Recycled Water Seasonal Storage Project Guiding Principles

The Las Virgenes-Triunfo Joint Powers Authority (JPA) considers recycled water a valuable resource to be beneficially reused. The JPA produces recycled water at its Tapia Water Reclamation Facility (Tapia) by treating wastewater flows from its service area to meet strict state and federal water quality standards. The amount of recycled water produced at Tapia is relatively constant throughout the year. However, customers' needs or "demands" for recycled water fluctuate significantly during the year. Demands are very high during the hot summer months, exceeding the supply from Tapia, and can drop to near zero during periods of rainfall during the winter.

As a result, the JPA is challenged to balance the constant supply of recycled water with fluctuating demands throughout the year. During the summer months, potable water must be added to the recycled water system to meet the high demands. Conversely, during the winter months, excess recycled water must be released to Malibu Creek and the Los Angeles River or applied to the JPA's sprayfields. Releases to Malibu Creek are subject to ever increasing regulatory requirements, which will likely be cost-prohibitive to meet in the near future.

A seasonal storage reservoir for recycled water would allow the JPA to balance supply and demands. Excess recycled water could be placed in the reservoir during the winter months for use during the high demand summer period. Additional demands for recycled water would need to be developed to ensure that the reservoir could be drawn down each year, making room for needed storage in the wintertime. A seasonal storage reservoir has been envisioned since the first Recycled Water Master Plan was completed in the 1970s. In 2012, the JPA completed a Recycled Water Seasonal Storage Feasibility Study. This study evaluated the technical and economic feasibility of three alternatives for the reservoir.

The JPA desires to fully and beneficially reuse its recycled water by moving forward with investigation of seasonal storage. This investigation will be guided by the following principles.

1. ***Maximize Beneficial Reuse by:***
   - 1.1. Being an environmental steward
   - 1.2. Reducing existing potable water use
   - 1.3. Reducing discharge to Malibu Creek and Los Angeles River
   - 1.4. Encouraging infill use in both service areas
   - 1.5. Providing regional benefits
   - 1.6. Creating water supply reliability

2. ***Seek Cost Effective Solutions by:***
   - 2.1. Seeking funding from grants, matching funds and partnerships
   - 2.2. Engaging permitting and regulatory agencies early and often
   - 2.3. Each partner sharing in outside funding
   - 2.4. Each partner funding their share
   - 2.5. Being on time, on schedule and within budget
   - 2.6. Analyzing impacts and benefits of the project from each partners perspective

3. ***Seek Partnerships beyond the JPA by:***
   - 3.1. Considering multiple uses such as;
     - 3.1.1. Recreation
     - 3.1.2. Education
     - 3.1.3. Creation of open space
   - 3.2. Engaging stakeholders early and often
   - 3.3. Considering additional partners that will purchase recycled water

4. ***Gain Community Support by:***
   - 4.1. Engaging and educating the public and stakeholders
   - 4.2. Being transparent
   - 4.3. Establishing public safety as a top priority

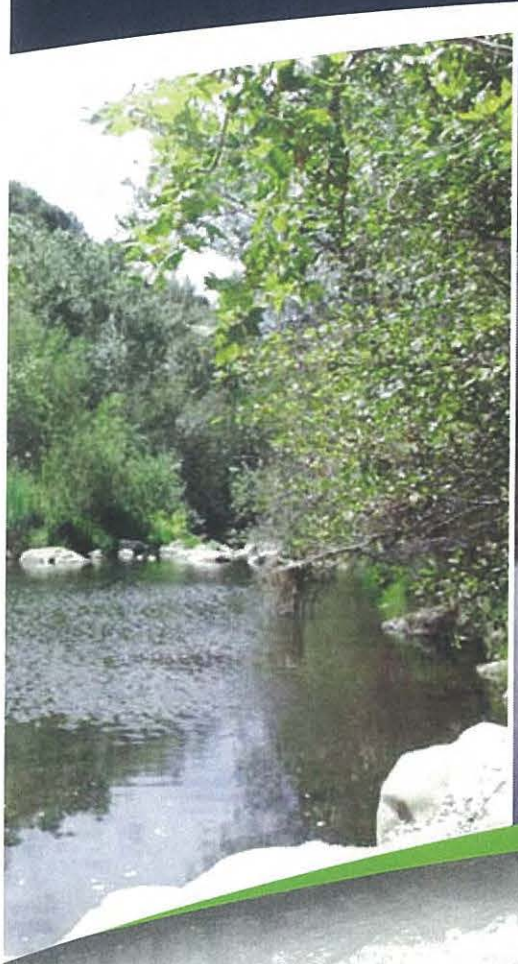
5. ***Govern with a Partnership by:***
   - 5.1. Using the JPA Agreement as a guiding document
   - 5.2. Communicating openly and frequently
   - 5.3. Being committed to the project
   - 5.4. Equitably allocating costs and sharing benefits from both partners perspective

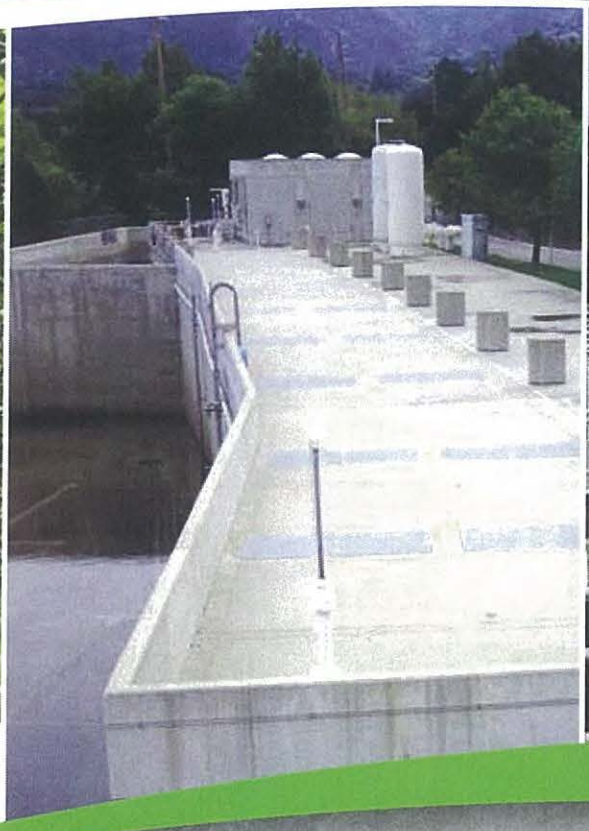
6. ***Be Forward Thinking by considering the possibilities of:***
   - 6.1. Expanding the recycled water system beyond the JPA service area
   - 6.2. Exterior residential reuse
   - 6.3. Exterior and interior use for new and remodeled commercial projects
   - 6.4. Indirect potable reuse
   - 6.5. Direct potable reuse

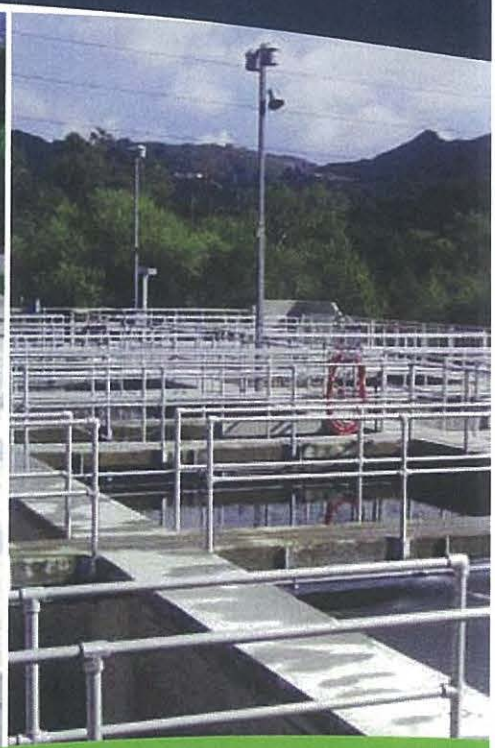
PREPARED FOR
LAS VIRGENES - TRIUNFO JOINT POWERS AUTHORITY

Recycled Water Seasonal Storage Facility Plan of Action

AUGUST 21, 2014







PROPOSAL

MWH®

BUILDING A BETTER WORLD

ITEM 5A

MWH

BUILDING A BETTER WORLD

August 21, 2014

David R. Lippman, P.E.
Las Virgenes – Triunfo Joint Powers Authority
4232 Las Virgenes Road
Calabasas, CA 91302
818-251-2100

Subject: Proposal for Recycled Water Seasonal Storage – Plan of Action

Dear Mr. Lippman:

MWH Americas, Inc. (MWH) is pleased to submit this proposal to assist with developing a "Road Map" and identifying the next steps, obstacles, opportunities, challenges and timing in moving forward with a seasonal storage project. The MWH Team brings all people and resources needed for project success—an experienced, committed project team; a thorough understanding of the project issues; superior firm qualifications; and a management approach that will deliver quality services on time and within budget.

The MWH Team is committed, offers over 60 years of local experience and provides a very experienced team of strategists, facilitators and subject matter experts. Our project manager, Dr. Steve Weber, PhD, has extensive experience in working with water and wastewater clients. Dr. Weber brings a practical approach to problem solving and addresses seemingly conflicting goals and objectives to build consensus. Mr. James Borchardt will work with Dr. Weber to lead our team of experts through the project elements with the JPA stakeholders to conform with the JPA's Recycled Water Seasonal Storage Guiding Principles.

MWH looks forward to successfully developing a "Road Map" that will provide a clear vision and measurable success criteria. We welcome the opportunity to discuss our qualifications and approach with you. Please feel free to contact Jim (626-568-6283) or me at 702-569-8653 if you have any questions related to the MWH proposal.

Sincerely,
MWH Americas, Inc.

Steven P. Weber, PhD
Vice President
Project Manager

James Borchardt, PE
Vice President
Technical Coordinator

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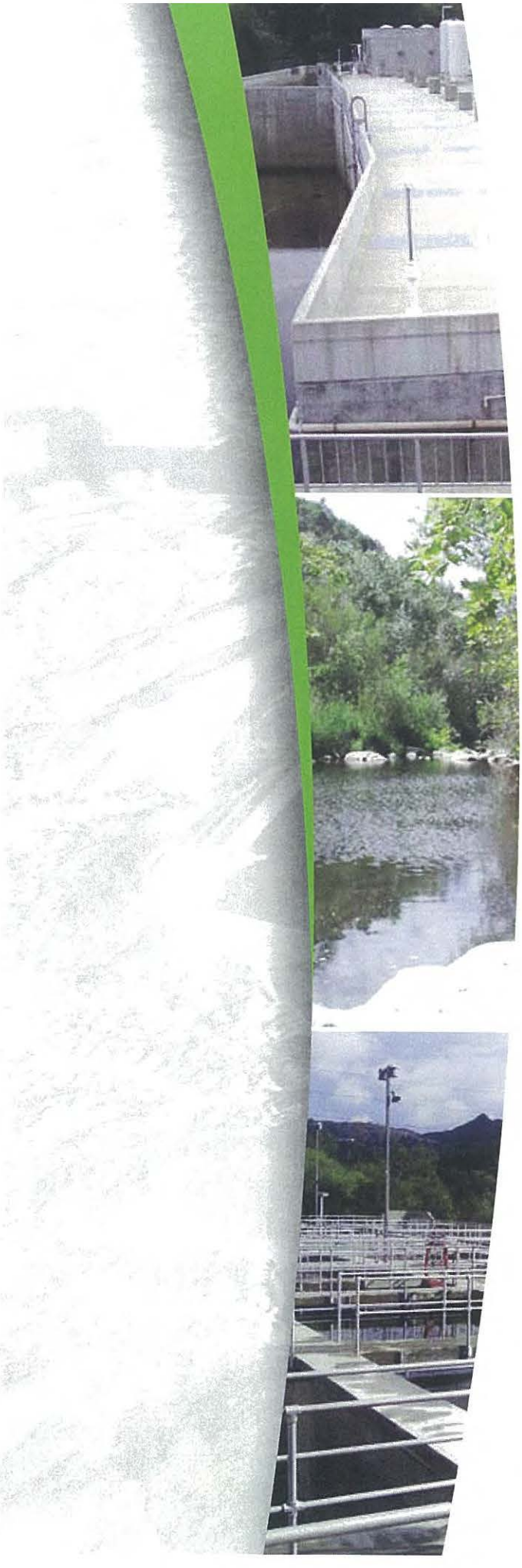
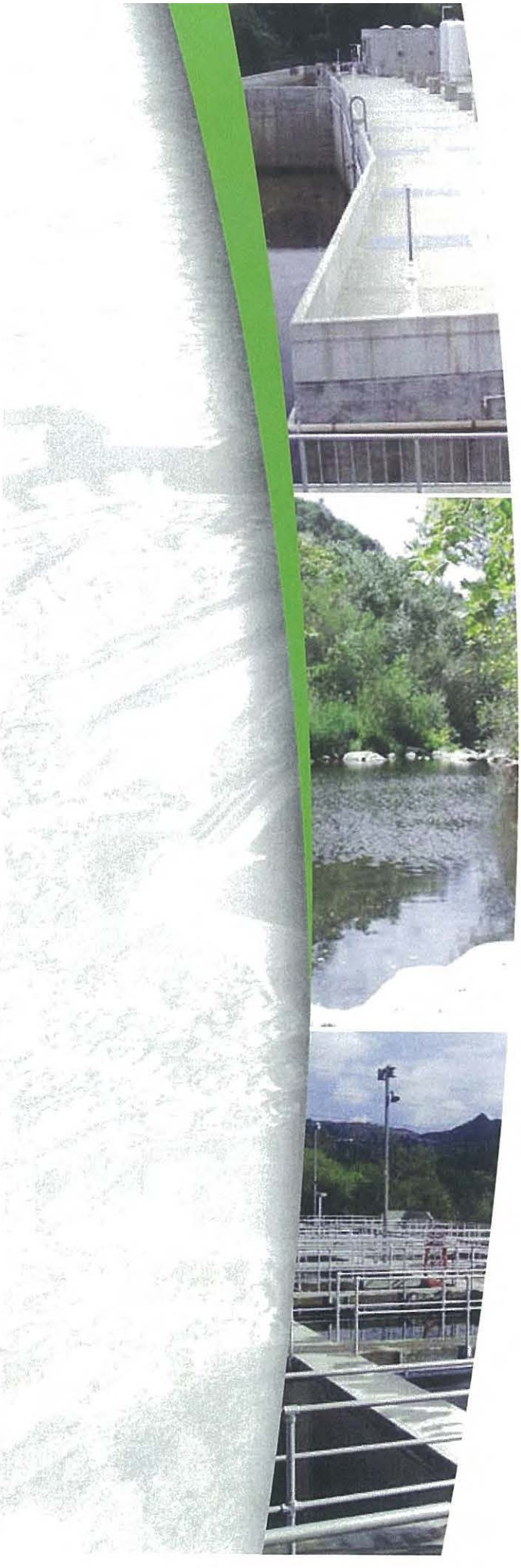


Table of Contents

Table of Contents

FIRM: MWH Americas, Inc.

