereto and shall make a determination as to the need for additional geotechnical investigations. For budgeting purposes, the Engineer shall assume that additional geotechnical investigations are warranted and shall include budget in the Proposal, as an



optional task, for the following.

The Engineer shall conduct a geotechnical investigation to adequately characterize the conditions at the site of the proposed facilities. The following tasks, at a minimum, shall be conducted as part of the geotechnical investigation:

1. Perform a geotechnical reconnaissance to observe site conditions and to locate exploratory borings.
2. Conduct two soil borings adjacent to existing Unit Substation T-1, to a depth of 25-feet below ground surface, to observe, test and classify soils, and monitor groundwater.
3. Collect soil samples for testing as needed based on Engineer's professional judgment.
4. Plot the location of all soil borings on a map and attach the map to the Geotechnical Report. Include complete logs of the soil profiles in the report.
5. Conduct laboratory tests of selected samples to evaluate moisture content, density, gradation, Atterberg limits, consolidation, shear resistance, expansion, R-value, corrosivity, and/or other criteria as recommended by the geotechnical engineer or requested by the structural engineer for the structural design.
6. Prepare a geotechnical report presenting findings, conclusions, and recommendations for the design and construction of the proposed facilities. The report shall include, at a minimum, (1) groundwater presence and levels, (2) construction dewatering requirements, (3) duct bank bedding requirements, (4) trench shoring requirements, (5) settlement potential, (6) excavability of soils, (7) location of rock, (8) backfill suitability, and (9) backfill compaction. The report shall emphasize specific concerns regarding construction methods and the integrity of duct banks, pavements, and structures. The report shall make recommendations regarding the design of facilities. Recommendations shall include (1) active, at-rest, passive and dynamic earth pressures, (2) foundation type, (3) allowable bearing pressure, (4) coefficient of friction between the foundation and soils/subgrade, (5) foundation design data, (6) settlement potential, (7) pipe bedding, (8) maximum cut slope requirements, (9) structural needs, (10) groundwater dewatering well(s) design criteria, and/or 11) other standard design criteria.

Three copies of the draft Geotechnical Investigation Report (GIR) shall be submitted for review. Upon resolution and incorporation of review comments, three copies of final GIR and one electronic copy in PDF on CD shall be submitted.

- F. **SURVEYING SERVICES.** The Engineer shall conduct appropriate surveying for the proposed facilities including, but not limited, to the following:
1. Establish survey ground control for mapping using NAD83 coordinates and NAVD88 county benchmark elevations.
 2. Provide contour mapping at 10-scale, one-foot contour intervals, in all areas of proposed work, yard piping, site electrical service, 5kV BESS switch, entry road, and sewer alignment, at a minimum.
 3. Field locate and add obscured surface features for all areas of the proposed work.

The Engineer shall establish horizontal and vertical control and shall provide topographic maps to be used in the design drawings for the proposed facilities.

- G. **CONSTRUCTION PHASING.** The Engineer shall evaluate demolition and construction requirements for the proposed replacement Unit Substation T-1 to identify which, if any, existing facilities are required to be relocated, temporarily disabled, demolished, or modified. The Engineer shall prepare a phasing plan and recommended sequence of construction that identifies the order in which facilities will need to be relocated, temporarily disabled, constructed, demolished or modified, to maintain existing services and to minimize disruption to the operation of MWRP. The BOD shall include a discussion on construction sequencing to maintain existing services throughout the construction period. The Engineer shall analyze the existing power distribution system to determine the best manner in which to keep processes on "normal" MWRP power during construction. Temporary standby generators may be used during the transition phases. IRWD operates and maintains facilities adjacent to the location of the Project, and as such, the Engineer shall ensure that appropriate access is maintained at all times during demolition and construction activities.
- H. **PROJECT SCHEDULE.** The Engineer shall prepare a project schedule, which shall include detailed schedules for both design and construction activities. The schedule shall include all critical factors impacting the project schedule including implementation, permitting, and coordination activities to ensure that the project is completed in accordance with the proposed schedule. The schedule shall be prepared in Microsoft Project.



- I. **OPINION OF PROBABLE CONSTRUCTION COST.** The Engineer shall prepare a detailed and itemized opinion of probable construction cost for the proposed facilities.
- J. **BASIS OF DESIGN MEMORANDUM.** The work described above shall be summarized and compiled into a Basis of Design Memorandum (BOD). At a minimum, the BOD shall summarize the results of the subtasks identified above along with additional design criteria identified by the Engineer during the preliminary design phase.

Six copies of the draft BOD and one electronic copy in PDF shall be submitted for review. Upon resolution and incorporation of review comments, six copies of the final BOD and one electronic copy in PDF shall be submitted. The BOD shall be finalized and accepted by IRWD prior to proceeding with the 90 percent design deliverable.

TASK 3 FINAL DESIGN

The final design shall result in the preparation of the Contract Documents. In the final design phase, the Engineer shall address the items discussed hereunder.

- A. **PROJECT MANUAL.** The Engineer shall prepare a Project Manual in standard IRWD format for the Contract Documents. IRWD's front end documents shall be utilized, and the Engineer shall assess IRWD's documents to determine any needed supplemental special provisions that should be added to comply with IRWD's general provisions and front-end requirements. The Project Manual shall describe the allowable shutdown durations and sequencing associated with any connections and tie-ins to existing IRWD facilities. The Project Manual shall also include the IRWD General Technical Specifications, modifications thereto, and any project specific technical specifications.
- B. **CONSTRUCTION PLANS.** The Engineer shall prepare detailed construction drawings in the latest version of AutoCAD and using NCS V4.0 layering standards, on 22-inch x 34-inch sheets utilizing IRWD's standard border template. Separate sheets with sheet index/location map/legend, general notes, index map, construction notes, phasing, and detail connections shall be included. Construction notes shall be used (callouts on the plans are not allowed) on all construction drawings. Existing IRWD utilities shall be identified on the plan view by as-built plan set number with the pipeline material and IRWD pressure zone labeled. The index map shall include sheet legend, final alignment, valve locations, surrounding streets, and significant project site locations. Construction plans shall be prepared using the NAVD 88 and NAD 83 survey standards.
- C. **ELECTRICAL/INSTRUMENTATION.** The Engineer shall prepare a construction scheme including single line diagrams, control equipment list, and method of integrating the proposed equipment into MWRP's existing power distribution system.
- D. **PROJECT SCHEDULE.** The Engineer shall maintain and consistently update the project schedule, which shall include detailed schedules for both design and construction activities. The schedule shall include all critical factors impacting the project schedule including implementation, permitting, and coordination activities to ensure that the project is completed in accordance with the proposed schedule. The schedule shall be prepared in Microsoft Project. A preliminary schedule outlining the preliminary and final design phase activities shall be included in the proposal.
- E. **OPINION OF PROBABLE CONSTRUCTION COST.** The Engineer shall prepare a detailed and itemized opinion of probable construction cost for the proposed facilities, which shall be updated and submitted with each of the design deliverables described below.
- F. **DESIGN DELIVERABLES.** Deliverables shall be made as follows:
 - 1. Six 11"x17" bound copies of the 90 percent submittal and one CD containing a single PDF file of the entire plan set. Show concepts of each component of the design such as civil, structural, and electrical. Show plan, connections, details, and location of appurtenances. Plan drawings and civil, structural and electrical details/drawings shall be developed to a high level of detail. Provide three color coded copies of the 90 percent Project Manual, including all sections; contract documents, general provisions, special provisions, general requirements, technical specifications, and appendix.
 - 2. Six 11"x17" bound copies of the 100 percent submittal, one CD containing AutoCAD files for the entire plan set, and one CD containing a single PDF file of the entire plan set. Include complete plans and three, color coded copies of the Project Manual, a notebook with the design calculations (including, but not limited to, structural, electrical), and one



CD containing all MS Word files used in the preparation of the Project Manual.

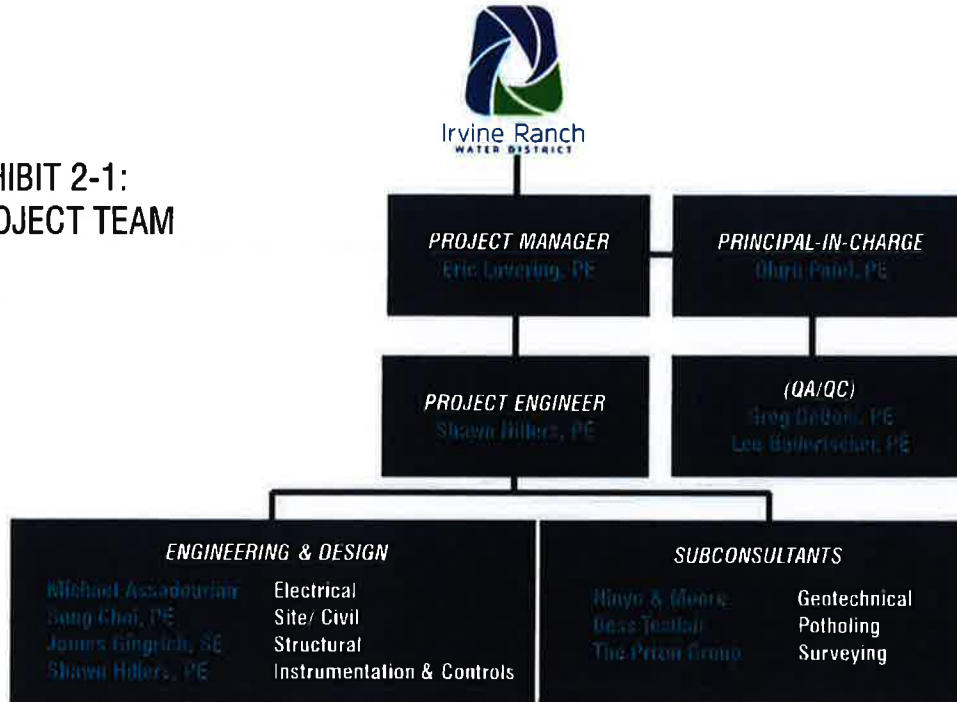
3. One full size final stamped and signed reproducible plan set on mylar and one original signed Project Manual for District's signatures.
- G. **ADDENDA PREPARATION AND PRE-BID MEETING.** During the bidding period, the Engineer shall assist with providing information and clarification of bid documents to prospective bidders. This shall include the preparation of up to three addenda including revisions to the design plans and specifications and assistance with addressing bidder questions. At a minimum, the Engineer shall budget for the following:
1. **PLAN REVISIONS:** Sixteen hours of appropriate staff time for plan revisions to the construction drawings.
 2. **SPECIFICATION REVISIONS:** Eight hours of appropriate staff time for revisions or additions to the project specifications.
 3. **BIDDER QUESTIONS:** Eight hours of appropriate staff time to address and respond to bidder questions.
 4. **PRE-BID MEETING:** During the bidding period, the Engineer shall attend one two-hour pre-bid meeting, which will include a site visit with potential bidding contractors.



Section 2: TEAM

LEE & RO proposes a project team as shown in **Exhibit 2-1**, which indicates the roles and responsibilities of key team members. Brief credentials of the proposed staff are described below.

**EXHIBIT 2-1:
PROJECT TEAM**



LEE & RO understands this job presents numerous challenges to work through: multiple layouts, multiple facilities, multiple users/stakeholders must be distilled into a cohesive, sensible design that works for everyone. An extended preliminary design phase will be necessary to develop and collect opinions, negotiate space and processes, and build consensus amongst stakeholders. At the end of preliminary design, technical challenges and schedule constraints will drive an expedited final design. During construction, keeping the existing facility in operation will require careful sequencing. LEE & RO has built a team to solve these problems.

The Project Team will be led by **Eric Lovering, PE**. Eric has worked on numerous IRWD projects and is familiar with IRWD's standards, expectations, and culture. In addition to closely managing project schedule and budget, Eric will leverage his multidisciplinary expertise to get involved with the detail design of the substation and continuously manage quality and design coordination.

Shawn Hillers, PE, will serve as the Project Engineer with expertise in switchgear, electrical, instrumentation and control design. His recent experience with switchgear, electrical, instrumentation and control design includes clients such as the City of San Diego, Western Municipal Water District, and has also worked with IRWD on the Santiago Hills II and IIC East Zone A to B Projects.

Shawn will assist Eric with layout, design and subconsultant management and project management tasks. Eric and Shawn's full resumes are included below.

Eric and Shawn will be supported by a multidisciplinary team of LEE & RO engineers who are also introduced below.

For subconsultant support services, we've invited proven subconsultants that have worked with LEE & RO on IRWD projects: The subconsultants include: Ninyo & Moore (geotechnical), Bess Testlab (potholing), and The Prizm Group (surveying)

Exhibit 1: Engineering Design Services for the Michelson Water Recycling Plant Unit Substation T-1 Replacement Project

TASK NO	ENGINEERING CLASSIFICATIONS: E8 Managing Eng, E7 Supervising Eng, E6 Principal Eng, E5 Senior Eng, E3 Associate Engineer, T4 Designer, T3 Associate Designer, A2 Word Processor II (See Billing Rate Schedule for Entire Labor Classifications).	LEE & RO Hours per Labor Category									Total Hours	Labor Cost	Other Direct Costs (000s)	Subt	TOTAL FEES
		E8	E7	E6	E5	E4	E3	T4	T3	A2					
		Billing Rates (\$/hour)													
PROJECT TASK DESCRIPTION		\$240	\$217	\$198	\$178	\$162	\$145	\$128	\$112	\$112		1.00			
1	Project Management														
1.A	Preparation of Project Status Reports										8	\$1,568			\$1,568
1.B	Meetings and Workshops										24	\$5,056	\$400		\$5,456
1.C	Quality Assurance/Quality Control										24	\$5,760			\$5,760
	SUBTOTAL TASK 1 - PROJECT MANAGEMENT	32	0	24	0	0	0	0	0	0	66	\$12,384	\$400	\$0	\$12,784
2	Preliminary Design														
2.A	Background Information	1		10				37			48	\$7,565			\$7,565
2.B	Utility Research	1		10				37			48	\$7,565			\$7,565
2.C	Site Plan								5	16	60	\$7,242			\$7,242
2.D	Preliminary Grading Plan							8			24	\$3,112			\$3,112
2.E	Geotechnical Investigation										2	\$480	\$24,000		\$24,480
2.F	Surveying & Potentially Budgetary Amount*										2	\$480	\$12,000		\$12,480
2.G	Construction Phasing										66	\$12,228			\$12,228
2.H	Project Schedule			3							3	\$588			\$588
2.I	Opinion of Probable Construction Cost							5			8	\$1,313			\$1,313
2.J	Basics of Design Memorandum									5	5	\$560	\$500		\$1,060
	SUBTOTAL TASK 2 - PRELIMINARY DESIGN	9	0	66	0	0	128	15	66	5	276	\$41,133	\$500	\$36,000	\$77,633
3	Final Design														
3.A	Project Manual	1						16			17	\$2,560			\$2,560
3.B	Construction Plans	2	14	4				6	12	10	48	\$7,828			\$7,828
3.C	Electrical/Instrumentation	12						40			52	\$18,648			\$18,648
3.D	Project Schedule										3	\$588			\$588
3.E	Opinion of Probable Construction Cost							3			8	\$1,067			\$1,067
3.F	Design Deliverables			2							3	\$336	\$600		\$936
3.G	Addenda Preparation and Pre-Bld Meeting	2									34	\$5,000			\$5,000
	SUBTOTAL TASK 3 - FINAL DESIGN	18	14	46	0	0	78	12	66	7	231	\$36,027	\$600	\$0	\$36,627
	TOTAL NOT TO EXCEED	59	14	126	0	0	198	27	132	8	563	\$ 89,544	\$ 1,500	\$ 36,000	\$ 127,044

EXHIBIT 2

LEE & RO, Inc.

FY 2018-2019 HOURLY BILLING RATE SCHEDULE
(Effective From November 1, 2018 to October 31, 2019)

PERSONNEL CLASSIFICATION			BILLING RATES (\$/HOUR)
ENGINEERS			
Engineer 8	E8	Managing Engineer	\$240
Engineer 7	E7	Supervising Engineer	\$217
Engineer 6	E6	Principal Engineer	\$196
Engineer 5	E5	Senior Engineer	\$178
Engineer 4	E4	Engineer	\$162
Engineer 3	E3	Associate Engineer	\$145
Engineer 2	E2	Assistant Engineer	\$128
Engineer 1	E1	Junior Engineer	\$112
CAD / DESIGNERS			
Designer 6	T6	Principal Designer	\$162
Designer 5	T5	Senior Designer	\$145
Designer 4	T4	Designer	\$128
Designer 3	T3	Associate Designer	\$112
Designer 2	T2	Assistant Designer	\$98
Designer 1	T1	Junior Designer	\$82
FIELD PROFESSIONALS			
Field Professional 5	F5	Senior Resident Engineer	\$162
Field Professional 4	F4	Resident Engineer	\$145
Field Professional 3	F3	Senior Inspector	\$128
Field Professional 2	F2	Inspector	\$112
Field Professional 1	F1	Assistant Inspector	\$96
ADMINISTRATIVE			
Administrative 3	A3	Contract Manager	\$145
Administrative 2	A2	Senior Word Processor	\$112
Administrative 1	A1	Word Processor / Adm. Assistant	\$96



EXHIBIT 3
LEE & RO, Inc.

OTHER DIRECT COSTS (ODC) BILLING RATE SCHEDULE
(Effective from November 1, 2018 to October 31, 2019)

Automobile Mileage	IRS Published Rate
In-house Reproduction	\$0.08 / sheet (8.5 x 11 Bond B & W) \$0.20 / sheet (8.5 x 11 Bond Color) \$0.15 / sheet (11 x 17 Bond B & W) \$0.50 / sheet (11 x 17 Color) \$1.25 / sheet (24 x 36 Bond)
Mylar Original Drawing	\$8.00 / sheet (24 x 36 or 22 x 34)
Computers & Work Stations	No Charge
Subconsultant Mark-up	Subconsultant Invoice Amount Plus 5%, Unless Client Specifies Otherwise
Bulk Reproduction by Outside Printing Firm	Invoice amount plus 10% Handling Charge
Overnight Mailing, Air Fare, Project-Specific Software, or Equipment Rental, etc.	At Cost



October 22, 2018

Prepared by: W. Stewart/S. Malloy

Submitted by: K. Burton *KLB*

Approved by: Paul A. Cook *PAC*

CONSENT CALENDAR

MICHELSON WATER RECYCLING PLANT BIOSOLIDS AND ENERGY RECOVERY FACILITIES CONTRACT CHANGE ORDER

SUMMARY:

Filanc/Balfour Beatty (FBB) is constructing the Michelson Water Recycling Plant (MWRP) Biosolids and Energy Recovery Facilities (Biosolids Project). Contract Change Order (CCO) No. 90 includes costs for electrical, instrumentation, and control items related to the dryer system, cake storage system, and cake receiving bin local control panel along with site work and architectural modifications. Staff recommends that the Board approve CCO No. 90 in the amount of \$259,999.33 with FBB for the Biosolids Project.

BACKGROUND:

Construction of the Biosolids Project was awarded to FBB in March 2013 in the amount of \$163,465,940. The Biosolids Project will provide biosolids digestion, dewatering, energy production, and on-site sludge drying. The project includes excavation for subsurface structures; installation of foundation piles; three egg-shaped digesters; a state-of-the-art odor control system; a biogas conditioning system and power generation using microturbines; a fats, oil and grease (FOG) receiving station; and new utility services. These facilities are being constructed on the land north of IRWD's Operations Center, maintenance shops, water quality laboratory, and warehouse.

CCO No. 90:

Staff negotiated with FBB and agrees to the labor and material costs contained in CCO No. 90 in the amount of \$259,999.33. CCO No. 90 includes the following items:

- *Biosolids Site Modifications in the amount of \$40,726.48* – In preparation for the landscaping construction to be performed after the Biosolids project, several irrigation sleeves were installed throughout the biosolids site. Other site enhancements such as modifications to curb and gutter, concrete pads, and wall footing were necessary to meet certain aesthetic and operational needs. This item is for the cost of labor and material to install these irrigation sleeves and perform the other modifications.
- *Modifications to the Cake Receiving Bin Local Control Panel (LCP) in the amount of \$75,524.26* – During review of the submittal for the cake receiving LCP, it was discovered that several additional circuits were required by the manufacturer of the cake receiving sliding gate. These circuits were not included in the design. This item is for the additional required circuits and associated conduits and wires, and for the cost of labor and material to make these modifications.

- *Architectural Modifications in the Centrifuge Area in the Solids Handling Building in the amount of \$10,468.65* – The sound panels were moved in the centrifuge area. To meet aesthetic requirements, drywall was installed in the location where the sound panels were removed. This item is for the labor and materials to make the changes.
- *Modifications to the Bulk Polymer Access Platform in the amount of \$53,407.62* – The bulk polymer tanks have different dimensions from the design. For safer access to valves and equipment, modifications to the piping were required. These modifications resulted in changes to the bulk polymer access platform. This item is for the labor and materials to make the platform modifications.
- *Additional of Cake Hopper Platform in the amount of \$59,714.23* To allow better operator access to the cake hopper in the Solids Handling Building, staff decided to add a platform at the cake hopper assembly. This item is for the labor and materials to add the platform.
- *Modifications to the Dryer System in the amount of \$14,724.76* – Andritz, the dryer system manufacturer, required additional circuits for electrical and control purposes after the project was bid and awarded. This item is for the additional required circuits and associated conduits and wires, and for the cost of labor and material to make these modifications.
- *Modifications to the Cake Storage System in the amount of \$5,433.33* – The control wiring was modified in the field to align with the changes made by the manufacturer of the cake storage system. The original design had hard-wired input/output that needed to be converted to soft input/output over a datalink. This item is for the labor and materials to modify the field wiring, update loop drawings, and update the programmable local control program.

Staff recommends that the Board approve CCO No. 90 in the amount of \$259,999.33, which is attached as Exhibit “A”. The construction change order summary is attached as Exhibit “B”. The following is a summary of the change order categories:

Category	Total Amount	% of Original Contract
A - District Convenience/Initiation - Project Related	\$ 3,811,167.52	2.33%
B - Differing Site Conditions	\$12,851,317.71	7.86%
C - Design Oversight	\$ 3,728,325.96	2.28%
D - District Convenience/Initiation - Non-Project Related	\$ -	0.00%
E - Contractor Convenience/Initiation	\$ 98,302.54	0.06%
F - Contractor Requested Inspection Overtime	\$ (294,910.00)	-0.18%
TOTAL (All Items A - F)	\$20,194,203.73	12.35%

FISCAL IMPACTS:

The MWRP Biosolids and Energy Recovery Facilities Project 04286 is included in the FY 2018-19 Capital Budget. The existing budget is sufficient to fund the change order.

ENVIRONMENTAL COMPLIANCE:

The MWRP Biosolids and Energy Recovery Facilities is subject to the California Environmental Quality Act (CEQA) and in conformance with the California Code of Regulations Title 14, Chapter 3, Article 7, a Supplemental Environmental Impact Report (SEIR), SCH # 2011031091, was certified by IRWD at its October 22, 2012 meeting. The City of Irvine Planning Commission approved a conditional use permit for the IRWD Biosolids Project at its December 6, 2012 meeting.

COMMITTEE STATUS:

This item was reviewed by the Engineering and Operations Committee on October 15, 2018.

RECOMMENDATION:

THAT THE BOARD APPROVE CONTRACT CHANGE ORDER NO. 90 IN THE AMOUNT OF \$259,999.33 WITH FILANC/BALFOUR BEATTY FOR ELECTRICAL, INSTRUMENTATION, AND CONTROL ITEMS RELATED TO THE DRYER SYSTEM, CAKE STORAGE SYSTEM, AND CAKE RECEIVING BIN LOCAL CONTROL PANEL ALONG WITH SITE WORK AND ARCHITECTURAL MODIFICATIONS FOR THE MICHELSON WATER RECYCLING PLANT BIOSOLIDS AND ENERGY RECOVERY FACILITIES, PROJECT 04286.

LIST OF EXHIBITS:

Exhibit "A" – Contract Change Order No. 90 with FBB
Exhibit "B" – Construction Change Order Summary

CONTRACT CHANGE ORDER

EXHIBIT "A"



Irvine Ranch Water District

15600 Sand Canyon Avenue
 P.O. Box 57000
 Irvine, CA 92619-7000
 (949) 453-5300

C.O. No. 90
 Final

Project No. 04286

MWRP Biosolids and Energy Recovery Facilities

Date: 10/03/2018

Project Title

THE FOLLOWING CHANGE TO CONTRACT, DRAWINGS AND SPECIFICATIONS IS PROPOSED.	\$ ADDITIONS	\$ DELETIONS	DAYS ±
1. Biosolids Site Modifications (CR-331L) PR 04286 Task 5.29	\$40,726.48	\$0.00	See Notes
2. Modifications to the Cake Receiving Bin LCP (CR-597) PR 04286 Task 5.30	\$75,524.26	\$0.00	See Notes
3. Architectural Modifications in the Centrifuge Area in the Solids Handling Building (CR-681) PR 04286 Task 5.29	\$10,468.65	\$0.00	See Notes
4. Modifications to the Bulk Polymer Access Platform (CR-708) PR 04286 Task 5.31	\$53,407.62	\$0.00	See Notes
5. Addition of Cake Hopper Platform (CR-720) PR04286 Task 5.31	\$59,714.23	\$0.00	See Notes
6. Modifications to the Dryer System (CR-728) PR 04286 Task 5.30	\$14,724.76	\$0.00	See Notes
7. Modifications to the Cake Storage System (CR-730) PR 04286 Task 5.30	\$5,433.33	\$0.00	See Notes
Notes: 1. For all items noted above, the Contractor reserves the right to compensable and/or excusable time extensions provided that time impacts to the Project's critical path are demonstrated to be beyond the Contractor's control. 2. Contractor reserves any and all rights it has and otherwise does not waive or release any claims it may have for additional compensation related to impact, including but not limited to the cumulative effect of the number, nature, or extent of any changes or design clarifications. 3. The project completion date of October 31, 2017 per CCO No. 45 is unchanged by this Change Order.			
TOTAL	\$259,999.33	\$0.00	0

NOTE: The documents supporting this Change Order, including any drawings and estimates of cost, if required are attached hereto and made a part hereof. This Change Order shall not be considered as such until it has been signed by the Owner and the Contractor. Upon final approval, distribution of copies will be made as required. The parties mutually agree the pricing set forth in this Change Order are complete and fair compensation for the entirety of the work authorized under this Change Order and that no additional compensation is warranted nor shall it be allowed.

CHANGES: All workmanship and materials called for by this Change Order shall be fully in accord with the original Contract Documents insofar as the same may be applied without conflict to the conditions set forth by this Change Order. The time for completing the contract will not be extended unless expressly provided for in this Change Order.

DAYS ±

1. NET AMOUNT THIS CHANGE ORDER	=	\$259,999.33	0
2. ORIGINAL CONTRACT AMOUNT	=	\$163,465,940.00	1,278
3. TOTAL PREVIOUS CHANGE ORDER(S)	=	\$19,934,204.40	368
4. TOTAL BEFORE THIS CHANGE ORDER (2+ 3)	=	\$183,400,144.40	1,646
5. PROPOSED REVISED CONTRACT AMOUNT TO DATE (1+4)	=	\$183,660,143.73	1,646

We hereby agree to make the above change subject to the terms of this change order for the sum of: _____
 -----Two Hundred Fifty-Nine Thousand Nine Hundred Ninety-Nine and 33/100 -----Dollars

Filanc/Balfour-Beatty

Date _____ Contractor _____ By: Omar Rodea, President

SIGNATURE	DATE	APPROVAL LEVEL REQUIRED
_____	_____	Department Director Approval Required <input type="checkbox"/>
IRWD Engineer or Consulting Engineer	Date	Executive Director Approval Required <input type="checkbox"/>
_____	_____	General Manager Approval Required <input type="checkbox"/>
Principal Engineer	Date	Board Approval Required <input checked="" type="checkbox"/>
_____	_____	_____
Executive Director of Engineering & Water Quality	Date	_____
_____	_____	_____
General Manager	Date	Purchase Order No. _____

NOTE: The documents supporting this Change Order, including any drawings and estimates of cost, if required are attached hereto and made a part hereof. This Change Order shall not be considered as such until it has been signed by the Owner and the Contractor. Upon final approval, distribution of copies will be made as required. The parties mutually agree the pricing set forth in this Change Order are complete and fair compensation for the entirety of the work authorized under this Change Order and that no additional compensation is warranted nor shall it be allowed.

CHANGES: All workmanship and materials called for by this Change Order shall be fully in accord with the original Contract Documents insofar as the same may be applied without conflict to the conditions set forth by this Change Order. The time for completing the contract will not be extended unless expressly provided for in this Change Order.

EXHIBIT "B"

MWRP Biosolids and Energy Recovery Facilities PR 21146 (4286) Construction Change Order Summary

Contractor: Filanc/Balfour-Beatty
Design Engineer: Black & Veatch

				Contract Amount						Contract Days				Original Completion Date:
				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
Change Order	Description	Category	IRWD or FBB	Change Order Line Item Amount	Change Order Amount	Previous Change Orders	Cumulative Total of Change Orders	% of Original Contract Amount	Revised Contract Amount	Change Order Days	Previous Change Orders	Cum. Total C.O. days	Revised Total Contract Days	Revised Completion Date
1	Approved by Exe. Director of Engineering and Water Quality Approved on October 24, 2013 1.1 Modifications to Road to Development Area - Delete AC to Triangle, add AB to Michelson (CR-004)	A	IRWD	\$ 20,202.42	\$20,202.42	\$0.00	\$20,202.42	0.01%	\$163,486,142.42	0	0	0	1,278	10/28/2016
2	Approved by Exe. Director of Engineering and Water Quality Approved on November 13, 2013 2.1 Street Light Conduit Modifications (CR-007)	B	IRWD	\$ 12,475.08	\$12,475.08	\$20,202.42	\$32,677.50	0.02%	\$163,498,617.50	0	0	0	1,278	10/28/2016
3	Approved by Board of Directors Approved on March 10, 2014 3.1 Bid Quantity Adjustment of Bid Item 8.6 Pre-Drill	B	FBB	\$ 745,503.00	\$745,503.00	\$32,677.50	\$778,180.50	0.48%	\$164,244,120.50	0	0	0	1,278	10/28/2016
4	Approved by Exe Dir of Eng & Water Quality Approved on March 14, 2014 4.1 Installation of Five Additional Groundwater Wells and Monitoring – (CR-006) PR 21146 (4286) Task 3505 4.2 Brace Bay Modifications at the FOG Station – (CR-015) PR 21146 (4286) Task 3505 4.3 Grounding Extension at Nitrogen and Mineral Oil System (CR-025) PR 21146 (4286) Task 3510	A	IRWD	\$11,047.81	\$23,029.22	\$778,180.50	\$801,209.72	0.49%	\$164,267,149.72	0	0	0	1,278	10/28/2016
5	Approved by Exe Dir of Eng & Water Quality Approved on March 14, 2014 5.1 Unidentified Utility - Meter Shop Discharge (CR-008) PR 21146 (4286) Task 3505 5.2 Connection Beam Modifications at Solids Handling Facility (CR-014) PR 21146 (4286) Task 3235 5.3 Increased Grating Thickness at Solids Handling Facility (CR-041) PR 21146 (4286) Task 3505	B	IRWD	\$15,225.75	\$24,851.73	\$801,209.72	\$826,061.45	0.51%	\$164,292,001.45	0	0	0	1,278	10/28/2016
6	Approved by General Manager Approved on March 20, 2014 6.1 Additional Costs to Install Piles to the Design Tip (CR-033) PR 21146 (4286) Task 3505	B	FBB	\$31,815.00	\$31,815.00	\$826,061.45	\$857,876.45	0.52%	\$164,323,816.45	0	0	0	1,278	10/28/2016

A - District Convenience/Initiation - Project Related
B - Differing Site Conditions
C - Design Oversight
D - District Convenience/Initiation - Non-Project Related
E - Contractor Convenience/Initiation
F - Contractor Requested Inspection Overtime

**MWRP Biosolids and Energy Recovery Facilities
PR 21146 (4286)
Construction Change Order Summary**

Contractor: Filanc/Balfour-Beatty
Design Engineer: Black & Veatch

				Contract Amount						Contract Days				Original Completion Date:
				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
Change Order	Description	Category	IRWD or FBB	Change Order Line Item Amount	Change Order Amount	Previous Change Orders	Cumulative Total of Change Orders	% of Original Contract Amount	Revised Contract Amount	Change Order Days	Previous Change Orders	Cum Total C.O. days	Revised Total Contract Days	Revised Completion Date
7	Approved by Exe Dir of Eng & Water Quality Approved on April 21, 2014				\$24,725.00	\$857,876.45	\$882,601.45	0.54%	\$164,348,541.45	0	0	0	1,278	10/28/2016
7.1	Meter Shop Discharge Pipe Leak Investigation and Repair (CR-013) PR 21146 (4286) Task 3505	B	IRWD	\$2,542.00						0				
7.2	Additional Reinforcement and Lifting Eyes for Removable Slabs at Solids Handling Building (CR-021) PR 21146 (4286) Task 3505	C	FBB	\$14,059.00						0				
7.3	Increased Grating Thickness at Solids Handling Facility (CR-041) PR 21146 (4286) Task 3505 Additional Conductance Probe Materials for Relay Level Switches for Various Sumps Located at the Microturbine Area PR 21146 (4286) Task 3510	C	FBB	\$8,124.00						0				
8	Approved by General Manager Approved on April 21, 2014				(\$49,990.00)	\$882,601.45	\$832,611.45	0.51%	\$164,298,551.45	0	0	0	1,278	10/28/2016
8.1	Cost Sharing for Project Partnering (CR-Credit for Primavera 7.0 Project Portfolio Management Software (CR-002) PR 21146 (4286) Task 3235	A	IRWD	(\$14,611.00)						0				
8.2	Deletion of Concrete Pad near Development Area (CR-004A) PR 21146 (4286) Task 3235	A	IRWD	(\$3,865.00)						0				
8.4	Deletion of Ground Test Device (CR-034) PR 21146 (4286) Task 3210	A	IRWD	(\$15,579.00)						0				
8.5	Deletion of Existing T-4 Switchgear Level Indicating Switch (CR-035) PR 21146 (4286) Task 3210	A	IRWD	(\$9,167.00)						0				
8.6	Change to NEMA 4X Panels and Modification to NEMA 4X Bar Graph Display (CR-046) PR 21146 (4286) Task 3210	A	IRWD	(\$4,068.00)						0				
9	Approved by Exe. Director of Eng. & Water Quality Approved on May 31, 2014				\$24,840.17	\$832,611.45	\$857,451.62	0.52%	\$164,323,391.62	0	0	0	1,278	10/28/2016
9.1	Additional Circuits for Gas Monitors and Re-route of Conduits in Solids Handling Facility (CR-028) PR 21146 (4286) Task 3510	C	FBB	\$1,187.49						0				
9.2	Cantilevered Beam Support Modifications in the Solids Handling Facility (CR-049) PR 21146 (4286) Task 3505	C	FBB	\$4,605.30						0				
9.3	Additional Ethernet Switches (CR-062) PR 21146 (4286) Task 3510	C	IRWD	\$19,047.38						0				
10	Approved by Exe. Director of Eng. & Water Quality Approved on May 31, 2014				\$21,398.99	\$857,451.62	\$878,850.61	0.54%	\$164,344,790.61	0	0	0	1,278	10/28/2016
10.1	Additional Grace Ports for Various PLCs (CR-030) PR 21146 (4286) Task 3510	C	IRWD	\$8,580.62						0				
10.2	Provide H-20 Rated Hatches at WAS Pump Station and Valve Vault (CR-061) PR 21146 (4286) Task 3505	C	IRWD	\$12,818.37						0				

A - District Convenience/Initiation - Project Related
B - Differing Site Conditions
C - Design Oversight
D - District Convenience/Initiation - Non-Project Related
E - Contractor Convenience/Initiation
F - Contractor Requested Inspection Overtime

**MWRP Biosolids and Energy Recovery Facilities
PR 21146 (4286)
Construction Change Order Summary**

Contractor: Filanc/Balfour-Beatty
Design Engineer: Black & Veatch

				Contract Amount						Contract Days				Original Completion Date:
				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
Change Order	Description	Category	IRWD or FBB	Change Order Line Item Amount	Change Order Amount	Previous Change Orders	Cumulative Total of Change Orders	% of Original Contract Amount	Revised Contract Amount	Change Order Days	Previous Change Orders	Cum. Total C.O. days	Revised Total Contract Days	Revised Completion Date
11	Approved by Exe. Director of Eng. & Water Quality Approved on June 4, 2014				\$24,739.76	\$878,850.61	\$903,590.37	0.55%	\$164,369,530.37	#REF!	0	#REF!	#REF!	10/28/2016
11.1	Waste Activated Sludge (WAS) Pump Station Structural Modifications (CR-023) PR 21146 (4286) Task 3505	C	IRWD	\$12,905.49						0				
11.2	Removable Slab Modifications on the Second Floor of Solids Handling Building (CR-064) PR 21146 (4286) Task 3505	C	IRWD	\$11,834.27						0				
12	Approved by Board of Directors Approved on July 21, 2014				\$156,580.22	\$903,590.37	\$1,060,170.59	0.65%	\$164,526,110.59	0	0	0	1,278	10/28/2016
12.1	Final Bid Quantity Adjustment for Bid Item No. 5.2 – Undocumented Fill (suitable) – Remedial Grading – Remove and Re-compact a net increase of 8,104.7 CY from 51,700 CY to 59,804.7 CY at \$5/CY. PR 21146 (4286) Task 3505	B	N/A	\$40,523.37						0				
12.2	Final Bid Quantity Adjustment for Bid Item No. 5.5 - Undocumented Fill (not suitable) - Remedial Grading - Remove and Export Offsite, a net increase of 60 CY, from 1,800 CY to 1,860 CY at \$25 /CY. PR 21146 (4286) Task 3505	B	N/A	\$1,500.00						0				
12.3	Final Bid Quantity Adjustment for Bid Item No. 5.6 - Geotextile Fabric - Remedial Grading, a net decrease of 5,414 SF, from 181,500 SF to 176,086 SF at \$0.40/SF. PR 21146 (4286) Task 3505	B	N/A	(\$2,165.60)						0				
12.4	Final Bid Quantity Adjustment for Bid Item No. 5.6 - Geotextile Fabric - Remedial Grading, a net decrease of 5,414 SF, from 181,500 SF to 176,086 SF at \$0.40/SF. PR 21146 (4286) Task 3505	B	N/A	(\$6,523.33)						0				
12.5	Final Bid Quantity Adjustment for Bid Item No. 5.8 - Undocumented Fill - Deep Foundations – Removal, a net increase of 966 CY, from 21,650 CY to 22,616 CY at \$5.50/CY. PR 21146 (4286) Task 3505	B	N/A	\$5,313.00						0				
12.6	Final Bid Quantity Adjustment for Bid Item No. 5.9 - Alluvium - Remedial Grading - Removal and Export Offsite, a net increase of 2,076 CY, from 28,154 CY to 30,230 CY at \$35/CY. PR 21146 (4286) Task 3505	B	N/A	\$72,665.98						0				
12.7	Final Bid Quantity Adjustment for Bid Item No. 5.10 - Undocumented Fill Deep Foundations - Compaction of stockpiled materials, a net increase of 3,117 CY, from 11,400 CY to 14,517 CY at \$15/CY. PR 21146 (4286) Task 3505	B	N/A	\$46,755.00						0				
12.8	Final Bid Quantity Adjustment for Bid Item No. 5.11 - Undocumented Fill - Deep Foundations - Export excess offsite a net decrease of 2,151 CY, from 10,250 CY to 8,099 CY PR 21146 (4286) Task 3505	B	N/A	(\$30,114.00)						0				