PROJECT: Recycled Water Seasonal Storage – Plan of Action



Project Understanding and Approach

ITEM 5A

Leadership

MWH has developed a team of our best and most knowledgeable subject area experts and an experienced project team to develop a comprehensive road map for the JPA. MWH leadership will drive community, technical, regulatory, and economic goals into a widely supported implementation plan. Our subject area knowledge in water supply, water treatment and wet infrastructure will create a comprehensive plan for smooth and successful project implementation.

Understanding

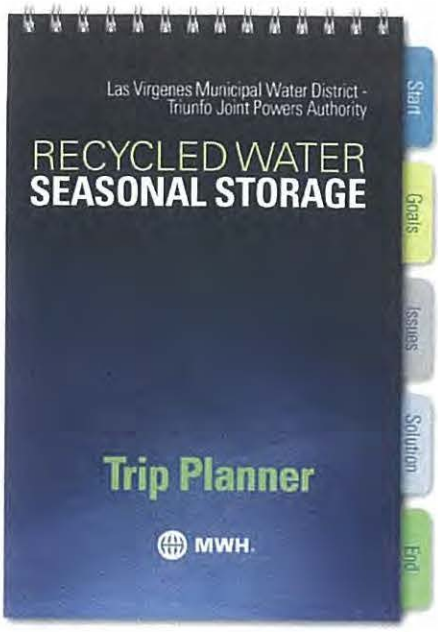
MWH believes that the key to strong leadership is to be a great listener. We know that the JPA understands their systems and their needs – it is our role to really grasp the fundamental elements of these needs and systems and to build the future for recycled water with focused insight and creative judgment. We develop our understanding by listening and dissecting these issues and reconstructing them into a "road map" that meets the expectation of all shareholders.

Experts

We are committed to meeting the needs of the JPA through exceptional expertise and leadership skills. We must demonstrate that the implementation plan fulfills the goals in an outstanding fashion. This philosophy demands that our team of subject matter experts is involved in the development of the Plan of Action.

SECTION 1

Project Understanding and Approach



MWH understands the Joint Powers Authority (JPA) has several drivers motivating the recycled water and seasonal storage project. Among them is the desire for greater water independence, the beneficial reuse of as much water as possible, and the commitment to meet discharge requirements for Malibu Creek.

MWH will help the JPA remain a leader in water reuse and create a vibrant and economically attractive solution to provide its service area with stable water rates and water supply availability. MWH understands the JPA's needs and has an innovative and common sense approach to assist the JPA and its stakeholders through the myriad stakeholder, regulatory, political, and technical issues that have to be sorted out and addressed. MWH's proven history of success and proven processes will be essential in identifying potential risks and obstacles early, as well as identifying opportunities for the JPA along the way. We will produce a plan of action for the JPA to move forward with their goals by building consensus and personal ownership among stakeholders.

Project Understanding

Under the JPA, Las Virgenes Municipal Water District (LVMWD) and Triunfo Sanitation District (TSD) operate and maintain the Tapia Water Reclamation Facility (TWRF). The JPA started developing its recycled water system in the 1970's and since initial construction, has grown to serve 6,000 AF of recycled water demands or 60% of TWRF annual outflows. Another 2,000 AF of recycled water demand must be met with supplemental potable and groundwater supplies. Due to seasonal demand imbalances, the remaining 4,000 AF is released to Malibu Creek. Wastewater inflows in 2035 are estimated to increase to 12 mgd, increasing the seasonal demand imbalance to 7,500 AFY.

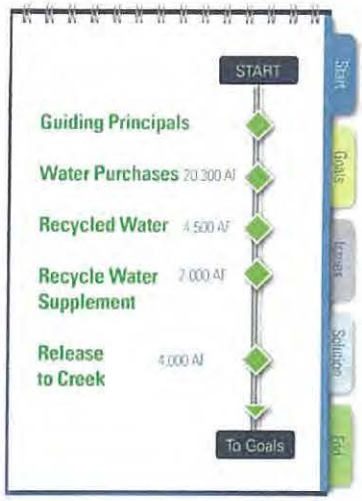
Increasing regulatory and environmental requirements, especially reduced Total Maximum Daily Loads (TMDLs) on nitrogen and phosphorus, are making continued seasonal stream discharges to Malibu Creek cost prohibitive. At the same time, imported drinking water supplies are increasingly unreliable and costly due to drought, climate change, and a host of imported water supply challenges. Over the years, a number of technical studies have been commissioned to investigate various technical issues. Unfortunately, these studies have not resulted in a viable path forward, and may even have undermined the JPA's standing in the eyes of regulators and NGOs.

However, from the many studies and differing approaches, an idea has emerged and gained momentum. This has resulted in the *Recycled Water Seasonal Storage Guiding Principles*.

The JPA and its respective staffs and boards have been involved in these studies over the years and have amassed a large amount of information and data. Thoughts and opinions have emerged and surfaced from stakeholders which has led in different directions. Accordingly, the JPA needs to develop a unified "road map" which considers the obstacles, opportunities, challenges and timing in moving forward confidently, internally and externally. The MWH Team has a proven track record of helping clients develop solutions to complex technical and people challenges just like this.

Approach

MWH's approach will focus initially on developing a common understanding of the issues and challenges facing the JPA in facilitated workshop groups. Second, our subject matter experts will review the issues and challenges, note information gaps, overlaps and conflicts and return to the facilitated groups with a summary of issues and challenges for the group's affirmation. Third, we will develop an easy to understand "road map" (graphical) depicting a path forward for the JPA and its participants considering various issues, dependencies and timing considerations. This overall approach focuses attention on issues of importance to the JPA and the stakeholders, initiates discussion on practical approaches to achieve project goals, and further develops consensus towards the way forward.



Our **three phase approach** is organized as follows:

- **Phase 1 – Identification of Goals**
- **Phase 2 - Affirmation of Project Issues**
- **Phase 3 – A Roadmap to Project Solutions**

Each phase of work will involve meetings, workshops, preparation of materials, documentation, and most importantly, open discussion leading to consensus of the key items on the roadmap. We are confident that the approach MWH has developed will lead to project success. Our approach to each phase of work is more thoroughly described below.

Phase 1: Identification of Goals

This Phase of work will begin with a kick-off meeting to coordinate the project schedule, communications, meeting and workshop dates, stakeholder and shareholder participation. A workshop will be conducted to establish the project background and context, clarify what it means to individual participants, and develop an understanding of how individual or group perspectives are manifested in the JPA's *Recycled Water Seasonal Storage Project Guiding Principles*.

Recycled Water Seasonal Storage Project Guiding Principles

It is important that our approach reflects and builds upon the principles in the Las Virgenes – Triunfo JPA document, *Recycled Water Seasonal Storage Project Guiding Principles.* A project of this size and complexity is daunting, but having a solid foundation of agreed upon principles provides a great starting point.

MWH has developed this approach cognizant of the importance of these principles and eager to build upon the partnership that identified these principles. MWH will work with JPA to achieve all of their goals, always keeping the principles laid out close in mind as a compass for the road ahead. During the Affirmation phase, the guiding principles will serve to guide discussions and workshops "back to" the most important issues at hand.

Stakeholder Identification and Engagement Strategy

Beginning at the kick-off meeting, MWH will work with the JPA to establish and vet a comprehensive list of shareholders and stakeholders and to extend that list to include the specific interests of each party or interest group. Once this list is prepared, MWH and the JPA will develop a workable shareholder and stakeholder engagement strategy. This strategy will consist of a range of different types of stakeholder interactions, including individual meetings, JPA facilitated meetings, and MWH facilitated workshops and meetings as appropriate. The interests of shareholders and stakeholders may at times be in conflict and early identification of the intersection points will enable the JPA to better build consensus and support for the project. At a high level, the obvious major stakeholders include:

- City of Los Angeles
- Regional Water Quality Control Board
- US Army Corps of Engineers
- Metropolitan Water District of Southern California
- National Parks Service
- Cities of Agoura Hills, Calabasas, Hidden Hills, and Westlake Village
- Chamber of Commerce's
- Many NGOs and regulatory agencies will have an interest in the project.

Workshop No.1

MWH will use guided facilitation in surfacing and getting stakeholders to articulate the key issues faced by the JPA, as expressed by the participants. We have found the key to success in facilitation is to use technical leaders with a broad vocabulary that communicate well, rather than professional communicators, and structure our communication methods purposefully around the three primary human learning styles: verbal, visual, and kinesthetic. Our facilitators will use a PESTLE analysis as the framework to begin brainstorming and to promote group interaction and energy.

PESTLE is a broad scanning technique and stands for: Political, Economic, Social, Technical, Legal and Environmental analysis that is ideal for this complex application. The PESTLE analysis will serve as a means of categorizing issues into "buckets" that can be ranked and prioritized by the participants and later analyzed further as needed. Having completed the PESTLE, we will then use a proprietary interactive engagement tool called BPAT to help participants rapidly identify, discuss and rank the issues facing the JPA, within a safe, fun and relaxed structure. Our goal is to create an active engagement environment, build respect for the process within the group and start achieving tentative consensus around the issues facing the JPA.

Phase 2 – Affirmation of Project Issues

The second phase of work will be to achieve affirmation of all the various steps needed to complete a roadmap. This will be completed using a series of meetings verify the results of Phase 1 and incorporate the knowledge of MWH's subject matter experts. Workshop No.2 will be conducted to affirm the balance between those issues and the overall project goals.

Working Group Meeting

Following the PESTLE analyses and BPAT exercise, MWH will review the issues, considerations and priorities that surface during Workshop No.1 and identify the key themes or categories that form the basis of the project goals. These will be presented to the JPA Working Group and refined into a preliminary framework that aligns issues and goals.

BPAT

BPAT stands for Blink Prioritization Assessment Tool, and relies on participant's first impressions and initial reactions in order to prioritize goals.

Technical Group Meeting

Based on the preliminary framework developed by the working group, MWH subject matter experts will identify the top issues, research known similar case studies, and identify any obvious information gaps that might appear. Our facilitators and subject matter experts will then present their findings to the Technical Group and lead an active discussion around the key technical issues. The output form the Technical Group meeting will provide refinement, clarity, and affirmation of the technical issues in the Plan of Action. Some of the technical areas our experts will address are itemized below.

Permitting and Environmental

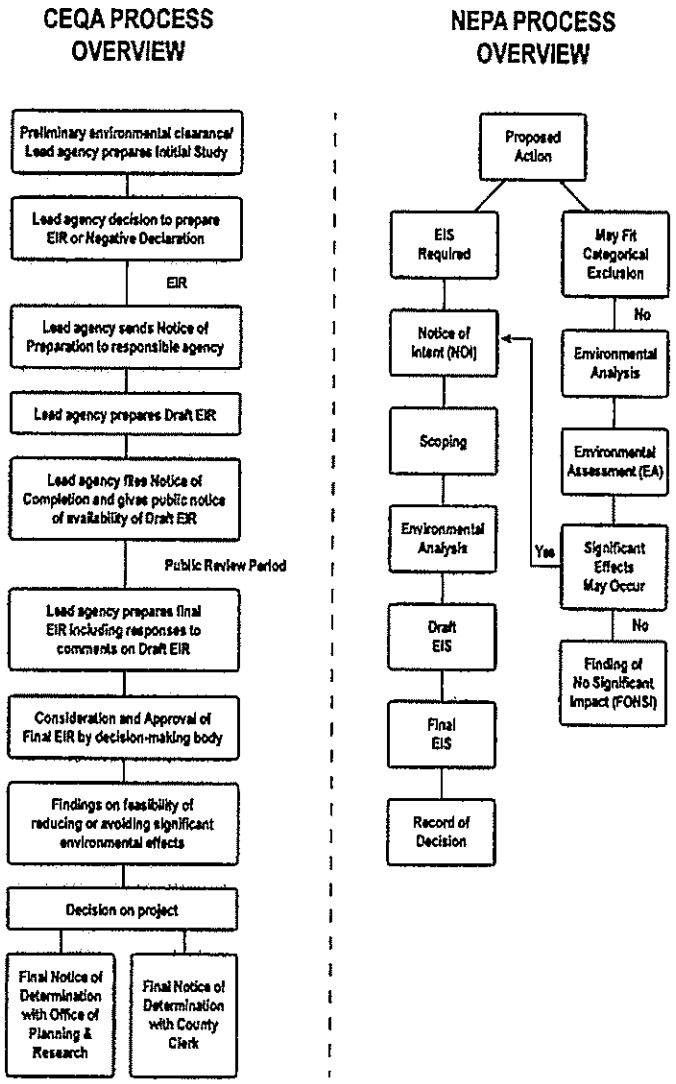
While it is not expected the Tapia Water Reclamation Plant will completely cease discharges to Malibu Creek based on the Regional Water Quality Control Board's desire to maintain a minimum flow rate, the ability to create an option which beneficially reuses all or most of their treated water outside of Malibu Creek is strategically important as the JPA will be in a much better position to negotiate more favorable regulations. MWH will discuss these, and other topics to make sure all permitting and environmental considerations are captured.