A - District Convenience/Initiation - Project Related
B - Differing Site Conditions
C - Design Oversight
D - District Convenience/Initiation - Non-Project Related
E - Contractor Convenience/Initiation
F - Contractor Requested Inspection Overtime

**MWRP Biosolids and Energy Recovery Facilities
PR 21146 (4286)
Construction Change Order Summary**

Contractor: Filanc/Balfour-Beatty
Design Engineer: Black & Veatch

				Contract Amount						Contract Days				Original Completion Date:
				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
Change Order	Description	Category	IRWD or FBB	Change Order Line Item Amount	Change Order Amount	Previous Change Orders	Cumulative Total of Change Orders	% of Original Contract Amount	Revised Contract Amount	Change Order Days	Previous Change Orders	Cum Total C.O. days	Revised Total Contract Days	Revised Completion Date
12.9	Final Bid Quantity Adjustment for Bid Item No. 5.12 - Geotextile Fabric - Deep Foundations, a net increase of 9,218 SF, from 51,500 SF to 60,718 SF at \$0.60/SF. PR 21146 (4286) Task 3505	B	N/A	\$5,530.80						0				
12.10	Final Bid Quantity Adjustment for Bid Item No. 5.13 - Aggregate Base - Deep Foundations, a net increase of 513.2 CY, from 2,860 CY to 3,373.2CY at \$45/CY. PR 21146 (4286) Task 3505	B	N/A	\$23,095.00						0				
13	Approved by Exe. Director of Engineering & Water Quality Approved on July 10, 2014				\$10,129.18	\$1,060,170.59	\$1,070,299.77	0.65%	\$164,536,239.77	0	0	0	1,278	10/28/2016
13.1	Modifications to Switchgear 16 (CR-070) PR 21146 (4286) Task 3510	A	FBB	\$10,129.18						0				
14	Approved by General Manager Approved on June 24, 2014				\$44,543.19	\$1,070,299.77	\$1,114,842.96	0.68%	\$164,580,782.96	0	0	0	1,278	10/28/2016
14.1	Slide Gates Clarification Regarding Actuators (CR-039) PR 21146 (4286) Task 3520	A	IRWD	\$44,543.19						0				
15	Approved by General Manager Approval on July 31, 2014				\$45,214.40	\$1,114,842.96	\$1,160,057.36	0.71%	\$164,625,997.36	0	0	0	1,278	10/28/2016
15.1	Provide Masonry Shelf Angle at Digester Control Building (CR-031) PR 21146 (4286) Task 3505	C	FBB	\$27,543.19						0				
15.2	Beam Size Increase for Monorail Runway in Solids Handling Building - (CR-074) PR 21146 (4286) Task 3505	C	FBB	\$1,200.47						0				
15.3	Upsize Odor Control Circulation Pump Motor Disconnects (CR-082) PR 21146 (4286) Task 3510	B	FBB	\$1,184.83						0				
15.4	Additional Deck Support for the Solids Handling Building Roof (CR-044) PR 21146 (4286) Task 3505	C	FBB	\$15,285.91						0				
16	Approved by E&O Committee Approved on August 19, 2014				\$62,037.10	\$1,160,057.36	\$1,222,094.46	0.75%	\$164,688,034.46	0	0	0	1,278	10/28/2016
16.1	Installation of Level 3 Diesel Particulate Filter (DPF) on the Standby Generator - (CR-073) PR 21146 (4286) Task 3520	B	IRWD	\$62,037.10						0				
17	Approved by Board of Directors Approved on August 25, 2014				(\$106,241.99)	\$1,222,094.46	\$1,115,852.47	0.68%	\$164,581,792.47	0	0	0	1,278	10/28/2016
17.1	Modifications to Switchgear 16 (CR-070A) PR 21146 (4286) Task 3510	A	FBB	(\$106,241.99)						0				
18	Approved by Board of Directors Approved on August 25, 2014				\$108,087.55	\$1,115,852.47	\$1,223,940.02	0.75%	\$164,689,880.02	0	0	0	1,278	10/28/2016
18.1	Stormwater Drainage System Modification (CR-017) PR 21146 (4286)	A	IRWD	\$108,087.55						0				

A - District Convenience/Initiation - Project Related
B - Differing Site Conditions
C - Design Oversight
D - District Convenience/Initiation - Non-Project Related
E - Contractor Convenience/Initiation
F - Contractor Requested Inspection Overtime

**MWRP Biosolids and Energy Recovery Facilities
PR 21146 (4286)
Construction Change Order Summary**

Contractor: Filanc/Balfour-Beatty
Design Engineer: Black & Veatch

				Contract Amount						Contract Days				Original Completion Date:
				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
Change Order	Description	Category	IRWD or FBB	Change Order Line Item Amount	Change Order Amount	Previous Change Orders	Cumulative Total of Change Orders	% of Original Contract Amount	Revised Contract Amount	Change Order Days	Previous Change Orders	Cum. Total C.O. days	Revised Total Contract Days	Revised Completion Date
19	Approved by Executive Director of Engineering & Water Quality Approved on September 30, 2014				\$72,572.86	\$1,223,940.02	\$1,296,512.88	0.79%	\$164,762,452.88	0	0	0	1,278	10/28/2016
19.1	Modification to Switchgear 16 (CR-070B) PR 21146 (4286) Task 3510	A	IRWD	\$1,125.75						0				
19.2	Alluvium Removal Due to 36-inch Storm Drain Installation (CR-085) PR 21146 (4286) Task 3520	B	N/A	\$14,140.00						0				
19.3	Additional Structural Support for Fats, Oils, and Grease (FOG) Grinders (CR-081) PR 21146 (4286) Task 3505	C	FBB	\$8,323.99						0				
19.4	Portable Lift Truck for 480V ABB Breakers (CR-108) PR 21146 (4286) Task 3510	A	IRWD	\$2,625.12						0				
19.5	Retaining Wall North and West of Biosolids Site (CR-010) PR 21146 (4286) Task 3505	B	IRWD	\$46,358.00						0				
20	Approved by Executive Director of Engineering & Water Quality Approved on November 19, 2014				\$54,485.63	\$1,296,512.88	\$1,350,998.51	0.83%	\$164,816,938.51	0	0	0	1,278	10/28/2016
20.1	Nitrogen Slab Modifications (CR-052) PR 21146 (4286) Task 3505	A	IRWD	\$24,855.80						0				
20.2	Additional Conduits and Circuits for the Access Control Systems for the Solids Handling Building and the Digester Control Building (CR-082) PR 21146	A	IRWD	\$3,412.13						0				
20.3	Digital Power Meters Change for SWGR-14 and SWGR-15 (CR-109) PR 21146 (4286) Task 3510	A	IRWD	\$3,863.22						0				
20.4	Truck Unloading Panel Modifications (CR-115) PR 21146 (4286) Task 3510	A	IRWD	\$12,843.50						0				
20.5	Switchgear SWGR-14 Modifications (CR-116) PR 21146 (4286) Task 3510	A	IRWD	\$9,510.98						0				
21	Approved by General Manager Approved on January 30, 2015				\$ 98,506.19	\$1,350,998.51	\$1,449,504.70	0.89%	\$164,915,444.70	0	0	0	1,278	10/28/2016
21.1	Additional Anchorage for Methane Digesters (CR-051A) PR 21146 (4286) Task 3520	B	FBB	\$92,367.44						0				
21.2	Additional Input/Outputs Review of Master I/O List (CR-136) PR 21146 (4286) Task 3510	C	FBB	\$6,138.75						0				

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**MWRP Biosolids and Energy Recovery Facilities
PR 21146 (4286)
Construction Change Order Summary**

Contractor: Filanc/Balfour-Beatty
Design Engineer: Black & Veatch

				Contract Amount						Contract Days				Original Completion Date:
				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
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22	Approved by Board of Directors Approved on February 9, 2015				\$964,324.51	\$1,449,504.70	\$2,413,829.21	1.48%	\$165,879,769.21	0	0	0	1,278	10/28/2016
22.1	Electrical Conduit Overfill (CR-055) PR 21146 (4286) Task 3510	C	FBB	\$485,250.28						0				
22.2	Heat Dryer Equipment Escalation Costs (CR-057) PR 21146 (4286) Task 3520	B	FBB	\$333,477.50						0				
22.3	Glass-lining Sludge Density Meters (CR-067) PR 21146 (4286) Task 3510	A	IRWD	\$71,010.74						0				
22.4	Switchgear-16 Enclosure (CR-040) PR 21146 (4286) Task 3510	C	FBB	\$56,882.30						0				
22.5	Propane Gas Tank Foundation Demolition (CR-084) PR 21146 (4286) Task 3505	C	IRWD	\$2,004.98						0				
22.6	Credit for travel costs related to inspection of centrifuges in Germany (CR-091) PR 21146 (4286) Task 3520	A	IRWD	(\$5,573.42)						0				
22.7	Deletion of MMC Switchgear-14 Breaker (CR-092) PR 21146 (4286) Task 3510	A	IRWD	(\$5,032.00)						0				
22.8	Increase of Fiber Optic Conduit Size (CR-097) PR 21146 (4286) Task 3510	C	IRWD	\$23,269.61						0				
22.9	Overtime to perform work in the Solids Handling electrical room (CR-103) PR 21146 (4286) Task 3510	A	IRWD	\$1,384.47						0				
22.10	Credit for modification to the Uninterruptible Power System (CR-118) PR 21146 (4286) Task 3510	A	IRWD	(\$9,771.72)						0				
22.11	Addition of Low Voltage Compartment in SCE Switch "C" (CR-160) PR 21146 (4286) Task 3510	A	IRWD	\$2,156.20						0				
22.12	Addition of input/output points relating to sump pumps located at the Solids Handling Building (CR-161) PR 21146 (4286) Task 3510	A	FBB	\$9,265.57						0				

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23	Approved by General Manager Approved on February 26, 2015				\$97,005.10	\$2,413,829.21	\$2,510,834.31	1.54%	\$165,976,774.31	0	0	0	1,278	10/28/2016
23.1	Additional Steel Reinforcement the Pellet Storage Silos Anchor Bolts (CR-094) PR 21146 (4286) Task 3505	B	FBB	\$5,514.57						0				
23.2	Differential Pressure Transmitter (CR-094) PR 21146 (4286) Task 3510	A	IRWD	\$2,535.33						0				
23.3	Additional Aluminum Trench Grating in Digester Control Building (CR-107) PR 21146 (4286) Task 3520	A	IRWD	\$7,552.11						0				
23.4	Light Weight Concrete for Electrical Conduits Underneath the Solids Handling Building Electrical Room (CR-113) PR 21146 (4286) Task 3510	A	IRWD	\$30,535.94						0				
23.5	Adding Energyjets Weir Plates to Dewatering Centrifuges – (CR-124) PR 21146 (4286) Task 3520	A	IRWD	\$11,139.25						0				
23.6	Provide Angle Supports for the Removable Slabs at the Solids Handling Building – (CR-137) PR 21146 (4286) Task 3520	A	IRWD	\$20,671.61						0				
23.7	Structural Modification at Solids Handling Building – (CR-140) PR 21146 (4286) Task 3520	C	FBB	\$1,109.42						0				
23.8	Increase of Fiber Optic Conduit Size (CR-097) PR 21146 (4286) Task 3510	A	IRWD	\$5,516.45						0				
23.9	Steel Joist Framing Modifications at Digester Control Building (CR-151) PR 21146 (4286) Task 3505	C	FBB	\$2,286.29						0				
23.10	WAS Valve Vault and Piping Modifications (CR-100) PR 21146 (4286) Task 3520	A	IRWD	\$10,144.13						0				
24	Approved by General Manager Approved on March 6, 2015				\$99,122.95	\$2,510,834.31	\$2,609,957.26	1.60%	\$166,075,897.26	0	0	0	1,278	10/28/2016
24.1	Coating of WAS/Primary Sludge Pump Stations & Sludge Wetwells per RFI-0612A (CR-127) PR 21146 (4286) Task 3505	A	FBB	\$99,122.95						0				
25	Approved by Board of Directors Approved on March 23, 2015				\$280,575.97	\$2,609,957.26	\$2,890,533.23	1.77%	\$166,356,473.23	0	0	0	1,278	10/28/2016
25.1	Lightning Protection for the Methane Digesters (CR-121) PR 21146 (4286) Task 3505	C	FBB	\$158,259.68						0				
25.2	Deflagration Quench Tubes outside of the Dryer Room (CR-143) PR 21146 (4286) Task 3505	B	FBB	\$122,316.29						0				

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Design Engineer: Black & Veatch

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26	Approved by Exe. Dir. Of Engineering & Water Quality Approved on April 14, 2015				\$74,815.79	\$2,890,533.23	\$2,965,349.02	1.81%	\$166,431,289.02	0	0	0	1,278	10/28/2016
26.1	UPS and Power Fail Alarms per RFI 357 (CR-056) PR 21146 (4286) Task 3510	C	FBB	\$3,646.82						0				
26.2	I/O Points for Methane Digester Sump Pumps per RFI-356 (CR-077) PR 21146 (4286) Task 3510	C	FBB	\$6,489.00						0				
26.3	Loss of Power Alarms to the SCADA Network per RFI-0393B (CR-093) PR	A	FBB	\$20,297.16						0				
26.4	FOG Flushing and Rock Trap Modifications per RFI-0534 (CR-101) PR 21146	A	IRWD	\$18,093.61						0				
26.5	Install Grounding Pig Tails in Solids Handling Building Area Electrical Room per RFI 0594 (CR-105) PR 21146 (4286) Task 3510	A	IRWD	\$1,593.10						0				
26.6	Additional Pushbuttons, Light and Relays for the FOG Receiving Control Panel (CR-114) PR 21146 (4286) Task 3510	A	IRWD	\$6,892.40						0				
26.7	Changes to the HMI Enclosures at the Sludge Receiving Area (CR-133) PR 21146 (4286) Task 3510	A	IRWD	\$7,114.17						0				
26.8	Provide Storage Shelf for Keyboard and Mouse to the HMI Enclosures at the Sludge Receiving Area (CR-135) PR 21146 (4286) Task 3510	A	IRWD	\$1,163.26						0				
26.9	Dewatering Feed Pump Station Guardrail Additions (CR-142) PR 21146 (4286) Task 3520	C	FBB	\$4,204.00						0				
26.10	Additional I/O Points for PLC-4300 (CR-156) PR 21146 (4286) Task 3510	C	FBB	\$3,035.28						0				
26.11	Shoring Revision to Roof Slab of Dewatering Feed Pump Station (CR-189) PR 21146 (4286) Task 3510	B	FBB	\$1,286.99						0				
26.12	Coating of the Sludge Receiving Bins (CR-199) PR 21146 (4286) Task 3520	A	FBB	\$1,000.00						0				
27	Approved by Board of Directors Approved on April 27, 2015				\$107,253.26	\$2,965,349.02	\$3,072,602.28	1.88%	\$166,538,542.28	0	0	0	1,278	10/28/2016
27.1	Modifications to Human-Machine Interface (HMI) for the Microturbine Area (CR-078) PR 21146 (4286) Task 3510	A	IRWD	\$29,744.43						0				
27.2	Modifications to the Piping and Automation Features at Fats, Oils, and Grease (FOG) Facility (CR-129) PR 21146 (4286) Task 3510	A	IRWD	\$35,771.81						0				
27.3	Structural Support to the Monorail at the Dewatering Feed Pump Station (CR-152) PR 21146 (4286) Task 3505	C	FBB	\$13,697.51						0				
27.4	Two Additional Magnetic Flowmeters at Polymer Feed System (CR-158) PR 21146 (4286) Task 3510	A	IRWD	\$9,522.81						0				
27.5	Modifications to PLCs at Sludge Receiving Area (CR-180) PR 21146 (4286) Task 3510	A	IRWD	\$18,516.70						0				

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28	Approved by Exe. Dir. Of Eng. & Water Quality Approved on May 15, 2015				\$74,550.35	\$3,072,602.28	\$3,147,152.63	1.93%	\$166,613,092.63	0	0	0	1,278	10/28/2016
28.1	Decanter Control Panel Modifications (CR-215) Task 3520	C	FBB	\$22,451.01						0				
28.2	Additional Structural Support in the Solids Handling Building (CR-075) Task 3505	C	FBB	\$12,028.44						0				
28.3	Additional Sump Pump Drain Line in the Bulk Polymer Storage Area (CR-119) Task 3520	C	FBB	\$1,433.86						0				
28.4	Install Three 5-inch conduits on Southwest Side of the Biosolids Site (CR-120) Task 3510	C	FBB	\$16,033.58						0				
28.5	Provide Power to Several Instruments Located at the Solids Handling Building and Digester Control Building (CR-154) Task 3520	C	FBB	\$3,454.91						0				
28.6	Install Foam Separator Drain at Digester Control Building (CR-167) Task 3520	C	FBB	\$11,013.75						0				
28.7	Install Support for 14-inch Plug Valve at Centrate Treatment Wetwell (CR-197) Task 3520	C	FBB	\$1,715.20						0				
28.8	Trench Modifications at the Sludge Cake Load-Out Area of the Solids Handling Building (CR-123) Task 3505	C	FBB	\$6,419.60						0				
29	Approved by Board of Directors Approved on June 22, 2015				\$225,971.77	\$3,147,152.63	\$3,373,124.40	2.06%	\$166,839,064.40	0	0	0	1,278	10/28/2016
29.1	Foul Air Pipe Supports in the Solids Handling Building Basement (CR-106) PR 21146 (4286) Task 3520	C	FBB	\$119,937.87						0				
29.2	Secondary Circuit Breaker for Transformer T-14 (CR-185) PR 21146 (4286) Task 3510	A	IRWD	\$106,033.90						0				

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30	Approved by Board of Directors Approved on July 27, 2015				(\$47,976.59)	\$3,373,124.40	\$3,325,147.81	2.03%	\$166,791,087.81	0	0	0	1,278	10/28/2016
30.1	Credit for Changing Storm Drain line from Ductile Iron to PVC (CR-042) PR 21146 (4286) Task 3520	A	IRWD	(\$1,890.92)						0				
30.2	Installation of Additional Digester Anchorage (CR-051B) PR21146 (4286) Task 3505	B	FBB	\$118,335.54						0				
30.3	Huber Screens I/O Modifications per RFI-0391 and RFI-0525A (CR-068) PR 21146 (4286) Task 3510	A	IRWD	\$12,579.20						0				
30.4	Credit for FBB's Portion of Partnering (CR-090) PR 21146 (4286) Task Deletion of Waterstops at Methane Digester Complex (CR-102) PR 21146 (4286) Task 3505	E	FBB	(\$81,948.33)						0				
30.5	Deletion of Bid Item No. 18.4 - Computers and Networking Hardware for the Control System (CR-138) PR 21146 (4286) Task 3510	A	IRWD	(\$200,000.00)						0				
30.6	Electrical and Gas Modifications (CR-146) PR 21146 (4286) Task 3510	C	IRWD	\$363,978.41						0				
30.7	Credit for Changing Heat Dryer Wet Material Mixer from A24 Steel to A36 Steel (CR-157) PR 21146 (4286) Task 3520	E	FBB	(\$2,392.66)						0				
30.8	Credit for Travel Cost of On-Site Inspection for Acid Phase Digester (CR-175) PR 21146 (4286) Task 3520	B	IRWD	(\$683.39)						0				
30.9	Heat Dryer I/O Modifications per RFI-0626 (CR-179) PR 21146 (4286) Task 3510	A	IRWD	\$11,191.41						0				
30.10	Decant Trough I/O Modifications per RFI-0979 (CR-202) PR 21146 (4286) Task 3510	A	IRWD	\$9,960.55						0				
30.11	Deletion of Interior Coating of Methane Digesters (CR-188) PR 21146 (4286) Task 3520	A	IRWD	(\$398,571.00)						0				
30.12	Piping Modifications and Addition of Carbon Canisters (CR-218) PR 21146 (4286) Task 3520	A	IRWD	\$88,076.01						0				
30.13	Pickling and Passivation of Sludge Mixers (CR-248) PR 21146 (4286) Task 3520	C	IRWD	\$73,997.23						0				
30.14	IRWD Costs Associated to Repairing the Pile and Installing Couplers (CR-139) PR 21146 (4286) Task 3505	E	FBB	(\$38,102.85)						0				

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31	Approved by Exe. Dir. Of Eng. & Water Quality Approved on July 28, 2015				\$74,999.74	\$3,325,147.81	\$3,400,147.55	2.08%	\$166,866,087.55	0	0	0	1,278	10/28/2016
31.1	Provide Circuit and Breaker for Standby Generator in the Microturbine Area (CR-170) PR 21146 (4286) Task 3510	C	FBB	\$4,296.86						0				
31.2	Additional Pipe Support for 14-inch Air Line at the Centrate Facility (CR-226) PR 21146 (4286) Task 3520	C	FBB	\$893.78						0				
31.3	Addition of E-stops (CR-128) PR 21146 (4286) Task 3510	A	FBB	\$57,916.71						0				
31.4	Structural Support of Jib Crane at Dewatering Feed Pump Station Stairwell (CR-243) PR 21146 (4286) Task 3520	C	FBB	\$11,892.39						0				
32	Approved by Exe. Dir. Of Eng. & Water Quality Approved on August 31, 2015				\$74,682.96	\$3,400,147.55	\$3,474,830.51	2.13%	\$166,940,770.51	0	0	0	1,278	10/28/2016
32.1	Additional Conduits and Circuits for Fire Alarm in the Solids Handling Building	A	IRWD	\$21,637.57						0				
32.2	Additional Davit Bases at Centrate Treatment Facility (CR-111) PR 21146 (4286) Task 3520	A	IRWD	\$1,809.77						0				
32.3	Additional Fire Alarm Panel in Digester Control Building (CR-169) PR 21146 (4286) Task 3510	A	IRWD	\$25,153.79						0				
32.4	Modifications to FOG Sump Pumps Controls (CR-177) PR 21146 (4286) Task 3510	A	IRWD	\$5,690.83						0				
32.5	Additional Truck Load-out Conveyor Input and Output (CR-201) PR 21146 (4286) Task 3510	A	IRWD	\$2,220.12						0				
32.6	Additional Spare Conduits in the Microturbine Area (CR-229) PR 21146 (4286) Task 3510	A	FBB	\$14,602.41						0				
32.7	Conduits for Electrical Disconnect Switch for Roll-Up Doors of the Digester Control Building (CR-230) PR 21146 (4286) Task 3510	A	IRWD	\$3,568.47						0				
33	Approved by Executive Director of Engineering & Water Quality Approved on September 30, 2015				\$58,247.75	\$3,474,830.51	\$3,533,078.26	2.16%	\$166,999,018.26	0	0	0		1/0/1900
33.1	Realignment of 8-inch Reclaimed Water Line at Gate 2 (CR-225) PR 21146 (4286) Task 3520	B	FBB	\$24,017.48						0				
33.2	Additional Conduits and Wires for Lighting Circuits to Minimize Voltage Drop (CR-228) PR 21146 (4286) Task 3510	C	IRWD	\$32,399.41						0				
33.3	Cable and Conduit Changes at Solids Handling Building and Dewatering Feed Pump Station (CR-231) PR 21146 (4286) Task 3510	C	IRWD	\$1,830.86						0				

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34	Approved by Board of Directors Approved on October 26, 2015				\$164,775.28	\$3,533,078.26	\$3,697,853.54	2.26%	\$167,163,793.54	0	0	0	1,278	10/28/2016
34.1	Credit for Third Submittal Review Through 05/31/2015 (CR-088) PR 21146 (4286) Task 1065	B	IRWD	(\$39,502.50)						0				
34.2	Credit for Overtime Inspection Hours Through 05/31/2015 (CR-089) PR 21146 (4286) Task 3520	F	FBB	(\$80,850.00)						0				
34.3	Credit for Special Inspections for Structural Anchors and Geotechnical Investigation (CR-295) PR 21146 (4286) Task 1065	A	IRWD	(\$27,500.00)						0				
34.4	Change in Knife Gate Valve Manufacturer (CR-187) PR 21146 (4286) Task 3520	E	FBB	\$275,954.90						0				
34.5	Credit for Changes in Low Voltage SWGR-14 Circuit Breaker (CR-163) PR 21146 (4286) Task 3510	A	IRWD	(\$1,978.00)						0				
34.6	Change to Addressable Smoke Detectors (CR-220) PR 21146 (4286) Task 3510	B	IRWD	\$38,650.88						0				
35	Approved by General Manager Approved on November 25, 2015				\$97,980.57	\$3,697,853.54	\$3,795,834.11	2.32%	\$167,261,774.11	0	0	0	1,278	10/28/2016
35.1	Change in Naming Convention for Storm Water Pump Station (Area 1500) SCADA Programming (CR-181) PR 21146 (4286) Task 3510	E	FBB	\$9,027.03						0				
35.2	Valve Status Override Functionality (CR-182) PR 21146 (4286) Task 3510	E	FBB	\$38,999.08						0				
35.3	Control Changes for Primary Sludge and Waste Activated Pump Stations (Area 1900) SCADA Programming (CR-184) PR 21146 (4286) Task 3510	A	IRWD	\$36,772.78						0				
35.4	Motor Protection Relay (CR-239) PR 21146 (4286) Task 3510	A	IRWD	\$13,181.68						0				
36	Approved by General Manager Approved on December 3, 2015				\$86,007.50	\$3,795,834.11	\$3,881,841.61	2.37%	\$167,347,781.61	0	0	0	1,278	10/28/2016
36.1	Light Weight Concrete for Underslab Conduits at Microturbine Area (CR-253) PR 21146 (4286) Task 3510	A	FBB	\$21,117.50						0				
36.2	Outstanding CB&I Items (CR-099A) PR 21146 (4286) Task 3520 - This change order includes: CR-098 (Guard Rail at Biogas Storage Tank); CR-099 (Tube Steel Supports); additional Off-Site Storage Costs; and credit for Use of SS 308 in Lieu of SS 316L Welds.	B	FBB	\$64,890.00						0				

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**MWRP Biosolids and Energy Recovery Facilities
PR 21146 (4286)
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Contractor: Filanc/Balfour-Beatty
Design Engineer: Black & Veatch

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37	Approved by Exe. Director of Engineering and Water Quality Approved on January 21, 2016				\$47,446.49	\$3,881,841.61	\$3,929,288.10	2.40%	\$167,395,228.10	0	0	0	1,278	10/28/2016
37.1	Additional Pressure Relief Valves in the Digester Control Building Slab (CR-112) PR 21146 (4286) Task 3520	C	IRWD	\$1,065.72						0				
37.2	Change Feeder Circuit Breaker Size in MCC-4102 (CR-165) PR 21146 (4286) Task 3510	C	IRWD	\$4,157.60						0				
37.3	Change Feeder Circuit Breaker Size for the Primary Sludge Pump Variable Frequency Drive (CR-233) PR 21146 (4286) Task 3510	C	IRWD	\$2,430.59						0				
37.4	SCADA Programming Changes Due to Change to Schweitzer Power Quality Additional Labeling of Parallel Conduits and Cables (CR-262) PR 21146 (4286) Task 3510	A	FBB	\$16,814.00						0				
37.5	Change in Sludge Receiving Entrance Beacon Operation CR-263) PR 21146 (4286) Task 3510	A	IRWD	\$5,382.19						0				
37.6	Anodize Aluminum Light Fixture Stanchions/Sun Shades (CR-283) PR 21146 (4286) Task 3510	A	IRWD	\$5,911.61						0				
37.7	Hot Tap 8-Inch ACP Potable Water Line (CR-311) PR 21146 (4286) Task 3520	A	FBB	\$3,274.78						0				

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38	Approved by General Manager Approved on February 29, 2016				\$83,345.07	\$3,929,288.10	\$4,012,633.17	2.45%	\$167,478,573.17	0	0	0	1,278	10/28/2016
38.1	Software Control Block Revision for Area 4300 – Dewatering (CR-211) PR 4286 Task 3510	C	FBB	\$18,908.76						0				
38.2	Revised Master List of SCADA Templates (CR-247) PR 4286 Task 3510	C	FBB	\$47,274.54						0				
38.3	Additional Overflow Alarms at Sludge Holding Tanks (CR-280) PR 4286 Task 3510	A	IRWD	\$9,654.54						0				
38.4	Leak Detection at Sulfuric Acid Facility (CR-290) PR 21146 (4286) Task 3510	A	IRWD	\$5,499.97						0				
38.5	Insulation for Acid Phase Gas Piping (CR-218A) PR 21146 (4286) Task 3520	A	IRWD	\$2,007.26						0				
39	Approved by General Manager Approved on March 7, 2016				\$98,006.46	\$4,012,633.17	\$4,110,639.63	2.51%	\$167,576,579.63	0	0	0	1,278	10/28/2016
39.1	SCE Installation - Final Accounting of Work Items Between Negotiated Change Order and Actual Work (CR-146E) PR 4286 Task 3510	B	FBB	\$7,809.51						0				
39.2	Installation of Southern California Gas (SCG) Boxes (CR-146F) PR 4286 Task 3510	A	FBB	\$3,479.81						0				
39.3	Schweitzer SEL-735 Power Monitors for Centrifuge Panels (CR-207) PR 4286 Task 3510	A	IRWD	\$34,274.40						0				
39.4	Hirschmann Ethernet Switches for Centrifuge Panels (CR-208) PR 4286 Task 3510	A	IRWD	\$9,569.15						0				
39.5	Addition of Sample Pump Variable Frequency Drives for Thickening Centrifuges (CR-237) PR 4286 Task 3520	E	IRWD	\$24,496.55						0				
39.6	Upgrade of Exit Signs and Ceiling Lights in the Gas Room of the Digester Control Building to NEC Class 1 Division 1 (CR-313) PR 4286 Task 352	A	IRWD	\$18,377.04						0				
40	Approved by General Manager Approved on April 20, 2016				\$97,287.05	\$4,110,639.63	\$4,207,926.68	2.57%	\$167,673,866.68	0	0	0	1,278	10/28/2016
40.1	Brace Plates in Solids Handling Building (CR-069) PR 4286 Task 3505	C	FBB	\$40,216.76						0				
40.2	Relocation of RIO-50 Panel (CR-186) PR 4286 Task 3510	B	FBB	\$4,818.64						0				
40.3	Addition of Two Doors at the bases of the stairways at Methane Digesters Nos 1 and No. 2 (CR-232) PR 4286 Task 3505	C	FBB	\$52,251.65						0				

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41	Approved By Board of Directors Approved on May 23, 2016				\$1,103,650.56	\$4,207,926.68	\$5,311,577.24	3.25%	\$168,777,517.24	0	0	0	1,278	10/28/2016
41.1	Additional SCE and SCG Modifications (CR-146A) PR 4286 Task 3510	B	FBB	\$51,238.69						0				
41.2	Additional Potholing Due to SCE and SCG Realignment (CR-146B) PR 4286 Task 3510	B	FBB	\$36,706.57						0				
41.3	Additional Cameras at the Unloading/Loading Area of the Solids Handling Facility (CR-164) PR 4286 Task 3505	A	IRWD	\$61,731.96						0				
41.4	Fire Sprinkler System Modifications – Mechanical (CR-174) PR 4286 Task 3520	B	IRWD	\$154,592.08						0				
41.5	Fire Sprinkler System Modifications – Electrical (CR-166) PR 4286 Task 3510	B	IRWD	\$13,730.06						0				
41.6	Fiber Optic System Modifications (CR-172/CR-306/CR-314) PR 4286 Task 3510	A	IRWD	\$178,879.46						0				
41.7	T-15, T-16, and T-17 Secondary Breakers (CR-185A, CR-185B, and CR-185C) PR 4286 Task 3510	A	IRWD	\$254,941.66						0				
41.8	Cable and Conduit Changes at the Sludge Receiving Area of the Solids Handling Building (CR-203) PR 4286 Task 3510	C	FBB	\$14,338.94						0				
41.9	Concrete Surface Treatment (CR-222) PR 4286 Task 3505	A	IRWD	\$68,714.34						0				
41.1	Heating Water Boiler Control Modifications (CR-246) PR 4286 Task 3510	A	IRWD	\$71,379.00						0				
41.11	SCADA Control Modifications for the Acid Phase Digesters, Methane Digesters, and Sludge Holding Tank (CR-252) PR 4286 Task 3510	A	IRWD	\$50,540.23						0				
41.12	Ambient Gas Analyzer Wiring Modification (CR-264) PR 4286 Task 3510	B	IRWD	\$19,734.51						0				
41.13	Disconnect Switches for Flow Valves in the Solids Handling Building (CR-272) PR 4286 Task 3510	C	IRWD	\$25,550.26						0				
41.14	Centrifuge Pedestal Modifications (CR-301) PR 4286 Task 3505	C	IRWD	\$30,603.14						0				
41.15	SCADA, Instrumentation, and Electrical Modifications (CR-287, CR-294, and CR-322) PR 4286 Task 3510	A	IRWD	\$70,969.66						0				

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42	Approved By Board of Directors Approved on May 23, 2016				(\$199,771.09)	\$5,311,577.24	\$5,111,806.15	3.13%	\$168,577,746.15	0	0	0	1,278	10/28/2016
42.1	Value Engineering of Chemical Pump Systems (CR-054) PR 4286 Task 3520	E	FBB	(\$48,549.90)						0				
42.2	Change in Lightning Protection Installation for Egg-Shaped Digesters (CR-121A) PR 4286 Task 3510	E	FBB	(\$97,141.74)						0				
42.3	Deletion of Seal Water Stations and Seal Water Piping (CR-214) PR 4286 Task 3520	A	IRWD	(\$10,557.28)						0				
42.4	Deletion of Low Pressure Switches for Centrate Pumps (CR-257) PR 4286 Task 3510	A	IRWD	(\$1,748.17)						0				
42.5	Centrifuge Seismic Restraint Design Costs (CR-345) PR 4286 Task 1065	A	IRWD	(\$24,064.00)						0				
42.6	Credit for Overtime Inspection Hours From 6/1/2015 to Through 12/31/2015 (CR-089B) PR 4286 Task 1065	F	FBB	(\$17,710.00)						0				
43	Approved by Exe. Director of Engineering and Water Quality Approved on May 31, 2016				\$74,731.69	\$5,111,806.15	\$5,186,537.84	3.17%	\$168,652,477.84	0	0	0	1,278	10/28/2016
43.1	Combustible Gas Detection System (CR-234) PR 21146 (4286) Task 3510	E	FBB	\$18,843.39						0				
43.2	Additional Wires and Cables Between MCC-4102 and PLC-4000 (CR-278) PR 21146 (4286) Task 3510	C	FBB	\$1,775.13						0				
43.3	SCADA Programming Modifications (CR-282) PR 21146 (4286) Task 3510	E	FBB	\$49,679.02						0				
43.4	Change of Waste Gas Burner Feeder Circuit Breaker (CR-344) PR 21146 (4286) Task 3510	B	FBB	\$4,434.15						0				
44	Approved by Exe. Director of Engineering and Water Quality Approved on June 29, 2016				\$74,912.99	\$5,186,537.84	\$5,261,450.83	3.22%	\$168,727,390.83	0	0	0	1,278	10/28/2016
44.1	Electrical and Telephonic Modifications for Elevators for Solids Handling Building and Digester Control Building (CR-037A) PR 4286 Task 3510	C	FBB	\$38,882.06						0				
44.2	Odor Control Recirculation Pump Selector Switch SCADA Modifications (CR-343) PR 4286 Task 3510	A	IRWD	\$9,294.71						0				
44.3	SCADA Valve Matrix Tables Animation Clarification for Milestone 1 (CR-353) PR 4286 Task 3510	A	IRWD	\$9,195.86						0				
44.4	PLC Status Object Update (CR-234) PR 4286 Task 3510	B	FBB	\$4,783.14						0				
44.5	Elevator Safety Beam in the Digester Control Building (CR-302) PR 4286 Task 3505	C	FBB	\$3,830.95						0				
44.6	Masonry Changes to the North Retaining Wall (CR-365) PR 4286 Task 3505	B	IRWD	\$8,926.27						0				

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45	Approved by Board of Directors Approved on July 25, 2016/December 20, 2016 Recovery Plan PR 4286 Task 3510	B	FBB	\$9,250,000.00	\$9,250,000.00	\$5,261,450.83	\$14,511,450.83	8.88%	\$177,977,390.83	368	0	368	1,646	10/31/2017
46	Approved by General Manager Approved on January 27, 2017				\$94,696.76	\$14,511,450.83	\$14,606,147.59	8.94%	\$178,072,087.59	0	368	368	1,646	10/31/2017
46.1	Additional Masonry Anchor in the Solids Handling Building (CR-200) PR 4286	C	IRWD	\$1,457.22						0				
46.2	Additional Auto Dialer (CR-234A) PR 4286 Task 3510	A	IRWD	\$6,081.90						0				
46.3	Grating and Handrail Modifications at Bulk Polymer Storage Platform (CR-300) PR 4286 Task 3505	A	IRWD	\$5,568.83						0				
46.4	SCADA IP Address Update (CR-309) PR 4286 Task 3510	A	IRWD	\$1,227.96						0				
46.5	Masonry Modifications at Solids Handling Building Stairwell (CR-324) PR 4286 Task 3505	C	FBB	\$5,939.45						0				
46.6	Change in Valve Operator at the Centrate Treatment Facility (CR-329) PR 4286 Task 3520	A	IRWD	\$4,824.29						0				
46.7	Boot Wash Landing Addition (CR-349) PR 4286 Task 3505	C	FBB	\$1,834.60						0				
46.8	Updating Valve Analog SCADA Template (CR-354) PR 4286 Task 3510	A	IRWD	\$692.72						0				
46.9	Additional Light Fixtures and Lamps (CR-355A) PR 4286 Task 3510	A	IRWD	\$8,508.46						0				
46.10	Addition of Rebate Angle in the FOG Unloading Sump Area (CR-363) PR 4286 Task 3505	A	IRWD	\$763.62						0				
46.11	MCC-4103 Hot Water Circulation Pump Breakers Change (CR-366) PR 4286 Task 3510	B	IRWD	\$2,316.03						0				
46.12	MCC-4100/4101 Cake Transfer Pump Breakers Change (CR-370) PR 4286 Task 3510	B	IRWD	\$23,720.61						0				
46.13	MCC-4102 Breaker Change (CR-374) PR 4286 Task 3510	B	IRWD	\$2,316.03						0				
46.14	SCADA Programming Modifications During Benchtest No.1 for Areas 1900 and 2000 (CR-376) PR 4286 Task 3510	A	IRWD	\$24,092.32						0				
46.15	Additional Light Fixture Above Door in Digester Control Building Gas Room (CR-399) PR 4286 Task 3510	A	IRWD	\$1,478.19						0				
46.16	Change in Size of Disconnect Switches for Digested Sludge Mixers (CR-408) PR 4286 Task 3510	B	FBB	\$1,290.10						0				
46.17	Additional Thickening Feed Grinder Control Panel Circuits (CR-438) PR 4286 Task 3510	B	IRWD	\$1,286.63						0				
46.18	Thickness and Glazing Change for Windows (CR-438) PR 4286 Task 3510	C	IRWD	\$1,297.80						0				