CEQA/NEPA Approach

Much of a CEQA/NEPA process includes agency engagement, review periods, and other activities that could result in schedule delays beyond the control of the JPA or MWH. MWH's experienced professionals have performed this type of permitting work recently in California. We will be able to guide discussions to identify the important drivers for the JPA and what sort of timeframe they may need to consider.

Land Acquisition

Through discussions with staff of LVMWD/JPA, MWH is aware that portions of the land that was identified in a previous feasibility study for LVMWD/JPA recycled water seasonal storage may currently be available for sale. It is important to identify what land issues will be important as early as possible as the land acquisition process can take considerable time. Discussions initiated by MWH will address the identification of available parcels, identifying ownership of required parcels, and laying out the steps to acquire identified lands. It is imperative to start this process early so that any delays impact the overall project schedule as little as possible.



Funding

During the Affirmation phase, MWH's approach to discussing funding will include with consideration of various external funding sources potentially available to the JPA. This includes (1) exploring grant/subvention funding, (2) leveraging regional partnerships, and (3) utilizing the JPA's and member District capital sources and revenues. We believe that a robust funding strategy will include robust yet simple financial tools to provide transparency and improve fiscal sustainability, integration of planning, asset management, and financing to drive innovation, and alignment of funding streams with investment timing to reduce risk. Once funding opportunities are aligned with the funding sources identified, the relative emphasis placed on them will be custom tailored according to the JPA's preferences.

Water Quality and Reuse

There are multiple water quality issues that may impact the Plan, including maintaining quality in the Reservoir and recycled water system, creek maintenance flows, and the potential reuse of water otherwise released to the creek. MWH will address these issues, and provide insight on topics such as advanced treatment of water within the JPA service area, which would allow the JPA to have water that may someday be approved for additional reuse options, such as Indirect and Direct Potable Reuse (IPR and DPR). These innovative processes for reuse may allow the JPA to have an "option" to Malibu Creek and the ability to treat current volumes to a level of quality

suitable for those applications and reduce purchased water. High quality reuse water may also be part of a valuable strategy for business parks and other types of economic development that may also reduce the need for water purchases.

Workshop No. 2

The results of the working and technical group meetings will form the basis for discussion in Workshop No.2. MWH will again use guided facilitation to review the refined goals identified technical issues, and distill the results of these efforts down to the critical elements that will appear on the roadmap.

Phase 3 – A Roadmap to Project Solutions

MWH will consider the priority, duration, and sequence of addressing the critical elements surfaced in the affirmation phase. By combining these elements with the goals previously developed, a strategy or series of strategies will emerge. The full MWH team will participate in the development of the strategy and prepare a preliminary roadmap for consideration by the JPA, first in a working group setting, and finally in a Workshop.

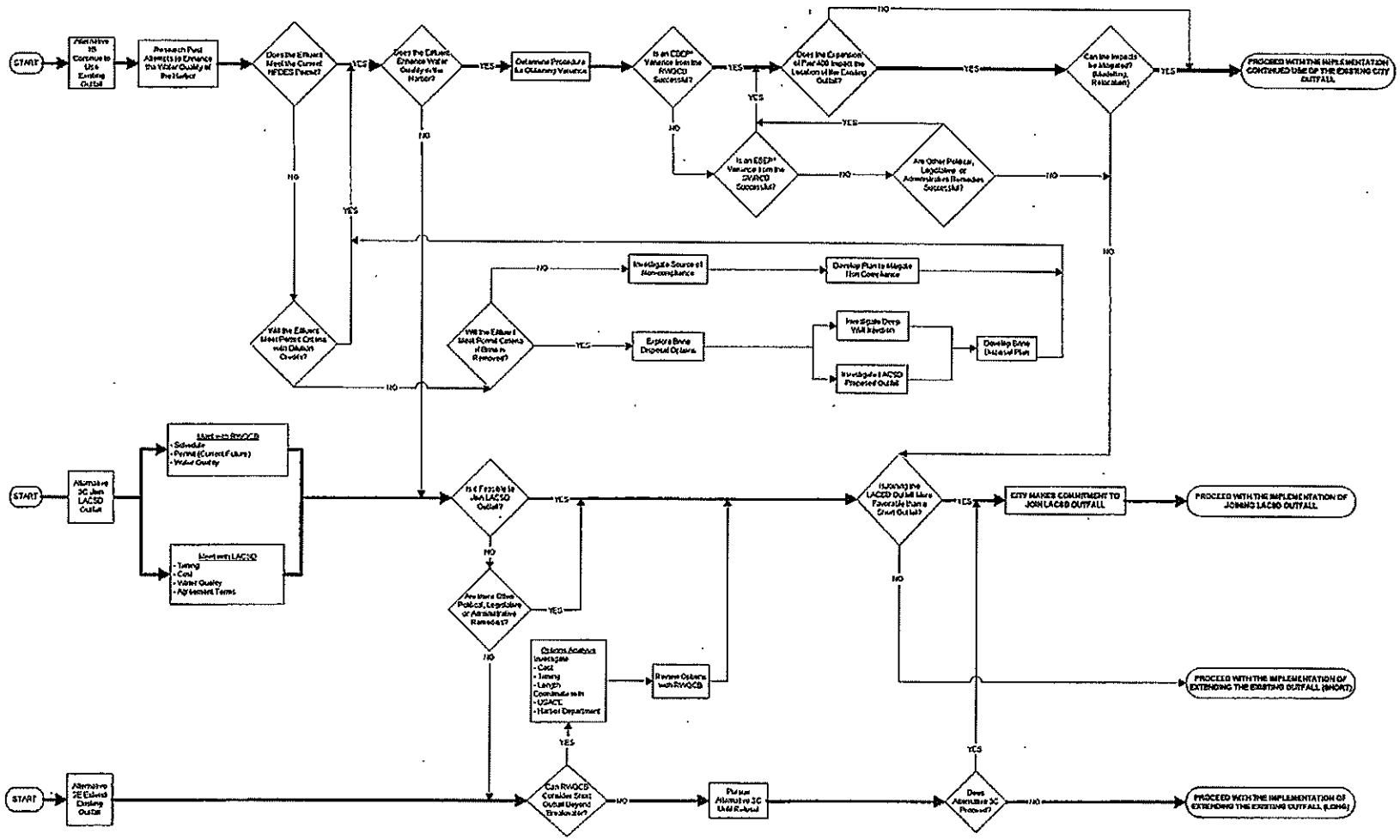
Working Group Meeting

MWH will summarize and present the results of Phase 2 work and lead a discussion of roadmap development. The specific form of the roadmap will be considered, and the most promising of these will be prepared in draft form and presented to the Working Group for input and discussion. Of particular importance will be the identification of "early wins" that will help add credibility to the JPA's approach. One example may be the upcoming negotiations of the NDPES permit in Spring, 2015. Comments received will be incorporated for subsequent presentation at a workshop.

Workshop No. 3

The objective of this phase of the work is to develop a Plan of Action that addresses the Project Goals developed in Phase 1, the key project elements developed in Phase 2, and the strategy and sequencing to achieving project implementation. The intended outcome of this phase is to present a readily understandable Plan of Action to move the project forward simply and clearly, with participant ownership and consensus. These meetings are discussed further in the Scope of Work. The exact form of the Plan of Action cannot be known at this time, as it will depend on the goals established and items developed in the various meetings and workshops. It is possible multiple Plans may be developed for different user groups, or perhaps one Plan with multiple levels of detail. The Plan may include only the sequence of events, or perhaps resemble a schedule with specific start and end dates for tasks with predecessors and successors indicated. MWH will customize the Plan of Action to fit the needs of the JPA. An example of a Plan developed on a similar project is reproduced on the following page. In this Plan, our client was most interested in the sequence of information collection and decision-making. This is just one of many possible illustrations of the Plan of Action that will be developed for the JPA. (see **Figure I.**)

TIWRP Implementation Strategy and Plan of Action



*Enclosed Bays and Estuaries Policy

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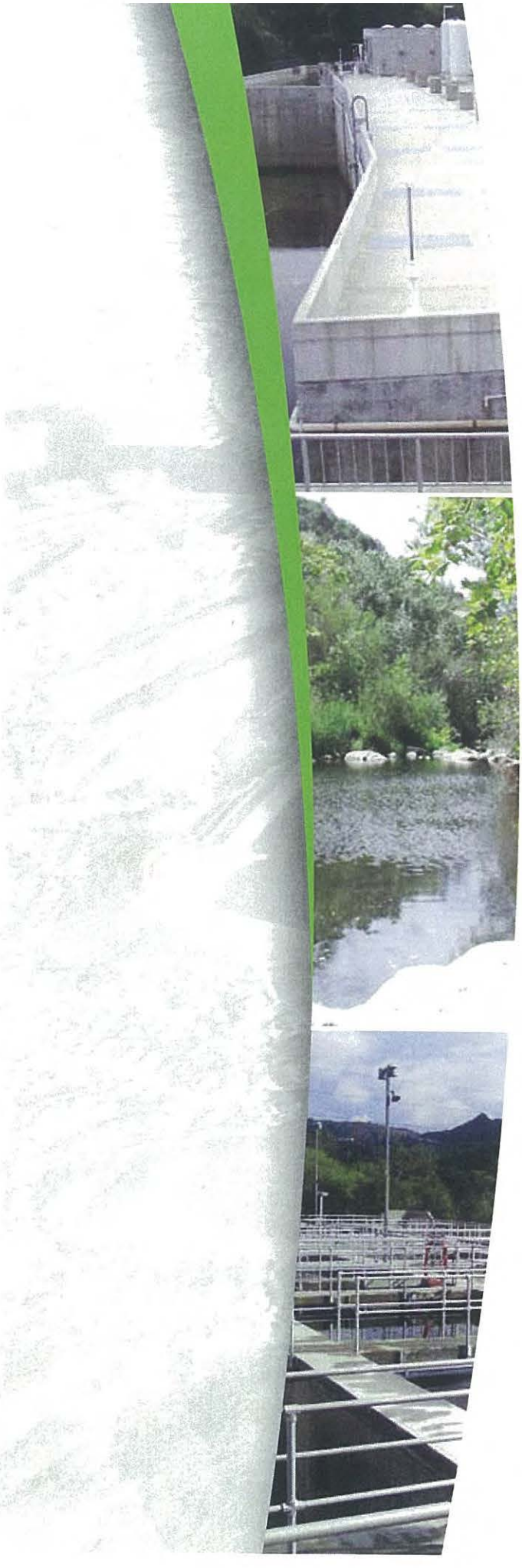
Rev 1.0

Figure I - A sample Plan of Action from a similar project.



Scope of Work

ITEM 5A

SECTION 2

Scope of Work

MWH described our thoughts and a process for accomplishing the JPA's goals and objectives in the Overview and Approach section. We will articulate a more detailed Scope of Work in this Section. We welcome the JPAs input on this Scope of Work, and as many items are flexible, look forward to meeting with you to discuss specific work items in more detail. For the purposes of this project, we need to define three key groups composed of different participants and representatives that we anticipate working with throughout this effort. The specific membership to any one group is flexible, but each group will work at a specific content level:

Group	Example Participants	Content Level
Workshop	JPA management and Staff, board members, internal and/or external stakeholders, NGOs, MWH	Policy
Working	JPA executive/management staff, MWH core team	Strategy and Management
Technical	JPA management and technical staff, external experts, regulators, academia, MWH core team, MWH subject matter experts	Technical

One of the key early decisions the JPA will need to make is the level and extent of board member participation from each of the member agencies and the JPA. A quorum of member board members will require public noticing and agenda posting requirements in accordance with the Brown Act and likely attract extensive external attention and potential stakeholders. This will impact the focus and conduct of Workshops, but can be accommodated depending on the JPA's wishes. Regarding the Working Group, MWH envisions working with a small group of JPA executive managers to guide the team on project strategy, routine project management and decision making. The Technical Group will consist of district and JPA technical staff, MWH experts and external experts (as desired by the JPA) to consider issues specific technical aspects of the larger project.

Phase I – Identification of Goals

The scope of work for this phase will consist of two key meetings: one Working Group meeting (kickoff) and a Workshop. The primary goal of this phase of work is to understand the project background and context, hear what it means to individual participants and to understand how individual or group perspectives are manifested in

the *Recycled Water Seasonal Storage Project Guiding Principles*. From these meetings and interactions MWH will develop a candidate list of project goals and learn where agreements or disagreements exist and why they exist.

The meetings are further elaborated as follows:

Kickoff Meeting

The kickoff meeting will outline the workshop approach for the project, present and refine the tentative schedule, identify and discuss group participation/representation and discuss external stakeholder engagement. During the kickoff meeting MWH and the JPA will:

1. Propose and agree on routine project management processes and protocols.
2. Develop participant contact list(s)
3. Identify participants in various groups
4. Calendar dates for meetings and workshops
5. Identify individuals and organizations who are potential shareholders and stakeholders. Identify key individuals who may represent groups or organizations. Prepare a listing of contacts and groups for review by JPA and MWH.
6. Identify issues that could be expected from each of the individuals or groups that were previously listed. Refine the list as a better understanding of issues is developed. Prepare a listing of issues and interconnect shareholders and stakeholders with common interests. Prepare a second listing where interests may be in conflict.
7. Determine the style and frequency of communication that may be best suited to individuals and groups that have been identified. An outcome of this session will be to determine who will conduct the engagements.
8. Prepare an overall strategy for engagement consisting of a listing of shareholders and stakeholders, potential interests, contact points, engagement managers, and a schedule for conducting and reporting on engagements throughout the life of the project.
9. Identify and assemble a list of references for use in the completion of the work.

Deliverables:

Prior to the kickoff meeting MWH will prepare the following:

- Agenda
- Project Management process and protocols
- Tentative Project Schedule

Following the kickoff meeting MWH will produce the following documents:

- Revised Project Schedule with Milestone Dates
- Meeting Notes
- List of Stakeholders, contacts, engagement style and points of contact
- Project bibliography

Workshop #1 – Context and Background

Workshop #1 will be conducted to capture all project related activities and issues to date according to participant's in exercises designed to promote divergent thinking. This will ensure all elements of the Project are fully articulated and addressed, reflecting the full groups thinking.

1. MWH will prepare exhibits and presentation materials to facilitate the workshop
2. MWH will conduct an interactive brainstorming exercise (PESTLE Analysis) to assemble participant thoughts and issues on the project into PESTLE categories. A "swarm and tally" exercise will then be conducted to rank identified issues.
3. MWH will conduct a prioritization exercise (BPAT) to prioritize ranked project issues from the aforementioned PESTLE Analysis and verify that the JPA is in agreement with the ranked issues.
4. MWH will lead the group in a discussion to review the *Recycled Water Seasonal Storage Project Guiding Principles* and ensure they are adequately addressed in the ranked issues.

Deliverables:

Prior to this workshop MWH will provide the following:

- Agenda
- Recycled Water Seasonal Storage Guiding Principles
- Guidelines of the PESTLE Analysis and BPAT methods

Following this workshop MWH will provide:

- Schedule for next workshop
- Meeting Notes
- Listing of all items identified in the PESTLE categories and BPAT exercise

Phase 2 – Affirmation of Project Issues

The scope of work for this phase of the project will consist of two Working Group meetings and one Workshop. The objective of this phase of the work will be to identify the technical issues associated with the project, gain expert advice and guidance on those issues and balance those issues with the overall project goals. The intended outcome of this phase is to educate Workshop participants equally on the range of issues confronting the project.

Working Group

1. MWH will compile and compose a preliminary framework for further categorizing the technical issues in the PESTLE analysis.
2. The preliminary framework will be reviewed and refined with the Working Group.
3. The output of this working group will be to combine and categorize and align the technical issues with the Project Goals and direct subsequent Technical Group meetings.

Technical Group Meeting

1. This meeting will be held with MWH subject matter experts, the agency/JPA's technical team and external experts.

2. During this meeting, MWH will present a framework of each of the following technical areas:
   - CEQA/NEPA
   - Permitting
   - Water Reuse (traditional and non-traditional)
   - Dam siting and construction
   - Conveyance
   - Funding and Financing
   - Land Acquisition
3. MWH experts will lead individual breakout groups to brainstorm the technical components and requirements of the areas listed above.

Deliverables:

Prior to this Working Group Meeting MWH will provide the following:

- Agenda
- List of the Project Goals and Refined Guiding Principles

Following this meeting MWH will provide the following:

- Meeting Notes
- List of all items identified per technical area

Workshop #2 - Convergence

The goal of this workshop is to converge the many ideas developed and assembled in Workshop #1, the technical group meeting and the working group meetings and refine the issues, considerations and constraints essential to advancing the Project. The intended outcome of this Workshop is to educate participants on the range and importance of issues confronting the project and to begin building consensus.

1. MWH will present the outcome of Workshop #1 and any further modifications or clarifications suggested by the Working Group.
2. MWH will present the outcome of the Technical Group meeting on each of the previously listed technical areas.
3. The objective of this workshop is to begin gaining consensus on the key action items needed for project implementation.

Deliverables:

Prior to this Working Group Meeting MWH will provide the following:

- Agenda
- Briefing packet containing the outcome of both working group meetings

Following this meeting MWH will provide the following:

- Meeting Notes
- List of all items action items needed to gain consensus

Phase 3 – A Roadmap to Project Solutions

This phase of the work will consist of one working group meeting and one workshop. The goal of this phase of the work is to develop a Plan of Action that addresses the Project Goals previously identified, considering the range of project issues, considerations and constraints and their dependencies, identified in workshop #2. The intended outcome of this phase is to present a readily understandable Plan of Action to move the project forward simply and clearly, with participant ownership and consensus.

Working Group Meeting

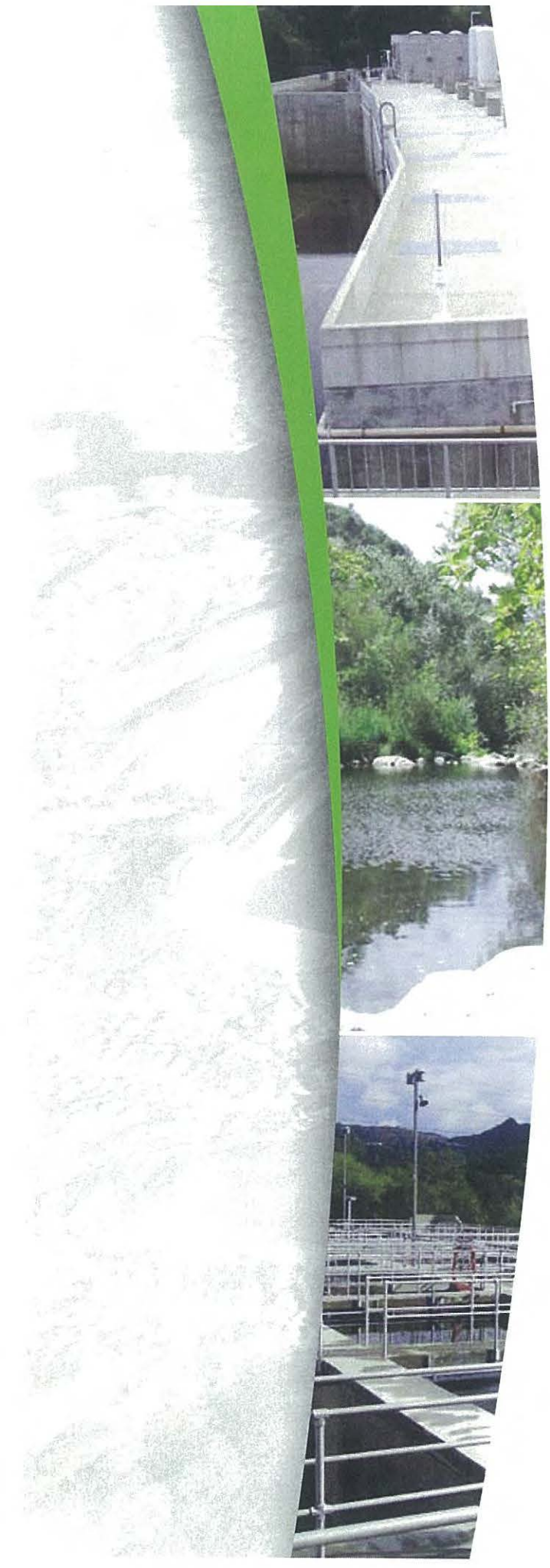
1. MWH will prepare a rough draft of the Plan of Action for consideration by the Working Group.
2. The action items assembled in Workshop #2 will be organized into a strategy and decision format.
3. During this process potential constraints will be identified. Each constraint will have an associated risk assessment to determine the financial and schedule impacts associated with the constraint. Potential mitigation measures will also be identified.
4. The Working Group will refine the plan and produce a draft Plan of Action with associated timeline and dependencies for each component from planning/study through design and construction.

Workshop #3 – Plan of Action

1. This final workshop will present the draft Plan of Action developed by the working group and will be used to gain consensus from participants and the JPA board on the strategy and sequence for advancing and implementing the project.
2. Following the final workshop MWH will combine all previous meeting packets, and submit these to the JPA with the Plan of Action as well as summary text documenting the process and how decisions were reached.

Project Management

1. Project Management will be needed throughout the life of this project. The project management scope of work consists of the following project setup, control, monitoring, scheduling, and invoice preparation. MWH will develop a project execution plan and baseline schedule to share with the JPA. This will assist the team in planning and communicating the project execution approach the entire team.
2. Quality Assurance Quality Control reviews will be conducted under the project management task. These reviews will occur prior to the delivery of each workshop packet. MWH's approach to QA/QC will consider the JPA's *Recycled Water Seasonal Storage Guiding Principles*.



Cost

ITEM 5A

SECTION 3

Cost

In accordance with the RFP, the schedule of rates and our cost to perform services for the Recycled Water Storage Study is included in this section.

Schedule of Hourly Rates

The project is proposed to use hourly rate as the basis of the fee estimate. The following table represents a typical value of personnel classification.

Schedule of Hourly Rates Billing Classifications	Hourly Rates
Project Manager	$290.00
Technical Coordinator	$290.00
Principal Professional II	$280.00
Principal Professional I	$250.00
Supervising Professional	$195.00
Senior Professional (Project Engineer)	$150.00
Professional	$130.00
Associate Professional	$115.00
Supervising Admin Assistant	$100.00
Admin Assistant	$90.00
Graphics/Repro	$55.00

Compensation is based on a single not-to-exceed fee based on the following contract terms:

1. Payment of the invoiced amount for the professional engineering services shall be based on monthly invoices describing the work performed and expenses incurred during the preceding month.
2. Non-salary expenses and outside services attributable to the Project shall include:
   - Living and traveling expenses including mileage of employees when away from the home office on business connected with the services;
   - An Associated Project Cost rate for telecommunications, postage, computers, word processors, incidental photocopying, and related equipment in the amount of $9.50 per labor hour;
   - The identifiable costs of reproduction, printing and binding applicable to the project;
   - A CAD rate in the amount of $16.75 per computer aided design/drafting hour to cover the hardware, software and related expenses of CAD; and
   - The actual cost of outside and subcontracted services and other direct costs identifiable to the project will be charged at the above-stated cost plus 20 percent markup to cover overhead, administration, other indirect costs and profit.
3. Payment shall be due within 30 days after date of monthly invoice describing the work performed and expenses incurred during the preceding month.
4. MWH is proposing that above rates for 2014 will be escalated by 5% if the project goes beyond March 30, 2015.

MWH Fee Proposal

The fee estimate is itemized by subtasks, which align with the Scope of Work, and including hourly rates and direct costs indicated.