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47	Approved by General Manager Approved on February 28, 2017				\$96,414.36	\$14,606,147.59	\$14,702,561.95	8.99%	\$178,168,501.95	0	368	368	1,646	10/31/2017
47.1	Relocation of Neutralization Tank Drainage Piping PR 4286 Task 3520	B	FBB	\$2,312.08						0				
47.2	Modifications to Digester Control Building Door and Piping Due to Heating Water Expansion Tank Pad Adjustment (CR-221) PR 4286 Task 3505	C	FBB	\$5,500.74						0				
47.3	PLC-3100 Changes (CR-284) PR 4286 Task 3510	C	FBB	\$1,070.38						0				
47.4	Additional Angle Support to Acid Phase Digester Bridges (CR-298) PR 4286 Task 3505	C	FBB	\$4,986.21						0				
47.5	Additional Potable Water Gate Valves (CR-332) PR 4286 Task 3520	A	IRWD	\$3,892.44						0				
47.6	T-4 Kirk Key Interlock Installation (CR-335) PR 4286 Task 3510	B	IRWD	\$6,924.69						0				
47.7	Solids Handling Building Dumpster Room Channel Frames Modifications (CR-338) PR 4286 Task 3505	C	FBB	\$5,093.87						0				
47.8	PCS Server Configuration Clarification (CR-352) PR 4286 Task 3510	A	IRWD	\$6,824.35						0				
47.9	Additional Anchorage Support for Ledgers of the Digester Control Building Roof (CR-361) PR 4286 Task 3505	C	FBB	\$13,794.95						0				
47.10	Change of MCC-4103 Hot Water Circulation Pump Breakers (CR-366B) PR 4286 Task 3510	A	IRWD	\$1,336.13						0				
47.11	Centrate Treatment Facility Pull Boxes Duct Bank Settlement (CR-383) PR 4286 Task 3510	B	FBB	\$3,300.13						0				
47.12	Modifications to the MCC-4100/4101/4102/4103 (CR-405) PR 4286 Task 3510	B	FBB	\$7,418.52						0				
47.13	Cake Storage Hopper Modifications (CR-421) PR 4286 Task 3510	C	FBB	\$2,250.67						0				
47.14	Removing Installed Lighting in the Solids Handling Building (CR-427) PR 4286 Task 3510	A	IRWD	\$8,947.37						0				
47.15	Electrical Changes for Generator MPC (CR-430) PR 4286 Task 3510	A	IRWD	\$10,950.14						0				
47.16	Electrical Modifications to MCC-4100 and 4103 (CR-431) PR 4286 Task 3510	A	FBB	\$4,500.00						0				
47.17	Occupancy Sensors in the Solids Handling Building Shower Areas (CR-444) PR 4286 Task 3510	C	FBB	\$1,601.36						0				
47.18	Digester Gas Pre-Treatment In-Slab Conduit Size Change (CR-454) PR 4286 Task 3510	C	FBB	\$5,710.33						0				

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48	Approved by Board of Directors Approved on March 13, 2017				\$728,237.74	\$14,702,561.95	\$15,430,799.69	9.44%	\$178,896,739.69	0	368	368	1,646	10/31/2017
48.1	Structural Modifications of the Elevator Shafts (CR-037) PR 4286 Task 3505200) PR 4286 Task 3505	B	FBB	\$58,705.90						0				
48.2	SCADA Programming Update of Polymer Feed and Storage System (CR-148A) PR 4286 Task 3510	A	FBB	\$23,685.14						0				
48.3	Stairs and Platform at SHB Load-Out Area (CR-149) PR 4286 Task 3505	C	FBB	\$39,622.65						0				
48.4	Additional Polymer Dilution Flow Meters and Associated Conduits and Cables (CR-159B) PR 4286 Task 3510	A	IRWD	\$38,978.70						0				
48.5	Miscellaneous Andritz Items (CR-205) PR 4286 Task 3520	A	IRWD	\$41,246.71						0				
48.6	RIO-4001 Changes (CR-286) PR 4286 Task 3510	A	IRWD	\$27,889.74						0				
48.7	RIO-3102 Changes (CR-310) PR 4286 Task 3510	A	IRWD	\$18,280.62						0				
48.8	Mini Power Center - Additional Outlet and Data Locations in the SHB (CR-419) PR 4286 Task 3510	A	IRWD	\$13,261.60						0				
48.9	New Lighting in the SHB First Floor Area (CR-427A) PR 4286 Task 3510	A	IRWD	\$102,503.46						0				
48.10	Additional Conduits and Cables for Thermocouples for Several Pumps (CR-424, CR-424A through CR-424F) PR 4286 Task 3510	B	FBB	\$54,982.68						0				
48.11	Additional Wall Panel Framework at the SHB (CR-445) PR 4286 Task 3505	C	FBB	\$128,000.00						0				
48.12	Changes in Uninterruptible Power Supply Units (CR-162/CR-162A) PR 4286 Task 3510	A	IRWD	\$128,052.94						0				
48.13	Addition of Circuit Breaker at Transformer T-14 (CR-474) PR 4286 Task 3510	A	IRWD	\$53,027.60						0				

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49	Approved by Board of Directors Approved on March 13, 2017				(\$47,099.20)	\$15,430,799.69	\$15,383,700.49	9.41%	\$178,849,640.49	0	368	368	1,646	10/31/2017
49.1	Related Mechanical Piping Modifications Due to Change in Chemical Pumps in CCO No. 42 (CR-054A) PR 4286 Task 3520	E	FBB	(\$23,897.73)						0				
49.2	Changing the Solids Handling Building Roofing from EPDM to PVC (CR-255) PR 4286 Task 3505	E	FBB	(\$9,000.00)						0				
49.3	Net Reduction of Scope of Work in CR-353 – SCADA Valve Matrix Tables Animation Clarifications (CR-353B/353C) PR 4286 Task 3510	A	IRWD	(\$4,429.09)						0				
49.4	Change in Starters for MCC-4100/4101 Cake Transfer Pump Breakers (CR-370A) PR 4286 Task 3510	A	IRWD	(\$4,047.43)						0				
49.5	Deletion of Insulation for the Solids Handling Building Foundation (CR-393) PR 4286 Task 3505	A	IRWD	(\$5,724.95)						0				
50	Approved by Executive Director of Engineering & Water Quality Approved on March 31, 2017				\$72,150.89	\$15,383,700.49	\$15,455,851.38	9.46%	\$178,921,791.38	0	368	368	1,646	10/31/2017
50.1	Electrical Modifications to FOG Local Control Panel 70-LCP-0710 (CR-304) PR 4286 Task 5.30	A	IRWD	\$6,614.77						0				
50.2	Condensate Modifications at Digester Gas Pre-Treatment Area (CR-312) PR 4286 Task 5.31	C	FBB	\$9,826.09						0				
50.3	Installation of Lindapters Instead of Eye Bolts (CR-413) PR 4286 Task 5.29	A	FBB	\$13,346.01						0				
50.4	T-5 Connection to Biosolids Switch-14 (CR-480) PR 4286 Task 5.30	A	IRWD	\$35,170.26						0				
50.5	Polymer Feeder Blender Skids Flow Element Grounding Conductor (CR-482) PR 4286 Task 5.30	C	IRWD	\$7,193.76						0				
51	Approved by Executive Director of Engineering & Water Quality Approved on March 31, 2017				(\$126,390.00)	\$15,455,851.38	\$15,329,461.38	9.38%	\$178,795,401.38	0	368	368	1,646	10/31/2017
51.1	Credit for Overtime Inspection Hours From 1/1/2016 to Through 12/31/2016 (CR-089C) PR 4286 Task 4.0	F	IRWD	(\$97,570.00)						0				
51.2	Credit for Overtime Inspection Hours From 1/1/2017 to Through 03/31/2017 (CR-089D) PR 4286 Task 4.0	E	IRWD	(\$28,820.00)						0				

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**MWRP Biosolids and Energy Recovery Facilities
PR 21146 (4286)
Construction Change Order Summary**

Contractor: Filanc/Balfour-Beatty
Design Engineer: Black & Veatch

				Contract Amount						Contract Days				Original Completion Date:
				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
Change Order	Description	Category	IRWD or FBB	Change Order Line Item Amount	Change Order Amount	Previous Change Orders	Cumulative Total of Change Orders	% of Original Contract Amount	Revised Contract Amount	Change Order Days	Previous Change Orders	Cum. Total C.O. days	Revised Total Contract Days	Revised Completion Date
52	Approved by General Manager Approved on April 28, 2017				\$98,342.16	\$15,329,461.38	\$15,427,803.54	9.44%	\$178,893,743.54	0	368	368	1,646	10/31/2017
52.1	Removal of Unsuitable Alluvium (CR-146H) PR 4286 Task 5.29	B	FBB	\$3,564.32						0				
52.2	Polymer Dilution Water Flowmeters (CR-159A) PR 4286 Task 5.31	A	IRWD	\$14,090.39						0				
52.3	Aluminum Handrail and Guardrail Modifications at Liquid Chemical and Polymer Areas (CR-171) PR 4286 Task 5.30	A	IRWD	\$13,765.20						0				
52.4	Modifications Due to Solids Handling Building Electrical Room Equipment Clearance Issues (CR-196) PR 4286 Task 5.30	C	FBB	\$9,382.01						0				
52.5	Data and Telephone Outlets in Solids Handling Building (CR-261) PR 4286 Task 5.30	A	IRWD	\$27,620.21						0				
52.6	HVAC Duct Modifications in Dewatering Feed Pump Station (CR-268) PR 4286 Task 5.31	C	FBB	\$16,023.50						0				
52.7	Coating of 8 Roll-up doors (CR-358) PR 4286 Task 5.29	A	IRWD	\$5,710.32						0				
52.8	Upsizing Wire Size of Dewatering Feed Pump Station Main Breaker Light Panel LP-3501 (CR-390) PR 4286 Task 5.30	A	IRWD	\$1,449.75						0				
52.9	Modifications to the Roofs of the Solids Handling Building and Digester Control Building (CR-528) PR 4286 Task 5.29	A	IRWD	\$6,736.46						0				
53	Exe. Director of Water Quality and Engineering Approved on June 5, 2017				\$42,281.96	\$15,427,803.54	\$15,470,085.50	9.46%	\$178,936,025.50	0	368	368	1,646	10/31/2017
53.1	Modifications to Regenerative Thermal Oxidizer (RTO) Drainage and Utility Water Piping (CR-267) PR 4286 Task 5.31	C	IRWD	\$33,814.80						0				
53.2	Modifications to Liquid Chemical Feed Control Panel Wiring (CR-396) per RFI-1602 PR 4286 Task 5.30	C	FBB	\$8,467.16						0				
54	Approved by General Manager Approved on June 19, 2017				\$44,210.51	\$15,470,085.50	\$15,514,296.01	9.49%	\$178,980,236.01	0	368	368	1,646	10/31/2017
54.1	Modifications to Thickening and Dewatering Platforms (CR-195) PR 4286 Task 5.29	C	FBB	\$44,210.51						0				
55	Approved by General Manager Approved on July 3, 2017				\$94,352.43	\$15,514,296.01	\$15,608,648.44	9.55%	\$179,074,588.44	0	368	368	1,646	10/31/2017
55.1	Additional Pipe Supports of 54-Inch Fiberglass Reinforced Air Duct (CR-106A) PR 4286 Task 5.29	C	FBB	\$14,211.18						0				
55.2	Natural Gas Step Down Manifolds and Gas Transition Piping (CR-146G) PR	B	IRWD	\$20,489.32						0				
55.3	Modifications to the West End Stair Landing of the Solids Handling Building (CR-315) PR 4286 Task 5.29	B	IRWD	\$5,622.11						0				

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**MWRP Biosolids and Energy Recovery Facilities
PR 21146 (4286)
Construction Change Order Summary**

Contractor: Filanc/Balfour-Beatty
Design Engineer: Black & Veatch

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				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
Change Order	Description	Category	IRWD or FBB	Change Order Line Item Amount	Change Order Amount	Previous Change Orders	Cumulative Total of Change Orders	% of Original Contract Amount	Revised Contract Amount	Change Order Days	Previous Change Orders	Cum. Total C. O. days	Revised Total Contract Days	Revised Completion Date
55.4	Regenerative Thermal Oxidizer (RTO) Pad Modifications (CR-400) PR 4286 Task 5.29	C	FBB	\$8,471.16						0				
55.5	Addition of Thin Client at the Dryer Facility (CR-485) PR 4286 Task 5.30	A	IRWD	\$36,874.10						0				
55.6	Change in Size to 2 Check Valves in the Digester Control Building (CR-514) PR 4286 Task 5.31	C	FBB	\$8,684.56						0				
56	Approved by Board Approved on July 24, 2017				\$201,744.33	\$15,608,648.44	\$15,810,392.77	9.67%	\$179,276,332.77	0	368	368	1,646	10/31/2017
56.1	Addition Of Stairs and Platform to RTO (CR-266) PR 4286 Task 5.29	A	IRWD	\$101,744.33						0				
56.2	Microturbine CLC (ESC Capstone) per RFI 1141 (CR-277) PR 4286 Task 5.30	B	FBB	\$100,000.00						0				
57	Approved by General Manager Approval on August 5, 2017				\$98,886.90	\$15,810,392.77	\$15,909,279.67	9.73%	\$179,375,219.67	0	368	368	1,646	10/31/2017
57.1	Additional Support at Digester Control Building (CR-342) PR 04286 Task 5.29	C	IRWD	\$2,522.47						0				
57.2	Pipe and Duct Hanger Modifications (CR-362) PR 04286 Task 5.29	C	IRWD	\$4,083.12						0				
57.3	Increase Wire Size of Main Breaker PP-3501 (CR-418) PR 04286 Task 5.30	C	FBB	\$696.66						0				
57.4	Roof Vent at DCB Elevator/Stair Tower (CR-437) PR 04286 Task 5.29	B	IRWD	\$8,563.72						0				
57.5	T-14 Fixed Type Manual Operator per Submittal 16443-0016A (CR-540) PR 04286 Task 5.31	C	IRWD	\$1,945.62						0				
57.6	Area Classification at Methane Digesters to meet NFPA Table 6.2(a) - Plug Valves Limit Switches (CR-557) PR 04286 Task 5.30	C	FBB	\$64,195.15						0				
57.7	Area Classification at Methane Digesters to meet NFPA Table 6.2(a) - Sump Pump Cable Retrofit PR 04286 Task 5.30	C	FBB	\$16,880.16						0				

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**MWRP Biosolids and Energy Recovery Facilities
PR 21146 (4286)
Construction Change Order Summary**

Contractor: Filanc/Balfour-Beatty
Design Engineer: Black & Veatch

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				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
Change Order	Description	Category	IRWD or FBB	Change Order Line Item Amount	Change Order Amount	Previous Change Orders	Cumulative Total of Change Orders	% of Original Contract Amount	Revised Contract Amount	Change Order Days	Previous Change Orders	Cum. Total C.O. days	Revised Total Contract Days	Revised Completion Date
58	Approved by Board of Directors Approval on August 28, 2017				\$182,938.94	\$15,909,279.67	\$16,092,218.61	9.84%	\$179,558,158.61	0	368	368	1,646	10/31/2017
58.1	Concrete Cap over Shallow Pipe Crossings (CR-348) PR 04286 Task 5.31	B	FBB	\$7,923.00						0				
58.2	Additional Conduit and Wiring for Sludge Screen Moisture Sensors (CR-381) PR 04286 Task 5.30	C	FBB	\$8,355.32						0				
58.3	SCADA Programming Modifications (CR-433/476/546/547/551) PR 04286 Task 5.30	A	IRWD	\$15,758.38						0				
58.4	Polymer Storage Power Panels Wire and Breaker Modifications (CR-456) PR 04286 Task 5.30	C	FBB	\$24,238.65						0				
58.5	Odor Control Starter Modifications (CR-466) PR 04286 Task 5.30	B	FBB	\$41,436.09						0				
58.6	Odor Control Fan Remote Temperature Device Revisions (CR-522) PR 04286 Task 5.30	A	IRWD	\$52,484.50						0				
58.7	Re-location of Digester Control Building Gas Room Local Control Panels (CR-534) PR 04286 Task 5.30	A	FBB	\$32,743.00						0				
59	Approved by Exe. Director of Water Quality and Engineering Approval on September 6, 2017				\$98,988.68	\$16,092,218.61	\$16,191,207.29	9.90%	\$179,657,147.29	0	368	368	1,646	10/31/2017
59.1	Modifications to Building 101 (CR-212) PR 04286 Task 5.30	E	FBB	\$26,500.00										
59.2	Change in Conduit Size in Area 20 (CR-292) PR 04286 Task 5.10	C	FBB	\$1,946.70						0				
59.3	Centrifuge Discharge Cake Conveyors Schematic Modifications (CR-422) PR 04286 Task 5.10	C	FBB	\$6,410.04						0				
59.4	Power Monitor Programming Modifications (CR-539) PR 04286 Task 5.10	A	IRWD	\$2,595.60						0				
59.5	SCADA Programming Modifications (CR-547A) PR 04286 Task 5.10	A	IRWD	\$1,574.86						0				
59.6	Change in Area Classification at Methane Digesters to meet NFPA Standards - MOVs (CR-557B) PR 04286 Task 5.10	C	FBB	\$54,736.73						0				
59.7	FOG Heating Disconnect Switch Relocation (CR-559) PR 04286 Task 5.10	C	FBB	\$5,224.75						0				
60	Approved by Exe. Director of Water Quality and Engineering Approval on September 5, 2017				(\$34,540.00)	\$16,191,207.29	\$16,156,667.29	9.88%	\$179,622,607.29	0	368	368	1,646	10/31/2017
60.1	Credit for Overtime Inspection Hours From 4/1/2017 Through 6/30/2017 (CR-089E) PR 04286 Task 4.0	F	FBB	(\$34,540.00)						0				

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**MWRP Biosolids and Energy Recovery Facilities
PR 21146 (4286)
Construction Change Order Summary**

Contractor: Filanc/Balfour-Beatty
Design Engineer: Black & Veatch

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61	Approved by Exe. Director of Water Quality and Engineering Approved on September 6, 2017 61.1 Credit for Bulk Polymer Storage Changes per RFI-0863 and Submittal 15140-013B (CR-168) PR 04286 Task 5.16	E	FBB	(\$1,752.39)	(\$1,752.39)	\$16,156,667.29	\$16,154,914.90	9.88%	\$179,620,854.90	0	368	368	1,646	10/31/2017
62	Approved by Board of Directors Approved on October 9, 2017 62.1 Fats, Oil, and Grease (FOG) Modifications (CR-223A) PR 04286 Task 5.30 62.2 Density Meter Conduit and Cabling Modifications (CR-326) PR 04286 Task 5.30 62.3 Fiber Optic Modifications (CR-356) PR 04286 Task 5.30 62.4 Sludge Screen Pneumatic Control Panel Conduit and Cabling (CR-380) PR 04286 Task 5.30 62.5 Additional Circuits for Control of the Thickening Centrifuges (CR-386) PR 04286 Task 5.30 62.6 Upsize of Power Panel PP-8001 Circuit Breaker (CR-414) PR 04286 Task 5.30 62.7 Electrical Power Feeders to Electric Water Heater (CR-426) PR 04286 Task 5.30 62.8 Chemical Sump Pump Control Panel Space Heater Wiring Modifications (CR-461) PR 04286 Task 5.30 62.9 Relocate Electrical Feeders to Generator Bus (CR-462) PR 04286 Task 5.30 62.10 Electrical and Instrumentation Related Components for the Installation of Thin Client at Dryer Facility (CR-485A) PR 04286 Task 5.30 62.11 Polymer Room Eye Wash Station Flow Switches (CR-535) PR 04286 Task 5.30 62.12 Chemical Storage and Feed Modifications (CR-563) PR 04286 Task 5.30 62.13 PLC Redundancy Hot Standby Status Register (CR-568) PR 04286 Task 5.30	A	IRWD	\$52,174.90	\$708,162.72	\$16,154,914.90	\$16,863,077.62	10.32%	\$180,329,017.62	0	368	368	1,646	10/31/2017

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**MWRP Biosolids and Energy Recovery Facilities
PR 21146 (4286)
Construction Change Order Summary**

Contractor: Filano/Balfour-Beatty
Design Engineer: Black & Veatch

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				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
Change Order	Description	Category	IRWD or FBB	Change Order Line Item Amount	Change Order Amount	Previous Change Orders	Cumulative Total of Change Orders	% of Original Contract Amount	Revised Contract Amount	Change Order Days	Previous Change Orders	Cum. Total C. O. days	Revised Total Contract Days	Revised Completion Date
63	Approved by General Manager Approved on October 2, 2017				\$91,766.09	\$16,863,077.62	\$16,954,843.71	10.37%	\$180,420,783.71	0	368	368	1,646	10/31/2017
63.1	Electrical Modifications to RIO-2001 (CR-269) PR 04286 Task 5.30	C	IRWD	\$30,563.48						0				
63.2	Modifications to RIO-4002 (CR-285) PR 04286 Task 5.30	C	FBB	\$14,563.39						0				
63.3	Cap for 12-Inch Storm Drain (CR-351) PR 04286 Task 5.16	B	FBB	\$2,394.54						0				
63.4	Access Hatch for Regenerative Thermal Oxidizer Pipe Chase (CR-473) PR 04286 Task 5.31	C	FBB	\$3,958.91						0				
63.5	Electrical Upgrades to RIO-4002 (CR-447) PR 04286 Task 5.30	A	FBB	\$40,285.77						0				
64	Approved by Board of Directors Approved on October 23, 2017				\$231,100.22	\$16,954,843.71	\$17,185,943.93	10.51%	\$180,651,883.93	0	368	368	1,646	10/31/2017
64.1	Modifications to Centrate Treatment Facility Stairs (CR-379) PR 04286 Task 5.29	B	FBB	\$9,758.16						0				
64.2	Modifications to Ductwork in Solids Handling Building (CR-401) PR 04286 Task 5.31	C	FBB	\$9,537.05						0				
64.3	Electrical Conduits and Wires for Additional Bridge Breakers for Cake Receiving Pumps (CR-416) PR 04286 Task 5.30	B	FBB	\$21,678.83						0				
64.4	Handrail Modifications at the Methane Digesters (CR-472) PR 04286 Task 5.29	B	FBB	\$22,154.53						0				
64.5	Electrical and Instrumentation Related Components for the Installation of Thin Client at Dryer Facility (CR-485B) PR 04286 Task 5.30	A	IRWD	\$53,090.84						0				
64.6	Electrical Modifications at the Motor Control Centers for the Acid Phase Sludge Heating Recirculation Pumps (CR-517) PR 04286 Task 5.30	A	IRWD	\$47,611.11						0				
64.7	FOG Receiving Pumps Thermocouple and Thermostat Wiring (CR-525) PR 04286 Task 5.30	C	FBB	\$37,826.58						0				
64.8	SCADA Programming Changes (CR-537/570/573/573A) PR 04286 Task 5.30	A	IRWD	\$23,694.13						0				
64.9	Change of Limit Switches for Buried Service (CR-560) PR 04286 Task 5.30	C	FBB	\$5,748.99						0				

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**MWRP Biosolids and Energy Recovery Facilities
PR 21146 (4286)
Construction Change Order Summary**

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65	Approved by Board of Directors Approved on October 23, 2017				\$149,591.14	\$17,185,943.93	\$17,335,535.07	10.60%	\$180,801,475.07	0	368	368	1,646	10/31/2017
65.1	Additional Conduits and Wires for the Engine Generator, Switchgear-16, and Switchgear-16 Programmable Logic Controller (CR-204) PR 04286 Task 5.30	C	FBB	\$100,000.00						0				
65.2	Modifications to Spirac Conveyor in the Solids Handling Building (CR-409) PR 04286 Task 5.31	B	FBB	\$13,641.00						0				
65.3	Additional Metal Bridge Walkway Structural Support Angles (CR-420) PR 04286 Task 5.29	B	FBB	\$35,950.14						0				
66	Approved by General Manager Approved on November 30, 2017				\$98,201.20	\$17,335,535.07	\$17,433,736.27	10.67%	\$180,899,676.27	0	368	368	1,646	10/31/2017
66.1	SCADA Programming Modifications and Updates (CR-247A/CR-469/CR-485C/CR-571/CR-575A/CR-579/CR-580/CR-585) PR 04286 Task 5.30	A	IRWD	\$61,734.78						0				
66.2	Installation of Sump Pump Floats (CR-452) PR 04286 Task 5.31	A	IRWD	\$17,228.56						0				
66.3	Electrical Work Associated with Air Handling/Heating Units, Recycle Bin Feed Conveyor, and Recycle Bucket Elevator in the Solids Handling Building (CR-457/CR-529) PR 04286 Task 5.30	B	IRWD	\$11,003.85						0				
66.4	Additional Wires and Conduits for FOG Receiving Valves (CR-565) PR 04286 Task 5.30	B	FBB	\$6,368.21						0				
66.5	Additional Door Cover Plates for MCC-4100 and MCC-4101	B	IRWD	\$1,865.80						0				
67	Approved by Exe. Dir of Engineering and Water Quality Approved on November 30, 2017				(\$53,626.83)	\$17,433,736.27	\$17,380,109.44	10.63%	\$180,846,049.44	0	368	368	1,646	10/31/2017
67.1	Credit for Overtime Inspection Hours from 07/1/2017 to 09/30/2017 (CR-089F) PR 04286 Task 4.0	F	FBB	(\$19,140.00)						0				
67.2	Credit for Additional Conduits and Wires for the Engine Generator, Switchgear-16, and Switchgear-16 Programmable Logic Controller (CR-204A) PR 04286 Task 5.30	E	FBB	(\$13,591.83)						0				
67.3	Deletion of Pavement Prime Coat (CR-331D) PR 04286 Task 5.29	A	IRWD	(\$20,895.00)						0				

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**MWRP Biosolids and Energy Recovery Facilities
PR 21146 (4286)
Construction Change Order Summary**

Contractor: Filanc/Balfour-Beatty
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				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
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68	Approved by Board of Directors Approved on December 11, 2017				\$569,553.19	\$17,380,109.44	\$17,949,662.63	10.98%	\$181,415,602.63	0	368	368	1,646	10/31/2017
68.1	Fats, Oil, and Grease (FOG) Modifications (CR-223) PR 04286 Task 5.30	A	IRWD	\$83,648.47						0				
68.2	Additional Electrical Outlets and Circuits in the Solids Handling Building (CR-453) PR 04286 Task 5.30	A	IRWD	\$44,054.83						0				
68.3	Control Panel Modifications in the Methane Digester Complex (CR-545) PR 04286 Task 5.30	C	IRWD	\$55,414.03						0				
68.4	Additional Electrical, Instrumentation, and Controls for the Heat Dryer System (CR-270 and CR-471A through CR-471G, CR-496, and CR-555) PR 04286 Task 5.30	B	FBB	\$386,435.86						0				
69	Approved by General Manager Approved on December 20, 2017				\$90,846.69	\$17,949,662.63	\$18,040,509.32	11.04%	\$181,506,449.32	0	368	368	1,646	10/31/2017
69.1	Power Supply Failure Alarms for Acid Gas Boosters (CR-477) PR 04286 Task 5.30	A	IRWD	\$10,965.90						0				
69.2	Addition of Waste Gas Burner Instrument Air Compressor System (Electrical) (CR-484A) PR 04286 Task 5.30	C	IRWD	\$8,046.52						0				
69.3	Circuit Breaker for MOC-2034 (CR-541) PR 04286 Task 5.30	B	IRWD	\$2,389.56						0				
69.4	Change in Limit Switches Located in the Methane Digester Complex Due Electrical Classification Change (CR-557D) PR 04286 Task 5.30	C	IRWD	\$37,744.12						0				
69.5	Change in Limit Switches Located in the Methane Digester Complex Due Electrical Classification Change (CR-582) PR 04286 Task 5.30	C	IRWD	\$16,228.03						0				
69.6	SCADA Programming Changes – Totalizers (CR-590) PR 04286 Task 5.30	A	IRWD	\$7,830.90						0				
69.7	Control Panel Modifications in the Methane Digester Complex (CR-592) PR 04286 Task 5.30	A	IRWD	\$7,641.66						0				

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**MWRP Biosolids and Energy Recovery Facilities
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Design Engineer: Black & Veatch

				Contract Amount						Contract Days				Original Completion Date:
				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
Change Order	Description	Category	IRWD or FBB	Change Order Line Item Amount	Change Order Amount	Previous Change Orders	Cumulative Total of Change Orders	% of Original Contract Amount	Revised Contract Amount	Change Order Days	Previous Change Orders	Cum Total C. O. days	Revised Total Contract Days	Revised Completion Date
70	Approved by Exe. Dir of Engineering and Water Quality Approved on January 23, 2018				\$73,972.77	\$18,040,509.32	\$18,114,482.09	11.08%	\$181,580,422.09	0	368	368	1,646	10/31/2017
70.1	Addition of Limit Switches on Gas Dryer Heat Exchanger (CR-303) PR 04286 Task 5.30	A	IRWD	\$17,367.32						0				
70.2	Change of Electrical Classification of Valve Limit Switches at Acid Phase Digester Complex (CR-415) PR 04286 Task 5.30	C	IRWD	\$24,018.04						0				
70.3	Power Source to the Solids Handling Building Bridge Cranes (CR-574) PR 04286 Task 5.30	C	IRWD	\$27,479.58						0				
70.4	Investigation of Street Lights, South side of Biosolids Site (CR-613) PR 04286 Task 5.30	A	IRWD	\$1,204.20						0				
70.5	Additional Switches in the Solids Handling Building (CR-625) PR 04286 Task 5.30	A	IRWD	\$3,903.63						0				
71	Approved by Exe. Dir of Engineering and Water Quality Approved on January 31, 2018				(\$12,210.00)	\$18,114,482.09	\$18,102,272.09	11.07%	\$181,568,212.09	0	368	368	1,646	10/31/2017
71.1	Credit for Overtime Inspection Hours from 10/1/2017 to 12/31/2017 (CR-089G) PR 04286 Task 4.0	F	IRWD	(\$12,210.00)						0				
72	Approved by General Manager Approved on January 25, 2018				\$25,256.29	\$18,102,272.09	\$18,127,528.38	11.09%	\$181,593,468.38	0	368	368	1,646	10/31/2017
72.1	Installation of Breakers for Power Panel PP-8001 (CR-414A) PR 04286 Task 5.30	A	IRWD	\$25,256.29						0				
73	Approved by Board of Directors Approved on March 12, 2018				\$150,755.29	\$18,127,528.38	\$18,278,283.67	11.18%	\$181,744,223.67	0	368	368	1,646	10/31/2017
73.1	Additional Circuits for Control of the Dewatering Centrifuges (CR-386B) PR 04286 Task 5.30	B	FBB	\$150,755.29						0				

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**MWRP Biosolids and Energy Recovery Facilities
PR 21146 (4286)
Construction Change Order Summary**

Contractor: Filanc/Balfour-Beatty
Design Engineer: Black & Veatch

				Contract Amount						Contract Days				Original Completion Date:
				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
Change Order	Description	Category	IRWD or FBB	Change Order Line Item Amount	Change Order Amount	Previous Change Orders	Cumulative Total of Change Orders	% of Original Contract Amount	Revised Contract Amount	Change Order Days	Previous Change Orders	Cum. Total C. O. days	Revised Total Contract Days	Revised Completion Date
74	Approved by General Manager Approved on February 22, 2018				\$99,467.47	\$18,278,283.67	\$18,377,751.14	11.24%	\$181,843,691.14	0	368	368	1,646	10/31/2017
74.1	Access Platform to Heat Dryer Acid Scrubber (CR-485D) PR 04286 Task 5.30	A	IRWD	\$14,637.02						0				
74.2	Modifications to the FRP Ducting in the Solids Handling Building (CR-491) PR 04286 Task 5.31	A	IRWD	\$20,171.39						0				
74.3	Power to Air Compressors and Pre-Action Panels of the Fire Sprinkler System (CR-526) PR 04286 Task 5.30	B	IRWD	\$24,442.16						0				
74.4	Electrical and Instrumentation Revisions to the FOG System (CR-578) PR 04286 Task 5.30	A	IRWD	\$13,035.52						0				
74.5	Addition of Centrate Air Purge System (CR-581) PR 04286 Task 5.30	A	IRWD	\$17,777.95						0				
74.6	Addition of Flame Checks on Foam Separator Digested Sludge Line (CR-587) PR 04286 Task 5.3	A	IRWD	\$3,038.27						0				
74.7	Modifications to 10-Ton Crane Stops (CR-589) PR 04286 Task 5.31	C	FBB	\$6,365.16						0				

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**MWRP Biosolids and Energy Recovery Facilities
PR 21146 (4286)
Construction Change Order Summary**

Contractor: Filanc/Balfour-Beatty
Design Engineer: Black & Veatch

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				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
Change Order	Description	Category	IRWD or FBB	Change Order Line Item Amount	Change Order Amount	Previous Change Orders	Cumulative Total of Change Orders	% of Original Contract Amount	Revised Contract Amount	Change Order Days	Previous Change Orders	Cum. Total C.O. days	Revised Total Contract Days	Revised Completion Date
75	Approved by General Manager Approved on March 2, 2018				\$98,698.78	\$18,377,751.14	\$18,476,449.92	11.30%	\$181,942,389.92	0	368	368	1,646	10/31/2017
75.1	Electrical Modifications to the Acid Phase Digester and Methane Phase Digester System (CR-252C) PR 04286 Task 5.30	A	IRWD	\$31,492.38						0				
75.2	Modifications to the Odor Control Panels (CR-382) PR 04286 Task 5.30	A	IRWD	\$12,726.70						0				
75.3	Additional Lock-Out Switch for the Bridge Breaker (CR-384A) PR 04286 Task 5.30	B	IRWD	\$14,276.72						0				
75.4	Additional On/Off Switch for Duct Fans (CR-384B) PR 04286 Task 5.30	A	IRWD	\$12,100.47						0				
75.5	Aeration Blower MCC Modifications (CR-481) PR 04286 Task 5.30	C	IRWD	\$14,441.86						0				
75.6	Addition of Level Switches and Solenoid Valves for Gas/Foam Separator Tanks (CR-566) PR 04286 Task 5.30	B	IRWD	\$7,568.99						0				
75.7	SCADA Template Update (CR-622) PR 04286 Task 5.30	A	IRWD	\$2,775.05						0				
75.8	Additional Lights in the Shower Stalls of the Solids Handling Building (CR-628) PR 04286 Task 5.30	C	FBB	\$1,639.80						0				
75.9	Relocation of Flow Switch in Sample Analysis Room (CR-637) PR 04286 Task 5.30	A	IRWD	\$1,676.81						0				
76	Approved by Board of Directors Approved on March 26, 2018				\$150,690.04	\$18,476,449.92	\$18,627,139.96	11.40%	\$182,093,079.96	0	368	368	1,646	10/31/2017
76.1	Power Feed to Microturbine CLCs (CR-289) PR 04286 Task 5.30	B	FBB	\$49,534.35						0				
76.2	Upsizing of Electrical Cables related to the Heat Drying System (CR-510) PR 04286 Task 5.30	B	FBB	\$4,670.94						0				
76.3	Additional Cables to MCC-1 (CR-538) PR 04286 Task 5.30	B	FBB	\$5,679.24						0				
76.4	Electrical Code Area Classification Change in the Digester Control Building Gas Room (CR-582A) PR 04286 Task 5.30	C	IRWD	\$8,804.31						0				
76.5	Addition of Water Source for the Foam Separator (CR-583) PR 04286 Task 5.31	C	FBB	\$8,418.23						0				
76.6	SCADA Modifications on Solids Handling Polymer System (CR-620) PR 04286 Task 5.30	A	IRWD	\$7,761.00						0				
76.7	3-Way Valve Graphical Modifications to SCADA (CR-621) PR 04286 Task 5.30	A	IRWD	\$22,540.18						0				
76.8	SCADA Modifications on FOG System (CR-623) PR 04286 Task 5.30	A	IRWD	\$7,970.58						0				
76.9	SCADA Modifications on the Digested Tank Level (CR-626) PR 04286 Task 5.30	A	IRWD	\$8,898.86						0				
76.10	Solids Handling Building Stair Modifications (CR-634) PR 04286 Task 5.29	C	FBB	\$26,412.35						0				

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**MWRP Biosolids and Energy Recovery Facilities
PR 21146 (4286)
Construction Change Order Summary**

Contractor: Filanc/Balfour-Beatty
Design Engineer: Black & Veatch

				Contract Amount						Contract Days				Original Completion Date:
				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
Change Order	Description	Category	IRWD or FBB	Change Order Line Item Amount	Change Order Amount	Previous Change Orders	Cumulative Total of Change Orders	% of Original Contract Amount	Revised Contract Amount	Change Order Days	Previous Change Orders	Cum Total C.O. days	Revised Total Contract Days	Revised Completion Date
77	Approved by General Manager Approved on April 30, 2018				\$94,371.12	\$18,627,139.96	\$18,721,511.08	11.45%	\$182,187,451.08	0	368	368	1,646	10/31/2017
77.1	Modifications of Notching Shear Lugs - Solids Handling Building (CR-299A) PR 04286 Task 5.29	C	FBB	\$1,269.23						0				
77.2	Cake Storage Hopper Conveyor Control Changes (CR-384C) PR 04286 Task 5.30	A	IRWD	\$30,869.71						0				
77.3	Electrical Testing for Manual Transfer Switchgear SWGR-14 (CR-474A) PR 04286 Task 5.30	C	FBB	\$5,891.73						0				
77.4	Additional HVAC Fan Coil Power Circuits (CR-593) PR 04286 Task 5.30	B	FBB	\$16,053.47						0				
77.5	Modifications to Digester Control Building Roof Guardrail and Bridge Steps (CR-617) PR 04286 Task 5.29	B	IRWD	\$10,147.48						0				
77.6	Electrical Modifications to the Condensing Unit and Heat Pumps in the Solids Handling Building (CR-635) PR 04286 Task 5.30	A	FBB	\$9,551.13						0				
77.7	SCADA Control Logic Change in the Acid Phase Digester Area (CR-668) PR 04286 Task 5.30	A	IRWD	\$9,741.22						0				
77.8	SCADA Control Logic Change in the Polymer Thickening Tank Area (CR-669) PR 04286 Task 5.30	A	IRWD	\$8,144.54						0				
77.9	Hot Water Circuit Breaker (CR-366A) PR 04286 Task 5.30	A	IRWD	\$2,702.61						0				
78	Approved by Board of Directors Approved on April 26, 2018				\$344,006.55	\$18,721,511.08	\$19,065,517.63	11.66%	\$182,531,457.63	0	368	368	1,646	10/31/2017
78.1	Operator Interface Terminal (OIT) Indusoft Licensing Cost (CR-244) PR 04286 Task 5.30	A	IRWD	\$4,618.13						0				
78.2	Retaining Wall Modifications at Solids Handling Building (CR-331E) PR 04286 Task 5.29	C	IRWD	\$26,508.00						0				
78.3	Andritz Air Compressor Equipment Pad Modifications (CR-550) PR 04286 Task 5.31	C	FBB	\$6,729.00						0				
78.4	Waste Activated Sludge (WAS), Digested Sludge (DS), and Primary Sludge (PS) Piping Modifications (CR-594) PR 04286 Task 5.31	A	IRWD	\$28,967.68						0				
78.5	Modifications to MWRP Biosolids Hardscape (CR-331K) PR 04286 Task 5.29	A	IRWD	\$277,183.74						0				

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**MWRP Biosolids and Energy Recovery Facilities
PR 21146 (4286)
Construction Change Order Summary**