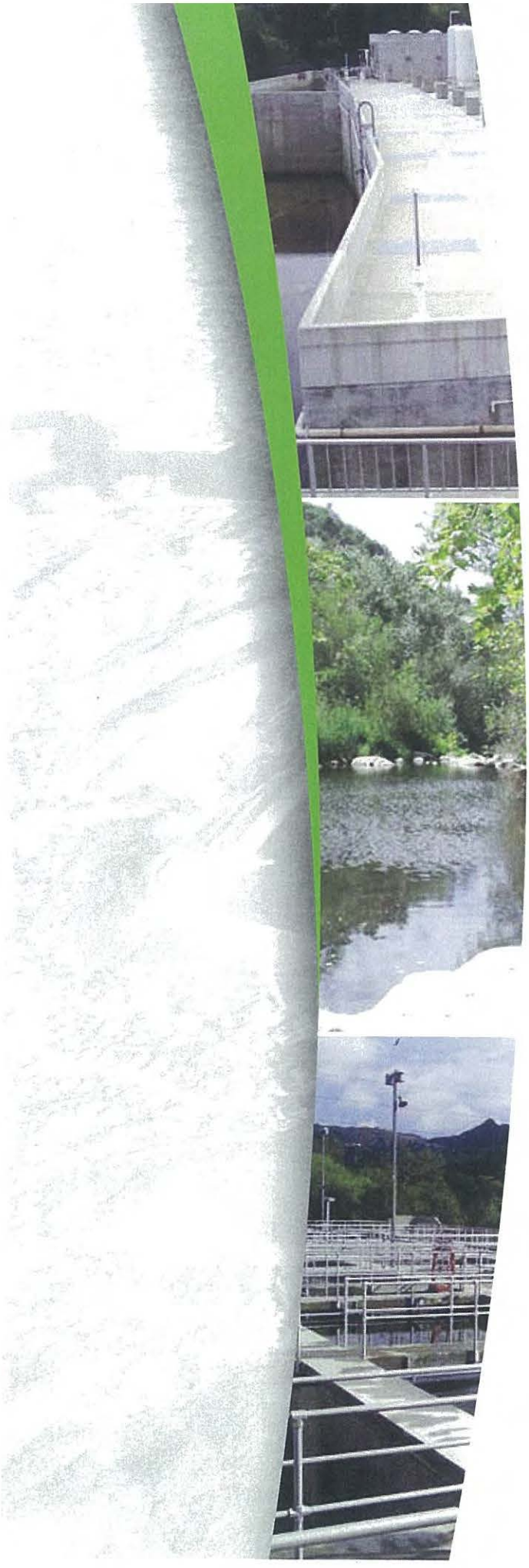
Las Virgenes Municipal Water District - Recycled Water Seasonal Storage

Task	ACTIVITY DESCRIPTION	Project Engineering and Management Personnel												
		$290/hr	$290/hr	$280/hr	$250/hr	$195/hr	$130/hr	$100/hr	$90/hr			20%	20%	
		Project Manager	Technical Coordinator	Principal Professional II	Principal Professional I	Supervising Professional	Professional	Supervising Admin Assistant	Administrative Assistant	TOTAL LABOR HOURS	LABOR FEE	Other Direct Costs (ODCs) with Markups	Subconsultant Fee w/ Markup	Total Fee
1.0	Project Management	12	14	24	0	18	10	12	12	102	$21,350	$0	$0	$21,350
1.1	Project Management	6	6			12		12	12	48	$8,100			$8,100
1.2	QA/QC	6	8	24		6	10			54	$13,250			$13,250
2.0	Phase 1 - Identification of Goals	22	14	22	8	20	25	0	8	119	$26,470	$2,400	$6,000	$34,870
2.1	Kickoff Meeting	6	6	6	4	10	10		4	46	$9,770	$1,200		$10,970
2.2	Workshop #1 - Context and Background	16	8	16	4	10	15		4	73	$16,700	$1,200	$6,000	$23,900
3.0	Phase 2 - Affirmation of Project Issues	32	25	58	18	90	40	0	12	275	$61,100	$5,400	$6,000	$72,500
3.1	Working Group	6	7	14	4	10	10		4	55	$12,300	$1,200		$13,500
3.2	Technical Group Meeting	9	9	27	10	40	15		4	114	$25,390	$3,000		$28,390
3.3	Workshop #2 - Convergence	17	9	17	4	40	15		4	106	$23,410	$1,200	$6,000	$30,610
4.0	Phase 3 - A Roadmap to Project Solutions	28	20	36	19	25	25	0	8	161	$37,595	$2,400	$6,000	$45,995
4.1	Working Group	11	11	19	10	10	10		4	75	$17,610	$1,200		$19,010
4.2	Workshop #3 - Plan of Action	17	9	17	9	15	15		4	86	$19,785	$1,200	$6,000	$26,985
	TOTALS	**94**	**73**	**140**	**45**	**153**	**100**	**12**	**40**	**657**	**$146,515**	**$10,200**	**$18,000**	**$174,715**

Optional Task – If the JPA feels that it would beneficial to hold an additional summary meeting following the final work the estimate cost of the meeting is $15,000.

Professional Services Agreement

MWH takes no exceptions to the Professional Services Agreement provided with the RFP.



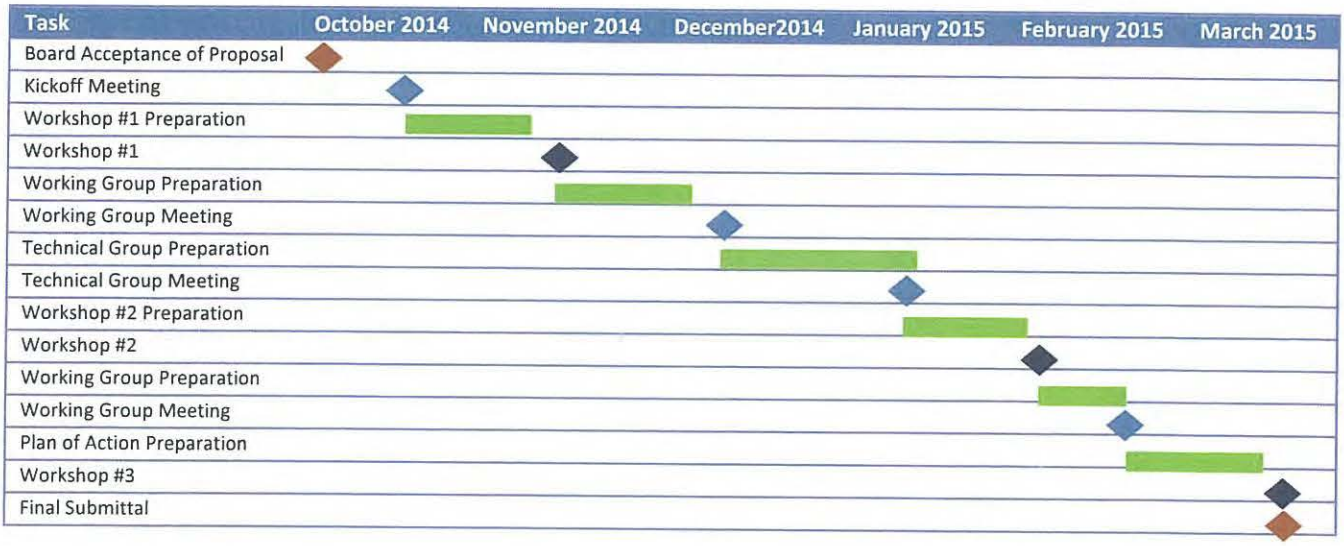
Project Schedule

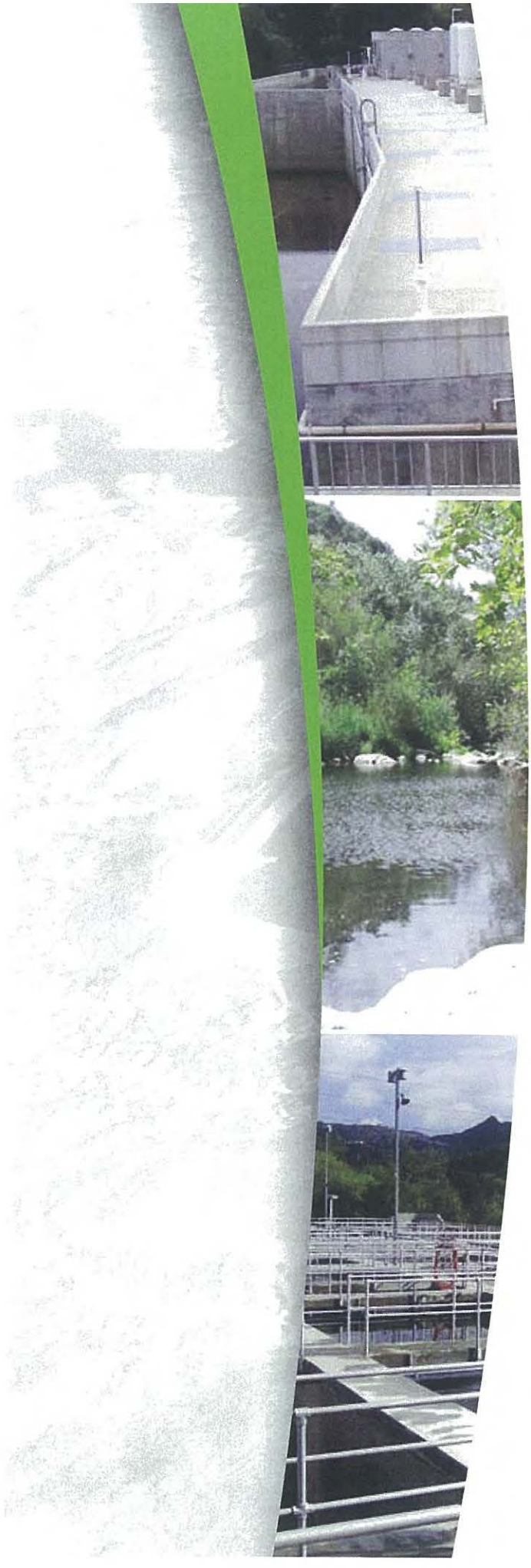
ITEM 5A

SECTION 4

Project Schedule

MWH is confident that the project can be completed within the 6-months specified within the Request for Proposals. This is a realistic schedule that will allow for sufficient lead-time when scheduling meetings with key senior staff and board members. Below is a proposed schedule identifies the timing of key meetings and workshops. A more detailed schedule will be prepared and submitted for JPA review and approval before the project kickoff meeting.





Project Team

SECTION 5

Project Team

The most important decision that MWH can make to contribute to the success of any project is the selection of the Project Manager. We strongly believe that Dr. Steven Weber is the best person to lead our team on this project. He has demonstrated his skill in understanding complex and conflicting demands which are so prevalent in public works projects related to recycled water. He has the ability to bring together multiple divergent opinions and develop a focus on common community goals. Dr. Weber reinforces his interpersonal and technical skills with an impressive portfolio of project successes in the water industry. He knows how to develop broad based support and how to lead teams to produce implementable projects. He is very comfortable in front of community forums, elected officials, and technical groups. Dr. Weber will definitely forge a well understood and well accepted Plan of Action for the JPA.

Dr. Weber has selected Jim Borchardt to provide technical direction on this project. This is an excellent decision for the JPA as Jim's technical expertise will compliment Dr. Weber's leadership and provide a well-founded base for the future of the project. Together they will lead the JPA on a path towards practical and implementable recycled water solutions.

This presentation of MWH's project team introduces the key players. We have identified the Core Team of professionals who will support Dr. Weber and Jim in management (Sarah Munger), facilitation (Rich Plecker), research (Oliver Slosser), and quality control (Eric Mills). Working alongside the Core Team, will be the Subject Matter Experts, providing direction and expertise to ensure the soundness of the several critical areas of the going forward plan.

The MWH approach to Project Management is presented in this section of our proposal and describes the tools and philosophy which underpin the way in which we perform our projects. These tools have been used consistently to ensure compliance with client requirements and the production of a quality work product. Our approach to Quality Assurance and Quality Control is also described in this section.

Refer to Section 7: Appendix for team resumes.

Experience of Our Team

Steven Weber, PhD – Project Manager

Dr. Weber has over 20 years of professional experience in the field of water resources and environmental management in both the private and public sectors. As a research scientist and resource manager, Dr. Weber has successfully developed and implemented plans to monitor, restore, and protect various water resources for governmental agencies, homeowner associations, land developers, private interests, and Native American tribes. Dr. Weber's current area of practice focuses on the use of advanced treatment methods to address the need for higher quality effluent to meet new regulatory requirement. As an applied thinker, Dr. Weber has the innate ability to synthesis complex issues into simple stories that both the technical and non-technical members of our society can understand.

James Borchardt, PE – Technical Coordinator

Mr. Borchardt has 37 years of experience in project management and engineering for treatment, conveyance, and storage facilities. He has managed more than 100 projects with total construction value of over $1.8B. Mr. Borchardt is an MWH Vice President and serves as Water Technology Director. He is one of the lead authors of the MWH Water Treatment Principles and Design Text Book (3rd Edition) that is used to teach water treatment in universities across the country. His expertise spans water quality studies, facility planning and design, process evaluation, site development, hydraulic analysis, design, construction management, startup, and operation of water facilities. Mr. Borchardt has served as technical advisor and/or quality control engineer on more than 200 water supply and treatment facilities throughout the United States, Asia, and Europe.

Sarah Munger, PE – Assistant Project Manager; Water Quality and Reuse

Sarah is a Professional Engineer with eleven years of experience in preliminary and final designs of water, wastewater and recycled water facilities. She is also experienced in the negotiation and procurement of MBR membranes in a competitive environment with multiple providers. Her areas of focus include hydraulic modeling, alternatives analysis, financial evaluations, and decision making. She is an excellent problem-solver with strong analytical skills, and efficient project management and organizational skills.

Eric Mills, PE, PMP – QA/QC

Mr. Mills has 20 years of experience with roles spanning from Project Manager, Project Engineer, and Lead Civil Engineer. Although much of his work has been completed in California, Mr. Mills has worked overseas in Argentina and Honduras, which included the development of a master plan for the world's largest privatized water and sewer concession. In addition to facilitating Risk Assessment Methodology (RAM), he has led strategic review of basic IPR concepts, and reviewed the preparation of plans for public works facilities including sewers, wastewater lines, waterlines, and various utility improvements; checked plans for conformance with regulations; verified calculations.

Richard Plecker, PE – Facilitation and Strategy

Mr. Plecker has 28 years of professional and executive management experience in engineering, planning, financial management, and project delivery. He is outgoing, affable and an excellent communicator with significant experience in highly visible and controversial projects and programs involving water, wastewater, and recycled water resources; environmental protection and group facilitation. Mr. Plecker is well-versed in California water resource issues important to California water agencies, including water supply and master planning, conjunctive use planning and operations, and groundwater management. As a former public utility general manager, Rich is a client advocate and fully appreciates the many challenges facing public utilities from a strategy, policy, management and operational perspective.

Oliver Slosser, PE – Research and Implementation

Mr. Slosser is a Professional Engineer at MWH and has been working for the last two years on projects including water and wastewater distribution system modelling, groundwater and surface water remediation, water resources planning, construction management, and design projects. Mr. Slosser comes from an editorial background, having worked for nearly three years with an internationally circulated magazine. His editorial sensibility as well as his written and verbal communication skills translate well in a professional consulting environment. In addition to his technical and communication abilities, Mr. Slosser also has experience with a multitude of modelling and technical applications.

Sarah Garber, CPP, PMP – Permitting

Ms. Garber is a principal environmental scientist with 27 years of experience in environmental impact assessments for infrastructure projects. In addition to National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) documentation, Ms. Garber also specializes in permit acquisition. She routinely conducts public scoping meetings for environmental documents, participates in stakeholder coordination meetings, and presents the environmental issues of projects at public hearings. In addition, Ms. Garber is involved in surface water investigations and permitting for stream discharges. She has worked as a field biologist, concentrating in water quality analysis, including fisheries investigations and natural resource surveys.

Geoffrey Carthew, PE, PMP – Infrastructure

Mr. Carthew has 45 years experience in the planning, design, design-build, construction, and start-up of water, wastewater, and environmental projects worldwide. These projects have included the predesign and design of water and sewer pipelines, wastewater and water treatment plants, water process design, solids disposal facilities, and pilot plant studies. In addition, Mr. Carthew has

worked on a wide range of design-build projects for both public and private sector clients and has served on these projects in a variety of leadership roles, including principal-in-charge, project manager, and/or technical reviewer. Mr. Carthew's recent career focus has been leading major wastewater planning and design projects throughout southern California. In this role, he has directed and conducted client-focused meetings at which a wide range of technical, operations, political, and strategic issues have been defined and resolved. Building consensus among stakeholders and arriving at acceptable solutions has been a hallmark of many of Mr. Carthew's projects.

Michael Rogers, PE – Dams and Reservoirs

Mr. Rogers is a principal civil engineer and senior project manager with 31 years of experience in the study, design, and construction management of dams and hydroelectric projects. He is well suited for this project role based on his planning, design and project management experience, combined with his hands-on laboratory and field construction work with RCC dams. Mr. Rogers has performed laboratory RCC mix designs during the design phase; prepared plans and technical specifications; then supervised execution of those specifications in the field during the construction phase. He is the past President of the American Association of Dam Builders and has a close relationship with DSOD.

James Stahl, PE, BCEE – Regulatory Alignment

Mr. Stahl has 49 years of Environmental Engineering experience in the water field. He joined MWH in August 2007 and has been an advisor to municipal and industrial clients in formulating strategies for economically and environmentally sound wastewater treatment systems; water reuse programs and successful communication with regulatory agencies for permitting and compliance matters. Prior to joining MWH, Mr. Stahl was the Chief Engineer and General Manager of the Los Angeles County Sanitation Districts. In his 38-year tenure with the agency he was closely involved with the planning, permitting, design, construction and operation of LACSD facilities. These included 11 Water Reclamation Facilities. The resultant Title 22+ effluent serves over 700 reuse sites in 30 cities resulting in an alternative water supply of 95,000 AFY. The key reuse unit was the Montebello Forebay Groundwater Recharge Project, which is a multi-agency partnership. Mr. Stahl focused the LACSD successes through collaborative efforts with public agencies, cities and private entities to expand water reuse opportunities through cost-sharing agreements and the tapping of new water sources, such as the acceptance of dry-weather flow from storm drains.

Ron Gastelum – Stakeholder Engagement

Mr. Gastelum's expertise can best be described as essential public services and public infrastructure, including a detailed understanding of the associated administrative and legislative processes, finance, strategic planning, and public policy development. Mr. Gastelum was responsible for managing the operations of one of the largest wholesale water suppliers in the world with an annual budget of over $1 billion, serving the 18 million residents of urban Southern California. Metropolitan is a regional public agency. During his tenure as CEO, the agency accomplished a major restructuring of its management, adopted a new Strategic Plan with unprecedented public participation, updated its long term resources plan, completed a $2 billion dollar new reservoir, advanced a stalled major pipeline project under the San Bernardino Mountains, adopted a long term capital improvement and finance plan, and completed a major overhaul of its rate structure.

Vanessa Nishikawa, PE – Funding

Ms. Nishikawa has over 20 years of experience in the development and implementation of water resources projects, coordination with CEQA/NEPA, and preparation and submittal of grant funding applications, funding strategies, and identification of future opportunities. Her project experience includes: water resources planning and management, flood management studies, water transfers, environmental documentation and analysis, computer modeling of surface water hydrology and operations, watershed management planning, data collection and analysis, permitting,

and grant writing. She has participated in numerous studies of surface and groundwater systems using a variety of computer modeling media.

Greg Baird – Finance

Mr. Baird is a principal consultant in MWH's Financial, Commercial, and Risk Services team. He has served as a municipal finance officer in California with rate design and Prop 218 implementation experience, and as the CFO of Colorado's third largest utility - overseeing all financial and customer service aspects of a $150M water, wastewater, and storm water operation, and a $2B capital program. Among the many projects he has worked on, Mr. Baird managed all financial issues of the $650M Prairie Waters Project (Reuse Project). Mr. Baird has issued over $1B in municipal debt and participated on the AWWA team to update the M1 Manual on Rates. He has been selected by DWR to work on the financial component of the California Water Plan 2018 and is the project manager of Coachella Valley Water District's water, sewer, canal and recycled water financial plans and rate setting.

Resources

MWH staff identified in this proposal, together, have more than 100 years of combined experience. We understand the challenges and risks that come with building new storage and infrastructure. Beyond the team identified in this proposal, MWH employs experts in many fields, from recycled water and permitting, to dams and financing. The MWH Pasadena office has over 50 regular employees, and has the resources necessary to efficiently deliver this project for the JPA. MWH will be putting the best people on this project and will be able to pull from a wide pool of talent should more resources be necessary.

Project Management

MWH's project management approach relies on five key principals; having the right person for the right job, accountability, consistent practices, standard tools, and continuous learning and improvement. The five key principals are consistent across all MWH projects. These key principals form the bedrock for the project management approach that we will utilize for the JPA.

Right Person Right Job

MWH is a world-wide corporation with a pool of 8,000 professionals to support our local Southwest Business Unit. This means that we can provide the JPA with a team focused on Southern California supplemented by world renowned experts.

Accountability

The MWH project team is accountable for on-time delivery, accurate project accounting, staffing projections, and project planning. By keeping our staff accountable for the results of their work, our teams are personally invested in the project.

Consistent Practices

MWH utilizes consistent practices to help ensure that the project team has a readily available library of documents and procedures to utilize.

- ***Work Breakdown Structure.*** Our approach to successfully managing work activities starts with breaking the scope of work tasks down into a comprehensive Work Breakdown Structure (WBS) with manageable work packages. The WBS is used to develop a resource loaded critical path method (CPM) baseline schedule, and it is based on the deliverables to be provided to our client, and work to be conducted to develop them.

- ***Project Execution Plan***. Upon Notice-to-Proceed, MWH will develop a Project Execution Plan (PXP) that will serve as the roadmap for the Project Team in carrying out our work. The PXP will be developed under the leadership of our Project Manager, Dr. Weber, and the assigned Technical Coordinator, Mr. Borchardt, with input from the entire team. The PXP will be developed and updated regularly with input from LVMWD, and relevant sections will be distributed to tem members.

Project Management Tools

MWH's proven project management tools ensure efficient, cost-effective, and timely execution of work activities. It is critical to the success of the project team and LVMWD to monitor and accurately manage the task budgets, contract capacity, invoicing, and payments.

- Our computerized financial and project management systems, EcoSys, is the basis for monitoring budget and schedule performance. This integrated cost accounting and project management tool is adaptable and can easily track subcontractor costs, other direct costs, and budget for the project as a whole.

- MWH is in the process of phasing out our serve system and switching to a SharePoint site system, which is accessible from within our network and allows for faster data access for remote offices.

Continuous Learning and Improvement

MWH professionals also regularly attend training sessions so that our skills and knowledge are up to date. MWH maintains training facilities in our Denver headquarters and conducts regular classes for our staff.

Tracking Delivery and Performance

MWH conducts monthly scheduling activities for each project we work on. For each project we build a resource loaded schedule for the project that allows us to accurately identify workloads and cost projects for any phase of the project. Additionally we use this information to develop monthly status reports to communicate progress to LVMWD. EcoSys will be used as the basis for monitoring budget and schedule performance. In this way, the project team will be provided with the tools to help monitor expended labor hours and costs to ensure the project tasks are staying within budget and on schedule. MWH also utilizes PrimaveraP6 Professional Project Management to develop and maintain the project schedule, providing a logical, structured, and achievable timeline for completing the project within the allotted time, and the identification of the critical path from kick-off through final completion and closeout. With input from all project team members, the schedule will be regularly updated throughout the duration of the project and submitted with the monthly invoice.

Communication

Effective communication among the project team is essential to the overall success of the project. Once the task order and contract are executed, MWH will develop and adhere to a communication protocol between Western through designated points-of-contact within each of these organizations. The project-specific secure SharePoint website will assist in this by providing technical data, reports; costs, schedule, progress information, protocols, and procedures as necessary to appropriately disseminate information to the team and stakeholders. Progress

meetings with LVMWD will be held for the duration of design tasks on a regular basis as an opportunity to coordinate among the various design staff members, resolve issues, make decisions, set project direction, and track project status.

Quality Assurance and Control

MWH Quality Planning consists of three processes as depicted in **Figure II**. The first process is identification of MWH, external, and contractual quality requirements that apply to the project. The second process is planning quality assurance (QA) activities to confirm the project is effectively implementing the Quality Management Plan during the execution phase. The final process is planning quality control (QC) activities so project inputs, ongoing work activities, project outputs, and deliverables comply with identified quality requirements and satisfy contractual obligations.

Identify Requirements

We define quality requirements as the approved set of rules, standards, specifications, instructions, and/or directions required by MWH, clients, or applicable industry, national, or international organizations. MWH champions the following Global Quality Requirements:

Figure II. MWH Quality Planning Consists of Three Processes.

- Delivering quality work is everyone's responsibility.
- Projects, regardless of size, will have a written Quality Management Plan.
- Projects, regardless of size, will budget for quality management.
- Projects will have a technical/peer review process.
- An independent qualified person will check project outputs.
- An independent qualified person will review deliverables.
- The functional lead/senior discipline expert will formally check, approve, and sign all technical work documents.

QUALITY SERVICE

MWH believes that quality service is recognized by our clients and measured by how well we exceed their expectations and add value to their business.

Execution of the Quality Management Plan starts with early identification of the most appropriate technical resources and utilization of a "bottom-up" planning approach and scheduled activities. Early MWH quality management activities include project definition meetings, which are designed to obtain alignment with client; scoping meetings that are designed to verify our proposed execution approach; and criteria committee meetings that are structured to verify technical design criteria.

Plan QA

The focus of QA is to ensure work is done right the first time; not just relying on inspection of deliverables and other QC activities. When planning QA, the PM will:

- **Identify QA Activities**: QA activities the PM may identify include conducting team audits, supporting Independent audits, and overseeing QC activities. We define a Quality Audit as a structured review to determine whether the project complies with the project's Quality Management Plan. Quality Control activities include checks, reviews, inspections, and tests to verify project inputs, ongoing work activities, project outputs, and deliverables meet MWH, client, and external quality requirements.

- **Assign QA Responsibilities:** The PM is accountable for completion of QA activities, but may delegate authority to the Technical Coordinator or other project team members to monitor and implement the plan. Furthermore, the PM must clearly communicate specific QA responsibilities. Delegating authority doesn't absolve the PM of ultimate QA accountability.
- **Document QA Activities**: Finally, the PM documents planned QA activities, and responsible team members, in the Quality Management Plan.

Plan QC

As part of QC, the PM, Technical Coordinator, and other core project team members will:

- **Assess project team members' capabilities:** The PM, Technical Coordinator, and other members of the core project team assess each project team members' ability to perform assigned role(s) for the specific project.
- **Develop project technical approach:** The PM, Technical Coordinator, and other members of the core project team will meet early in the planning phase to document the planned technical approach.

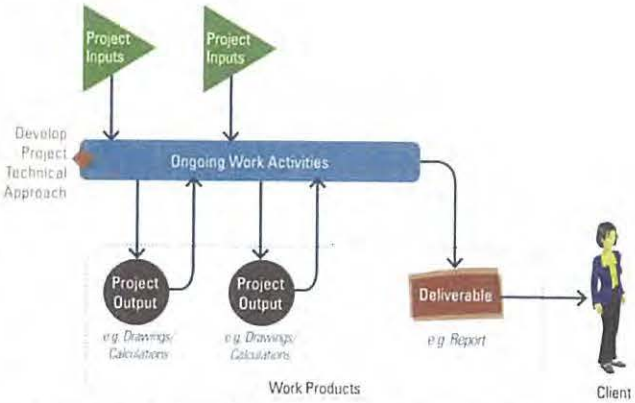


Figure III. Key Items Checked During Quality Control.

- **Identify QC activities**: Key items to be checked during QC will be specified in the Quality Management Plan and include project inputs, ongoing work activities, work product, project outputs, and deliverables. (see **Figure III.**)
- **Assign QC responsibilities**: As with QA, the PM is accountable for completion of QC activities but may delegate authority to the Technical Cooridnator or other project team members to monitor and implement the plan.
- **Document QC activities**: Finally, the PM documents planned QC activities, and responsible team members, in the Quality Management Plan.