Contractor: Filanc/Balfour-Beatty
Design Engineer: Black & Veatch

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				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
Change Order	Description	Category	IRWD or FBB	Change Order Line Item Amount	Change Order Amount	Previous Change Orders	Cumulative Total of Change Orders	% of Original Contract Amount	Revised Contract Amount	Change Order Days	Previous Change Orders	Cum. Total C. O. days	Revised Total Contract Days	Revised Completion Date
79	Approved by General Manager Approved on May 17, 2018				\$89,123.41	\$19,065,517.63	\$19,154,641.04	11.72%	\$182,620,581.04	0	368	368	1,646	10/31/2017
79.1	Addition of High Temperature Switches for the Primary Sludge/Waste Activated Sludge Wet Well Mixers (CR-377A) PR 04286 Task 5.30	C	FBB	\$12,145.12						0				
79.2	Utility Line Modifications in the Solids Handling Building (CR-521) PR 04286 Task 5.31	A	IRWD	\$2,163.21						0				
79.3	SCADA Programming Changes in the Methane Digester Area (CR-542) PR 04286 Task 5.30	A	IRWD	\$7,191.02						0				
79.4	MCC-4100 Bridge Breaker Modifications in the Bulk Polymer Storage Area (CR-562) PR 04286 Task 5.30	B	IRWD	\$9,905.77						0				
79.5	Electrical Modifications of Exhaust Air Unit in the Solids Handling Building (CR-618) PR 04286 Task 5.30	B	FBB	\$6,391.05						0				
79.6	SCADA Programming Changes on the Biosolids Conveyor Distribution System (CR-630) PR 04286 Task 5.30	A	IRWD	\$7,226.35						0				
79.7	Electrical Modifications to the Dewatering Conveyors in the Solids Handling Building (CR-672) PR 04286 Task 5.30	B	FBB	\$21,239.15						0				
79.8	Additional Space Heater for Regenerative Thermal Oxidizer Draft Fan (CR-675) PR 04286 Task 5.30	A	FBB	\$9,351.07						0				
79.9	SCADA Programming Update on the Acid Phase Sludge Transfer Pumps (CR-689) PR 04286 Task 5.30	A	IRWD	\$13,510.67						0				

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**MWRP Biosolids and Energy Recovery Facilities
PR 21146 (4286)
Construction Change Order Summary**

Contractor: Filano/Balfour-Beatty
Design Engineer: Black & Veatch

				Contract Amount						Contract Days				Original Completion Date:
				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
Change Order	Description	Category	IRWD or FBB	Change Order Line Item Amount	Change Order Amount	Previous Change Orders	Cumulative Total of Change Orders	% of Original Contract Amount	Revised Contract Amount	Change Order Days	Previous Change Orders	Cum. Total C.O. days	Revised Total Contract Days	Revised Completion Date
80	Approved by Board of Directors Approved on May 29, 2018				\$313,076.14	\$19,154,641.04	\$19,467,717.18	11.91%	\$182,933,657.18	0	368	368	1,646	10/31/2017
80.1	Modifications to MCC-4100, MCC-4101 and MCC-4102 (CR-384) PR 04286 Task 5.30	C	FBB	\$36,158.66						0				
80.2	Modifications to MCC-4102 and MCC-4103 (CR-384D) PR 04286 Task 5.30	C	FBB	\$63,388.51						0				
80.3	Separate Air Compressor System Electrical Panel for Waste Gas Burner (CR-484B) PR 04286 Task 5.3	B	FBB	\$50,723.04						0				
80.4	Additional Power Monitoring Equipment for Self-Generation Incentive Program (CR-577) PR 04286 Task 5.30	A	IRWD	\$34,887.16						0				
80.5	Electrical Modifications for the Gas Compressor Detector and Enclosure Fire Alarm Panel (CR-629) PR 04286 Task 5.30	A	IRWD	\$13,215.42						0				
80.6	Additional Power Circuits for the Solids Handling Building Roll-Up Doors (CR-631) PR 04286 Task 5.30	C	IRWD	\$24,446.58						0				
80.7	Modifications to Digested Sludge Line (CR-648) PR 04286 Task 5.31	C	FBB	\$17,023.42						0				
80.8	Relocation of Local Control Panel in the Solids Handling Building (CR-676) PR 04286 Task 5.30	C	FBB	\$34,619.35						0				
80.9	Additional Manual Valves and Components for Heat Dryer System (CR-683) PR 04286 Task 5.30	C	FBB	\$38,614.00						0				
81	Approved by Executive Director of Engineering and Water Quality Approved on June 1, 2018				\$2,566.55	\$19,467,717.18	\$19,470,283.73	11.91%	\$182,936,223.73	0	368	368	1,646	10/31/2017
81.1	Modifications to Duct and Cable Tray Support in Dryer Room (CR-125) PR 04286 Task 5.30	A	FBB	\$2,566.55						0				
82	Approved by Executive Director of Engineering and Water Quality Approved on June 1, 2018				(\$75,950.64)	\$19,470,283.73	\$19,394,333.09	11.86%	\$182,860,273.09	0	368	368	1,646	10/31/2017
82.1	Credit for Overtime Inspection Hours from 01/01/2018 to 3/31/2018 (CR-089H) PR 04286 Task 4.0	F	FBB	(\$3,740.00)						0				
82.2	Odor Control Fan Platform Modifications (CR-334) PR 04286 Task 5.31	A	IRWD	(\$8,498.82)						0				
82.3	Chemical Piping Modifications Between Chemical Storage and Odor Control Areas (CR-387) PR 04286 Task 5.31	A	IRWD	(\$20,197.71)						0				
82.4	Ferric Chloride Piping Modifications in the Thickened Sludge Area (CR-388) PR 04286 Task 5.31	A	IRWD	(\$26,067.00)						0				
82.5	Ferric Chloride Piping Re-Route South of the Solids Handling Building (CR-423) PR 04286 Task 5.31	A	IRWD	(\$17,447.11)						0				

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**MWRP Biosolids and Energy Recovery Facilities
PR 21146 (4286)
Construction Change Order Summary**

Contractor: Filanc/Balfour-Beatty
Design Engineer: Black & Veatch

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				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
Change Order	Description	Category	IRWD or FBB	Change Order Line Item Amount	Change Order Amount	Previous Change Orders	Cumulative Total of Change Orders	% of Original Contract Amount	Revised Contract Amount	Change Order Days	Previous Change Orders	Cum. Total C.O. days	Revised Total Contract Days	Revised Completion Date
83	Approved by General Manager Approved on June 21, 2018				\$81,901.09	\$19,394,333.09	\$19,476,234.18	11.91%	\$182,942,174.18	0	368	368	1,646	10/31/2017
83.1	Andritz Pellet Silo Structure Conflict (CR-554) PR 04286 Task 5.29	C	FBB	\$4,963.98						0				
83.2	Additional Power Circuits for the Solids Handling Building Roll-Up Doors (CR-631A) PR 04286 Task 5.30	C	FBB	\$32,998.95						0				
83.3	SCADA Programming Update – Gas Booster System (CR-670) PR 04286 Task 5.30	A	IRWD	\$14,981.13						0				
83.4	Electrical Receptacles for Deionized Water System (CR-692A) PR 04286 Task 5.30	A	IRWD	\$4,546.34						0				
83.5	Cable Work Related in MCC-1 to Harmonic Filters (CR-694) PR 04286 Task 5.30	A	IRWD	\$6,932.07						0				
83.6	SCADA Update to Sludge Heat Transfer System Valve Matrix (CR-699) PR 04286 Task 5.30	A	IRWD	\$17,478.62						0				
84	Approved by Board of Directors Approved on June 25, 2018				\$105,492.90	\$19,476,234.18	\$19,581,727.08	11.98%	\$183,047,667.08	0	368	368	1,646	10/31/2017
84.1	Electrical Modifications Due to the Addition of Grease Pumps (CR-619) PR 04286 Task 5.30	B	FBB	\$105,492.90						0				
85	Approved by Executive Director of Engineering and Water Quality Approved on July 30, 2018				(\$39,914.23)	\$19,581,727.08	\$19,541,812.85	11.95%	\$183,007,752.85	0	368	368	1,646	10/31/2017
85.1	Credit for Overtime Inspection Hours from 04/01/2018 to 6/30/2018 (CR-089) PR 04286 Task 4.0	F	FBB	(\$29,150.00)						0				
85.2	Replacement of Network Communication Switches in the Solids Handling Building and Digester Control Building Server Rooms (CR-713) PR 04286 Task 5.30	B	IRWD	(\$10,764.23)						0				

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**MWRP Biosolids and Energy Recovery Facilities
PR 21146 (4286)
Construction Change Order Summary**

Contractor: Filanc/Balfour-Beatty
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				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
Change Order	Description	Category	IRWD or FBB	Change Order Line Item Amount	Change Order Amount	Previous Change Orders	Cumulative Total of Change Orders	% of Original Contract Amount	Revised Contract Amount	Change Order Days	Previous Change Orders	Cum. Total C. O. days	Revised Total Contract Days	Revised Completion Date
86	Approved by General Manager Approved on July 30, 2018				\$99,320.53	\$19,541,812.85	\$19,641,133.38	12.02%	\$183,107,073.38	0	368	368	1,646	10/31/2017
86.1	Addition of Waste Gas Burner Instrument Air Compressor System (Material Cost Only) (CR-484) PR 04286 Task 5.31	C	IRWD	\$5,357.20						0				
86.2	Modifications to Piping at the Bulk Liquid Chemical Area (CR-567) PR 04286 Task 5.31	A	IRWD	\$10,248.65						0				
86.3	Modifications to 5-Ton Crane Stops (CR-589A) PR 04286 Task 5.31	C	IRWD	\$6,264.07						0				
86.4	Additional Electrical Conduits and Wires to Connect Andritz Drum Motor (CR-691) PR 04286 Task 5.30	B	IRWD	\$4,419.83						0				
86.5	SCADA Programming Changes to the Digester Gas Final Treatment System (CR-697) PR 04286 Task 5.30	A	IRWD	\$2,374.92						0				
86.6	SCADA Programming Modifications to the Dewatering Feed and Conveyance Systems (CR-700) PR 04286 Task 5.30	A	IRWD	\$29,203.07						0				
86.7	SCADA Programming Modifications to the Heating Water System (CR-703) PR 04286 Task 5.30	A	IRWD	\$22,303.18						0				
86.8	SCADA Programming Modifications to the Centrate Treatment System (CR-705) PR 04286 Task 5.30	A	IRWD	\$17,197.62						0				
86.9	Relocation of 6-Inch CRW Clean-out (CR-716) PR 04286 Task 5.31	A	IRWD	\$1,367.87						0				
86.10	Modifications to Approach Curb in Microturbine Area (CR-718) PR 04286 Task 5.31	A	IRWD	\$584.12						0				

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**MWRP Biosolids and Energy Recovery Facilities
PR 21146 (4286)
Construction Change Order Summary**

Contractor: Filanc/Balfour-Beatty
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87	Approval by General Manager Approved on August 31, 2018				\$98,063.60	\$19,641,133.38	\$19,739,196.98	12.08%	\$183,205,136.98	0	368	368	1,646	10/31/2017
87.1	Electrical Work Related to Commissioning of the Solids Handling Building Elevator (CR-037C) PR 04286 Task 5.30	B	IRWD	\$8,180.42						0				
87.2	Excavation Activities to Install Autodialer (CR-234B) PR 04286 Task 5.30	A	IRWD	\$951.88						0				
87.3	Installation of Monitoring Ports for 54-Inch Foul Air Pipe in Solids Handling Building (CR-446) PR 04286 Task 5.31	B	IRWD	\$1,197.96						0				
87.4	Additional Cladding for Methane Digesters (CR-584) PR 04286 Task 5.29	A	IRWD	\$4,893.64						0				
87.5	SCADA Programming Changes to the Dewatering Centrifuge System (CR-677) PR 04286 Task 5.30	A	IRWD	\$21,537.93						0				
87.6	Water Filter Drain Connections (CR-678) PR 04286 Task 5.31	C	IRWD	\$7,711.86						0				
87.7	Additional Circuits for Dewatering Conveyor (CR-680) PR 04286 Task 5.30	A	IRWD	\$12,268.17						0				
87.8	Dryer Cake Relief Line (CR-693) PR 04286 Task 5.31	A	IRWD	\$4,834.06						0				
87.9	Filling of Abandoned Pipe Sleeves in SHB Elevator Mechanical Room (CR-701) PR 04286 Task 5.31	A	IRWD	\$1,166.06						0				
87.10	FOG Receiving Pump Temperature Switch Modifications (CR-706) PR 04286 Task 5.30	A	IRWD	\$11,775.89						0				
87.11	Temporary Natural Gas Piping to Flare (CR-709) PR 04286 Task 5.31	A	IRWD	\$6,536.47						0				
87.12	SCADA Update to Acid Phase Digesters and Heating Water Loop Controls (CR-719) PR 04286 Task 5.30	A	IRWD	\$17,009.26						0				

A - District Convenience/Initiation - Project Related
B - Differing Site Conditions
C - Design Oversight
D - District Convenience/Initiation - Non-Project Related
E - Contractor Convenience/Initiation
F - Contractor Requested Inspection Overtime

**MWRP Biosolids and Energy Recovery Facilities
PR 21146 (4286)
Construction Change Order Summary**

Contractor: Filanc/Balfour-Beatty
Design Engineer: Black & Veatch

				Contract Amount						Contract Days				Original Completion Date:
				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
Change Order	Description	Category	IRWD or FBB	Change Order Line Item Amount	Change Order Amount	Previous Change Orders	Cumulative Total of Change Orders	% of Original Contract Amount	Revised Contract Amount	Change Order Days	Previous Change Orders	Cum Total C.O. days	Revised Total Contract Days	Revised Completion Date
88	Approved by General Manager Approved on September 26, 2018				\$98,601.54	\$19,739,196.98	\$19,837,798.52	12.14%	\$183,303,738.52	0	368	368	1,646	10/31/2017
88.1	Additional Pipe Supports for 24-Inch Foul Air Ducting in the Solids Handling Building (CR-520) PR 04286 Task 5.31	B	IRWD	\$11,140.47						0				
88.2	Electrical Modifications for Waste Gas Burner Control Panel (CR-524) PR 04286 Task 5.30	B	IRWD	\$9,840.13						0				
88.3	Waste Activated Sludge (WAS), Digested Sludge (DS), and Primary Sludge (PS) Piping Modifications (CR-594A) PR 04286 Task 5.31	A	IRWD	\$24,216.24						0				
88.4	Relocation of Scrubber Pipe and Pipe Support (CR-644) PR 04286 Task 5.31	B	IRWD	\$6,390.20						0				
88.5	Update to SCADA Pipe Color Requirements (CR-704A) PR 04286 Task 5.30	C	IRWD	\$4,819.15						0				
88.6	Routing of Microturbine Conduits (CR-711) PR 04286 Task 5.30	A	IRWD	\$6,420.74						0				
88.7	Electrical Power to Heat Trace Panels and Truck Exhaust Fans (CR-714) PR	C	IRWD	\$22,038.62						0				
88.8	HVAC Duct Modifications in the Digester Control Building Basement (CR-715)	C	IRWD	\$6,507.45						0				
88.9	Revised Light Fixtures Types Located in Solids Handling Building Second Floor (CR-731) PR 04286 Task 5.30	A	IRWD	\$7,228.54						0				
89	Approved by General Manager Approved on October 17, 2018				\$96,405.88	\$19,837,798.52	\$19,934,204.40	12.19%	\$183,400,144.40	0	368	368	1,646	10/31/2017
89.1	Additional Pipe Cake Pipe Supports (CR-596) PR 04286 Task 5.31	C	IRWD	\$39,259.76						0				
89.2	New Railings at the Solids Handling Building, Bulk Polymer Storage Facility, and Centrate Treatment Facility (CR-707) PR 04286 Task 5.29	A	IRWD	\$17,330.67						0				
89.3	Modifications to Programmable Control Panels Controlling Digester Gas Treatment Process and Liquid Chemicals (CR-710) PR 04286 Task 5.30	A	IRWD	\$11,570.41						0				
89.4	SCADA Modifications to the Acid Gas Boosters System (CR-721) PR 04286	A	IRWD	\$8,047.39						0				
89.5	Miscellaneous Time and Materials Items (CR-725) PR 04286 Task 5.31	B	IRWD	\$2,955.65						0				
89.6	SCADA Modifications to the Cake Receiving Bins (CR-734) PR 04286 Task	A	IRWD	\$17,242.00						0				

A - District Convenience/Initiation - Project Related
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**MWRP Biosolids and Energy Recovery Facilities
PR 21146 (4286)
Construction Change Order Summary**

Contractor: Filanc/Balfour-Beatty
Design Engineer: Black & Veatch

				Contract Amount						Contract Days				Original Completion Date:
				Original Contract Amount: \$163,465,940.00						Original Days: 1,278				10/28/2016
Change Order	Description	Category	IRWD or FBB	Change Order Line Item Amount	Change Order Amount	Previous Change Orders	Cumulative Total of Change Orders	% of Original Contract Amount	Revised Contract Amount	Change Order Days	Previous Change Orders	Cum Total C. O. days	Revised Total Contract Days	Revised Completion Date
90	Pending Approval by Board of Directors Pending Approval on October 22, 2018				\$259,999.33	\$19,934,204.40	\$20,194,203.73	12.35%	\$183,660,143.73	0	368	368	1,646	10/31/2017
	90.1 Biosolids Site Modifications (CR-331L) PR 04286 Task 5.29	A	IRWD	\$40,726.48						0				
	90.2 Modifications to the Cake Receiving Bin LCP (CR-597) PR 04286 Task 5.30	A	IRWD	\$75,524.26						0				
	90.3 Architectural Modifications in the Centrifuge Area in the Solids Handling Building (CR-681) PR 04286 Task 5.29	A	IRWD	\$10,468.65						0				
	90.4 Modifications to the Bulk Polymer Access Platform (CR-708) PR 04286 Task 5.31	B	IRWD	\$53,407.62						0				
	90.5 Addition of Cake Hopper Platform (CR-720) PR 04286 Task 5.31	A	IRWD	\$59,714.23						0				
	90.6 Modifications to the Dryer System (CR-728) PR 04286 Task 5.30	A	IRWD	\$14,724.76						0				
	90.7 Modifications to the Cake Storage System (CR-730) PR 04286 Task 5.30	A	IRWD	\$5,433.33						0				

- A - District Convenience/Initiation - Project Related
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- D - District Convenience/Initiation - Non-Project Related
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- F - Contractor Requested Inspection Overtime

**MWRP Biosolids and Energy Recovery Facilities
PR 21146 (4286)
Construction Change Order Summary**

Contractor: Filanc/Balfour-Beatty
Design Engineer: Black & Veatch

Change Order	Description	Category	IRWD or FBB	Change Order Line Item Amount	Change Order Amount	Previous Change Orders	Contract Amount				Contract Days				Original Completion Date:
							Cumulative Total of Change Orders	% of Original Contract Amount	Revised Contract Amount	Change Order Days	Previous Change Orders	Cum. Total C.O. days	Revised Total Contract Days	Revised Completion Date	
							Original Contract Amount: \$163,465,940.00				Original Days: 1,278				10/28/2016

Category	Total Amount	% of Original Contract
A - District Convenience/Initiation - Project Related	\$ 3,851,894.00	2.36%
B - Differing Site Conditions	\$ 12,851,317.71	7.86%
C - Design Oversight	\$ 3,687,599.48	2.26%
D - District Convenience/Initiation - Non-Project Related	\$ -	0.00%
E - Contractor Convenience/Initiation	\$ 98,302.54	0.06%
F - Contractor Requested Inspection Overtime	\$ (294,910.00)	-0.18%
TOTAL (A + B + C + D + E + F)	\$ 20,194,203.73	12.35%

Category	Total Amount	% of Original Contract
IRWD-Initiation/Driven	\$ 5,086,982.10	3.11%
FBB-Initiation/Driven	\$ 14,936,501.41	9.14%
N/A	\$ 170,720.22	0.10%
TOTAL	\$ 20,194,203.73	12.35%

A - District Convenience/Initiation - Project Related
B - Differing Site Conditions
C - Design Oversight
D - District Convenience/Initiation - Non-Project Related
E - Contractor Convenience/Initiation
F - Contractor Requested Inspection Overtime

October 22, 2018

Prepared by: L. Oldewage/D. Chauv

Submitted by: K. Burton *KLB*

Approved by: Paul A. Cook *PA*

CONSENT CALENDAR

INDUCTIVELY COUPLED PLASMA-MASS SPECTROMETER REPLACEMENT

SUMMARY:

The Inductively Coupled Plasma-Mass Spectrometer(ICP-MS)/High Pressure Liquid Chromatograph (HPLC) is used routinely in the District's Water Quality Laboratory to analyze drinking water, sewage, recycled water and environmental samples for a wide variety of trace metals. The 13-year old ICP-MS/HPLC has experienced decreased reliability due to the instrument's age and support for the instrument is no longer guaranteed due to its obsolescence. Staff recommends that the Board approve the purchase of a replacement ICP-MS/HPLC from Agilent Technologies in the amount of \$207,442.90.

BACKGROUND:

The District's Water Quality Laboratory operates an ICP-MS to perform routine analysis of a broad range of trace metals in drinking water, sewage, recycled water, receiving waters and urban run-off, including those for the National Pollutant Discharge Elimination System (NPDES) permit compliance and industrial waste pre-treatment program monitoring. The ICP-MS with HPLC is also used for monitoring selenium species in 13 Natural Treatment System sites to assess selenium removal in runoff before it is discharged into the Newport Bay.

The existing 13-year old ICP-MS/HPLC has experienced decreased reliability due to the instrument's age and support for the instrument is no longer guaranteed due to its obsolescence. The specified replacement ICP-MS/HPLC will be sufficiently sensitive to enable the laboratory to perform the analysis of all routinely monitored trace metals and quantitate them at or below Regional Water Quality Control Board required minimum levels for reporting.

Inductively Coupled Plasma-Mass Spectrometer Purchase:

Staff requested quotations from the three vendors of ICP-MS, Agilent Technologies, Perkin Elmer, and ThermoFisher Scientific, with the specific requirement that the proposed system be sufficiently sensitive to meet 0.125 parts per billion NPDES, reporting limit for cadmium and silver, and have a front-end chromatography system capable of selenium speciation for selenate and selenite. Agilent Technologies proposed an ICP-MS/HPLC solution and provided a quotation of \$207,442.90 including sales tax and shipping. PerkinElmer offered an ICP-MS/Elemental Scientific (ESI) prepFAST Ion Chromatograph (IC) solution and provided a quotation of \$226,652.04, including estimated sales tax and shipping. ThermoFisher Scientific presented an ICP-MS/IC solution and provided a quotation of \$204,808.68, including estimated sales tax and shipping. All three vendors expressed certainty that their instrument will meet the specified requirements.

Due to the cost of this particular instrument the Water Quality Department does not maintain a back-up system and the single instrument is capable of processing the high demand for trace metals analysis. Therefore, service technician availability and response time is a critical consideration in selecting the successful vendor to minimize instrument down-time. Agilent Technologies has eight ICP-MS and 32 chromatography technical support staff located in the Southern California region, with a guaranteed response time of 48 hours. PerkinElmer has five ICP-MS technical support staff in the Southern California region, with an average response time of 48 hours. Technical support for the prepFAST IC is provided by ESI via one local support staff, but the majority of support will be via remote access by technicians in Nashville, Tennessee. ThermoFisher Scientific has two ICP-MS and 28 chromatography technical support staff located in the Southern California region, with a standard response time of 72 hours.

While all three vendors' instruments will meet the necessary performance requirements, based on the cost, availability of support and response time, staff recommends purchasing the new ICP-MS/HPLC from Agilent Technologies in the amount of \$207,442.90.

FISCAL IMPACTS:

Each fiscal year since FY 2012-13 the Water Quality Department has included in the Operating Budget general plant capital funds that have accumulated and carried forward for replacement laboratory instrumentation and equipment. The current accumulated balance is \$356,072.02. The cost for the replacement ICP-MS/HPLC system is \$207,442.90. The Water Quality Department's accumulated general plant capital budgets for replacement laboratory equipment (Projects 06497, 07268, 10111 and 10607; tasks 8036.463.2, 836.630.2 and 8036.600.2) will provide the funds for the purchase of the ICP-MS/HPLC.

ENVIRONMENTAL COMPLIANCE:

Not applicable.

COMMITTEE STATUS:

This item was reviewed by the Engineering and Operations Committee on October 15, 2018.

RECOMMENDATION:

THAT THE BOARD AUTHORIZE THE PURCHASE OF A REPLACEMENT INDUCTIVELY COUPLED PLASMA-MASS SPECTROMETER/HIGH PRESSURE LIQUID CHROMATOGRAPH FROM AGILENT TECHNOLOGIES IN THE AMOUNT OF \$207,442.90.

LIST OF EXHIBITS:

Exhibit "A" – ICP-MS Quote from Agilent Technologies



EXHIBIT "A" Quotation

Denise Chauv
 Inorganic Chemistry Lab Supervisor
 Irvine Ranch Water District
 3512 Michelson Dr
 IRVINE CA 92612-1799

Quote No.	Create Date	Delivery Time	Page
2664006	09/21/2018	3 Weeks	1 of 14
Contact		Phone no.	Valid to
Johan Nortje		877-424-4536	10/26/2018
To place an order: Call 1-800-227-9770 Option 1 For Instruments Fax : 302-633-8953 Email : LSCAinstrumentsales@agilent.com For Consumables Fax : 302-633-8901 Email : CAG_sales-NA@agilent.com For Genomics Fax: 512-321-3128 Email : orders@agilent.com For additional instructions, see last page			

Product/Description	Qty/Unit	Unit List Price	Discount Amount	Extended Net Price
G8421A	1.000 EA	189,301.00 USD	72,312.98-	116,988.02
Agilent 7800 ICP-MS mainframe with He cell gas line With the following configuration: Ship-to Country : USA Advanced Acquisition H2 Cell Gas Line Installation (44K) Familiarization at Installation (44L) Special discount of 38.20 % is applied.				
G8411A	1.000 EA	13,856.00 USD	5,292.99-	8,563.01
ISIS 3 for Agilent 7900 ICP-MS With the following configuration: Ship-to Country : USA Installation (44K) Familiarization at Installation (44L) Special discount of 38.20 % is applied.				
G7215C	1.000 EA	13,734.00 USD	5,246.39-	8,487.61
ICP-MS Workstation PC bundle. Includes PC, Windows OS, Monitor and Printer. Also includes ICP-MS MassHunter license if either of option #003, #004 or #005 is				

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Contact		Phone no.	Valid to
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To place an order: Call 1-800-227-9770 Option 1 For Instruments Fax : 302-633-8953 Email : LSCAinstrumentsales@agilent.com For Consumables Fax : 302-633-8901 Email : CAG_sales-NA@agilent.com For Genomics Fax : 512-321-3128 Email : orders@agilent.com For additional instructions, see last page			

Product/Description	Qty/Unit	Unit List Price	Discount Amount	Extended Net Price
<p>selected.</p> <p>With the following configuration: Ship-to Country : USA MassHunter Software For 7800 ICP-MS Delete Printer Installation (44K) 1 Year SW Update/Phone Assist (44W)</p> <p>Special discount of 38.20 % is applied.</p>				
G7206C	1.000 EA	3,117.00 USD	1,190.70-	1,926.30
<p>ICP-MS MassHunter Intelligent Sequence Software option. Provides comprehensive real-time QC, action on failure and reporting functions for compliance with US EPA and similar require- ments for 7700, 7800, 7900, 8800 and 8900.</p> <p>With the following configuration: Ship-to Country : USA</p> <p>Installation (44K) Familiarization at Installation (44L)</p> <p>Special discount of 38.20 % is applied.</p>				
G7205C	1.000 EA	3,561.00 USD	1,360.30-	2,200.70
<p>ICP-MS MassHunter Chromatographic data analysis option.</p> <p>With the following configuration: Ship-to Country : USA</p>				

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Product/Description	Qty/Unit	Unit List Price	Discount Amount	Extended Net Price
Installation (44K) Famillarization at Installation (44L) Special discount of 38.20 % is applied.				
G3292A	1.000 EA	5,876.00 USD	2,244.63-	3,631.37
PolyScience Model 6106T Recirculating Chillers. With the following configuration: Ship-to Country : USA Installation (44K) Special discount of 38.20 % is applied.				
G8415A	1.000 EA	12,525.38 USD	4,784.70-	7,740.68
SPS 4 autosampler for ICP-MS products. Optional cover kit not included. With the following configuration: Integrated Cover Kit (002) : Selected High Uptake Rinse Kit (005) : Selected Pumped Drain Kit (007) : Selected Ship-to Country : USA SPS 4 Integrated cover kit SPS 4 High Uptake Volume Rinse Kit SPS 4 Pumped Drain Kit Drainage Tank, Polyethylene, 4 Litre Installation (44K) Familiarization at Installation (44L) Special discount of 38.20 % is applied.				

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Contact		Phone no.	Valid to
Johan Nortje		877-424-4536	10/26/2018
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Product/Description	Qty/Unit	Unit List Price	Discount Amount	Extended Net Price
5185-5850 ICP-MS Checkout Solutions Installation checkout solutions kit required by the Agilent Installation engineer to validate the Agilent 7700 performance on site. Contains tuning solution, dual mode (1), dual mode(2), wash and water blank solutions	1.000 EA	619.00 USD	236.46-	382.54
Special discount of 38.20 % is applied.				
5188-6524 PA tuning solution set, 2 bottles of 100mL: 20ppm each of zn, be, CD, As, 10PPM of Ni, Pb, Mg, 5ppm of TI, NA, Al, U, Cu, Th, Ba, Co, Sr, V, Cr, Mn, Li, Sc, In, Lu, Bi 2.5ppm of Y, Yb in 2- 2.5% HNO3	1.000 EA	773.00 USD	295.29-	477.71
Special discount of 38.20 % is applied.				
5188-6564 ICP-MS stock tuning solution (100 mL). Contains 10 mg/L: Li, Y, Ce, TI and Co in a matrix of 2 percent HNO3	1.000 EA	152.00 USD	58.06-	93.94

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Product/Description	Qty/Unit	Unit List Price	Discount Amount	Extended Net Price
Special discount of 38.20 % is applied.				
5183-4642	1.000 EA	397.00 USD	151.65-	245.35
2 Stg Rgltr,brs,125psi,CGA350,1/8in,fttg 2 Stage Regulator ,brass body, Stainless Steel diaphragms,125 psi max, CGA350, Hydrogen, Argon\Methane; comes with 1/8" fitting; For 1/4" tubing purchase a 1/4" adapter				
Special discount of 38.20 % is applied.				
5183-4644	1.000 EA	364.00 USD	139.05-	224.95
2 Stg Rgltr,brs,125psi,CGA580,1/8in,ftg 2 Stage Regulator ,brass body, Stainless Steel diaphragms,125 psi max,CGA580, Helium, Argon, Nitrogen; comes with 1/8" fitting;For 1/4" tubing purchase a 1/4" adapter				
Special discount of 38.20 % is applied.				
5042-6463	2.000 EA	60.90 USD	46.52-	75.28
PEEK tubing 1/16in,0.01in/0.25mm id,5m				
Special discount of 38.20 % is applied.				
5062-8541	1.000 PK	85.25 USD	32.57-	52.68

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Contact		Phone no.	Valid to
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Product/Description	Qty/Unit	Unit List Price	Discount Amount	Extended Net Price
Fingertight fittings, long 1/16 in 10/PK				
Special discount of 38.20 % is applied.				
RMSHY-2	1.000 EA	346.00 USD	132.17-	213.83
Big Universal Trap, 1/8i fttgs, Hydrogen				
Special discount of 38.20 % is applied.				
RMSH-2	1.000 EA	346.00 USD	132.17-	213.83
Big Universal Trap, 1/8inch fttgs, Helium				
Special discount of 38.20 % is applied.				
G1369C	1.000 EA	1,482.00 USD	566.12-	915.88
LAN Communication Interface. For 1100, 1200 and Infinity Series (includes CAN bus, LAN, CAN and twisted pair cable). With the following configuration: Ship-to Country : USA Installation (44K) Familiarization at Installation (44L)				
Special discount of 38.20 % is applied.				

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Quote No.	Create Date	Delivery Time	Page
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Contact		Phone no.	Valid to
Johan Nortje		877-424-4536	10/26/2018
To place an order: Call 1-800-227-9770 Option 1 For Instruments Fax : 302-633-8953 Email : LSCAinstrumentsales@agilent.com For Consumables Fax : 302-633-8901 Email : CAG_sales-NA@agilent.com For Genomics Fax: 512-321-3128 Email : orders@agilent.com For additional instructions, see last page			

Product/Description	Qty/Unit	Unit List Price	Discount Amount	Extended Net Price
5023-0202	3.000 EA	48.39 USD		145.17
Patch Cable Shielded 7M				
G2402A	1.000 EA	226.00 USD	86.33-	139.67
8-port 10/100Base-TX autosensing switch Allows up to eight devices to interface to a local laboratory LAN. Includes an 8-meter LAN cable. With the following configuration: Ship-to Country : USA Special discount of 38.20 % is applied.				
5182-2581	1.000 EA	114.00 USD	43.55-	70.45
APG remote cable. For ISIS-DS used with ICP-MS Special discount of 38.20 % is applied.				
5188-8045	1.000 EA	153.00 USD		153.00
Remote Cable APG-ERI				

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Contact	Phone no.	Valid to	
Johan Nortje	877-424-4536	10/26/2018	
To place an order: Call 1-800-227-9770 Option 1 For Instruments Fax : 302-633-8953 Email : LSCAinstrumentsales@agilent.com For Consumables Fax : 302-633-8901 Email : CAG_sales-NA@agilent.com For Genomics Fax: 512-321-3128 Email : orders@agilent.com For additional instructions, see last page			

Product/Description	Qty/Unit	Unit List Price	Discount Amount	Extended Net Price
G7111A 1260 Infinity II Quaternary Pump VL, maximum pressure 400bar. Includes quaternary pump with integrated 4-channel degassing unit, column, connecting capillaries, solvent cabinet, solvent bottles and CAN cable. With the following configuration: Manual DVD for 1220/1260/1290 : DVD included Add Tool Kit (001) : Tool Kit included Max uptime kit sel (007) : Max uptime kit selected Active Inlet Valve (032) : active Inlet Valve selected Select bundled column : Poroshell 120 EC-C18 4.6x50mm Ship-to Country : USA HPLC System Tool Kit 1260 Infinity II Max Uptime Kit Active Seal Wash Active Inlet Valve (AIV) Poroshell 120 EC-C18 4.6x50mm, 2.7µm Installation (44K) Familiarization at Installation (44L) Special discount of 38.20 % is applied.	1.000 EA	17,890.01 USD	6,833.99-	11,056.02
G7129A 1260 Infinity II Vialsampler for use up to 600 bar. Includes 100 uL metering device and a 100 uL sample loop plus integrated needle flush port. With the following configuration:	1.000 EA	22,146.00 USD	8,459.78-	13,686.22

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Contact		Phone no.	Valid to
Johan Nortje		877-424-4536	10/26/2018
To place an order: Call 1-800-227-9770 Option 1 For Instruments Fax : 302-633-8953 Email : LSCAinstrumentsales@agilent.com For Consumables Fax : 302-633-8901 Email : CAG_sales-NA@agilent.com For Genomics Fax : 512-321-3128 Email : orders@agilent.com For additional instructions, see last page			

Product/Description	Qty/Unit	Unit List Price	Discount Amount	Extended Net Price
Drawer kit selection - Standard drawer (6x11 vials) Type of SW license : MassHunter System Driver Add thermostat (101) : InfLab sample thermostat incl. Ship-to Country : USA Standard drawer (6x11 vials) Agilent InfinityLab Sample Thermostat Installation (44K) Familiarization at Installation (44L)				
Special discount of 38.20 % is applied.				
G7116A	1.000 EA	6,647.00 USD	2,539.16-	4,107.84
1260 Infinity II Multicolumn Thermostat MCT				
With the following configuration: Quick-Connect HE 3ul (062) : Quick-Connect HE 3 ul selected Del colimn upgrade kit (965) : Column upgrade kit not incl. Manual DVD for 1220/1260/1290 : DVD included Ship-to Country : USA valve drive for 1260 Infinity II MCT Quick-Connect HE Large id Delete Option Column Identification Kit Installation (44K) Familiarization at Installation (44L)				
Special discount of 38.20 % is applied.				
G4231A	1.000 EA	3,465.00 USD	1,323.63-	2,141.37
2pos/6port Quick Change valve head, 800 bar. For use in G7116A/B MCT and G1316C TCC.				
With the following configuration:				

Denise Chauv
 Inorganic Chemistry Lab Supervisor
 Irvine Ranch Water District
 3512 Michelson Dr
 IRVINE CA 92612-1799

Quote No.	Create Date	Delivery Time	Page
2664006	09/21/2018	3 Weeks	10 of 14
Contact		Phone no.	Valid to
Johan Nortje		877-424-4536	10/26/2018
To place an order: Call 1-800-227-9770 Option 1 For Instruments Fax : 302-633-8953 Email : LSCAinstrumentsales@agilent.com For Consumables Fax : 302-633-8901 Email : CAG_sales-NA@agilent.com For Genomics Fax: 512-321-3128 Email : orders@agilent.com For additional instructions, see last page			

Product/Description	Qty/Unit	Unit List Price	Discount Amount	Extended Net Price
Kap kit QCHE 017 (006) : selected Ship-to Country : USA 2/6 Cap Kit 0.17mm, incl. QC.HE Installation (44K)				
Special discount of 38.20 % is applied.				
HM79433	1.000 EA	1,030.00 USD	393.46-	636.54
PRP-X100 10um COL 250X4.1mm				
Special discount of 38.20 % is applied.				
HM79448	1.000 EA	329.00 USD	125.68-	203.32
PRP-X100 GUARD COL STARTER KIT				
Special discount of 38.20 % is applied.				
HM79446	1.000 EA	329.00 USD	125.68-	203.32
PRP-X100 Grd Col RPI Kit(5/Pk)				
Special discount of 38.20 % is applied.				
5043-1221	1.000 EA	291.00 USD	111.16-	179.84
Waste can GL45, 6L + GL45 4 ports cap InfinityLab Waste can GL45, 6L + GL45 4 ports cap, includes one 6 liter Lab Waste can and one Stay Safe				

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Product/Description	Qty/Unit	Unit List Price	Discount Amount	Extended Net Price
Cap GL45 4 ports for waste				
Special discount of 38.20 % is applied.				
5043-1193	1.000 EA	185.00 USD	70.67-	114.33
Charcoal filter 58g w. time strip InfinityLab Charcoal filter 58g w. time strip for InfinityLab Stay Safe Cap				
Special discount of 38.20 % is applied.				
H2149A	1.000 EA	9,785.00 USD	1,957.00-	7,828.00
Method and Application Consulting On-site consulting for a maximum of 4 participants. Certificates and manuals not included.				
With the following configuration: Ship-to Country : USA Three Day On-site (Includes Travel)				

Quotation

Denise Chauv
 Inorganic Chemistry Lab Supervisor
 Irvine Ranch Water District
 3512 Michelson Dr
 IRVINE CA 92612-1799

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Product/Description	Qty/Unit	Unit List Price	Discount Amount	Extended Net Price
Special discount of 20.00 % is applied.				
		Gross Amount	: \$	309,391.61
		Total Discount	: \$	116,292.84
		Net Amount	: \$	193,098.77
		Sales Tax	: \$	14,344.13
		Total	: \$	207,442.90

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- 3) To place an order for Consumables, please fax the order to 302-633-8901.
 To place an instrument and/or software order, please fax the order to 302-633-8953.
 To place an order for Genomics, please fax the order to 512-321-3128, or email to orders@agilent.com
- 4) Or you can mail your order to:
 Agilent Technologies
 North American Customer Contact Center
 2850 Centerville Road BU3-2
 Wilmington, DE 19808-1610

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- GSA customers please provide GSA contract #.