Typical MWH QC activities include the following and are shown on **Figure IV**:

- **Checks** - An assessment of a work product by someone with similar, or higher, competence as the author.
- **Review** - An independent person verifies project outputs have previously been checked. MWH reviews include discipline reviews, technical progress reviews, final reviews, and specialist reviews.
- **Inspection** - An examination or measurement used to verify whether a project input, ongoing work activity, project output or deliverable conforms to applicable standards.
- **Test** - Determining one or more characteristics of a physical work product according to a procedure. For example, testing a concrete cylinder by using a concrete sample taken during a pour to confirm its strength.

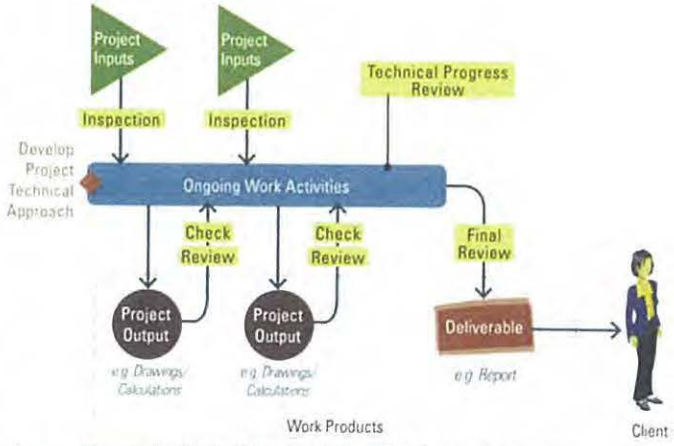
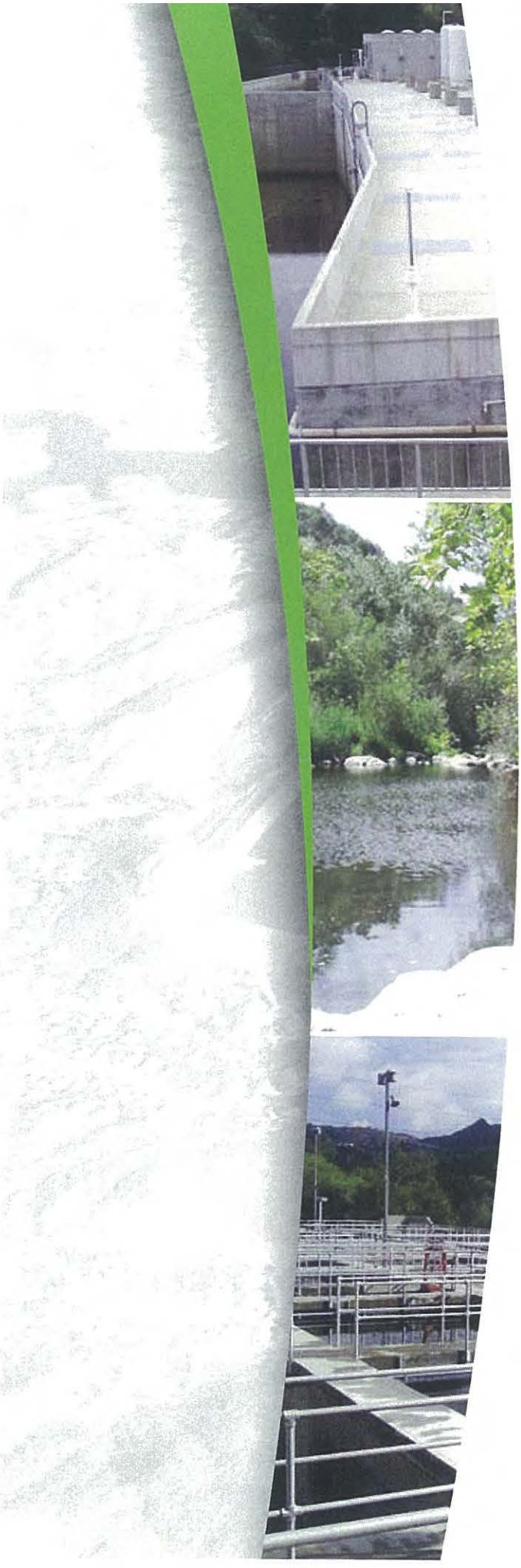


Figure IV. Typical Inspections, Checks, and Reviews.



Project Experience

SECTION 6

Project Experience

MWH is a world leader in recycled water and advance treatment infrastructure projects, a position that has been earned by employing industry experts and putting their knowledge to practical use. MWH is pleased to offer the JPA expert planning in the realm of recycled water, advanced treatment, public outreach, and other areas of expertise which have been honed over countless projects in Southern California to address water shortage and regulatory constraints.

MWH has a firm grasp of what JPA wants to accomplish with this project; water security and the ability to beneficially utilize as much of their water supply as possible is something MWH is excited to help with. MWH is at the forefront of recycled water development and planning in Southern California, Florida, and Texas. MWH also has extensive experience on the design and construction of some of the most sophisticated Advanced Water Treatment (AWT) facilities in the United States and can assist JPA in planning for different future contingencies. Whatever the challenge, MWH is committed to leading JPA through the technical, political, and regulatory hurdles to realize their goal of optimum recycled water utilization.

These five projects have been selected as reference projects as they contain many elements which are directly related to the professional services that will be required on this project for the JPA.

Sample Study Document

As requested, we have enclosed a CD containing a sample study document. This study was prepared by MWH within the last five years.

References for five recently completed projects of similar size and scope:

Reference #	Client Name	Contact Name	Phone Number
1	Los Angeles Bureau of Sanitation	Traci Minamide	(213) 485-2210
2	Los Angeles Department of Water and Power	Anselmo Collins	(213) 276-8218
3	Orange County Sanitation District	Jim Ruth	(714) 504-3761
4	Clark County Water Reclamation District	Sam Scire	(702) 668-8141
5	Metropolitan Water District of Southern California	John Bednarski	(213) 217-5526


MWH Top
Related Projects
Strategic Planning
Assessment for
Regional Use of Purified
Recycled Water
Los Angeles, CA
Plant of Operation for
Secondary Treatment
Orange County, CA
Terminal Island Future
Utilization Concept Report
Los Angeles, CA
Advanced Treatment
Program CCWRD
Clark County Reclamation
District, NV
Recycled Water
Implementation
Strategy Study
Los Angeles, CA

Terminal Island Future Utilization Concept Report

Los Angeles, CA

This Concept Report was prepared to identify the uses of the TIWRP which best serve the long term interests of the City of Los Angeles in its mission to provide wastewater and reclamation services in the Los Angeles Harbor Area.

Workshops were used extensively to develop alternative uses for the TIWRP, to establish evaluation criteria, to decide how the evaluation criteria should be weighted, to review the results of the alternatives evaluation, and to build consensus around the conclusions of the study. Four three-hour long workshops were conducted. Participants in the workshops included representatives of elected and appointed officials, affected City departments, governmental agencies in Southern California, regulatory agencies and non governmental organizations. Additionally, the public participated through their neighborhood councils. In parallel with the workshops, a core group of city executives, city staff and MWH engineers developed and evaluated details of all alternatives and prepared material for use at the workshops.

Commitment

The Stakeholder engagement and workshop facilitation strategy allowed consensus to be reached on reducing 29 alternatives to 3 alternatives – **all keeping TIWRP in operation.**

Alternatives considered ranged from continuing to operate the plant and dispose of treated water as is currently done; operating the plant and disposing of treated water in a new ocean outfall being planned by LACSD; building a new ocean outfall solely for City use; abandoning the plant and sending wastewater to either the LACSD plant in Carson or the City's Hyperion plant in El Segundo; delivering all treated water to reuse customers; or selling the plant to another governmental or private entity. These broad options resulted in 23 individual and specific alternatives for the future use of the TIWRP.

All alternatives were evaluated against a set of criteria and weighting factors developed in the workshops. The principal evaluation criteria were cost, regulatory compliance, public policy and institutional issues, resources and sustainability, and flexibility and adaptability.

Through this extensive consensus building process, three alternatives were judged to best serve the interests of the City for the future use of the TIWRP. A detailed implementation strategy was developed for the City to proceed into more detailed evaluation and assessment of each of these alternatives. All three alternatives involve continuing to keep the TIWRP in operation.

Relevance to Joint Powers Authority

- Significant Stakeholder Engagement
- Workshop Facilitation allowed an analysis of 29 alternatives
- Developed Road Map for the future of TIWRP

OWNER'S CONTACT NAME AND ADDRESS: *City of Los Angeles, 200 North Spring Street, Los Angeles, CA 90012*

CONTACT PERSON/PHONE:

Traci Minamide, Chief Operating Office, (213) 485-2210

PROJECT COSTS AT PROJECT COMPLETION: *$750K*

COMPLETION DATE: *2007*

NAMES OF KEY TEAM PERSONNEL FOR THIS PROJECT:

James Borchardt (Project Manager), Sarah Munger, Geoff Carthew

ITEM 5A

Recycled Water Implementation Strategy Study

Los Angeles, CA

The Study determined the options that best serve the interests of the City of Los Angeles in providing a cost efficient recycled water supply to the Harbor Area. **The goals of this study were:**

- Increase the use of recycled water and decrease the use of potable water
- Develop a plan to reach the customers that will use more recycled water
- Identify changes needed to treatment processes at City and Customer facilities
- Maximize the use of TIWRP's existing treatment capacity and
- Identify the short and long term objectives of the strategy set forth in this report

Knowledge

Knowledge of the complexities and the agencies surrounding the implementation of recycled water in the Harbor Area allowed **two agencies** with City of LA to come to an **agreement on strategy**.

This Study resulted in recommendations for:

- Improving treatment (70 mgd MBR facility)
- Defining where that improved treatment should occur (HTP)
- Identifying impacts on existing and planned treatment facilities
- Quantifying capital and operating costs for theselected strategy
- Defining the near terms and long term schedule for key components of the strategy

Existing Treatment Facilities Studied:

- LABOS Terminal Island Water Reclamation Plant (TIWRP) – 30 mgd
- Hyperion Water Reclamation Plant (HWRP) – 450 mgd
- WBMWD Edward C Little (ECL) Plant - 70 mgd
- WBMWD Regional Water Reclamation Facility (CRWRF) – 12 mgd
- LACSD Joint Water Pollution Control Plant (JWPCP)- 400 mgd

Relevance to Joint Powers Authority

- Stakeholder Engagement
- Workshop Facilitation allowed for consensus on Project Goals
- Developed a Strategy for the implementation of Recycled Water in the Harbor Area

OWNER'S CONTACT NAME AND ADDRESS:
City of Los Angeles, 111 North Hope St, Los Angeles, CA 90012

CONTACT PERSON/PHONE:
Anselmo Collins, Assistant Director, (213) 276-8218

PROJECT COSTS AT PROJECT COMPLETION: $280k

COMPLETION DATE: *2014*

NAMES OF KEY TEAM PERSONNEL FOR THIS PROJECT:
Steven Weber, James Stahl, Sarah Munger, Geoff Carthew, Ron Gastellum, Richard Plecker

Plan of Operation for Secondary Treatment

Orange County, CA

MWH was retained by OCSD to prepare a Plan of Operation for Secondary Treatment (POST). The POST was prepared to determine commitments to supply 100 mgd of secondary effluent (increasing to 135 mgd in 2016) to the Orange County Water District for the Ground Water Replenishment System. The preliminary operations strategies were focused on assuring a cost-effective and environmentally sound operation. Engagement of District staff from executive management, operations, engineering, maintenance, permitting and finance in multiple workshops developed options, considered the benefits and disadvantages and worked towards consensus decisions about the best strategy for the District.

The major conclusion was that all or a portion of each of the five existing secondary processes at the District's two facilities should be maintained in operation at all times to allow treatment capacity to be increased on short notice to accommodate wet weather flows. This strategy was also determined to be the least costly from an operations and maintenance perspective. A total of twenty specific recommendations were made to provide guidance and operational trigger points for the District in the use of their secondary treatment facilities.

Leadership

Workshop facilitation techniques allowed for an open environment for **all levels of OCSD staff to express opinions** and arrive at a plan for the operation of Plant 1 and Plant 2.

Relevance to Joint Powers Authority

- Workshop Facilitation allowed for the development of operation strategy for both Plant 1 and Plant 2 while maintaining full secondary compliance
- Workshop format engaged all levels and groups of OCSD staff

OWNER'S CONTACT NAME AND ADDRESS:
Orange County Sanitation District, 10844 Ellis Avenue, Fountain Valley, CA 92708

CONTACT PERSON/PHONE:
Jim Ruth, General Manager (retired)
(714) 504-3761

PROJECT COSTS AT PROJECT COMPLETION: $125k

COMPLETION DATE: *2011*

NAMES OF KEY TEAM PERSONNEL FOR THIS PROJECT:
Sarah Munger (Project Manager), Geoff Carthew, James Stahl

Advanced Treatment Program Central Campus

Las Vegas, NV

Since 1999, MWH has been actively involved in the planning and design of treatment options related to the Central Plant Campus of Clark County Water Reclamation Facility. Over this period, MWH has planned and designed a total of 130 mgd of granulated media filters with UV disinfection and an additional 60 mgd of membrane and ozone infrastructure to address regulatory requirements for more stringent nutrient removal and disinfection. These projects evaluated and demonstrated numerous technologies to determine the most effective technologies to address the concerns of the regulatory and environmental stakeholders.