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TERMS AND CONDITIONS:

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- All Sales Tax is subject to change at the time of order.
- Shipping and Handling Charges: Orders with a value less than \$4000 or those requiring special services such as overnight delivery may be subject to additional shipping & handling fees. Some of these charges may be avoided by ordering via the Web
- Payment Terms: Net 30 days from invoice date, subject to credit approval.

* Quotation Validity: This quotation is valid for 60 days unless otherwise indicated.

* Warranty period for instrumentation is 1 year. The Warranty period for columns and consumables is 90 days.

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It is Agilent Technologies intent to ship product at the earliest available date unless specified otherwise.

Denise Chauv
 Inorganic Chemistry Lab Supervisor
 Irvine Ranch Water District
 3512 Michelson Dr
 IRVINE CA 92612-1799

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The sale of Agilent Products and Services referenced in this quotation is subject to the then current version of Agilent's Terms of Sale, and any Supplemental Terms or Occasional Reseller Terms of Sale or other applicable terms referenced herein. The sale of Microplates Products shall be subject to Microplates Terms of Sale and any Supplemental Terms or other applicable terms referenced herein. The sale of Microplates Tooling Products shall be subject to Microplates Tooling Terms of Sale and any Supplemental Terms or other applicable terms referenced herein. All of the above "Terms" as applicable. A copy of the Terms is either attached or has been previously provided to you. Please contact us if you have not received a copy or require an additional copy. If you have a separate agreement in effect with Agilent covering the sale of Products and Services referenced in this quotation, the terms of that agreement will take precedence for those Products and Services. Agilent expressly objects to any different or additional terms in your purchase/sales order documentation, unless agreed to in writing by Agilent. Products and Services availability dates are estimated at the time of the quotation. Actual delivery dates or delivery windows will be specified at the time Agilent acknowledges and accepts your purchase order. The above conditions shall apply to the fullest extent permitted by the law. You may have other statutory or legal rights available. Commodities, technology or software exported from the United States of America ("U.S.") or from other exporting countries will be subject to the U.S. Export Administration Regulations and all exporting countries' export laws and regulations. Diversion contrary to U.S. law and the applicable export laws and regulations is prohibited.

WARNING: This product contains a chemical known to the State of California to cause cancer or birth defects or other reproductive harm.

October 22, 2018

Prepared by: F. Sanchez

Submitted by: P. Weghorst *PAW*

Approved by: Paul A. Cook *PAW*

CONSENT CALENDAR

FATS, OILS AND GREASE PROGRAM VARIANCE NO. 2

SUMMARY:

IRWD has used contract services to administer its Fats, Oils and Grease (FOG) Program since 2004. In 2017, the District undertook a study to evaluate options for implementing the Pretreatment and FOG Programs. In June 2018, the Board approved a three-year transition plan to bring the Pretreatment program in-house and then to consider options for implementing the FOG program. To maintain the operational continuity of the FOG Program during the transition period, a variance with the current provider of FOG Program services is recommended. Staff recommends that the Board authorize the General Manager to execute Variance No. 2 to the Professional Services Agreement with Environmental Engineering and Contracting, Inc. (EEC) in the amount of \$165,950 to provide FOG Program services for one year and for an optional additional year at \$165,950, as may be necessary to transition to the District's new Pretreatment and FOG Programs.

BACKGROUND:

Pretreatment Program:

Both the Michelson Water Recycling Plant (MWRP) and the Los Alisos Water Recycling Plant operate under National Pollutant Discharge Elimination System permits for the treatment of sewage, the production and distribution of recycled water and the discharge of effluent to ocean outfalls. Pursuant to federal regulations, IRWD is required to implement a pretreatment program that is intended to:

- Protect sewage treatment plants from interference or upset of treatment operations;
- Prevent pass-through of pollutants;
- Prevent harm to collections system or sewage treatment plant infrastructure;
- Protect biosolids quality; and
- Protect public health, safety and the environment.

Currently, Orange County Sanitation District (OCSD) operates a pretreatment program on behalf of IRWD within the sewersheds that are both tributary to the MWRP and the OCSD sewage treatment facilities.

FOG Control Program:

IRWD's sewage collection system is subject to General Waste Discharge Requirements for Sanitary Sewer Systems that require the development and implementation of a Sewer System Management Plan (SSMP). An SSMP provides for the management, operation and maintenance of all parts of a sanitary sewer system to reduce, prevent and mitigate any sanitary sewer overflows. One of the mandatory elements of an SSMP is a FOG control program.

When the District initiated the FOG Program in 2004, EEC was retained to develop a FOG characterization study. The scope of work of the study included inspection of food service establishments (FSEs), development of hot spot maps, FOG source characterizations and the design of a database management system for the program. The District's FOG Program has expanded over the past 10 years with over 1,000 FSEs currently in the system. EEC's scope of work has evolved to include overall program management, routine FSE inspections and enforcement support on behalf of the District.

In September 2014, staff issued a Request for Proposal (RFP) for FOG program services to six potential service providers. Staff received three proposals, two of which were from firms that did not meet the minimum experience requirements specified in the RFP. Based on this competitive process, EEC was selected and retained to provide FOG Program services.

Evaluation of Pretreatment and FOG Programs:

In 2017, consultant Larry Walker and Associates (LWA) was retained to evaluate IRWD's options for implementing the Pretreatment and FOG Programs. LWA's evaluation assessed the resources necessary to meet regulatory requirements for both programs, and provided recommendations on whether the programs should be brought in-house, outsourced, or a combination of both. The findings were reviewed with the Engineering and Operations Committee in January 2018. The Committee concurred with staff's recommendation to first transition the Pretreatment Program to in-house implementation, and then to consider options for FOG program implementation. The recommendation was reviewed with the Board in 2018, and a consultant was selected to develop and assist in the transition of the Pretreatment Program to in-house implementation.

The Pretreatment Program, which is currently being implemented by OCSD on behalf of IRWD, requires significant effort and staff resources to develop. It is expected that it will take at least another year to implement the Pretreatment Program recommendations through the transition process. Efforts to further evaluate and implement any modifications to the FOG program would begin once the Pretreatment Program is successfully brought in-house.

Current FOG Program:

Currently, IRWD manages its own FOG control program, with a majority of the program activities being outsourced to EEC. EEC is responsible for program inspections, issuing permits, making recommendations for enforcement actions, food service establishment database development and monitoring. EEC also provides other FOG-related technical assistance as necessary, though plan checks are conducted by IRWD staff.

EEC has provided FOG Program management services to over 30 cities and sewer collection and treatment districts. The company is also nationally recognized as a FOG control expert and has provided excellent services to the District. For purposes of continuity during the development of the in-house Pretreatment Program, staff recommends that IRWD continue to outsource majority of the FOG program to EEC.

Variance No. 1 with EEC:

In 2016, IRWD executed Variance No. 1 to the Professional Services Agreement with EEC in the amount of \$165,950 for the period November 1, 2016, to October 31, 2017, and for an optional additional year at \$165,950 in order to provide continuity during the evaluation of the District's Pretreatment and FOG Programs.

Variance No. 2 with EEC:

To maintain FOG Program continuity and compliance with regulatory requirements during the Pretreatment Program transition period, which requires significant staff effort and resources, staff recommends that EEC continue to provide FOG Program services for one additional year with an option for the District to extend the contract for a second year as may be necessary. Staff has negotiated with EEC to maintain the same annual cost and related scope of work in Variance No. 2 as in Variance No. 1. The variance and scope of work are attached as "Exhibit A". Staff considers the cost of the services to be fair and reasonable.

FISCAL IMPACTS:

Funding for FOG Program Services is included in the adopted FY 2018-19 Operating Budget.

ENVIRONMENTAL COMPLIANCE:

The District implements its FOG Control Program in compliance with the District's FOG Control Program Manual and Grease Control Rules and Regulations that are included in the District's Sewer System Management Plan, the District's Rules and Regulations for Use of District Sewerage Facilities and consistent with the State Water Resources Control Board Statewide General Waste Discharge Requirements for Sanitary Sewer Systems under Water Quality Order Number 2006-0003. The District is required to implement a pretreatment program pursuant to Section 307 of the Federal Clean Water Act and Parts 35 and 403 of Title 40, Code of Federal Regulations (40 CFR 35 and 40 CFR 403); and/or Section 2233, Title 23, California Code of Regulations.

COMMITTEE STATUS:

This item was reviewed at the Engineering and Operations Committee Meeting on October 15, 2018

RECOMMENDATION:

THAT THE BOARD AUTHORIZE THE GENERAL MANAGER TO EXECUTE VARIANCE NO. 2 WITH ENVIRONMENTAL ENGINEERING AND CONTRACTING, INC. TO PROVIDE FATS, OIL AND GREASE (FOG) PROGRAM SERVICES IN THE AMOUNT OF \$165,950 FOR THE PERIOD NOVEMBER 1, 2018, TO OCTOBER 31, 2019 AND ALSO FOR AN OPTIONAL ADDITIONAL YEAR AT \$165,950, AS MAY BE NECESSARY TO TRANSITION TO THE DISTRICT'S NEW PRETREATMENT AND FOG PROGRAMS.

LIST OF EXHIBITS:

Exhibit "A" – Variance No. 2 with EEC and Related Scope of Work

Exhibit "A"
IRVINE RANCH WATER DISTRICT
PROFESSIONAL SERVICES VARIANCE

Project Title: Fats, Oils and Grease (FOG) Program Services

Project No.: _____ N/A _____ Date: 10/1/18
 Purchase Order No.: _____ Variance No.: 2

Originator: IRWD ENGINEER/CONSULTANT Other (Explain) _____

Description of Variance (*attach any back-up material*):

Schedule and cost variance to extend FOG Program Services one year, ending October 31, 2019, with an option to extend a second year, ending October 31, 2019. See attachment.

Engineering & Management Cost Impact:

Classification	Manhours	Billing Rate	Labor \$	Direct Costs	Subcon. \$	Total \$
See attachment for scope of work and cost estimate FY 18-19.	1400					\$165,950
See attachment for scope of work and cost estimate FY 19-20.	1400					\$165,950
Total \$ =						\$331,900

Schedule Impact:

Task No.	Task Description	Original Schedule	Schedule Variance	New Schedule
All	FOG Program Services FY 18-19	10/31/16	36 months	Complete by 10/31/19
All	FOG Program Services FY 19-20	10/31/16	Up to 48 months	Complete by 10/31/20

Required Approval Determination:

Total Original Contract	\$165,950	<input type="checkbox"/> Director: Cumulative total of Variances less than or equal to \$50,000. <input type="checkbox"/> Executive Director: Cumulative total of Variances less than or equal to \$75,000. <input type="checkbox"/> General Manager: Cumulative total of Variances less than or equal to \$100,000. <input checked="" type="checkbox"/> Board: Cumulative total of Variances greater than \$100,000.
Previous Variances \$	331,900	
This Variance \$	331,900	
Total Sum of Variances	\$663,800	
New Contract Amount	\$829,750	
Percentage of Total Variances to Original Contract	400 %	

ENGINEER/CONSULTANT: EEC Environmental

 Company Name

IRVINE RANCH WATER DISTRICT

[Signature]
 Project Engineer/Manager

10/3/2018
 Date

 Department Director

 Date

[Signature]
 Engineer's/Consultant's Management

10/3/2018
 Date

 General Manager/Board

 Date



Corporate Office
 Tel: (714) 667-2300
 Fax: (714) 667-2310
 One City Boulevard West, Suite 1800
 Orange, California 92868
 www.eecenvironmental.com

September 19, 2018

Ms. Fiona Sanchez
 Director of Water Resources
 Irvine Ranch Water District
 15600 Sand Canyon Ave
 Irvine, California 92618

Subject: Proposal for On-Going FOG Control Program Support Services

Dear Ms. Sanchez:

EEC Environmental (EEC) presents this proposal to provide the Irvine Ranch Water District (District) with on-going support services associated with the District’s fats, oils, and grease (FOG) control program. Based on discussions with IRWD FOG Program personnel, it is our understanding that the District intends to continue implementation of its FOG control program and wishes to partner with a highly qualified and experienced firm in support of this important program through the 2018/2019 service year (11/2018 – 10/2019).

EEC is poised and prepared to continue providing such implementation and support services for the District as described below.

SCOPE/FEE SCHEDULE/PROJECTED COSTS

EEC proposes to provide the same scope of work (as was provided to the District during the 2017/2018 service year), at the same rates, with the same projected costs, for the 2018/2019 service year. A fee schedule of applicable rates for the 2018/2019 service year, as well as projected costs for the year, is attached. Rates for the various tasks/service categories are also summarized in *Table 1 – 2018/2019 Rates*.

Table 1 – 2018/2019 Rates

Task/Service Category	Hourly Rate
Administrative Services	\$150
FOG Program – Analytical Services	\$180
FOG Program – Plan Check Review Services	\$150
FSE Field Inspections	\$105
FSE Compliance Inspections	\$115
GIS/Information Technology Services	\$135
Emergency Response – Standard Business Hours	\$125
Emergency Response – Non-Standard Business Hours	\$200



Ms. Fiona Sanchez



Optional Services - Should the District choose to retain these FOG Program services for the 2019/2020 service year, EEC will honor the 2018/2019 rates and projected costs (through 10/31/2020). A fee schedule and projected costs for the 2019/2020 service year is attached.

Thank you for the opportunity to provide these FOG Control Program services for the District. EEC can begin work upon receipt of purchase order, project agreement or other written authorization to proceed. Should there be any questions regarding the contents of this proposal, please contact me at (714) 667-2300 or jkolk@eecenvironmental.com.

Sincerely,
EEC Environmental

A handwritten signature in blue ink, appearing to read "Jim Kolk", is written over a faint, circular stamp or watermark.

Jim Kolk
Sr. Project Manager

Attachments: 2018/2019 Fee Schedule and Projected Costs
2019/2020 Fee Schedule and Projected Costs

**IRWD - Fats, Oils, and Grease (FOG) Program Services
EEC Environmental**

Fee Schedule – 2018/2019 (11/2018-10/2019)

The charge for all time required for the performance of the Scope of Work, including administrative, office, field, and travel time will be billed at the hourly rate according to the labor tasks set forth below:

Administrative Services	Hourly Rate	<u>\$ 150</u>
FOG Program - Analytical Services	Hourly Rate	<u>\$ 180</u>
FOG Program - Plan Check Review	Hourly Rate	<u>\$ 150</u>
FSE Field Inspections	Hourly Rate	<u>\$ 105</u>
FSE Compliance Inspections	Hourly Rate	<u>\$ 115</u>
GIS/Information Technology	Hourly Rate	<u>\$ 135</u>
Emergency Response – Business hrs.	Hourly Rate	<u>\$ 125</u>
Emergency Response – Non-Business hrs.	Hourly Rate	<u>\$ 200</u>

Projected Costs for 11/2018 - 10/2019

Labor Task	Projected Hours	Hourly Rate	Projected 2018/2019 Cost
Administrative Services <ul style="list-style-type: none"> • IRWD customer call support and coordination • FSE inspection planning and coordination 	70	\$150	\$10,500
FOG Program – Analytical Services <ul style="list-style-type: none"> • Program development and management support • Enforcement recommendations and support • Special project coordination and planning support • Program status updates/meetings 	90	\$180	\$16,200
FOG Program – Plan Check Review <ul style="list-style-type: none"> • New FSE plan review support • Plan processing and comment letter support 	50	\$150	\$7,500
Field Inspections <ul style="list-style-type: none"> • New FSE Initial Inspections • Best Management Practice (BMP) inspections • Grease Removal Equipment (GRE) inspections • Inspection data processing 	840	\$105	\$88,200
Compliance Inspections <ul style="list-style-type: none"> • Non-compliance follow-up inspections • Non-compliance coordination and data processing 	240	\$115	\$27,600
GIS/Information Technology <ul style="list-style-type: none"> • Mapping support • Data/database management support • Status report support 	70	\$135	\$9,450
Emergency Response – Business hours <ul style="list-style-type: none"> • Private/Public SSO follow-up 	20	\$125	\$2,500
Emergency Response – Non-business hours <ul style="list-style-type: none"> • Private/Public SSO follow-up 	20	\$200	\$4,000
Projected Total (11/1/2018 through 10/31/2019)			\$165,950

**IRWD - Fats, Oils, and Grease (FOG) Program Services
EEC Environmental**

Fee Schedule – 2019/2020 (11/2019-10/2020)

The charge for all time required for the performance of the Scope of Work, including administrative, office, field, and travel time will be billed at the hourly rate according to the labor tasks set forth below:

Administrative Services	Hourly Rate	<u>\$ 150</u>
FOG Program - Analytical Services	Hourly Rate	<u>\$ 180</u>
FOG Program - Plan Check Review	Hourly Rate	<u>\$ 150</u>
FSE Field Inspections	Hourly Rate	<u>\$ 105</u>
FSE Compliance Inspections	Hourly Rate	<u>\$ 115</u>
GIS/Information Technology	Hourly Rate	<u>\$ 135</u>
Emergency Response – Business hrs.	Hourly Rate	<u>\$ 125</u>
Emergency Response – Non-Business hrs.	Hourly Rate	<u>\$ 200</u>

Projected Costs for 11/2019 - 10/2020

Labor Task	Projected Hours	Hourly Rate	Projected 2019/2020 Cost
Administrative Services <ul style="list-style-type: none"> • IRWD customer call support and coordination • FSE inspection planning and coordination 	70	\$150	\$10,500
FOG Program – Analytical Services <ul style="list-style-type: none"> • Program development and management support • Enforcement recommendations and support • Special project coordination and planning support • Program status updates/meetings 	90	\$180	\$16,200
FOG Program – Plan Check Review <ul style="list-style-type: none"> • New FSE plan review support • Plan processing and comment letter support 	50	\$150	\$7,500
Field Inspections <ul style="list-style-type: none"> • New FSE Initial Inspections • Best Management Practice (BMP) inspections • Grease Removal Equipment (GRE) inspections • Inspection data processing 	840	\$105	\$88,200
Compliance Inspections <ul style="list-style-type: none"> • Non-compliance follow-up inspections • Non-compliance coordination and data processing 	240	\$115	\$27,600
GIS/Information Technology <ul style="list-style-type: none"> • Mapping support • Data/database management support • Status report support 	70	\$135	\$9,450
Emergency Response – Business hours <ul style="list-style-type: none"> • Private/Public SSO follow-up 	20	\$125	\$2,500
Emergency Response – Non-business hours <ul style="list-style-type: none"> • Private/Public SSO follow-up 	20	\$200	\$4,000
Projected Total (11/1/2019 through 10/31/2020)			\$165,950

October 22, 2018

Prepared by: J. Moeder / R. Mori

Submitted by: K. Burton *(KLB)*

Approved by: Paul A. Cook *(PAC)*

ACTION CALENDAR

PRIMARY DISINFECTION FACILITY SODIUM HYPOCHLORITE STORAGE AND FEED SYSTEM CONSULTANT SELECTION

SUMMARY:

Pursuant to the District's strategic goal of eliminating the use of chlorine gas at its facilities, staff is proceeding with the conversion of the gaseous chlorine storage and feed system at the Primary Disinfection Facility (PDF). This facility is the last District facility to use gaseous chlorine for disinfection, so upon project completion, the use of gaseous chlorine at the District will be eliminated in its entirety. This project includes design of a liquid sodium hypochlorite storage and feed system and other associated improvements at PDF. Staff recommends that the Board authorize the General Manager to execute a Professional Services Agreement with Carollo Engineers in the amount of \$573,772 for engineering design services for the PDF Sodium Hypochlorite Storage and Feed System.

BACKGROUND:

Within the Dyer Road Wellfield (DRWF), the District operates and maintains two facilities that provide disinfection prior to serving domestic water to customers. The first facility, the Initial Disinfection Facility, provides disinfection of groundwater from the DRWF to mitigate biological growth in the transmission main and to provide a trace chlorine residual prior to chloramination at the second facility, PDF. The PDF facility feeds gaseous chlorine and aqueous ammonia to produce water with a chloraminated residual prior to serving customers and comingling with chloraminated water imported from Metropolitan Water District.

One of the District's strategic goals is to convert its remaining chlorine gas storage and feed facilities to liquid sodium hypochlorite. The final facility remaining to be converted is PDF. Upon conversion of PDF, the use of gaseous chlorine at the District will be eliminated in its entirety.

The existing gaseous chlorine system at PDF consists of 24 one-ton chlorine gas cylinders, chlorinators, chlorine booster pumps, emergency scrubber system, and a fully enclosed containment area for truck unloading of the chlorine gas cylinders. The project includes removal of the existing gaseous chlorine system and related appurtenances and installation of a new sodium hypochlorite storage and feed system within the existing chlorination building. The project also includes installation of a new carbon dioxide storage and feed system that is needed to maintain current water quality characteristics.

In October 2017, staff selected Carollo Engineers to provide preliminary design engineering services to establish the project design criteria, develop a recommended facility layout, and identify associated ancillary facilities. Carollo completed the preliminary design in August 2018, at which point, staff decided to issue a Request for Proposals for final design engineering services due to the substantial scope and technical complexity of the overall project.

Consultant Selection:

Staff received proposals from Carollo Engineers, Dudek, and Hazen & Sawyer. Carollo's proposal exceeded the other proposals in all aspects including project team, project understanding, and project approach. Carollo's proposal provided a clear methodology for completing the work and showcased its unparalleled technical experience with both sodium hypochlorite and carbon dioxide storage and feed systems. Additionally, Carollo's proposed design team has the most relevant overall chemical feed system design experience, and the staff proposed for Carollo's team successfully completed the previous gaseous chlorine conversions at the Rattlesnake Complex and the Initial Disinfection Facility. After reviewing the proposals, staff met with Carollo to negotiate and finalize the scope of work, hourly billing rates, and overall fee. The consultant selection matrix is attached as Exhibit "A", and Carollo's scope of work and fee proposal are attached as Exhibit "B".

Staff recommends that the Board authorize the General Manager to execute a Professional Services Agreement in the amount of \$573,772 with Carollo Engineers since its design approach, schedule, and staff hours are consistent with the project goals and objectives.

Staff anticipates kicking off the project in November, and the final design is scheduled for completion in July 2019.

FISCAL IMPACTS:

The PDF Sodium Hypochlorite Storage and Feed System, Project 06214, is included in the FY 2018-19 Capital Budget and will be funded through regional potable water funds. The existing budget is sufficient to fund the engineering services presented herein.

ENVIRONMENTAL COMPLIANCE:

This project is exempt from the California Environmental Quality Act (CEQA) as authorized under the California Code of Regulations, Title 14, Chapter 3, Section 15301 which provides exemption for minor alterations of existing public or private structures, facilities, mechanical equipment, or topographical features, involving negligible or no expansion of use beyond that existing at the time of the lead agency's determination. A Notice of Exemption for the project will be filed with the County of Orange.

COMMITTEE STATUS:

This item was reviewed by the Engineering and Operations Committee on October 15, 2018.

RECOMMENDATION:

THAT THE BOARD AUTHORIZE THE GENERAL MANAGER TO EXECUTE A PROFESSIONAL SERVICES AGREEMENT WITH CAROLLO ENGINEERS IN THE AMOUNT OF \$573,772 FOR ENGINEERING DESIGN SERVICES FOR THE PDF SODIUM HYPOCHLORITE STORAGE AND FEED SYSTEM, PROJECT 06214.

Action Calendar: Primary Disinfection Facility Sodium Hypochlorite Storage and Feed System
Consultant Selection
October 22, 2018
Page 3

LIST OF EXHIBITS:

Exhibit "A" – Consultant Selection Matrix

Exhibit "B" – Carollo's Scope of Work and Fee Proposal

EXHIBIT "A"

CONSULTANT SELECTION MATRIX

Primary Disinfection Facility Sodium Hypochlorite Storage and Feed System							
Item	Description	Weights	Carollo		Dudek		Hazen & Sawyer
A	<u>TECHNICAL APPROACH</u>						
1	Project Understanding	30%	1		2		3
2	Project Approach	40%	1		2		3
3	Project Team	30%	1		3		2
	<u>Weighted Score</u>		1.0		2.3		2.7
	Ranking of Consultants		1		2		3
B	<u>SCOPE OF WORK</u>						
TASK		Task Hours	Fee	Task Hours	Fee	Task Hours	Fee
1	Project Management	188	\$40,976	305	\$66,567	294	\$64,752
2	Final Design	2,578	\$532,796	2,508	\$450,443	2,824	\$478,828
	Total Engineering Services Fee	2,766	\$573,772	2,813	\$517,010	3,118	\$543,580
C	<u>OTHER</u>						
	Number of Drawings	100		85		64	
	Engineering Design Services Fee per Drawing	\$5,738		\$6,082		\$8,493	
	<u>Sub Consultants</u>						
	Electrical	-		MPA		-	
	Structural	-		Beyaz & Patel		-	
	Architectural	-		RNT Architects		-	
	Geotech	Converse		Converse		Converse	
	Ventilation	-		DHK Engineers		-	
	Survey	Alyson Consulting		Guida Surveying		Bush & Associates	
	Potholing	Alyson Consulting		Underground Solutions		C Below	
	Hazardous Material Survey	Arcadis		Vista Environmental		Panacea	
	Process / Operations Specialist	-		WTr Science Group		-	
	Exceptions taken to IRWD Std. Contract	None		None		None	
	DIR Numbers Provided	Yes		Yes		Yes	
	Insurance (Professional & General Liability)	Yes		Yes		Yes	

SCOPE OF WORK

TASK 1 Project Management

1.1 Project Status Reports

Weekly and monthly status reports will be provided to the District. Weekly status reports will be brief and include a one- to two-paragraph summary of activities completed the previous week, activities anticipated for the following week, and critical decisions that need to be addressed. Monthly status reports will be more detailed and comprise of in-depth descriptions regarding activities completed during the previous month; activities anticipated for the following month; and a summary of decisions made, outstanding action items, and any out-of-scope work that has been identified. Monthly reports will also include a review of work status relative to budget and schedule. The project schedule will be updated and included in the monthly report.

1.2 Meetings and Workshops

Jeff Weishaar will coordinate, attend, and chair meetings and workshops as required to present major design developments and discuss IRWD's comments and outstanding issues. A project kick-off meeting will be used to review the scope of work, determine lines of communication, and agree upon project goals and approach.

Agendas with supporting action and decision logs will be provided at least 5 days prior to each meeting so you will have ample time to provide feedback and make sure appropriate attendees are invited. After each meeting, we will prepare the draft and final meeting minutes and submit them to the District within one week.

1.3 Quality Assurance and Quality Control

Carollo maintains a well-defined program for quality assurance and quality control, which will be refined to meet the specific needs of this project. Throughout our 85-year history, quality assurance has remained the key component to our company's success and reputation. Vinnie Hart, Brian Graham, and Jim Meyerhofer had a large role in overseeing the technical quality and accuracy of the recommendations and decisions made in the BODR. Their involvement will continue through the final design.

As project principal, Jim Meyerhofer will make sure that the project scope and schedule are being adhered to. His role also includes making sure that the project team has the resources to deliver a high quality project on schedule.

Anticipated Meetings and Workshops

Description	Timing	Minimum Number
Project Meetings	Monthly	6
Site Visits	As needed	4
Agency Coordination	<ul style="list-style-type: none"> • Southern California Edison • Orange County Fire Authority • City of Santa Ana 	3
Design Phase Presentations/Workshops		
60% Design	April 2019	1
90% Design	May 2019	1
100% Design	July 2019	1

Internal quality review checks will be performed with key Carollo team members prior to the four (4) major project submittals:

1. TM - BODR Review & Refinement
2. 60% Submittal
3. 90% Submittal
4. 100% Submittal

Task 1 Deliverables:

- Weekly & Monthly Project Status Reports
- Project Schedule – updated monthly
- Meeting Agendas
- Meeting Minutes

TASK 2 Basis of Design Review

The PDF BODR identified preliminary design concepts to convert from gaseous chlorine to a bulk sodium hypochlorite system. Solutions and recommendations we developed with staff focused on the bigger picture of maintaining water quality while installing a system that would be operator friendly and avoid complex operations and maintenance requirements. As the BODR came to a close, there were a number of items that were not fully resolved, mainly the condition of the ammonia system and replacement and sizing of the booster pumps. These items were identified in the Request for Proposals (RFP) to be further evaluated prior to final design.

The following sections outline our early assessment of these items and illustrate our approach to determining final recommendations.

2.1 Ammonia Feed System

You expressed the desire to replace the existing ammonia metering pumps due to equipment age and operational challenges. As part of our discussions and evaluations, the following should be established regarding your preferences for the replacement of this system.

Metering Pump Type and Configuration

IRWD currently uses two high-flow (10 gph) and two low-flow (1.0 gph) simplex, mechanical diaphragm metering pumps in the existing aqua ammonia feed system. Based on discussions with operations staff, the smaller pumps lose accuracy at low chemical flows when both pumps are operating and the larger pumps frequently have to be recalibrated. New metering pumps can be sized to meet the full range of dosing requirements while holding calibration and with low maintenance requirements.

With the 29.4% aqua ammonia dosed based on a weight ratio of 4.5 parts chlorine per part ammonia, the aqua ammonia feed rates will range from 0.73 to 12 gallons per hour. As part of our initial assessment, we determined that the Milton-Roy MacRoy® series D4-2 metering pump could achieve these dosing requirements in a standard 2 duty, 1 standby configuration. This pump offers a 10:1 turndown with a capacity of 6.6 gallons per hour operating at 60 Hz (1,725 rpm).

Milton-Roy pumps are currently installed for the PDF ammonia feed system. Prominent Fluid Controls, Inc.; Pulsafeeder, Inc.; and other manufacturers may be suitable for this application and desirable by the District.

WE JUMP-STARTED EVALUATIONS FOR EIGHT PROJECT ELEMENTS TO HIT THE GROUND RUNNING:

1. Replacement of ammonia pumps
2. Carbon dioxide system supplier
3. Replacement of injection water booster pumps
4. Civil site plan and chemical delivery
5. Structural design and mechanical piping plans
6. HVAC improvements
7. Existing electrical system capacity
8. P&IDs and integrated control strategies

Potential manufacturers will be evaluated based on:

- Performance
- Reliability
- Availability of spare parts and manufacturer service
- Cost

We will also review available pump technologies to determine those best suited for the ammonia feed system.

MAGNETIC DRIVE GEAR PUMPS MAY BE A BETTER FIT FOR THE AMMONIA SYSTEM

- Fewer moving parts
- No air binding
- Easier maintenance

Consideration of a chemical alternative to aqueous ammonia may provide operational and maintenance advantages at PDF.

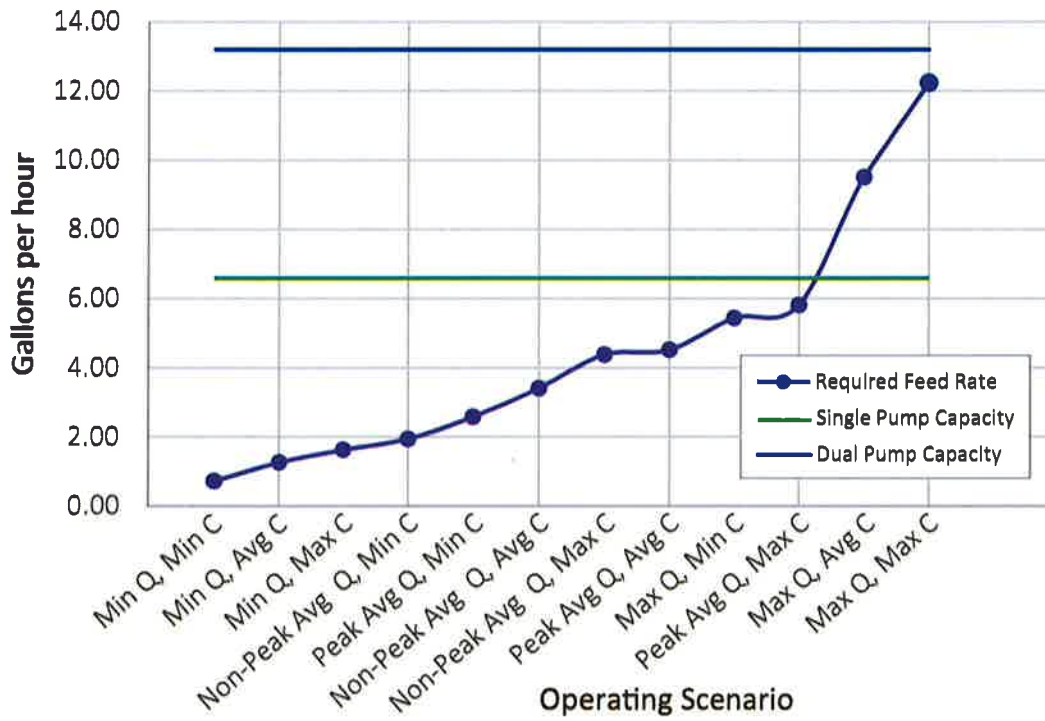
LIQUID AMMONIUM SULFATE CAN PROVIDE ADVANTAGES TO AQUEOUS AMMONIA

- No off-gassing
- Non-pressurized tanks
- Maintains solution strength
- Less equipment requirements
- Simple control strategies

Pump Selection By Capacity and Pressure

Pump Selection			Maximum Ratings					
MacRoy			Capacity @ 60 Hz (1725 RPM)		Capacity @ 50 Hz (1425 RPM)		Pressure	
Frame	Liquid End	Gear Code	GPH	Liter/Hr	GPH	Liter/Hr	PSI	Bar
D	2	1	0.18	0.7	0.15	.06	175	12
		2	0.35	1.3	0.29	1.1		
		6	0.48	1.8	0.40	1.5		
		3	0.7	2.6	0.58	2.2		
	4	1	3.0	11.4	2.5	9.5	150	10
		2	6.6	25	5.5	21		
		6	10	38	6.9	26		
		3	14.4	45	12	45		
	7	1	13	99	10	39	100	7
		2	25	95	21	79		
		6	34	129	28	106		
		3	50	189	42	159		
	8	1	31	117	26	98	75	5
		2	57	216	47	178		
		6	87	329	72	273		
		3	127	481	106	401		

Rating based on 1/4 HP (.25 kW)

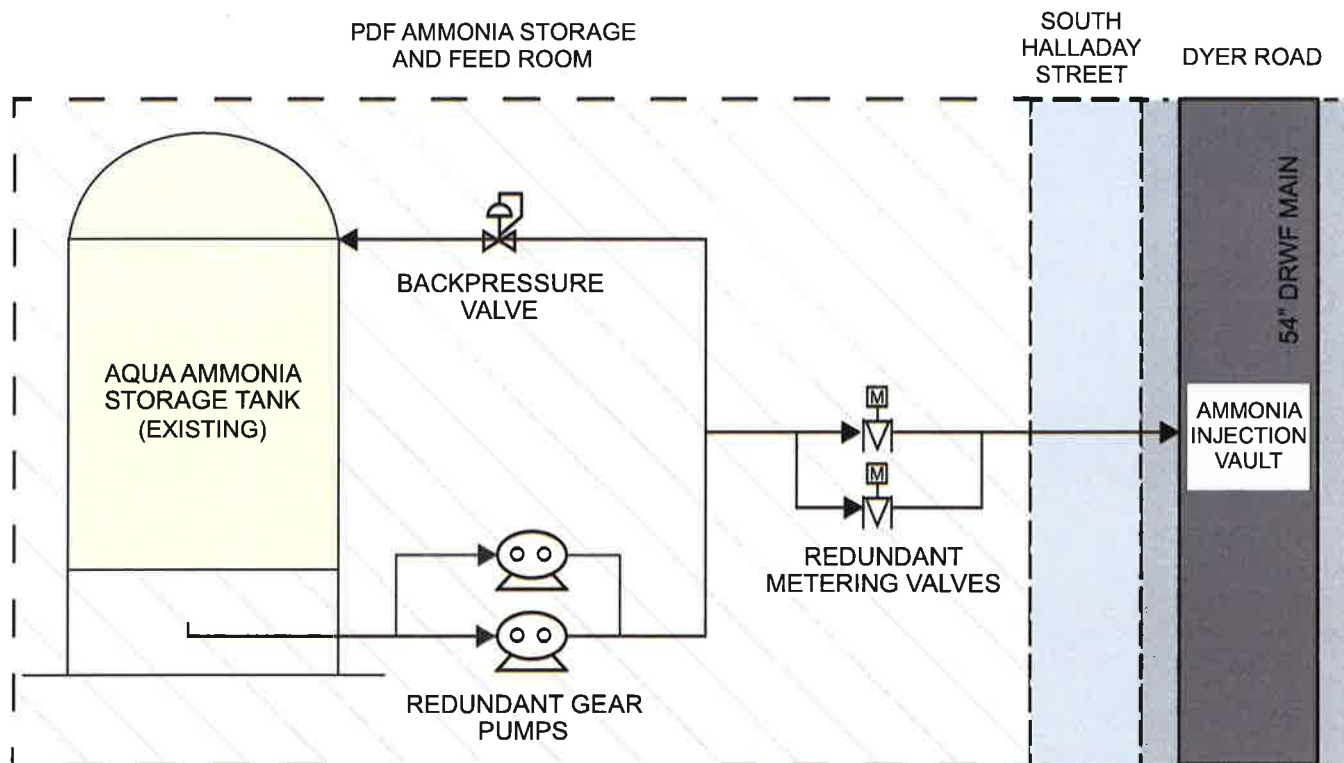


As shown, the selected pump can meet all of the dosing requirements in a standard 2 duty, 1 standby configuration, eliminating the current dosing and calibration issues.

Recirculation Feed Loop

Another option to improve operations of the existing ammonia system is installation of a recirculation feed loop. With a solution strength of 29.4%, aqua ammonia has a high vapor pressure. IRWD must currently maintain a pressurized tank with a pressure relief valve connected water tank to absorb any released ammonia gas from the main storage tank.

Implementing a recirculation feed loop with metering valves will mitigate operational and maintenance challenges associated with the degassing valves. Recirculation loops offer very precise dosing control, which will improve your ability to accurately and quickly administer the appropriate dose in response to chlorine residual.



A recirculation feed loop for the ammonia system may be an option to mitigate any operation and maintenance challenges with the existing off-gassing system and improve accuracy and control of dosing.





2.2 Carbon Dioxide System Selection

The PDF BODR focused on the application of a TOMCO₂ carbon dioxide system. We briefly discussed available alternatives, including systems supplied by BlueInGreen. While there was comfort gained regarding the TOMCO₂ system that was viewed at Santa Barbara, we want to increase your knowledge of all available systems so that we can maintain an open, competitive bid. Maintaining an open bid will require knowledge of how the systems differ and what mechanical and hydraulic differences must be accounted for in design.

Featured aspects of each supplier will include system reliability, service dependability, and cost. We have prepared an initial comparison of TOMCO₂ and BlueInGreen based on our design knowledge and conversations with each supplier. Carollo has designed projects using both systems, and we can use those projects as a basis for highlighting pros and cons of each.

SUPPLIER STATS

TOMCO₂ and BlueInGreen advertise unique levels of expertise applied to the design of their patented systems. These systems can be distinguished by the applied solubility rates of CO₂. This will impact the mechanical and hydraulic design of the system at PDE, specifically the selection of pressure control valves and booster pumps.

		
In-Line CO₂ Feed System Alternatives	<ul style="list-style-type: none"> The Pressurized Solution Feed (PSF) system injects gas into a constant flow sidestream under high pressure. Static mixers and a pressure drop across a patented diffuser maintain CO₂ in solution upon mixing with the process water. 	<ul style="list-style-type: none"> The StreamlineCO₂ system bubbles gas into a constant flow sidestream with an orifice assembly to jet-mix the solution into the process water. The CDOX[®] system sprays water through a high-pressure CO₂ headspace, offering linear turndown of both water and gas feed rates.
Basis of Design	<ul style="list-style-type: none"> Feed rate based on a solubility of 1 lb CO₂/hour/gpm at 60 psi. 	<ul style="list-style-type: none"> Feed rate based on a solubility of 2 lb CO₂/hour/gpm at 60 psi.
Company Experience	<ul style="list-style-type: none"> 40 years designing CO₂ systems 	<ul style="list-style-type: none"> 14 years designing oxygen systems 4 years designing CO₂ systems
Company Expertise	<ul style="list-style-type: none"> System is designed specifically for CO₂ application Manufacture their own tanks Patented CO₂ diffuser system 	<ul style="list-style-type: none"> Specialized in dissolved gas application using the same patented method for CO₂, ozone, and oxygen
Number of CO₂ Systems Sold	<ul style="list-style-type: none"> 1,570 	<ul style="list-style-type: none"> Over 50 custom units
Advantages	<ul style="list-style-type: none"> 20 years of data collection to test transfer efficiency Many years of experience with a notable number of installed systems Only 50 to 60 psi is required in service water 	<ul style="list-style-type: none"> System can be designed to automatically turn down carrier water with gas flow, thus reducing costs for energy and infrastructure. Smaller piping requirements
Disadvantages	<ul style="list-style-type: none"> More carrier water demand 	<ul style="list-style-type: none"> Higher CO₂ application rates can cause
Number of Designs by Carollo	<ul style="list-style-type: none"> 12 Systems 	<ul style="list-style-type: none"> 1 System

We have successfully designed both TOMCO₂ and BlueInGreen systems that are now in full operation. We will use this experience to assist you in selecting the best system for the PDF or designing for an open bid.

2.3 Injection Water Booster Pumps

The BODR maintains the use of the existing injection water booster pumps to deliver chlorine to the 54-inch main. The pumps are aged, and there is a desire to install a variable frequency drive (VFD) on the third pump with all pumps sized to the same flow and head conditions. Replacing the pumps will require confirmation of the desired pump design criteria.

Existing Pump Configuration

	Pumps 1 & 2	Pump 3
Flow Rate, gpm	265	40
Head, ft	360	250
Drive Type	VFD	Non-Reversing Starter

Preliminary Hydraulic Modeling

Calculations for preliminary design of the new chemical feed systems assumed a flow of 160 gpm in the injection water system. For the carbon dioxide system, two pressure reducing valves (PRV) will be installed upstream of the chemical injection points and the injection water booster pumps.

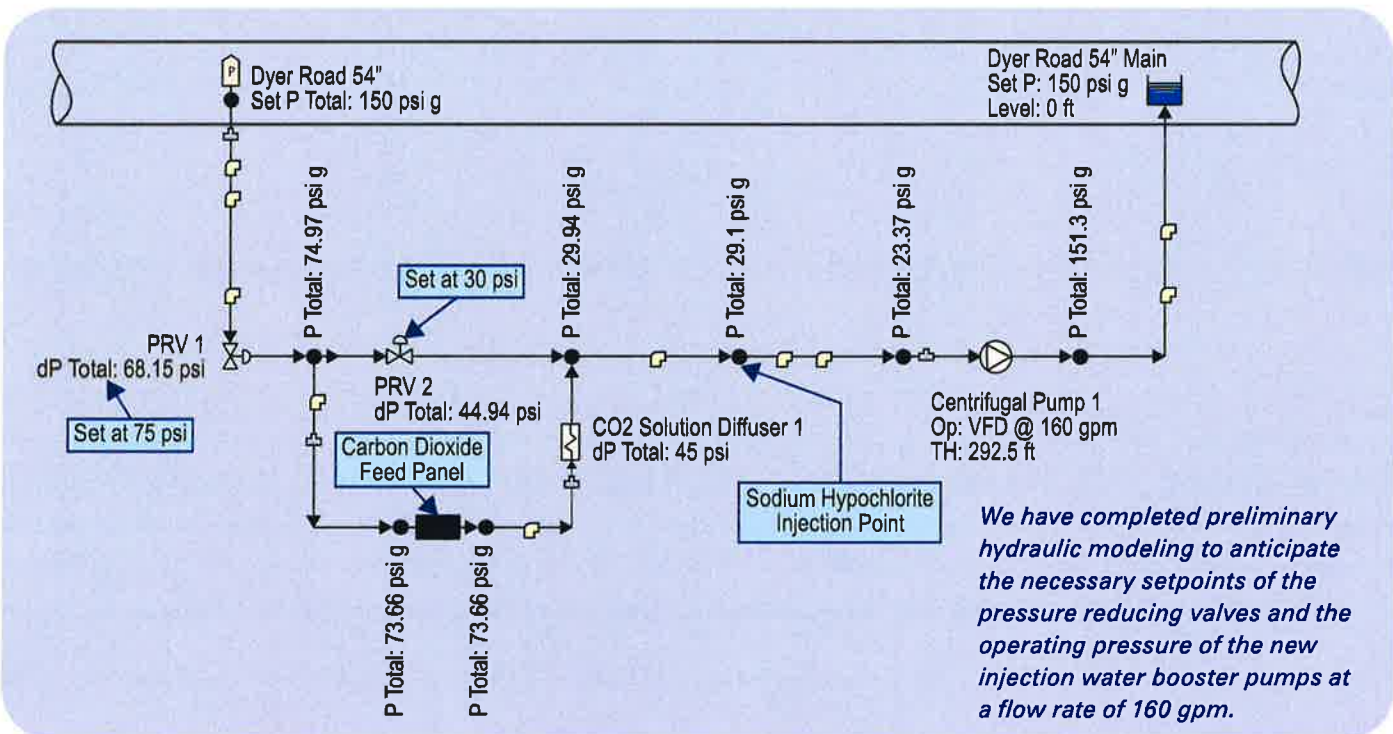
We completed preliminary hydraulic modeling to anticipate the necessary setpoints of the pressure reducing valves. This determines the total dynamic head the booster pumps will have to operate against. PRV1 is intended to maintain a system pressure less than 90 psi to PDF, which is the

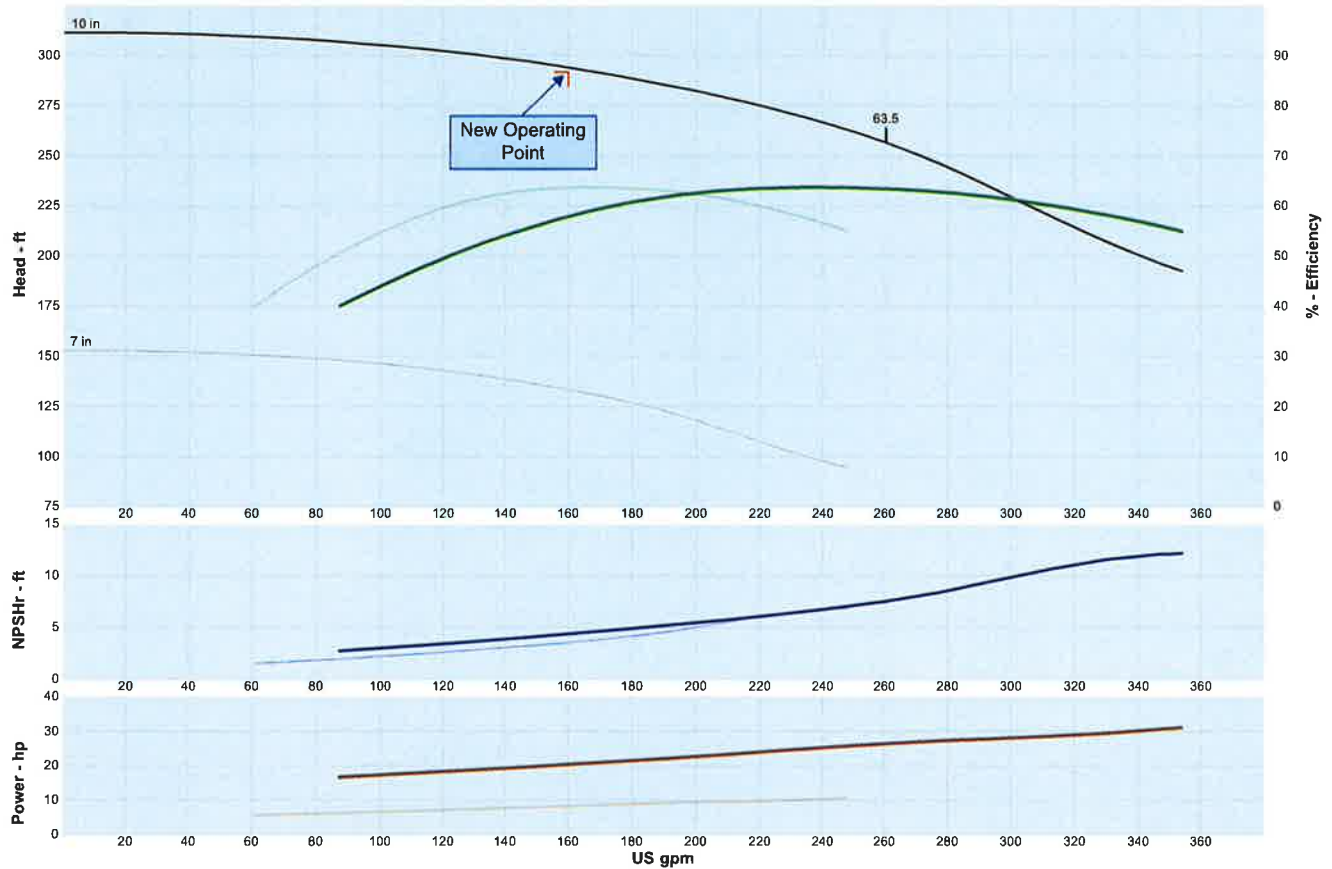
REPLACING THE INJECTION WATER BOOSTER PUMPS WILL REQUIRE CONFIRMATION OF THE FOLLOWING:

- Pressure requirements of the CO₂ feed system
- Setpoints of upstream pressure reducing valves
- Desired flow capacity

minimum pressure in the 54-inch main. This valve will maintain a consistent pressure to PDF and buffer the carrier water system from varying pressure conditions in the 54-inch main, which can range up to 150 psi. The modeling results indicate an appropriate setpoint of 75 psi for PRV1. PRV2 is located after the diversion point for the carbon dioxide carrier water loop and prior to the carbon dioxide solution diffuser. At a setpoint of 30 psi, based on the pressure drop across a TOMCO₂ system, this valve will create adequate driving head for water to flow to the feed panel and through the solution diffuser without the need of a booster pump upstream on the carbon dioxide system.

Our hydraulic modeling shows that one duty pump rated for 160 gpm at 293 feet total dynamic head will be adequate for the planned modifications, requiring approximately 25 horsepower motor. Reducing the motor size may provide for new equipment to be added to the power supply without having to increase the MCC breaker capacity. We have also verified that the maximum impeller size of the existing pumps will not be adequate, requiring a new model selection.





Our hydraulic modeling shows that one duty pump rated for 160 gpm at 293 feet total dynamic head will be adequate for the current preliminary design modifications. This can reduce the pump motor size to 25 hp.

Materials of Construction

It will be an important part of our evaluation to work with manufacturers to verify that the materials of construction of all pumps and appurtenances associated with this system are suitable for the service of carbon dioxide and sodium hypochlorite and are NSF approved for this drinking water application.

2.4 Civil Site Plan and Chemical Delivery

The loading area at PDF has a mild slope toward Halladay Street and away from the building. For chemical deliveries in the future, the grading may not allow for a full delivery, leaving a small volume of purchase chemical in the truck. Grading alone may not properly address this issue while maintaining proper stormwater runoff away from the building. One possible solution is to use a truck lift device at the entrance to the building. This device can be pit-mounted and operated to lower the rear axle of the truck up to 18 inches below grade, tilting it towards the fill station in front of the existing rollup door.

Based on an equipment cost of roughly \$50,000, we anticipate an installed cost estimate of \$100,000. The best way to evaluate the benefit of installing this equipment

is to consider the savings of receiving the full volume of purchased chemical each delivery. Looking at peak and non-peak chemical demand under average dosing conditions, leaving behind 5% of a full 5,000-gallon delivery results in 250 gallons of un-delivered chemical being charged to the District per order. Over the course of a year, this results in over 17,500 gallons lost, costing you nearly \$17,500. By installing the truck lift system, the money saved by receiving a full delivery will cover the cost of the lift device in less than 15 years.

Estimated Installed Cost of Truck Lift Device	\$100,000
Chemical Salvaged	17,500 gallons per year
Cost Savings	\$17,500 per year
Anticipated Return on Investment	5 to 6 years

Installing a truck lift to provide full chemical delivery can result in significant benefits with a positive return on investment.



Truck lift devices are commonly installed to raise a truck bed level with a loading dock. At the PDF, this same device can be pit-mounted and operated to lower the rear axle of the bulk delivery truck up to 18 inches below grade, tilting it towards the fill station in front of the existing rollup door to the Chlorine Storage Room.

2.5 Structural Design and Mechanical Piping Plans

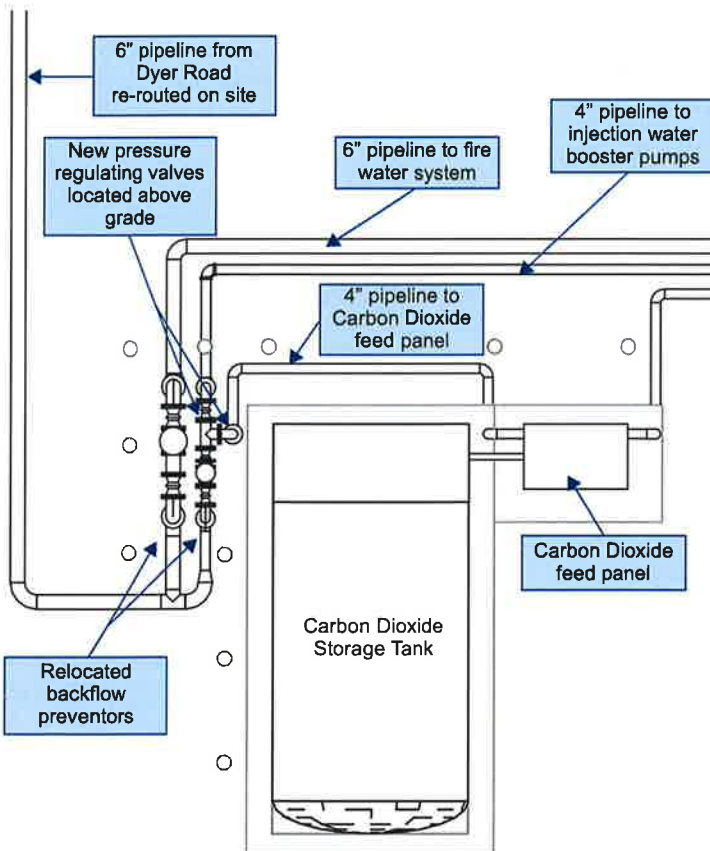
The preliminary design of the new chemical systems at PDF was developed using Sketchup to illustrate the concept of our system layouts. In preparation for accelerated interdisciplinary coordination to maintain the schedule for design, we have proceeded with converting the Sketchup model to 3-dimensional CAD and preparing 2-D sheets for each discipline. By doing this, we were able to start correcting conflicts and verifying that the structural design and mechanical layout were compatible as originally presented in the BODR. We also advanced the piping plans for the new carbon dioxide system, which requires modifying the existing injection water pipeline to relocate backflow preventers and divert water to the CO₂ solution feed panel. **Additional design advancement is included with the drawings provided in the appendix.**

2.6 HVAC Improvements

During preliminary design, the existing HVAC system was evaluated against California Fire Code requirements for the storage, use, and handling of hazardous materials on site. No modifications are required to meet code. However, as proposed, some ductwork will need to be demolished for space in the Chlorine Storage Room; and all existing fans should be replaced due to equipment age. Additional modifications were identified to improve air circulation in the Chlorine Storage Room and Ammonia Storage and Feed Room. There is also an opportunity to save energy by reducing unnecessarily high ventilation rates in the Chlorine Storage Room.

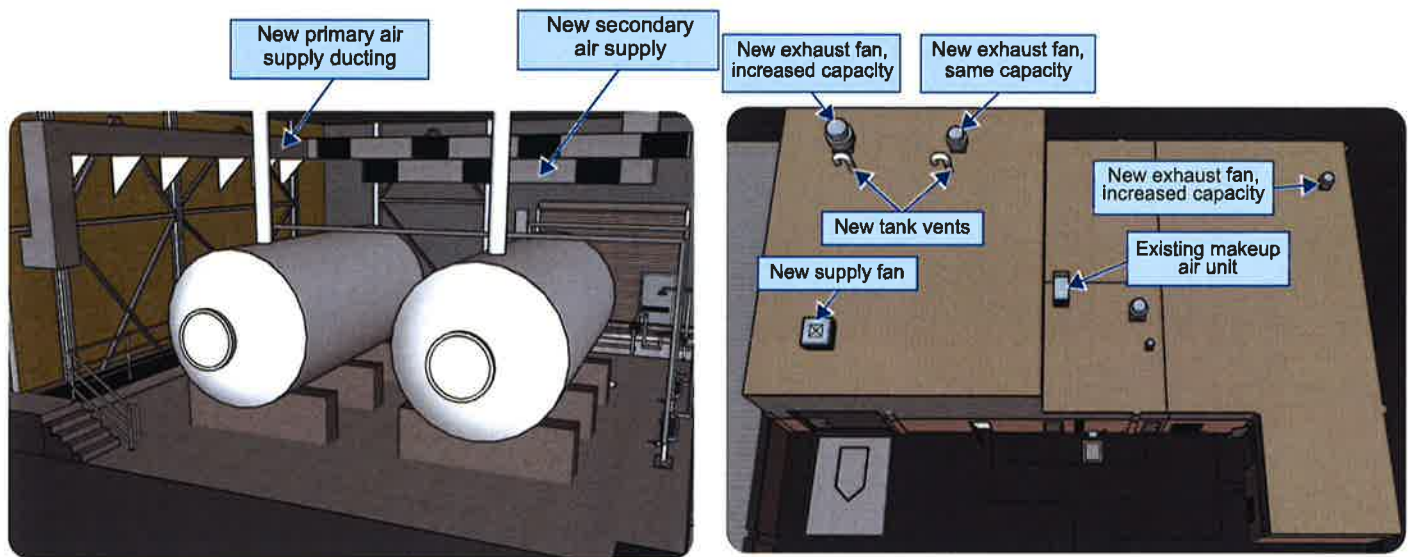
To advance the proposed concepts, we have completed a heat load analysis to target a room temperature of 6 degrees above outdoor ambient temperature. This allows us to accurately estimate fan capacities and complete fan selections.

The primary ventilation system in the Chlorine Storage Room is designated to provide continuous mechanical ventilation in accordance with code requirements. Mechanical ventilation requires both forced exhaust and forced supply air. A replacement 5,200-cfm capacity exhaust fan will nearly match existing capacity to save costs associated with replacing the existing makeup air unit. If IRWD desires to replace the existing makeup air unit, it is possible that the capacity of the makeup air unit could be reduced for additional energy savings. As mentioned in the BODR, ductwork from the existing makeup air unit will need to have a new wall penetration to provide clearance on the new catwalk and should also extend across the west side of the room with registers for improved air circulation.



Our preliminary layout for the new carbon dioxide system in the yard provides proper separation of water to the necessary facilities.

The existing secondary ventilation system in the chlorine storage room utilizes two roof-mounted exhaust fans to pull free supplied air from roof mounted gravity intake vents. We propose to modify the secondary ventilation system to provide mechanical ventilation in place of the free supplied air. A new 10,000 cfm supply fan will be installed on the roof in place of the gravity intake vents. Ductwork from the fan will extend across the west side of the room with registers for effective air flow distribution. A single, new, roof-mounted exhaust fan at 11,000 cfm capacity will replace the two existing exhaust fans.



The proposed ductwork modifications will improve air circulation in the Chlorine Storage Room, allowing staff to feel the cooling effects.

We propose to modify the secondary ventilation system in the Chlorine Storage Room to provide mechanical ventilation in place of the free supplied air, providing improved air circulation and cooling effects. Increasing the exhaust fan capacity in the Ammonia Storage and Feed room will also improve ventilation rates.

During a site walk completed with IRWD during preliminary design, we noted that operations staff expressed discomfort in the Ammonia Storage and Feed Room. This room uses one roof-mounted exhaust fan for mechanical exhaust to pull 1,400 cfm. A wall damper provides free supplied air. The ammonia room currently receives 10 air changes per hour at a ventilation rate of 2.2 cfm per square foot. Increasing the exhaust fan capacity to 2,200 cfm increases the ventilation rate to maintain the room at 6 degrees above ambient condition.

Area	Existing					Proposed				
	Forced Exhaust (cfm)	Forced Supply (cfm)	Free Supply (cfm)	Air Changes Per Hour	Ventilation Rate (cfm/ft ²)	Forced Exhaust (cfm)	Forced Supply (cfm)	Free Supply (cfm)	Air Changes Per Hour	Ventilation Rate (cfm/ft ²)
Chlorine Storage Room	47,400	4,800	42,600	59	22	16,200	14,800	0	20	7.4
Ammonia Room	1,400	0	1,400	10	2.2	2,200	0	2,200	16	3.5
Chlorine Feed Room	6,000	600	5,400	61	13	Not included in scope.				
Electrical Room	4,000	0	4,000	18	3.8	Not included in scope.				
Scrubber Room	800	800	0	7	1.5	Not included in scope.				

If desired, we can extend the heat load analysis and proposed HVAC modifications to the other rooms at the PDF.

2.7 Electrical, Instrumentation, and Controls

Electrical Supply Validation

As mentioned in the BODR, it is anticipated that the 400A main breaker may need to be replaced. This is based on conservative estimates, including that the existing lighting panel does not have enough ampacity or spare circuits to power new 120V loads. To stay on schedule and properly advance the design, we know that it will be important to complete our evaluations of available capacity in the electrical system. We have updated our load calculations and list the following assumptions that will be part of our validation efforts.

Our load calculations reflect the addition of the following equipment:

- Booster pumps replaced in kind
- Motor actuated valves on chemical feed
- New supply fan
- Carbon dioxide storage tank
- A new lighting panel anticipated to support the new 120V loads, which will include:
 - Metering pumps
 - Transfer pump
 - CO₂ solution feed panel

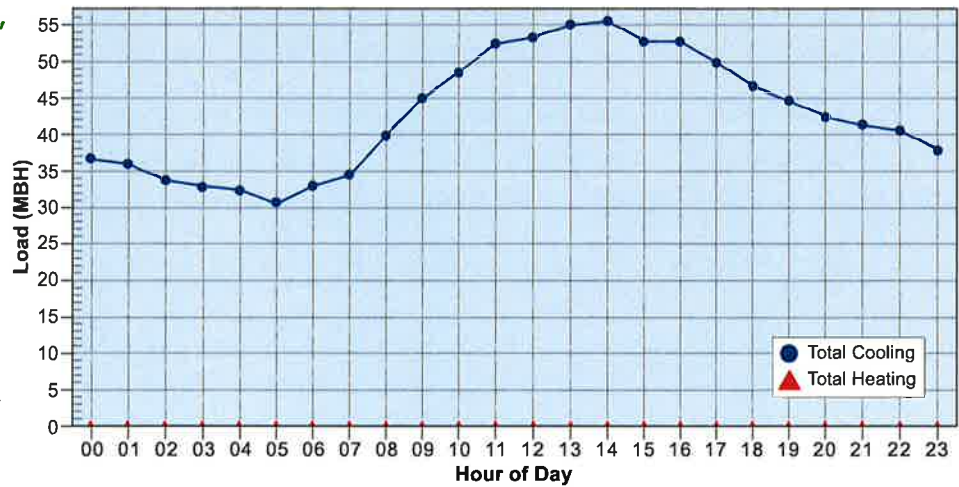
Our load calculations currently reflect the demolition of the following equipment:

- All electric unit heaters
- Replacement of fans in the chlorine storage rooms
- Exhaust fan
- Scrubber unit control panel
- Travelling bridge crane

Our load calculations takes into account the worst case electrical load of the following equipment, because load values were not shown on the existing as built drawings:

- Power center
- Overhead rollup doors (three total)

It will be crucial to immediately validate the capacity of the above equipment prior to design. This could be the difference between maintaining the existing system or



The heat load analysis produced hourly cooling load requirements for the Chlorine Storage Room in critical summer months. Our approach to the HVAC modifications will create comfortable working conditions for staff.

needing to replace the main breaker on the MCC and the automatic transfer switch. Additional modifications to existing equipment will also need to be captured.

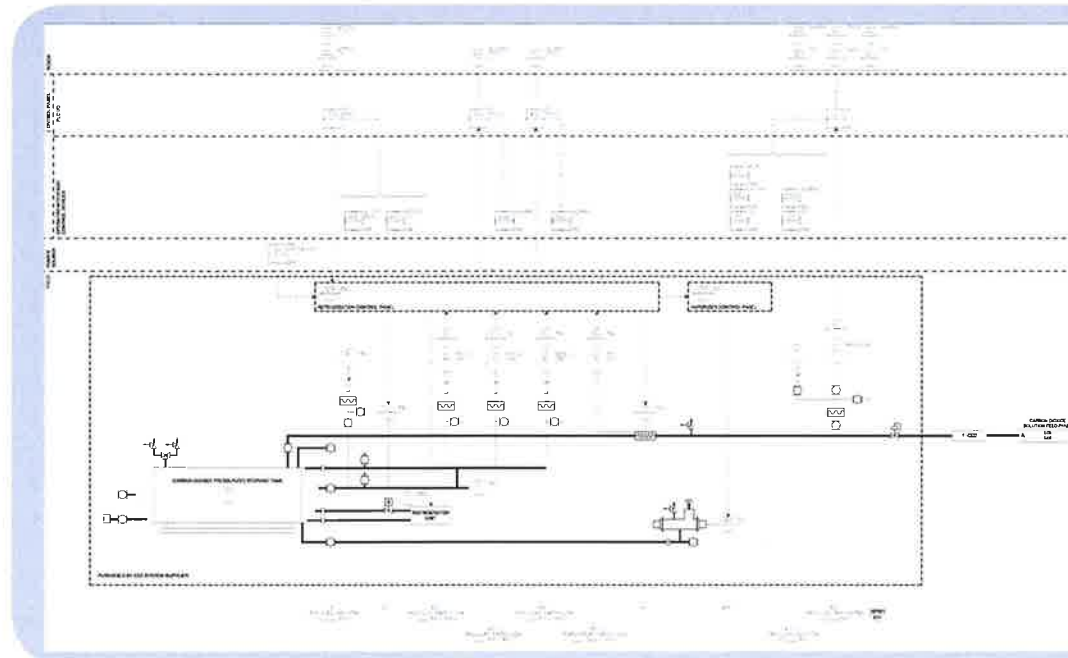
Instrumentation and Control Strategies

We have taken the control strategies described in the BODR and started to develop P&IDs based on what was installed with your preference for the sodium hypochlorite systems at Rattlesnake and IDF. Preliminary P&IDs for the new carbon dioxide system were also developed based on our general approach from previous installations of TOMCO₂ systems. P&IDs have been prepared for immediate review with IRWD as a starting point for discussions regarding desired instrumentation, communications, and control strategies that should be captured prior to proceeding with design.

P&IDs and instrumentation drawings will also be developed to reflect modifications and confirm controls for the ammonia feed and HVAC systems.

2.8 Preliminary Cost Estimate

The outcome of all these assessments may have an impact on the cost estimate presented in the BODR, which is an important decision-making tool for the District. As part of our validations, we will update the engineer's opinion of probable cost to review with you prior to proceeding with design.



P&IDs have been prepared for immediate review with IRWD as a starting point for discussions regarding desired instrumentation, communications, and control strategies that should be captured prior to proceeding with design.

2.9 Technical Memorandum

Carollo will prepare a brief TM summarizing our findings for the above topics which will focus on the identified alternatives and solutions to produce an outstanding product for the District.

Task 2 Deliverables:

- TM – BODR Review and Validation

TASK 3 Investigations

3.1 Utility Research

Carollo will review the available Record Drawings for existing facilities as noted in the RFP to compile information regarding type of utility, material, size, depth, pavement replacement criteria, and horizontal location. Our team will verify and field locate utilities on site or within the aerial topographic survey. The inverts of sewer and storm drain manholes and structures will be measured and detailed. For water valves, measurements will be made from the rim to the top of nut.

We will perform utility potholes on up to four (4) utilities. The final deliverable will be a report that includes location, utility description, and digital photographs. The Carollo team will add the located utilities to the final CADD drawing with invert elevations and pipe sizes.

3.2 Geotechnical and Structural Investigations

Our civil and structural team has reviewed the existing geotechnical report provided within the RFP. The

geotechnical report was prepared in 1994 by Converse Consultants. Soil conditions have remained fairly unchanged since that time. However, in light of the proposed improvements and new loads to the soils, we recommend that a geotechnical engineer should be retained for this project to provide the following:

- Review of the original geotechnical report considering the proposed scope of work
- Seismic design criteria for the structural evaluation

It is anticipated that no additional field work or borings will be required.

The existing building at PDF was originally constructed before modern seismic design provisions were enforced in the building code. There was a significant remodel in 1996 where much of the original building was removed and replaced, but some of the original building components were retained including existing tilt-up wall panels. Seismic evaluation procedures for existing buildings, which now include explicit considerations for building performance and the evaluation of non-structural elements, have advanced since 1996 as well.

ASCE 41-17, *Seismic Evaluation and Retrofit of Existing Buildings*, is the current standard used by structural engineers to identify seismic vulnerabilities with respect to the required performance. Application of the standard is multi-tiered (Tier 1, Tier 2, Tier 3) to make the identification of vulnerabilities as efficient and rapid as the required performance. Application of the standard is multi-tiered (Tier 1, Tier 2, Tier 3) to make the identification of vulnerabilities as efficient and rapid as is practical. We

recommend evaluating the existing facility using Tier 1 and Tier 2 analyses. Tier 1 analysis is a screening level approach that uses checklists to cover the spectrum of known vulnerabilities for similar building types. Tier 2 analysis is used only for deficiencies flagged in Tier 1 analysis. Tier 2 analysis is more accurate and consequently a bit more rigorous. Tier 3 involves a full 3-dimensional mathematical analysis that is not deemed necessary for the subject building. The seismic evaluation will also include an on-site assessment of both structural and non-structural elements.

The level of effort will include the following tasks:

- Review of existing documents, including drawings, specifications, and reports
- Site visit(s)
- Seismic evaluation to Tier 1/Tier 2 per ASCE 41-17
- Preparation of a TM to summarize findings and recommendations

3.3 Hazardous Materials Inspection and Testing

The hazardous material evaluation of the storage building will be conducted by industrial hygiene and safety professionals with experience in conducting asbestos and lead paint surveys.

Asbestos-containing materials and asbestos-containing construction materials will be tested by California-certified inspectors according to ASTM-E2356-09 meeting the requirements of EPA and OSHA asbestos survey and sampling requirements. For purposes of this project, it will be left to the inspector's judgement regarding the number of bulk samples required to be representative of each miscellaneous material. This will help reduce the overall number of bulk samples to be collected and will expedite the survey process. CalOSHA has strict requirements for classifying asbestos-containing construction materials. We have assumed that 10 percent of collected samples will require further testing to meet CalOSHA regulations.

Our California-certified lead sampling technician will conduct a lead-in-paint screening survey to generally determine locations and conditions of painted surfaces with detectable concentrations of lead to facilitate contractor compliance with current OSHA Lead in Construction (20 CFR 1926.62) and State of California regulations. Both the EPA and California Department of Public Health classify lead-containing paints as those with lead levels above 1.0 mg/cm². Paint samples will be collected and the condition and location of samples will be documented.

Universal waste will be identified using a visual survey of the storage building. Potential waste includes florescent light bulbs, sodium vapor lamps, mercury-containing lamps and thermostats, poly-chlorinated biphenyl list ballasts or transformers, batteries, refrigerants and others. The findings of the survey will be documented with conclusions and recommendations.

Upon completion of the inspection and testing, a single survey report encompassing asbestos, lead, and universal waste will be provided.

3.4 Topographic Mapping – Surveying

As acceptable to the District, the survey team will find and transfer horizontal and vertical survey control for the facility and maintain its use throughout the duration of the project. Our team will set semi-permanent points to be used for future construction.

The Carollo team shall provide aerial topographic services with color digital geo-referenced orthophotos at 0.15-foot pixel resolutions and an AutoCAD or MicroStation drawing at 1-inch = 20-foot scale, with 1-foot contours for the project site. This task will include the setting of four (4) aerial control points. The horizontal and vertical values of the aerial points will be provided to the client.

Task 3 Deliverables:

- Geotechnical report with recommendations for seismic design
- Tier 1/Tier 2 seismic evaluation
- Pothole report
- Hazardous material report
- Electronic topographic map

TASK 4 Final Design

4.1 Project Manual

Carollo will prepare the Project Manual in the standard IRWD format. This Manual will contain IRWD's general technical specifications, modifications thereof, and project specific technical specifications.

Our past use of IRWD's project manual will allow us to seamlessly combine, modify, and supplement the project technical specifications for this project.

The Project Manual will describe the allowable shutdown durations and sequencing associated with any connections and tie-ins to existing IRWD facilities.

4.2 Construction Plans and Design Development

The Carollo team will develop the detailed design and prepare the construction drawings for submittal at the 60%, 90%, and 100% phases of this project. For all construction drawings, Carollo will use the latest version of AutoCAD and NCS V4.0 laying standards prepared on 22-inch by 34-inch sheets with the IRWD standard border template. We will provide construction notes on all construction drawings. Construction drawings will be prepared using the NAVD 88 and NAD 83 survey standards. Our design team will follow all IRWD requirements for preparation of drawings as described in the RFP.

A description of each level of design and the associated deliverables are as follows:

60% Design Development

This task will include the advancement of the information developed in the BODR and this proposal to the 60% design completion, including items identified and agreed upon during the review and validation of the BODR. The 60% design shall comply with IRWD standards and requirements as described in the IRWD Project Manual and the IRWD Construction Manual.

This task will include the following design elements to 60% completion:

- Civil/site, mechanical and electrical plans, basic mechanical equipment will be chosen
- Structural and architectural layouts will be developed
- Pipeline alignments, preliminary profiles, and all existing utilities will be identified

Deliverables – 60% Design:

- Eight (8) 11"x17" bound copies of the 60% submittal and one CD containing a single PDF file of the entire plan set
- Complete Table of Contents for the Project Manual
- Completed Comment/Response Log to the 60% design

90% Design Development

This task will include the advancement of the information developed in the 60% design to 90% design level. Carollo will incorporate all IRWD comments from the 60%

design submittal. All design elements for civil, structural, mechanical, architectural, electrical, and instrumentation, including all plans, profiles, connections, details, and locations of appurtenances will be included. A 90% Design Review Meeting between IRWD staff and Carollo staff will be conducted to review the closure of comments. Upon completion of the meeting, Carollo will incorporate the required corrections and provide written responses to the comments.

Deliverables – 90% Design:

- Eight (8) 11"x17" bound copies of the 90% submittal and one CD containing a single PDF file of the entire plan set
- Five (5) color coded copies of the 90% completed Project Manual, including sections for contract documents, general provisions, special provisions, general requirements, technical specification, and appendix
- Completed Comment/Response Log to the 90% design

100% Design Development

This task will include the advancement of the information developed in the 90% design to 100% design level. A 100% Design Review Meeting between IRWD staff and Carollo staff will be conducted to review the 90% comments and confirm final design development. Subsequent to this meeting, Carollo will make the required corrections and provide written responses to the comments.

Deliverables - 100% Design:

- Eight (8) 11"x17" bound copies of the 100% submittal, one CD containing AutoCAD files for the entire plan set, and one DC containing a single PDF file of the entire plan set
- Three (3) color coded copies of the Project Manual, and one (1) CD of the MS Word file used in the preparation of the Project Manual
- Final design calculations for all disciplines, including mechanical, civil, structural, HVAC, electrical, pipe thickness, and restraint
- Completed Comment/Response Log to the 100% design
- Meeting agenda and minutes for the 100% Design Review Meeting

Final Design

Carollo will submit the Final Design completed plans and specifications to the local jurisdiction for building Plan Check review and complete the Plan Check process for issuance of a building permit. Carollo will contact the local agency for specific Plan Check review requirements and processes. Upon review by the local Plan Check Department, Carollo will incorporate all necessary changes and address all comments from plan check process.

Deliverables – Final Design:

- One (1) full size final stamped and signed reproducible plan set on mylar and one original signed Project Manual for District's signatures

4.3 Electrical/Instrumentation Design

As part of the 60%, 90%, and 100% design tasks described above, the Carollo team will prepare an operational scheme for the planned improvements, including process and instrumentation drawings (P&IDs), single-line diagrams, control loop descriptions, and method of integrating the new facilities into IRWD's existing supervisory control and data acquisition (SCADA) system.

During the 60% design phase, Carollo will meet with District staff to determine IRWD's standard operations, programming and tagging requirements to be incorporated into the design.

Carollo will obtain SCE approval for the proposed switchboard relocation at the site. We will prepare a detailed plan for temporary power, communication, and controls while the switchboard is being relocated and the existing PLC is replaced. The temporary facilities will be provided with a clear implementation plan following a phased approach to minimize impacts to operations.

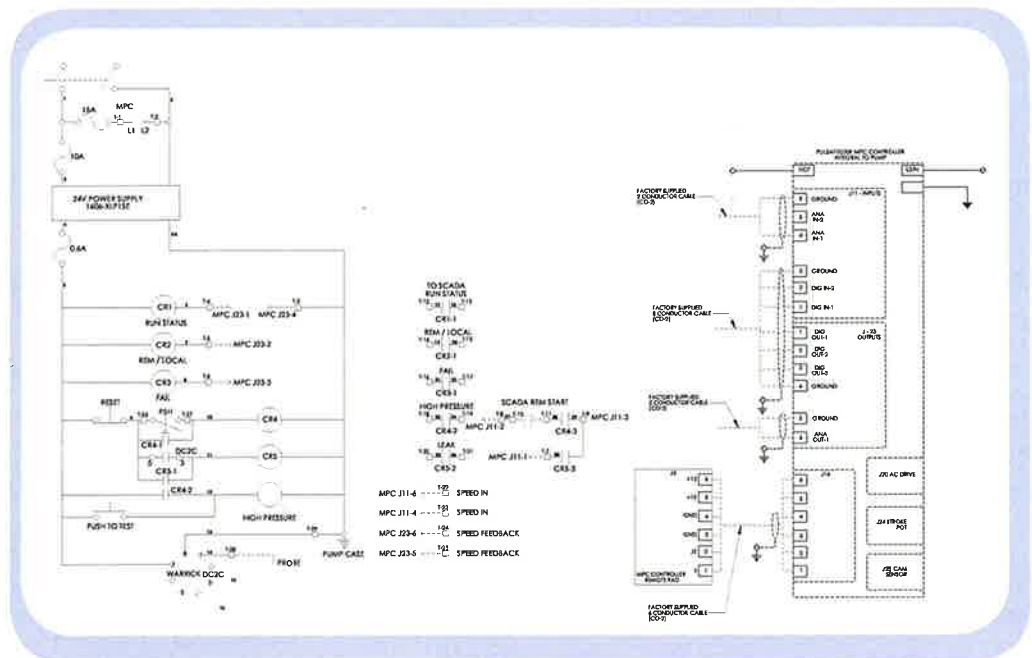
Lessons Learned

During the installation of the Pulsar HypoPumps at IDF and Rattlesnake, it was encountered that the voltage capacity for discrete communication contacts out of the MPC controller (50 volts) was not compatible with the PLC input card used by IRWD at these facilities (115 volts). Interposing relays were required for all digital input statuses from the metering pumps to the PLC. This will need to be considered during design for PDF.

As an alternative solution, Charles P. Crowley Co. (the supplier of the metering pumps used at IDF and Rattlesnake) builds a product called an "Interface Panel" designed to support the Pulsafeeder MPC in situations where additional I/O capacity and/or voltage incompatibilities exist. This product gives the user a more conventional looking LCP. It provides a local disconnect switch, a high pressure indicator and reset, terminal blocks, relays, 24VDC transformer/power supply, etc. IRWD has these on the Michelson Biosolids Project currently under construction implemented on all the chemical pumps provided for that project.

4.4 SCE Final Service Plan

Carollo will coordinate with SCE early in the design phase to get approval for the switchboard relocation and to obtain the Final Service Plan. This Plan will be included as part of the Project Manual described above.



The interface panel can be used to overcome discrepancies between the MPC and the District's PLC input cards.

Carollo will meet with SCE representatives as needed to communicate project requirements and obtain the necessary buyoff from agency authorities. We will address and implement all SCE comments into the project design.

4.5 Photometric Study

Carollo will design the replacement lighting for all interior building fixtures and exterior site lighting with LED fixtures. As requested in the RFP, Carollo will perform a photometric study to identify the most favorable locations and types of lighting needed at the facility.

Lessons Learned

Shadows cast by the lighting implemented at Rattlesnake revealed a preferred lighting level and luminaire type that was implemented at IDF. Based on this experience, the same minimum footcandle value and wallpack LED fixtures will be applied in the lighting calculations and lighting plans for PDF. **A preliminary lighting plan for this room is included with the attached drawings.** Special consideration for the placement of fixtures around the structural support columns is necessary.

4.6 Construction Phasing

Chlorine disinfection and chloramination shall not be interrupted throughout the construction phase of this project. As discussed in the BODR, IRWD plans to use IDF for primary disinfection dosing with DATS as a backup system and MWD as a backup water supply. A fourth sodium hypochlorite metering pump will be staged at IDF for redundancy if one of the existing three pumps goes off-line. The existing ammonia feed system will be maintained at PDF.

During design, Carollo will work with District staff to develop a comprehensive plan and recommended sequencing of work for a phased construction to provide non-interrupted chloramination at PDF.

Construction sequencing should be planned with the following items taken into consideration:

- Obtain potentially long lead items early in the project
- Confirm IDF chlorination systems and backup measures are fully prepared and functional
- All purchased equipment related to the new system shall be on-site and ready for installation prior to demolition of existing system

- Construction of new system shall commence immediately upon chlorine gas shutdown
- A temporary radio system and controls for the ammonia system shall be provided
- A temporary power supply for ammonia feed pumps shall be provided

Phased installation of aqueous ammonia feed pumps will be implemented to the greatest degree possible to avoid the need for temporary facilities. It is anticipated that temporary control facilities will be needed during the relocation of the switchboard and replacement of the control panel and telemetry system.

4.7 Permits

The following permits are anticipated for this project:

- Fire Master Plan (updated in accordance with OCFA requirements)
- Southern California Edison (SCE)
- City of Santa Ana, Building Plan Check

Carollo has worked with the Orange County Fire Authority (OCFA), Southern California Edison (SCE), and the City of Santa Ana on the District's other disinfection facility designs. We understand their expectations and are familiar with how to navigate their permitting process. Carollo will engage OCFA early in the design for initial input and again at the 90% submittal. SCE also requires early and persistent engagement. Carollo will obtain approval of the final site plan prior to final design.

4.8 Project Schedule

We understand your schedule concerns, and we are committed to meeting the proposed schedule and milestones as presented below and shown on our expended schedule.

Milestone	Date
Notice of Award (Design)	October 23, 2018
Kick-Off Meeting	November 2018
Basis of Design Report Review & Validation	January 2019
60% Design Submittal	April 2019
90% Design Submittal	May 2019
100% Design Submittal	July 2019
Bid Opening/Notice of Award (Construction)	October 2019

4.9 Opinion of Probable Construction Cost (OPCC)

Carollo shall prepare a detailed and itemized opinion of probable construction cost (OPCC) for the proposed facilities, which shall be updated and submitted with each of the final design deliverables, at 60%, 90% and 100% design.

TASK 4 Deliverables:

- Permit Applications
- Project Schedule at 60%, 90%, and 100% design
- OPCC at 60%, 90%, and 100% design

TASK 5 Addenda Preparation and Pre-Bid Meeting

5.1 Review of Bidder Questions

Carollo will provide technical support to IRWD during the bidding phase of construction, including review and response to all project inquiries from the bidder, as requested. Response shall be within 48 hours of the District's request or as agreed upon. Carollo has budgeted for a minimum of twenty (20) hours of appropriate staff time to address and respond to bidder questions.

5.2 Pre-Bid Meeting and Site Visit

Carollo shall attend one (1) pre-bid meeting, including a site visit with potential bidding contractors. Carollo shall provide appropriate team members to respond to bidders' questions during the conference and site visit.

5.3 Plan and Specification Revisions


Carollo will prepare up to three (3) addenda for incorporation of revisions to the design plans and specifications.

Carollo will allow for up to thirty (30) hours of staff time to revise plans in the construction drawings and up to twenty (20) hours of staff time for modifications to the specifications.

TASK 5 DELIVERABLES

- Addenda, up to three (3) (1 electronic copy of each in PDF format)

TASK	WORK ELEMENT	Principal in Charge Wegman	Project Manager Wochner	Assistant Professions	Man	Orsham	Hoffman	Green	Quiring	Truitt/Oh	Vonn Processing	Carroll Task Hours	Carroll Task Subtotal	Surveying - Alphon Consulting	UBM Survey - Woods	Biotechnical Contract	Other Direct Costs	Total
1	Project Management	\$ 233	\$ 705	\$ 367	\$ 233	\$ 233	\$ 233	\$ 205	\$ 233	\$ 165	\$ 121							
1.1	Preparation of Project Status Reports	4	16									20	\$ 4,212	\$ -	\$ -	\$ -	\$ -	\$ 4,212
1.2	Meetings and Workshops (16 x 2 hr meetings)	32	32	40								72	\$ 13,240	\$ -	\$ -	\$ -	\$ 2,500	\$ 15,740
1.3	Quality Assurance/Quality Control	48	48									96	\$ 21,024	\$ -	\$ -	\$ -	\$ -	\$ 21,024
	Task Subtotal	52	96	40	0	0	0	0	0	0	0	188	\$ 38,476	\$ -	\$ -	\$ -	\$ 2,500	\$ 40,976
2	Basis of Design Review																	
2.1	Ammonia Feed System		8	12	4	4						28	\$ 5,508	\$ -	\$ -	\$ -	\$ -	\$ 5,508
2.2	CO2 System Selection		2	4	2	2						10	\$ 2,010	\$ -	\$ -	\$ -	\$ -	\$ 2,010
2.3	Comer Water Booster Pumps		8	12		4						24	\$ 4,576	\$ -	\$ -	\$ -	\$ -	\$ 4,576
2.4	Civil Site Plan - Chemical Delivery		8	12						4		24	\$ 4,304	\$ -	\$ -	\$ -	\$ -	\$ 4,304
2.5	Structural & Mechanical Piping Design			12					4	8		24	\$ 4,256	\$ -	\$ -	\$ -	\$ -	\$ 4,256
2.6	HVAC Improvements		8	12				12				32	\$ 6,104	\$ -	\$ -	\$ -	\$ -	\$ 6,104
2.7	Electrical/4C Design		8	8			16					32	\$ 6,704	\$ -	\$ -	\$ -	\$ -	\$ 6,704
	Task Subtotal	0	42	72	6	30	16	12	4	12	0	174	\$ 33,662	\$ -	\$ -	\$ -	\$ -	\$ 33,662
3	Final Design Investigations																	
3.1	Utility Research		2	4								6	\$ 1,078	\$ 4,600	\$ -	\$ -	\$ 460	\$ 6,138
3.1.1	Potoling		2	4								6	\$ 1,078	\$ 7,600	\$ -	\$ -	\$ 760	\$ 9,438
3.2	Geotechnical & Structural Investigations		12	60					36			108	\$ 20,868	\$ -	\$ -	\$ 7,500	\$ -	\$ 28,368
3.3	Hazardous Materials Inspection & Testing		4	8								12	\$ 2,156	\$ -	\$ 18,000	\$ -	\$ -	\$ 22,156
3.4	Topographic Mapping - Surveying		4	4								8	\$ 1,488	\$ 19,500	\$ -	\$ -	\$ 1,950	\$ 22,938
	Task Subtotal	0	24	80	0	0	0	0	36	0	0	180	\$ 26,000	\$ 31,700	\$ 10,000	\$ 7,500	\$ 3,170	\$ 79,690
4	Final Design																	
4.1	Project Manual		8	16	6	6	6	6	6		16	70	\$ 13,070	\$ -	\$ -	\$ -	\$ 4,000	\$ 17,070
4.2	Construction Plans & Design Development																	
4.2.1	60% Design Development	16	60	136	20	20		36	40	212	12	552	\$ 101,192	\$ -	\$ -	\$ -	\$ 750	\$ 101,942
4.2.2	90% Design Development	8	48	98	12	12		16	24	172	12	402	\$ 72,366	\$ -	\$ -	\$ -	\$ 750	\$ 73,116
4.2.3	100% Design Development	8	36	84	6	6		8	12	110	8	278	\$ 49,622	\$ -	\$ -	\$ -	\$ 750	\$ 50,372
4.2.4	Final Design	2	26	36	2	2		4	4	72	8	146	\$ 25,290	\$ -	\$ -	\$ -	\$ 750	\$ 26,040
4.3	Electrical/Instrumentation Design		8	196			72			220		486	\$ 87,448	\$ -	\$ -	\$ -	\$ -	\$ 87,448
4.4	SCE Final Service Plan		8	24			12					44	\$ 8,444	\$ -	\$ -	\$ -	\$ -	\$ 8,444
4.5	Photometric Study		4	12			4					20	\$ 3,756	\$ -	\$ -	\$ -	\$ -	\$ 3,756
4.6	Construction Phasing		12	16								28	\$ 5,132	\$ -	\$ -	\$ -	\$ -	\$ 5,132
4.7	Permits		12	48								60	\$ 10,476	\$ -	\$ -	\$ -	\$ 5,000	\$ 15,476
4.8	Project Schedule	2	12	16								30	\$ 5,598	\$ -	\$ -	\$ -	\$ -	\$ 5,598
4.9	Opinion of Probable Construction Costs (OPCC)	2	12	24			4	4				46	\$ 8,686	\$ -	\$ -	\$ -	\$ -	\$ 8,686
	Task Subtotal	38	236	786	46	46	98	74	86	786	56	2,172	\$ 391,000	\$ -	\$ -	\$ -	\$ 12,000	\$ 403,000
5	Addenda Preparation & Pre-Bid Meeting																	
5.1	Review of Bidder Questions		10	20								30	\$ 5,390	\$ -	\$ -	\$ -	\$ -	\$ 5,390
5.2	Pre-Bid Meeting & Site Visit	4	4	4								12	\$ 2,420	\$ -	\$ -	\$ -	\$ -	\$ 2,420
5.3	Plan & Specification Revisions	2	8	12			2	2	2	18	4	50	\$ 8,906	\$ -	\$ -	\$ -	\$ 500	\$ 9,406
	Task Subtotal	6	22	36	0	0	2	2	2	18	4	92	\$ 16,716	\$ -	\$ -	\$ -	\$ 500	\$ 17,216
	HOURS TOTAL PROJECT	86	409	934	52	56	116	88	128	816	60	2,766						
	TOTAL PROJECT COST	\$ 22,368	\$ 86,100	\$ 155,978	\$ 12,116	\$ 13,008	\$ 27,028	\$ 18,040	\$ 29,824	\$ 134,640	\$ 7,200		\$ 586,402	\$ 31,700	\$ 10,000	\$ 7,500	\$ 38,170	\$ 579,772

October 22, 2018
Prepared and
Submitted by: P. Weghorst
Approved by: Paul A. Cook 

ACTION CALENDAR

IRWD COMMENTS ON MUNICIPAL WATER DISTRICT OF ORANGE COUNTY'S 2018 WATER SUPPLY RELIABILITY STUDY UPDATE

SUMMARY:

The Municipal Water District of Orange County (MWDOC) has recently completed a draft update to the Orange County Water Supply Reliability Study that it initially prepared in 2016. MWDOC has invited its member agencies to provide written comments on the update by October 26, 2018. Staff has prepared a draft IRWD comment letter for the Board's consideration. Staff recommends that the Board approve the draft letter.

BACKGROUND:

In 2016, MWDOC completed a comprehensive evaluation of future water supply reliability in Orange County. Throughout the study, MWDOC engaged in collaborative workshops with its member agencies to develop future demand forecasts, to identify feasible future scenarios, and to characterize potential regional and local projects; IRWD staff was an active participant in these workshops. The study included detailed modeling to determine water supply gaps and made qualitative comparisons of the ability of the projects to fill the gaps. The study concluded with a portfolio of projects to consider for further analysis. The study made no recommendations as to which local projects should be implemented by MWDOC's member agencies.

Over the past year, MWDOC worked with its consultants to further evaluate the portfolio of projects identified in the 2016 Study. The evaluations have included the application of a project comparison metric, similar in nature to a benefit/cost analysis. The results of these evaluations have recently been shared at a workshop with MWDOC's member agencies, at the MWDOC Planning and Operations Committee, and at the Water Advisory Committee of Orange County (WACO). Like the original 2016 study, the update makes no recommendations as to which local projects should be implemented by MWDOC's member agencies. MWDOC has invited its member agencies to provide written comments on the draft 2018 Update to the Water Supply Reliability Study by October 26, 2018.

Proposed IRWD Comments on 2018 Update:

In response to MWDOC's request for comments on the 2018 Update to the Water Supply Reliability Study, staff has prepared the draft letter attached as Exhibit "A". At the Committee meeting, staff will provide an overview of the study update and the draft IRWD comment letter. Staff recommends that the Board approve the letter to MWDOC, as revised based on input received from the Committee.

FISCAL IMPACTS:

None.

ENVIRONMENTAL COMPLIANCE:

Not applicable.

COMMITTEE STATUS:

This item was reviewed by the Supply Reliability Programs Committee on October 18, 2018.

RECOMMENDATION:

THAT THE BOARD APPROVE THE LETTER TO THE MUNICIPAL WATER DISTRICT OF ORANGE COUNTY PROVIDING COMMENTS ON ITS 2018 WATER SUPPLY RELIABILITY STUDY UPDATE.

LIST OF EXHIBITS:

Exhibit "A" – Draft IRWD Comment Letter on the MWDOC 2018 Water Supply Reliability Study Update.

EXHIBIT "A"



October XX, 2018

DRAFT

Mr. Rob Hunter
General Manager
Municipal Water District of Orange County
18700 Ward Street
Fountain Valley, CA 92708

Subject: Comments on 2018 Update to Orange County Water Supply Reliability Study

Rob:

The Municipal Water District of Orange County (MWDOC) has recently completed its draft 2018 Update to the Orange County Water Supply Reliability Study (2018 Study). This study is an important, objective, and comprehensive evaluation of how gaps in future water supplies can be met with different local and regional water supply projects. Irvine Ranch Water District (IRWD) appreciates the hard work that MWDOC staff and consultants have put into this study and compliments the team for objectively comparing project alternatives. We also commend MWDOC staff for encouraging and incorporating input received from its member agencies. The purpose of the letter is to provide the following IRWD comments on the study.

IRWD's comments, which have been reviewed with and approved by the IRWD Board of Directors, are as follows:

1. The future demand forecasts that were developed for the initial Supply Reliability Study (completed in 2016), with the input of MWDOC's member agencies, are reasonable. These demands adequately reflect the expected impacts of the State imposing water budgets on retail water agencies throughout the County. The study adequately demonstrates that water demands are not likely to increase in Orange County in the future.
2. The project evaluation metrics that are used in the updated 2018 Study provide a good method of comparing the benefits and costs of the projects. IRWD supports the comparison of the projects based on the metrics used in the study. Comparing the benefits and costs of alternatives is an essential component of water supply reliability planning. Even though not all the potential indirect benefits of the projects have been identified, IRWD supports MWDOC's efforts in applying this water supply reliability planning method.

3. The study should include the objective evaluation and comparison of the extension of the existing South County Interconnect Agreement between MWDOC, OCWD, IRWD and other South County Agencies. Evaluation of the extension of this agreement should take into consideration the results of MWDOC's ongoing hydraulic evaluation of the affected facilities in coordination with input provided by IRWD engineers. This common sense alternative needs to be included for the consideration of those agencies that deem it important, regardless of potential changes to a new South County Interconnect Agreement. Without consideration of this alternative, the 2018 Study is incomplete.
4. The 2018 Study references only briefly that the water supply reliability of the Orange County Groundwater Basin (Basin) area could be improved by changing the way that the Basin is managed. The study should be expanded to include an objective evaluation of implementing basin management improvements including expanded purchases of available supplies from Metropolitan Water District of Southern California (Metropolitan) for direct or in-lieu recharge in the Basin. It needs to be recognized that optimizing the purchases and recharge of water available from Metropolitan is likely the least expensive alternative for improving the water supply reliability of areas reliant on the Basin. Without consideration of this alternative, the 2018 Study is incomplete. IRWD encourages MWDOC and OCWD to work together on developing this evaluation.
5. It is our understanding that the study incorporates, as a baseline, the use of water supplies from Irvine Lake to provide system reliability improvements to the capacity owners in the Baker Water Treatment Plant. The 2018 Study should include a description of the assumptions included in this baseline project. IRWD and the other partners in the Baker Plant have recently initiated discussions whereby Irvine Lake could supply up to 60 days of emergency water for the Baker Plant. IRWD and the other Baker Plant partners are willing to confer with MWDOC to assist in finalizing its baseline study assumptions for this use of Irvine Lake.
6. The study should incorporate an analysis of the potential improvements in water supply reliability that might be achieved in Orange County should Los Angeles Department of Water and Power and the San Diego County Water Authority succeed in becoming less reliant on supplies from Metropolitan. Such efforts by these agencies to become more self-reliant could reduce the need to invest in future local water supply projects in Orange County.
7. Recently, other MWDOC member agencies have commented on the importance of each agency having the ability to opt out of participation in specific projects evaluated in the 2018 Study. IRWD agrees with this principle when any of the following are expected to occur as a result of a project:
 - a. Significant financial impacts with no improvement in water supply reliability;
 - b. Detrimental impacts to water quality;
 - c. Impacts to investments in other infrastructure;
 - d. System integration issues;

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Page 3

- e. Operational challenges;
- f. Infringements on capacity rights;
- g. Requirements for an agency to give up existing supplies; or
- h. MWDOC member agencies subsidizing the cost of supplies available to other Metropolitan member agencies.

IRWD recommends that MWDOC include in its 2018 Study a discussion of the importance of agencies being able to opt out of a project under any of the conditions listed above.

IRWD greatly appreciates the opportunity to provide the comments listed above. We request that you provide a copy of this letter to each of your Board members in advance of MWDOC's November 13, 2018 Planning and Operations Committee meeting. Please contact me at (949) 453-5590 if you have any questions or if you would like to meet to discuss these comments further.

Sincerely,

Paul A. Cook
General Manager

Enclosure

cc: MWDOC Board of Directors

October 22, 2018

Prepared by: R. Jacobsen

Submitted by: C. Clary

Approved by: Paul A. Cook



ACTION CALENDAR

SAND CANYON PROFESSIONAL CENTER PHASE II OFFICE PROJECT BUDGET INCREASE AND CONSTRUCTION AWARD

SUMMARY:

Based on improved leasing conditions, demand for similar office space and increasing lease rates in the Spectrum area, staff recommends that the District proceed with construction of the Sand Canyon Professional Center Phase II Office Project. Staff also recommends that the Board approve a budget increase in the amount of \$2,731,330 from \$17,624,300 to \$20,355,630 and authorize the General Manager to execute a construction contract with KPRS Construction Services, Inc. in the amount of \$17,992,969 for the Sand Canyon Professional Center Phase II, Project 06210.

BACKGROUND:

Phase I of the Sand Canyon Professional Center was completed in 2012 and included construction of a 16,400 square foot medical office building, a community meeting room, and the reconfiguration of the existing IRWD employee parking area. The medical office building reached 100% occupancy in 2013 and is fully leased through 2022, with an annual Return on Cost of 8.85% as of September 30, 2018.

Phase II of the approved campus master plan includes the construction of an approximate 70,000 square foot professional office building with a roof-top patio, and completion of a central campus outdoor area available for use by the District and tenants of the two adjacent office properties.

The medical and professional office combination was recommended in a previous land use study, and the resulting tenant diversification has been further supported by other local real estate professionals based on the site's zoning, trip allocation constraints, and market data for the area.

Sand Canyon Professional Center Phase II Development Activities:

In early 2015, IRWD retained the architectural firm Ware Malcomb to design the future Phase II office building. Building design and site plans were reviewed with the Asset Management Committee (now Finance & Personnel Committee) at multiple meetings in 2015, and in early 2016 building plans were submitted to the City of Irvine for review and approval. The building has been designed and is being marketed as "creative office" space. Renderings of the Phase II project, including planned amenities, are attached as Exhibit "A".

In April 2017, the Board approved the retention of Newport Real Estate Services (NRES) to provide project/construction management services for Phase II construction. Phase II plans were approved by the City in late 2017, subject to completion of an approved shared street access

agreement for the District's three parcels (recently approved) and completion of Regional Water Quality Control Board permitting and fee payment by the selected general contractor. Due to above-average office vacancy rates in the Irvine area in 2015-16, the Committee deferred construction of the Sand Canyon Professional Center Phase II office building until a primary tenant was secured, or until the leasing environment had improved in the Spectrum area. Since that time, vacancy rates and demand for similar office space in the area have improved substantially and lease rates have steadily increased, prompting staff's recommendation to proceed with construction of the Phase II project.

Because more than two years had passed since the original plan submittal, the City required that both the building and grading plans be re-submitted to address minor code changes. Since Ware Malcolm re-submitted the plans for approval in June 2018, grading plans have again been approved and building plan approval is anticipated shortly.

Leasing Considerations:

Based on current rates for similar office space in the market area, the District's commercial brokers for the project, Cushman & Wakefield and Collier's International, estimate a starting lease rate of approximately \$2.75/square foot. Staff and District brokers anticipate from one to four tenants will occupy the building when fully leased.

Stabilized net operating income for the Phase II property is estimated at \$2.3 million per year, or a projected Return on Cost (including land and estimated tenant improvement allowance) of 7.8%, assuming an initial lease rate of \$2.75/square foot (NNN), full occupancy and annual rent increases of 2.5%. A pro forma cost/return analysis for the project is attached as Exhibit "B".

Construction Award:

Newport Real Estate Services requested bids from three pre-qualified contractors including KPRS Construction Services (KPRS), Oltmans Construction Co. and Layton Construction Company. KPRS is the low bidder with a bid amount of \$17,992,969. The remaining bids ranged from \$18,293,429 to \$18,575,937. The bid summary is attached as Exhibit "C". KPRS previously completed construction of the District's Sand Canyon Professional Center Phase I project. In addition to multiple commercial office and retail projects, KPRS has experience working with more than 40 public agencies on various projects throughout the state.

Staff recommends that the Board authorize the General Manager to award a construction contract to KPRS Construction Services in the amount of \$17,992,969.

Anticipated Construction Schedule:

If approved by the Board, mobilization and construction of the building shell and all site work is expected to begin in November 2018, with completion anticipated in approximately 10 months. Design and construction of tenant improvements is estimated to take three to four months following completion of tenant lease negotiations and Board approval(s) of lease terms.

FISCAL IMPACTS:

Project 06210 is included in the FY 2018-19 Capital Budget. A budget increase of \$2,731,330 is required to fund the construction as shown in the table below.

Project No.	Current Budget	Addition <Reduction>	Total Budget
06210	\$17,624,300	\$2,731,330	\$20,355,630

The project budget includes design and planning, permits and related fees, estimated real estate commissions and other related costs.

ENVIRONMENTAL COMPLIANCE:

A Final Environmental Impact Report has been prepared, certified and the project approved by the County of Orange Environmental Management Agency in compliance with the California Environmental Quality Act (CEQA) of 1970 (as amended), codified at California Public Resources Code Sections 21000 et. seq., and the State CEQA Guidelines in the Code of Regulations, Title 14, Division 6, Chapter 3.

RECOMMENDATION:

THAT THE BOARD APPROVE A BUDGET INCREASE IN THE AMOUNT OF \$2,731,330, FROM \$17,624,300 TO \$20,355,630, FOR PROJECT 06210 AND AUTHORIZE THE GENERAL MANAGER TO EXECUTE A CONSTRUCTION CONTRACT WITH KPRS CONSTRUCTION SERVICES, INC. IN THE AMOUNT OF \$17,992,969 FOR THE SAND CANYON PROFESSIONAL CENTER PHASE II, PROJECT 06210.

LIST OF EXHIBITS:

- Exhibit "A" – Sand Canyon Professional Center – Project Renderings
- Exhibit "B" – Pro Forma Cost/Return Analysis
- Exhibit "C" – Construction Bid Summary

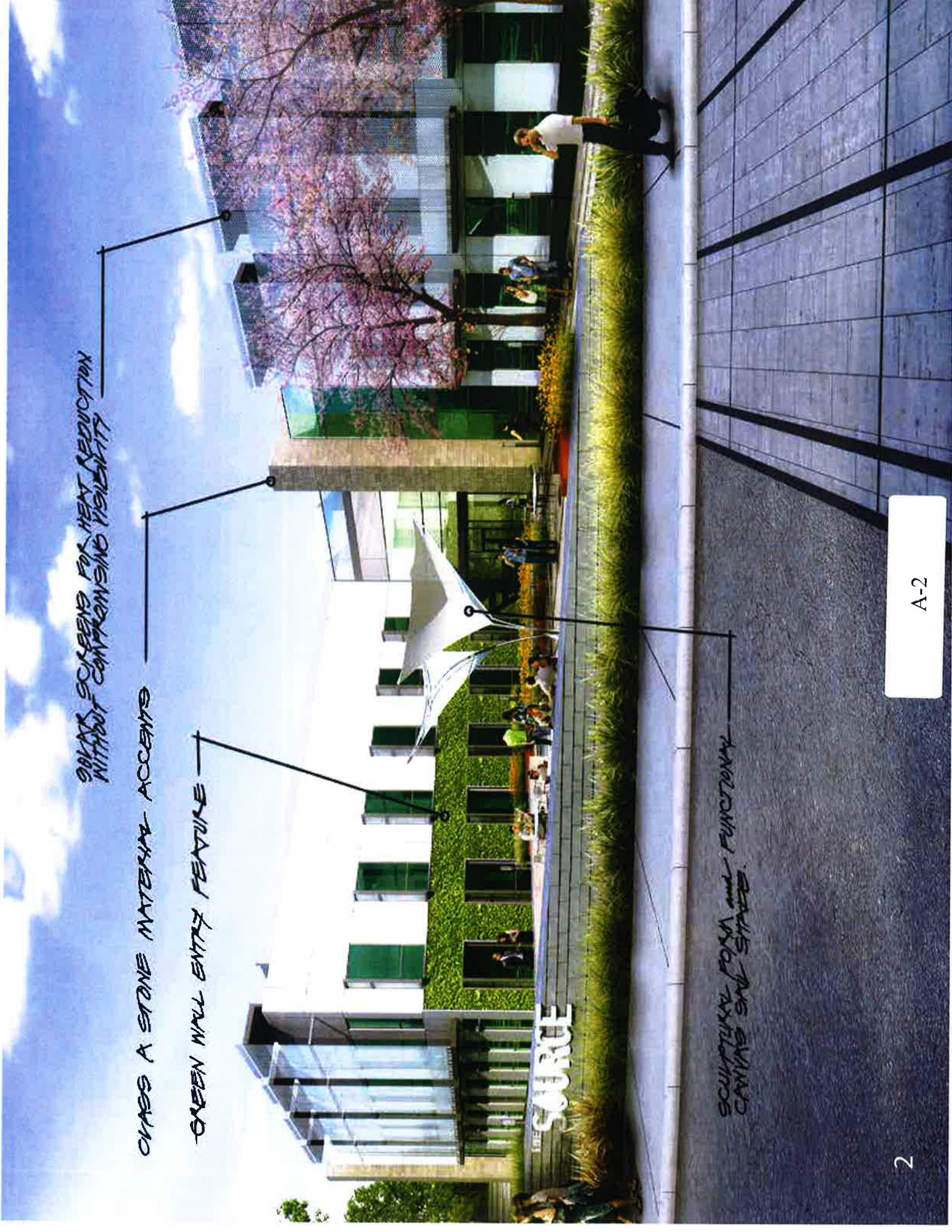
Exhibit "A"



H₂O THE SOURCE

15550 SAND CANYON AVENUE
IRVINE, CALIFORNIA

69,968 SF CREATIVE OFFICE COMMUNITY



GLASS SCREENS FOR HEAT REDUCTION
WITHOUT COMPROMISING VISIBILITY

CHASSIS A STONE MATERIAL ACCENTS

GREEN WALL ENTRY FEATURE

THE SOURCE

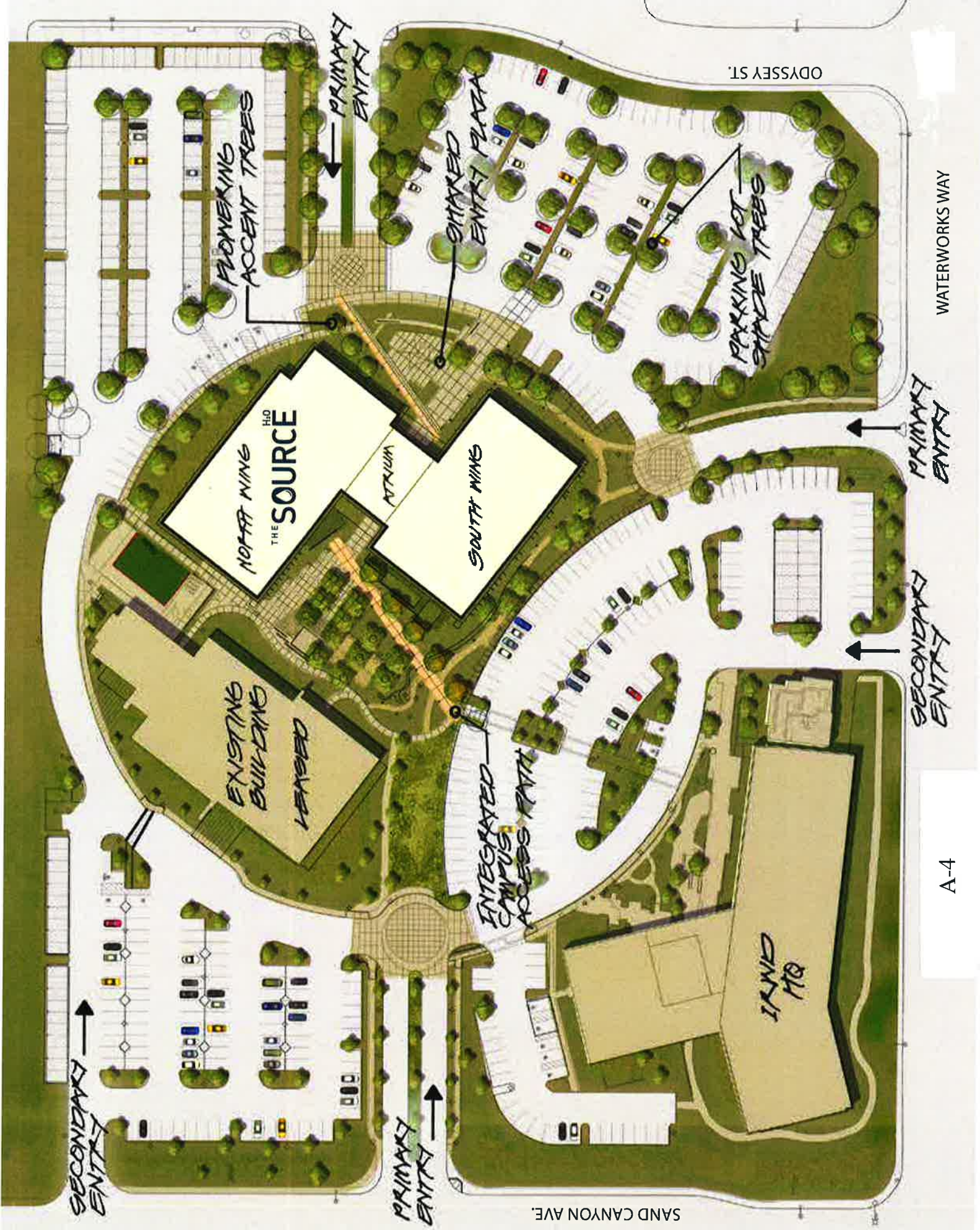
SCULPTURAL FORM AND FUNCTIONAL
CANOPY AND SHADE

CAMPUS CAMARADERIE AND CONNECTIVITY

At the intersection of Waterworks Way and Sand Canyon Avenue, this 13.5 acre site is part of a flourishing campus that's home to community icon Irvine Ranch Water District. The Source, located in the Irvine Spectrum offers a two-building concept with common atrium connectivity and over 70,000 total square feet. The site provides private tenant patio opportunities and abundant surface parking with covered stalls, as well as, on-site
i -Shuttle pick up/drop off.

The source of...

EXPLORATION
TECHNOLOGY
CONNECTIVITY



ROOFTOP
RETREAT

PRIVATE TENANT
PATIOES
INDOOR - OUTDOOR
CONNECTION

SPORT
COURT

OUTDOOR MEETING
SPACE

DRY STONE
RIVER BED

CANOPY OF TREES



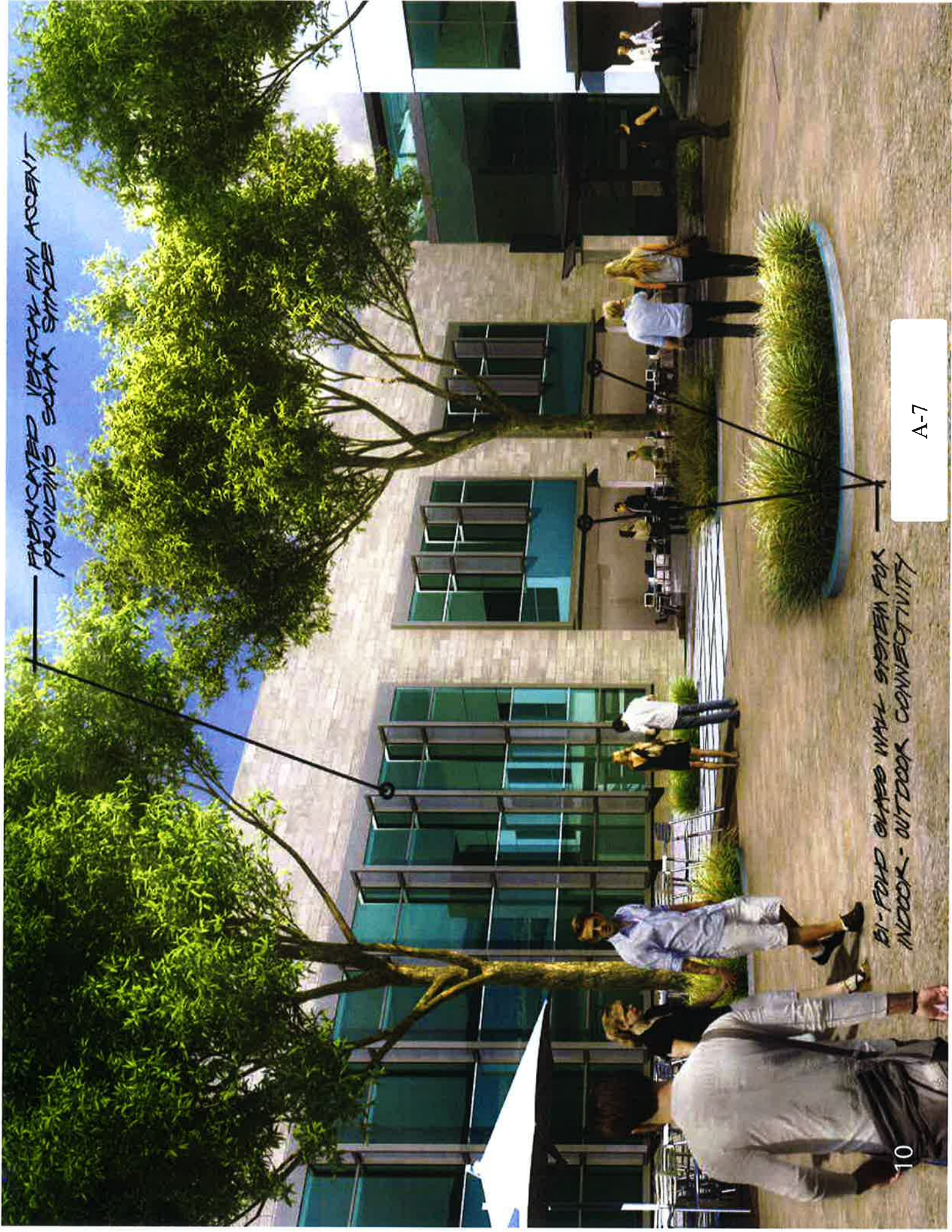
EMPLOYEE ATTRACTION, FLEXIBLE WORKSPACE, AND SCALABLE

- 2-story elevator served building
- 2-building concept with common atrium connectivity
- Contemporary building design
- Bi-fold glass wall system for indoor-outdoor connection
- Floor-to-ceiling glass
- Flexible floor plates
- Private tenant patios
- 4.4:1000 surface parking
- 18 covered parking stalls
- Outdoor amenities
- Rooftop retreat
- Pursuing LEED certification
- WIFI
- i-Shuttle to Metrolink/Amtrak station
- OCTA bus stop

The source of...

ENERGY
INFORMATION
GROWTH

FABRICATED VERTICAL FIN ASCENT
PROVIDING SOLAR SHADE



BI-FOLD GLASS WALL SYSTEM FOR
INDOOR - OUTDOOR CONNECTIVITY

A-7

MODERN STONE and METAL TRELLIS

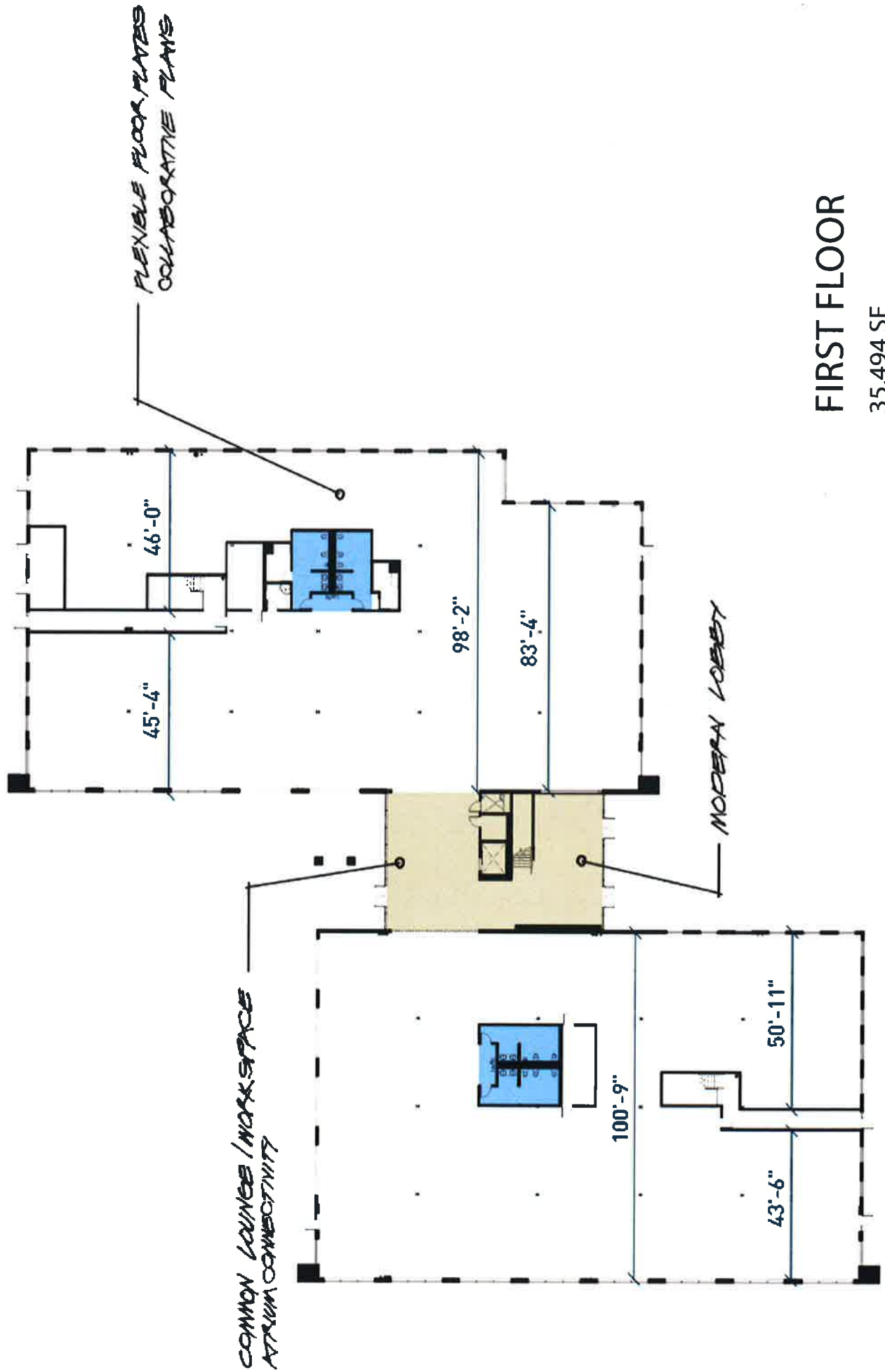
FIRE PIT LOUNGE

DECOMPOSED GRANITE FOR LOW WATER USE

A-8

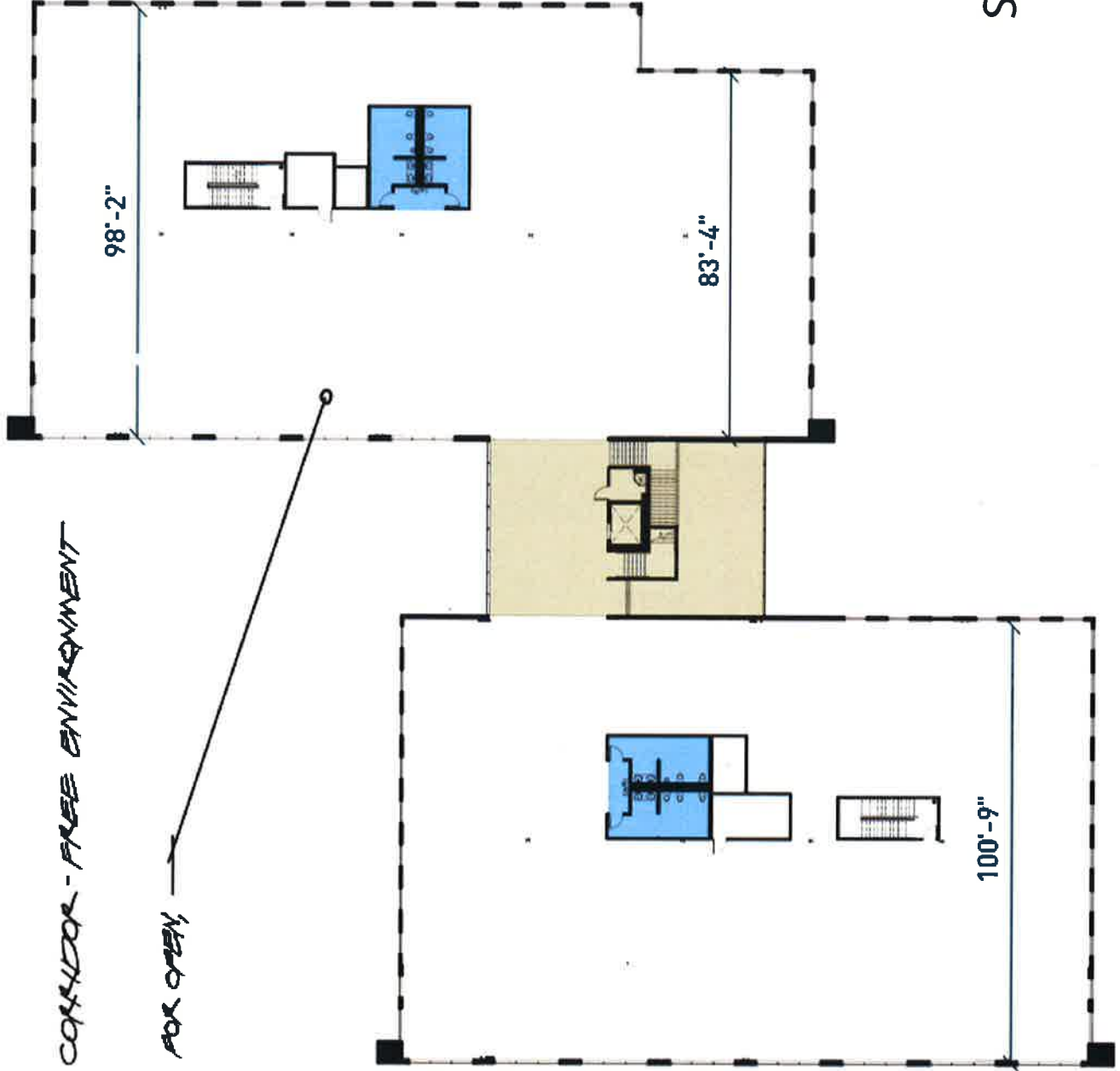
11





FIRST FLOOR

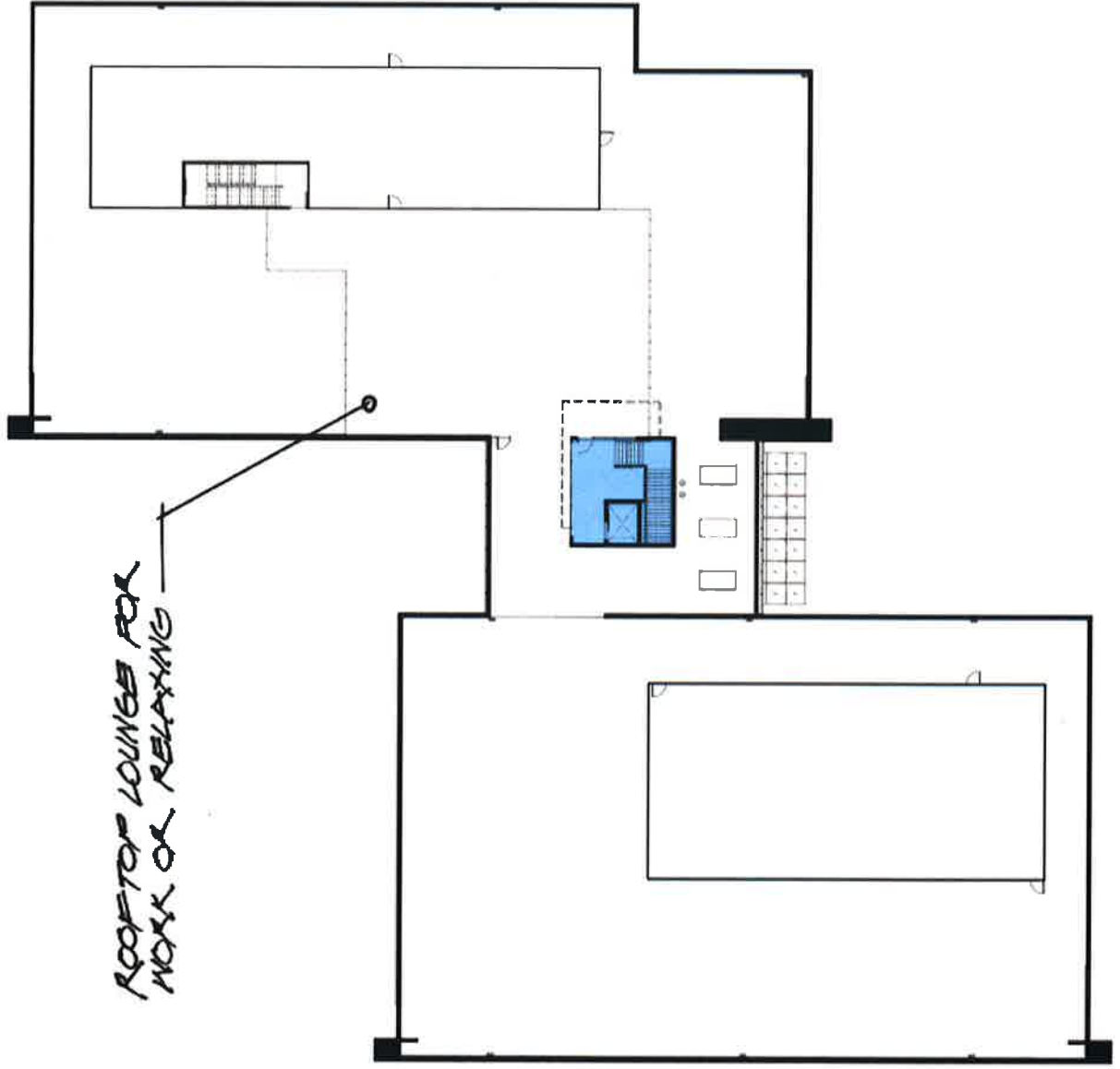
35,494 SF



SECOND FLOOR

34,153 SF

ROOF
3,457 SF

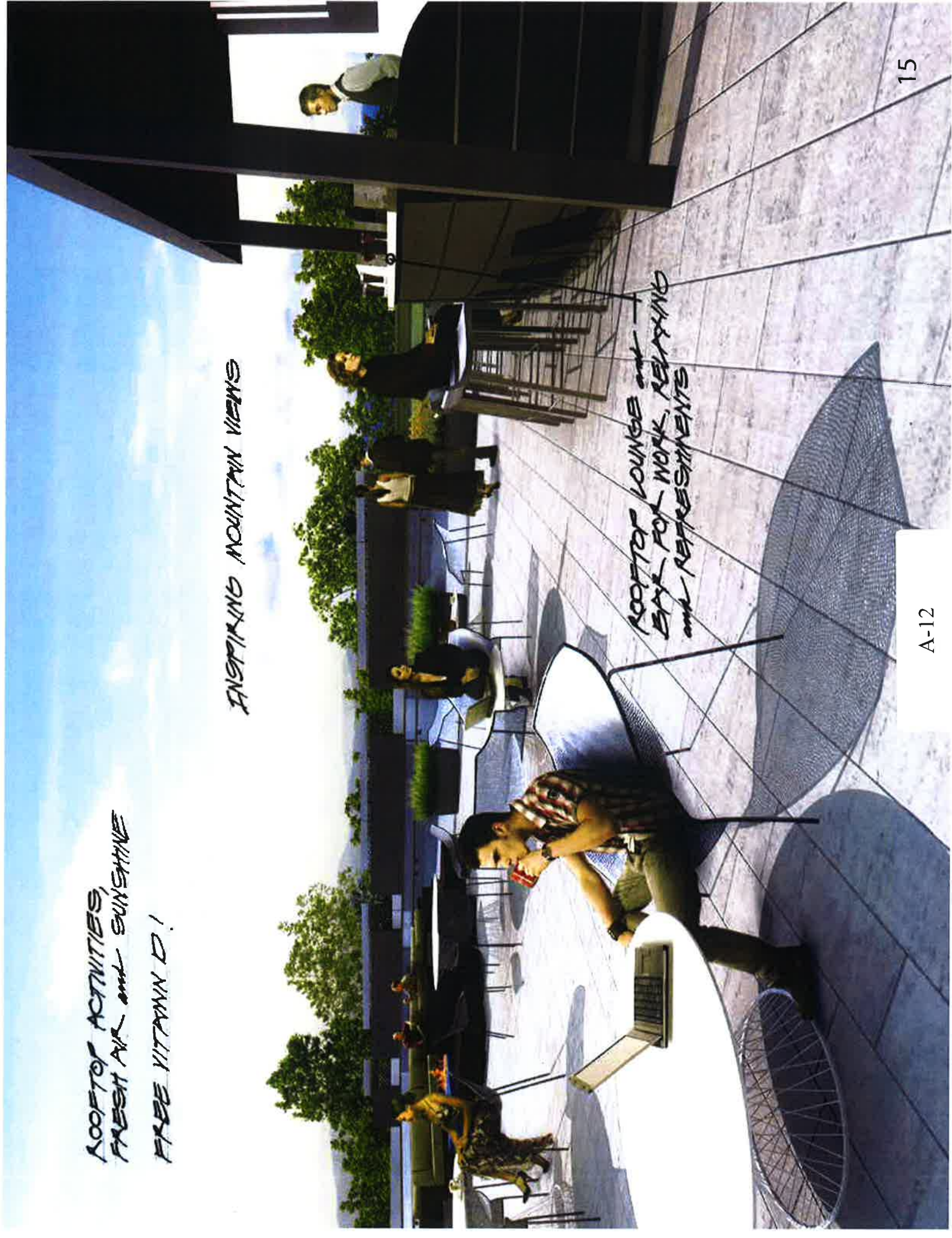


ROOFTOP LOUNGE FOR
WORK OR RELAXING

ROOFTOP ACTIVITIES,
FRESH AIR and SUNSHINE
FREE VITAMIN D!

INSPIRING MOUNTAIN VIEWS

ROOFTOP LOUNGE and
SPACE FOR WORK, RELAXING
and REFRESHMENTS



BUILDING SPECIFICATIONS

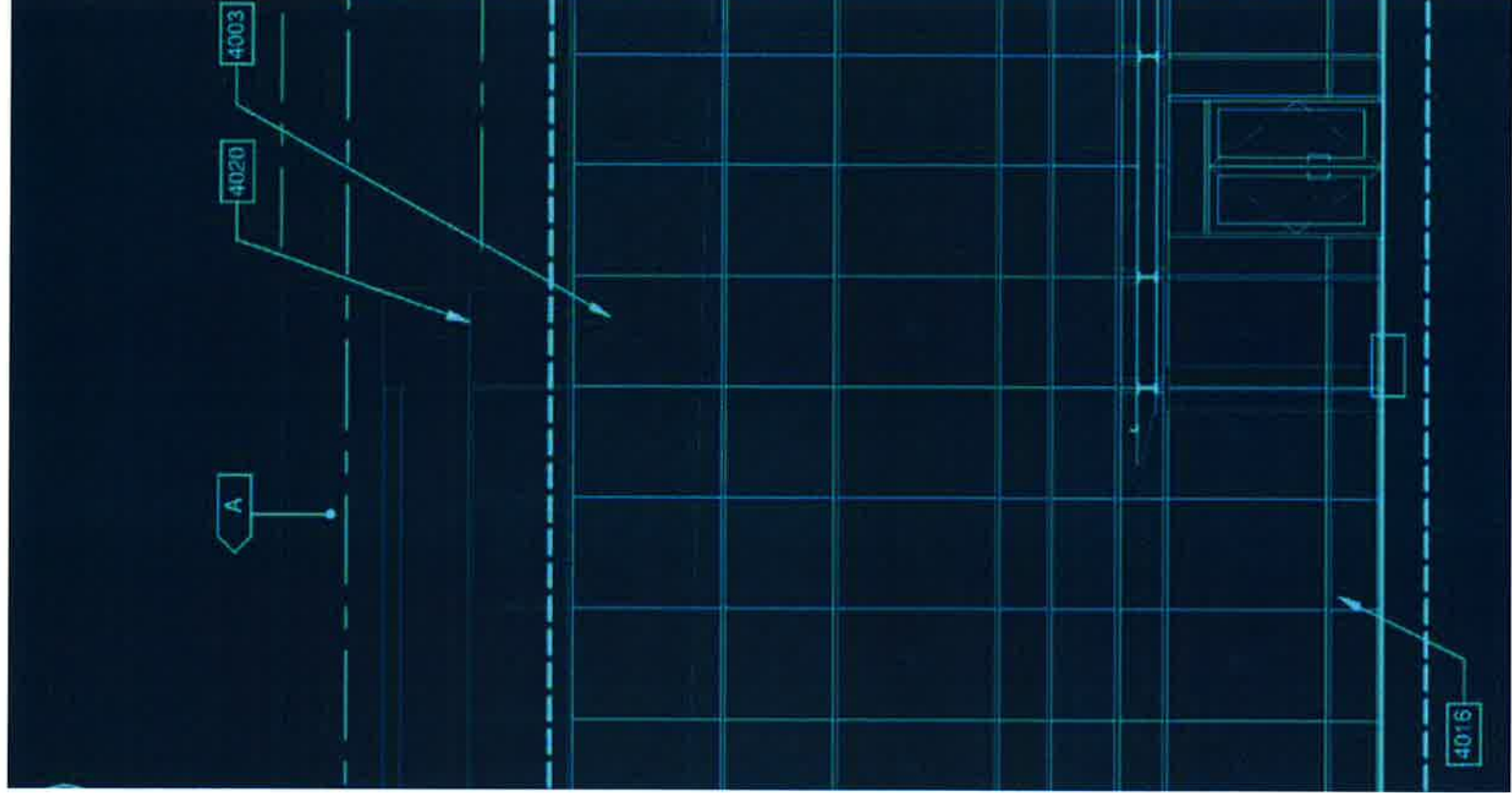
- 2 stories 69,968 sf plus open roof deck 3,457 sf
- Typical floor plate +/- 35,000 sf
- Dimensions approximately 242'-6" x 145'
- Columns spaced on 25'x30' grid
- Floor/Ceiling Heights:
 - Ground: 14'-7" (10' finished ceiling)
 - Second Floor: 15'-6" (10' finished ceiling)
 - Roof Accesses: 10' finished ceiling
- Pursuing LEED certification

PARKING

- 387 surface parking stalls
- 18 covered parking stalls
- EV charging stations
- Covered bicycle storage area with wall-mounted and floor-mounted racks for up to sixteen (16) bicycles.
- Eight (8) bike racks near building
- Vehicular entry from three (3) streets: Sand Canyon Avenue, Waterworks Way, Odyssey

PROPERTY AMENITIES

- Outdoor room trellis with counter
- Bocce ball court
- Lounge chairs
- Modern concrete fire bowl
- Concrete ping pong table
- Private outdoor patios for tenants



BUILDING EXTERIOR

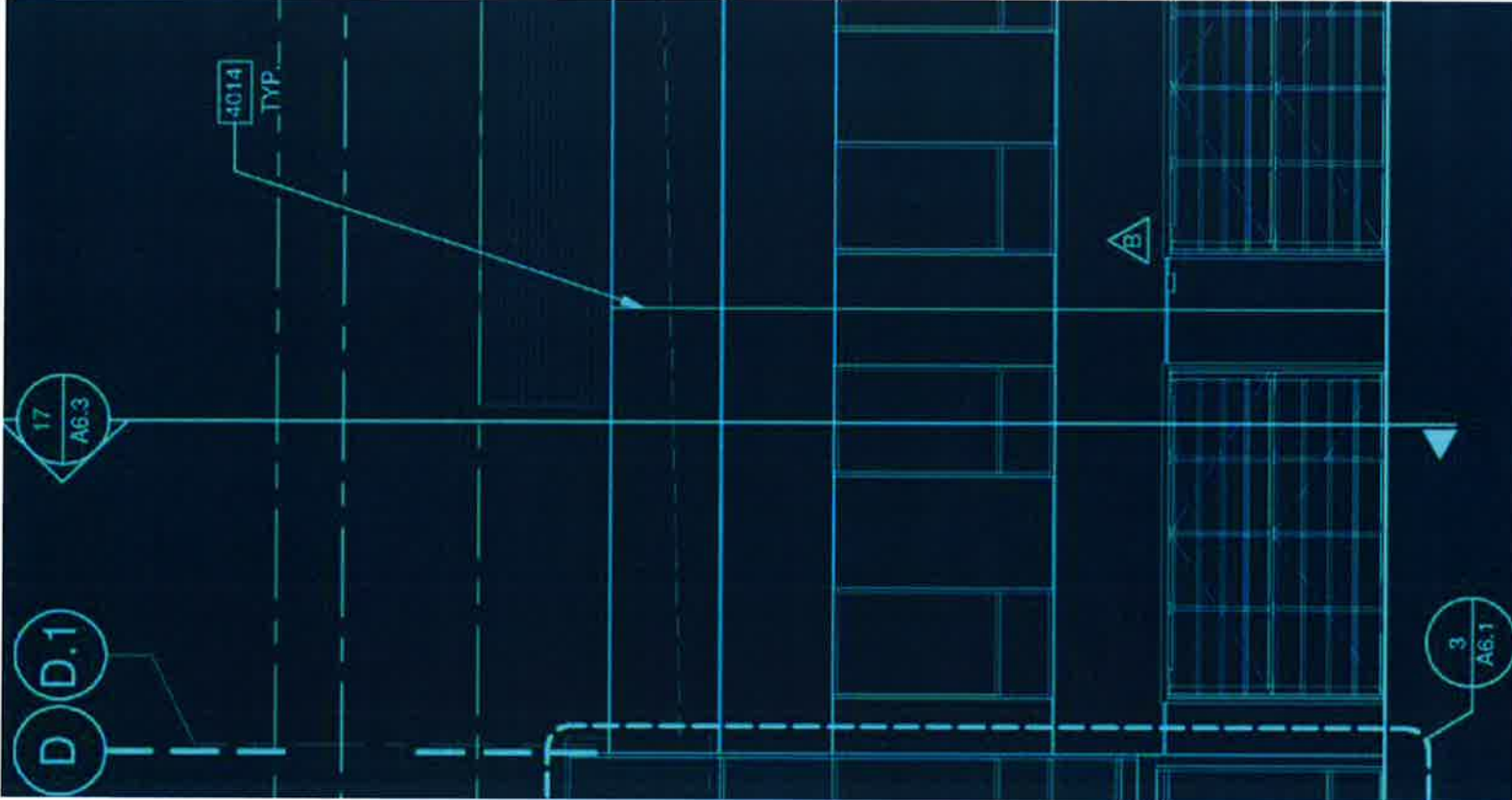
- SunGuard glass with anodized aluminum curtain wall and windows
- 5'-0" wide window module
- Main entrance dual 6'x8' doors in full height curtain wall with glass canopy
- Main entry has living green wall
- Ground floor south windows have horizontal louvered fins
- Second floor south windows have metal fabric screens
- Vertical east/west windows have vertical metal fabric fins

MAIN LOBBY

- Finished lobby height: 10' and 25'
- Large format porcelain tile
- Hard lid ceiling with recessed light fixtures and Vibia Wireflow chandelier
- 15' high living green wall
- Four (4) restrooms and two (2) showers at ground level restroom

TENANT SPACES

- Unfinished concrete flooring
- Open joist ceilings at second floor roof



VERTICAL TRANSPORTATION

- One (1) 4,000 pound hydraulic gurney passenger elevator (150 feet per minute)
- Stainless steel elevator doors and frames with interior stainless steel and mirror cab walls and large format porcelain tile flooring

BUILDING SERVICE FACILITIES

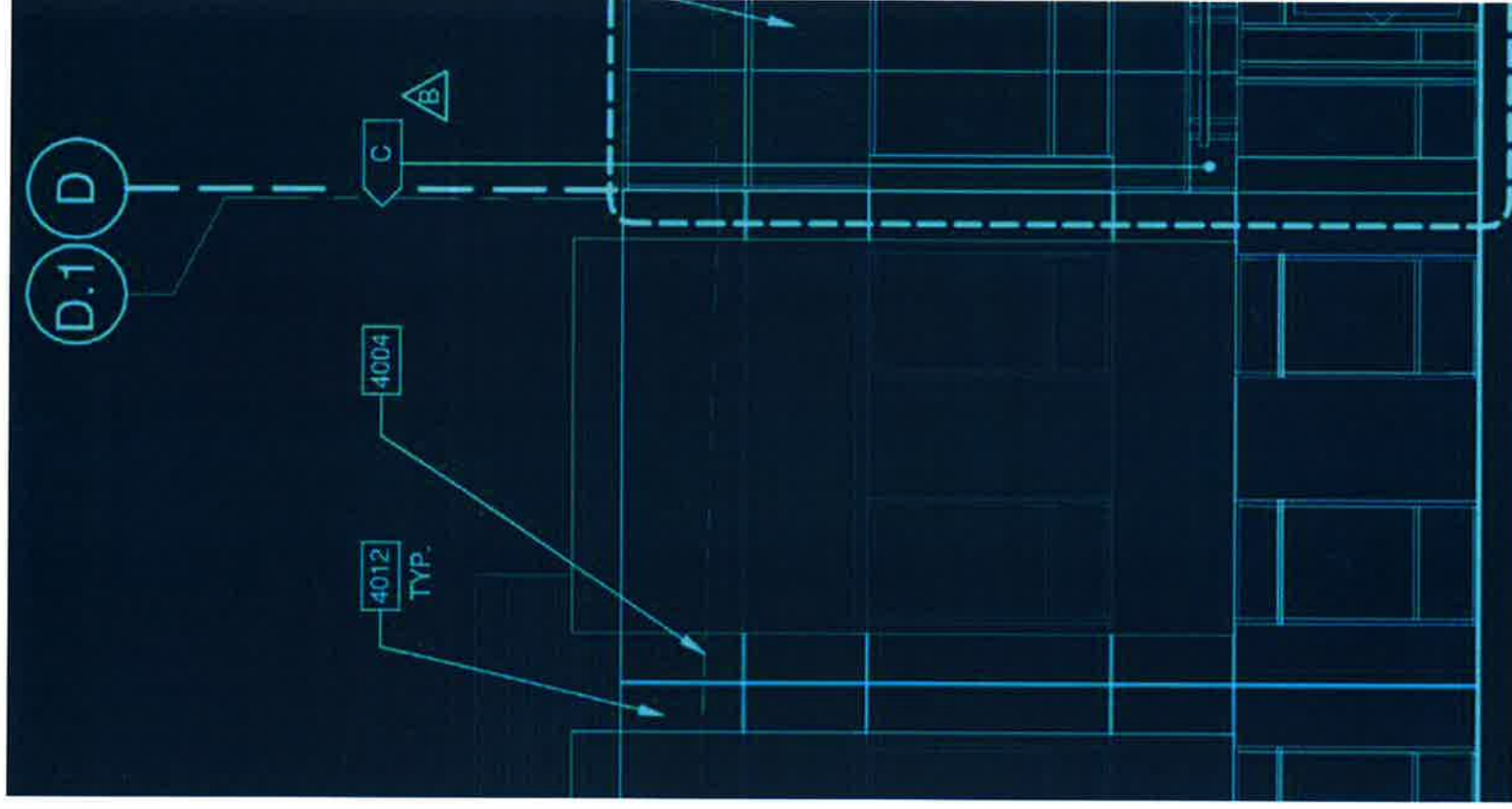
- Janitor room located on each floor

FIRE PROTECTION SYSTEMS

- To be determined by general contractor

STRUCTURAL SYSTEMS

- Tilt-up concrete wall skin supported on conventional spread footings
- 6" thick slab on grade
- 3.25" light weight concrete over 3" metal deck for second floor construction
- 1.5" metal deck for roof deck
- Second floor is designed for 100 psf. uniform load reducible per code



HVAC SYSTEMS

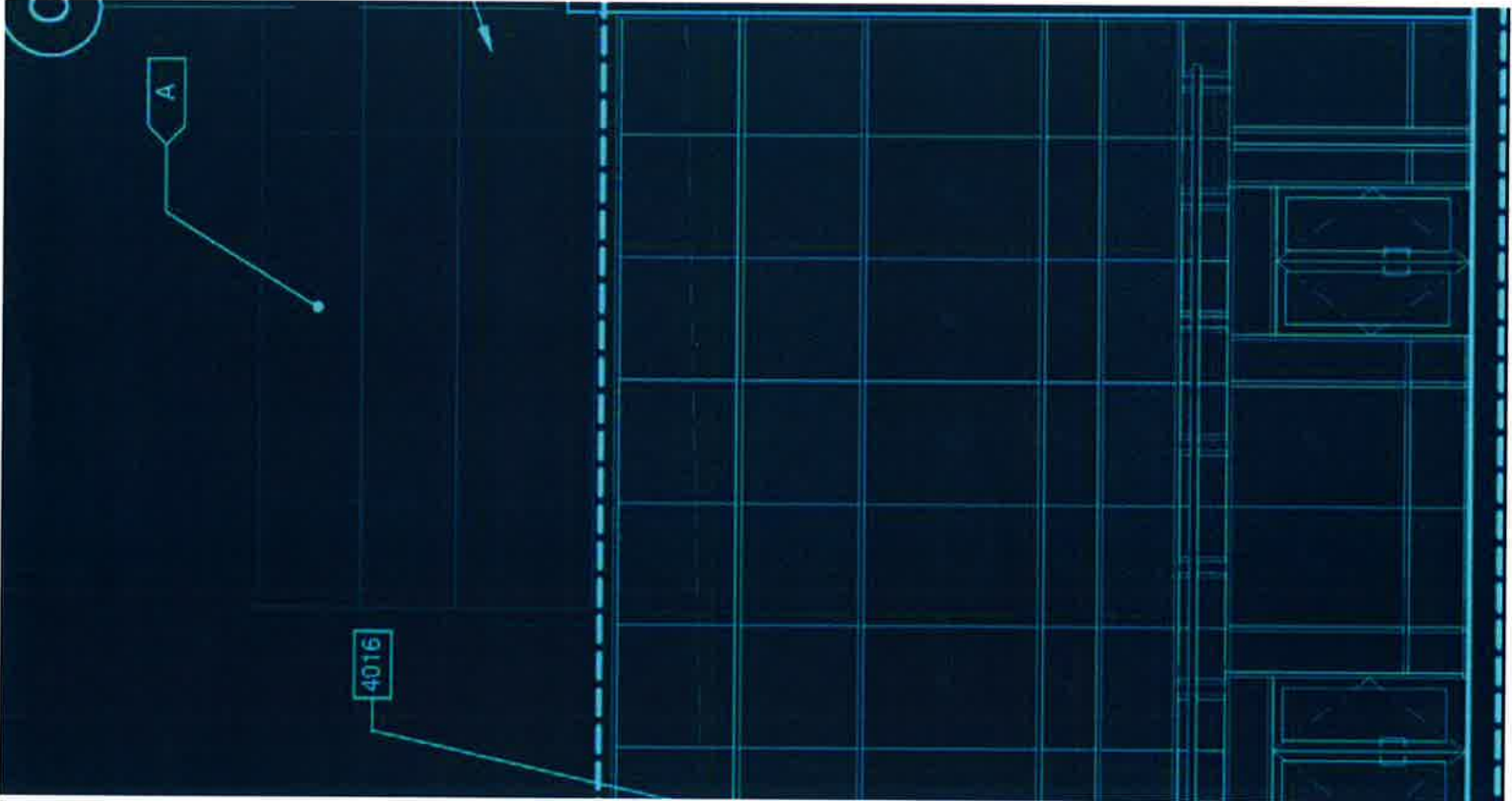
- One (1) Packaged rooftop AC unit serving main lobby
- Packaged rooftop VAV units serving future tenant space
- Space heating boilers with circulating pump
- Direct Digital Control (DDC) Energy Management System controls all mechanical equipment
- Conditioned air provided to corridor and restrooms using VAV boxes

PLUMBING

- Reclaimed water for flushable fixtures and landscape irrigation
- Domestic hot and cold water systems, sanitary sewer systems, drainage systems and connections to plumbing fixtures and other equipment.
- Four (4) drinking fountains (two (2) per floor)

ELECTRICAL SYSTEMS

- One (1) 2,000 amp, 277/480 volt, 3 phase, 4 W service, utilizing 791.3A only
- Card readers provided at lobby entrances
- Wired for future card readers at exterior stair doors
- Telephone/Data backboard





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THE **SOURCE**^{H₂O}

DESIGNED BY
WARE MALCOMB

A-17



Exhibit "B"

Sand Canyon Professional Center - Phase II Pro Forma Cost/Return Analysis
Executive Summary

Phase II (Creative Office) - Cost Analysis:

Warm Shell & Sitework

	Total	Cost/SF
Site Improvements - General Office	3,851,171	55.04
Shell & Core Construction	12,280,429	175.51
Permits/Fees	300,000	4.29
General Conditions/Contractor Fee	1,471,578	21.03
Hard Cost Contingency (3%)	483,948	6.92
Total Hard Costs	\$ 18,387,126	\$ 262.79
Project Design	559,744	\$ 8.00
Leasing Commission	911,631	13.03
G&A	50,000	0.71
Bonding/Insurance	389,794	5.57
Soft Cost Contingency (3%)	57,335	0.82
Total Soft Costs	\$ 1,968,504	\$ 28.13
Total Construction Cost (Shell & Sitework)	\$ 20,355,630	\$ 290.93

Rentable SF =	69,968
TI SF =	68,000
Est. TI's/SF=	\$70.00
Lease Rt =	\$ 2.75

Other Project Costs:

Land Cost	\$ 4,435,263	\$ 17.56
Tenant Improvement Allowance	4,760,000	75.00
Total Project Cost	\$ 29,550,893	\$ 383.48

¹ Land cost allocated based on daytime trip demand/requirement for each property

Phase II - Income/Return Analysis

	Annual Lease Income	Return on Cost	Lease Rate
NNN Lease Income/Return on Cash	\$ 2,224,982	7.53%	\$ 2.65
	\$ 2,308,944	7.81%	\$ 2.75
	\$ 2,392,906	8.10%	\$ 2.85

Irvine Ranch Water District



Sand Canyon Ave.
Irvine, Ca.

15550



October 17, 2018

DESCRIPTION	KPRS	Layton	Oltmans
Demolition	inc	66,800	inc
Surveying	39,600.00	48,875.00	46,046.00
Earthwork	449,130.00	406,600.00	520,900.00
Underground Utilities (Sewer, Storm Drain, Water)	649,304.00	833,569.00	672,244.00
Site Concrete	1,015,944.00	852,542.00	715,129.00
Interlocking Concrete Pavers	110,090.00	75,085.00	98,904.00
Asphalt Paving	344,957.00	335,393.00	290,000.00
Striping and Site Signage	20,317.00	inc	11,000.00
Landscaping & Irrigation	775,590.00	821,147.00	794,818.00
Fencing	30,000.00	12,875.00	18,885.00
Site Furnishings	131,339.00	118,121.00	176,484.00
Reinforcing Steel	284,900.00	284,900.00	328,600.00
Building Concrete	1,254,680.00	1,334,800.00	1,169,504.00
Stone Veneer	318,565.00	294,632.00	251,250.00
Carport Canopies	515,000.00	inc	582,000.00
Tensile shade structures	71,775.00	76,196.00	0.00
Structural Steel / Misc. Iron	1,975,045.00	2,213,215.00	1,908,335.00
Elevators	137,400.00	115,600.00	135,000.00
Rough Carpentry/Roof Structure	30,000.00	60,243.00	inc
Millwork	44,911.00	16,763.00	16,500.00
Building Insulation	13,683.00	16,933.00	24,700.00
Roofing and Waterproofing	484,495.00	929,700.00	400,800.00
Adjustable Pavers	218,930.00	0.00	256,470.00
Sheet Metal	421,285.00	385,858.00	411,185.00
Doors, Frames & Hardware	56,764.00	52,887.00	52,887.00
Bi-folding Doors	241,350.00	360,500.00	221,500.00
Elevator door smoke containment system	inc	19,777.00	18,054.00
Glass & Glazing	1,188,267.00	1,951,578.00	2,199,479.00
Lath and Scratch	inc	0.00	214,200.00
Drywall, Steel Studs	738,370.00	884,800.00	525,425.00
Ceramic Tile	368,596.00	332,232.00	495,500.00
Stone Countertops	inc	inc	inc
FRP	9,000.00	exc	exc
Metal Soffit	inc	exc	inc
Floor Covering	28,185.00	28,456.00	33,068.00
Painting and Wallcovering	148,240.00	86,438.00	168,290.00
Toilet Partitions & Accessories	47,184.00	37,730.00	46,668.00
GKD Metal Fabrics	448,322.00	0.00	0.00
Misc.	5,000.00	2,422.00	10,000.00
Fire Extinguishers	6,000.00	inc	3,079.00
Fire Sprinklers	151,800.00	174,450.00	129,650.00
Plumbing	322,500.00	318,500.00	312,500.00
HVAC	1,215,000.00	1,233,000.00	1,233,000.00
Electrical	1,505,763.00	1,573,732.00	1,818,249.00
Fire Alarm	48,942.00	inc	11,750.00
Final Clean-up	85,256.00	inc	18,750.00
Signage (address)	inc	19,950.00	21,001.00
SWPPP	36,121.00	36,105.00	60,000.00
Knox Box	inc	inc	1,000.00
Emergency Response System	52,000.00	0.00	0.00
Security	92,000.00	0.00	99,415.00
Gas line trench	inc	0.00	5,000.00
Temp power, temp fence	inc	0.00	18,516.00
Erosion Control	inc	0.00	30,410.00
Subtotal	\$ 16,131,600.00	\$ 16,412,404.00	\$ 16,576,145.00
Insurance	135,367.00	353,112.00	167,891.00
General Conditions	789,326.00	1,150,000.00	732,204.00
Fee	682,252.00	547,561.00	699,050.00
Bond	178,148.00	112,860.00	118,139.00
Builders Risk	76,276.00	0.00	0.00
TOTAL	\$ 17,992,969.00	\$ 18,575,937.00	\$ 18,293,429.00
Additional Information			
Cost Per Square Foot	\$ 258.89	\$ 267.28	\$ 263.21
Total of GC's, Fee and Insurance	\$ 1,606,945.00	\$ 2,050,673.00	\$ 1,599,145.00
Schedule:	234 days	239 days	255 days
Subtotal	\$ -	\$ -	\$ -
	0.00	0.00	0.00
GRAND TOTAL	\$ 17,992,969.00	\$ 18,575,937.00	\$ 18,293,429.00