These integrated projects and processes needed to balance the rehabilitation and expansion of the central plant campus as well as the long term effectiveness and desirability for the removal of nutrients and other pollutants as me be required in the future. The Clark County Water Reclamation District (CCWRD) currently utilizes tertiary filtration, using media (sand/anthracite) filters; and disinfection, using low-dose medium pressure ultraviolet light (UV), to meet current effluent standards. However, as standards for phosphorus and disinfection become more stringent, these processes will need to be upgraded.

The major conclusion was that all or a portion of each of the five existing secondary processes at the District's two facilities should be maintained in operation at all times to allow treatment capacity to be increased on short notice to accommodate wet weather flows. This strategy was also determined to be the least costly from an operations and maintenance perspective. A total of twenty specific recommendations were made to provide guidance and operational trigger points for the District in the use of their secondary treatment facilities.

Facilitation

Facilitation Approach has allowed the team and the client to address regulatory and construction constraints as they arise saving both time and money.

Unique to this project, MWH brought for the first time immersive 3-D design to a wastewater treatment facilty. At the request of the owner, MWH utilized the latest in Bently design technology and integrated the design into a graphics engine that allowed the design to be projected within a 6 sided CAVE tm at the Desert Research Institue in Reno, Nevada. The use of this technolgy and associated tools allowed the design team and shareholders to come to consensus through multiple immersive tours of the facility and associated workshops.

Relevance to Joint Powers Authority

- Environmental solution provides for waste minimization
- Workshop facilitation assisted in locating new facilites adjacent to the existing AWT tertiary treatment and distribution facilities and fully integrate with on-going operations

OWNER'S CONTACT NAME AND ADDRESS: *Clark County Water Reclamation District, 5857 E. Flamingo Rd., Las Vegas, NV 89122*

CONTACT PERSON/PHONE: *Sam Scire, (702) 668-8141*

PROJECT COSTS AT PROJECT COMPLETION: $275M

COMPLETION DATE: *On-going*

NAMES OF KEY TEAM PERSONNEL FOR THIS PROJECT: *Steven Weber, James Borchardt, Sarah Munger*

Strategic Planning Assessment for Regional Use of Purfied Recycled Water

Los Angeles, CA

MWH performed a screening level evaluation of potential options for regional indirect potable reuse (IPR) in Los Angeles County using highly purified advanced treated water from Los Angeles County Santitation District (LACSD) and to recommend which options should be the subject of a more focused investigation. LACSD indicated that up to 200 million gallons per day (mgd) of wastewater is available from the Joint Water Pollution Control Plant (JWPCP) in southwestern Los Angeles County, however, further studies were required to determine of the possibilities other viable sources, including potential scalping plants.

Engagement

Through the engagement of Stakeholders and Agencies allowed the project team to **successfully analyse three** options for regional indirect potable reuse.

Two types of IPR concepts were evaluated in this assessment, groundwater replenishment/extraction (GWR) and reservoir augmentation (RA). For both applications, the production of highly purified water would utilize multiple treatment processes including at a minimum micro-filtration, reverse osmosis, and advanced oxidation. The three primary options were presented:

- ***Option 1*** – Conventional Groundwater Replenishment by Metropolitan's Member Agencies: Metropolitan delivers water to its customer agencies for recharge in the West Coast, Central, Main San Gabriel and Raymond Basins to meet replenishment needs and allow increased extraction and use of groundwater by overlying water purveyors. Option 1A involves working within the existing basin adjudications and Option 1B involves expanding delivery if amendments to the existing adjudications are made.
- ***Option 2*** – Groundwater Storage and Export by Metropolitan: Metropolitan recharges highly purified water into the Main San Gabriel Basin for extraction of groundwater and delivery into Metropolitan's raw water pipelines, and treatment at the Weymouth and Diemer Filtration Plants before delivery into Metropolitan's regional treated water system.
- ***Option 3*** – Metropolitan Surface Water Reservoir Storage: Metropolitan delivers highly purified water into a new surface reservoir for blending with untreated imported water and delivery into Metropolitan's raw water pipelines, and treatment at one of Metropolitan's existing treatment plants.

There were a number of legal, technical, institutional, regulatory, environemental, and public acceptance issues tht had to be addressed before any of the options could be implemented. The project developed a ranking and costing of each of the options.

Relevance to Joint Powers Authority

- Reservoir Siting and Sizing was required to evaluate one of the options
- Stakeholder Engagement was needed to address the needs of multiple agencies as well as the public
- Recycled Water Use – several various end uses were evaluated as part of this study

OWNER'S CONTACT NAME AND ADDRESS: *Metropolitan Water District of Southern California, 700 N. Alameda St, Los Angeles, CA 90012*

CONTACT PERSON/PHONE: *John Bednarski, (213) 217- 5526*

PROJECT COSTS AT PROJECT COMPLETION: $230k

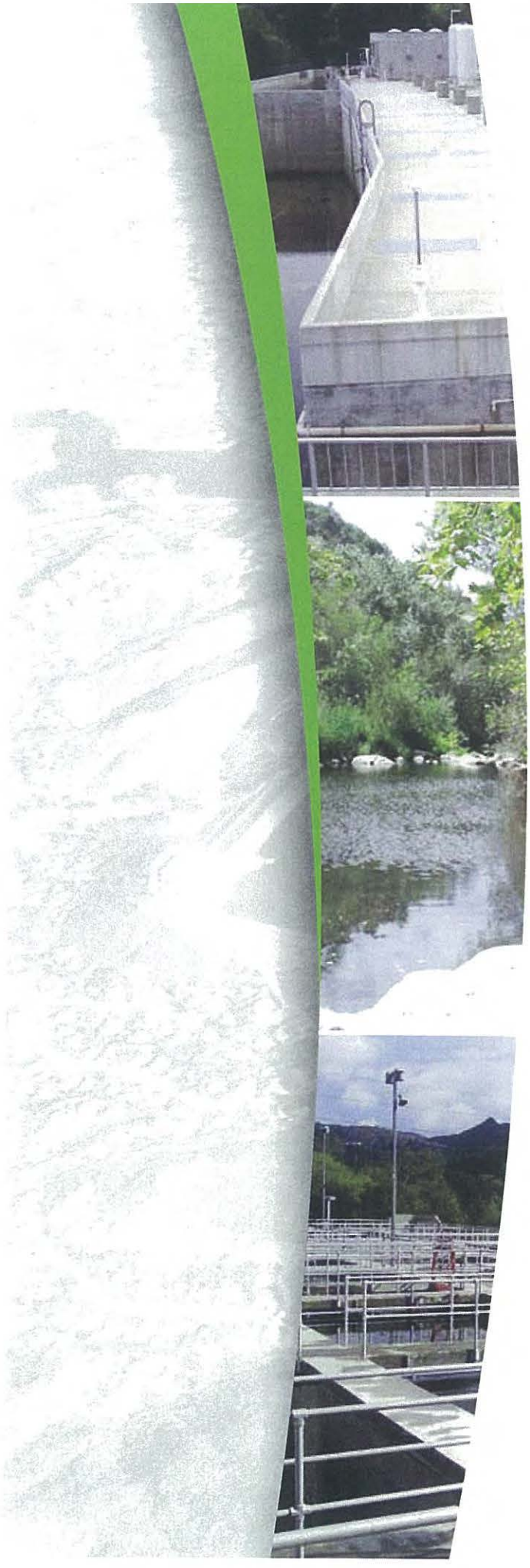
COMPLETION DATE: *2010*

NAMES OF KEY TEAM PERSONNEL FOR THIS PROJECT: *Ron Gastellum, James Stahl*

Project Name/ Client Name/Location	Strategic Planning	Facilitation and Strategy	Public Relations	Stakeholder Engagement	Regulation & Permitting	Environmental CEQA/NEPA	Land Acquisition	Financing	Funding	Dams and Reservoirs	Recreation	Wastewater Treatment	Advanced Treatment	Recycled Water & Reuse	Conveyance Facilities	Water Quality
Los Vaqueros Dam and Reservoir, CCWD, CA	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦		♦		♦	♦
Recycled Water Implementation Study, LADWP & LABOS, CA	♦	♦	♦	♦	♦	♦	♦	♦	♦			♦	♦	♦	♦	
Groundwater Reliability Improvement Project, Upper San Gabriel Valley Municipal Water District, CA	♦		♦		♦	♦			♦	♦		♦	♦	♦		♦
Santa Monica Bay Stormwater Permitting, Los Angeles County, CA	♦	♦	♦	♦	♦	♦					♦					♦
Advanced Treatment Program Central Campus, CCWRD, NV	♦	♦	♦	♦	♦				♦			♦	♦	♦	♦	♦
Olivenhain Dam Project, SDCWA, CA	♦	♦	♦	♦	♦	♦	♦	♦		♦	♦					♦
Temperance Flat Dam, USBR	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦	♦				♦	♦
Strategic Planning Assessment for Regional Use of Purified Recycled Water, MWD & LACSD, CA	♦	♦	♦	♦	♦			♦	♦	♦		♦	♦	♦	♦	♦
San Vicente Dam Raise, SDCWA, CA	♦	♦	♦	♦	♦	♦	♦	♦		♦	♦				♦	♦
Phase II Recycled Water Program, IEUA, CA	♦	♦	♦	♦	♦		♦	♦		♦		♦	♦	♦	♦	♦
Chino Desalter No. 1, CDA, CA	♦		♦	♦	♦	♦	♦	♦				♦			♦	♦
Pacoima Dam Improvements, LACDPW, CA	♦	♦	♦	♦	♦	♦		♦		♦						
Recycled Water Distribution Expansion Project, LBWD, CA		♦	♦	♦	♦	♦	♦	♦			♦	♦	♦	♦	♦	♦
Big Tujunga Dam Rehabilitation, LA County, CA	♦	♦	♦	♦	♦			♦	♦	♦						
Phase IIA Whittier Narrows Recreation Area Recycled Water Program, USGMWD, CA	♦	♦	♦	♦	♦	♦		♦	♦	♦	♦	♦	♦	♦	♦	♦
Stormwater Permitting Compliance Study, Clark County, NV	♦	♦	♦	♦	♦	♦					♦					♦
Terminal Island Future Utilization Concept Report, Los Angeles, CA	♦	♦	♦	♦	♦			♦	♦			♦	♦	♦	♦	♦
Phase 2 - Membranes and Ozone Advanced Water Treatment Facility, CCWRD, NV	♦	♦	♦	♦	♦			♦				♦	♦	♦	♦	♦
Recycled Water Master Plan, Sacramento Regional County Sanitation District, CA	♦	♦	♦	♦	♦	♦	♦	♦			♦	♦	♦	♦	♦	♦
Ocean Desalination Demonstration Study, WBMWD, CA	♦	♦	♦	♦	♦	♦	♦	♦	♦				♦		♦	♦
Ortega Reservoir, Preliminary Design Report, Orange County, CA	♦									♦	♦	♦	♦	♦	♦	♦
Plan of Operation of Secondary Treatment, Orange County, CA	♦	♦		♦	♦							♦	♦	♦	♦	♦

ITEM 5A

69



Appendix

ITEM 5A

MWH

BUILDING A BETTER WORLD

MWH Americas, Inc.

Corporate Headquarters

370 Interlocken Boulevard, Suite 300

Broomfield, CO 80021

Phone: (303) 410-4000

Pasadena Office

300 North Lake Avenue, Suite 400, 1040

Pasadena, CA 91101

Phone: (626) 796-9141

Principal: Steven Weber, PhD

Vice President and Southwest Business Unit Leader

Email: Steven.P.Weber@mwhglobal.com

Phone: (702) 821-4310

MWHGLOB-01 NEALDO

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 7/22/2014

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Willis of Colorado, Inc. c/o 26 Century Blvd P.O. Box 305191 Nashville, TN 37230-5191	CONTACT NAME: PHONE (A/C, No, Ext): (877) 945-7378 FAX (A/C, No): (888) 467-2378 E-MAIL ADDRESS:
INSURED MWH Global Inc. MWH Americas, Inc. MWH Constructors, Inc. 380 Interlocken Crescent, Ste 200 Broomfield, CO 80021	INSURER(S) AFFORDING COVERAGE — NAIC # INSURER A : Travelers Indemnity Company — 25658 INSURER B : Travelers Property Casualty Company of America — 25674 INSURER C : INSURER D : INSURER E : INSURER F :

COVERAGES CERTIFICATE NUMBER: REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS		
A	GENERAL LIABILITY [X] COMMERCIAL GENERAL LIABILITY [ ] CLAIMS-MADE [X] OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: [ ] POLICY [X] PRO-JECT [X] LOC	X		VTC2K-CO-5643B790-IND-13	8/31/2013	8/31/2014	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ $ $ $ $ $	1,000,000 300,000 1,000,000 2,000,000 2,000,000
B	AUTOMOBILE LIABILITY [X] ANY AUTO [ ] ALL OWNED AUTOS [ ] HIRED AUTOS [ ] SCHEDULED AUTOS [ ] NON-OWNED AUTOS			VTC2JCAP5643B808TIL13	8/31/2013	8/31/2014	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ $ $ $	1,000,000
	[ ] UMBRELLA LIAB [ ] OCCUR [ ] EXCESS LIAB [ ] CLAIMS-MADE [ ] DED [ ] RETENTION $						EACH OCCURRENCE AGGREGATE	$ $	
B	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y/N [N] (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	N/A		VTC2KUB5643B81A13	8/31/2013	8/31/2014	[X] WC STATU-TORY LIMITS [ ] OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ $ $	1,000,000 1,000,000 1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

Las Virgenes Water District and LASWP, its elected, appointed boards, officers, agents and employees are included as an Additional Insured as respects to General Liability Coverage.

CERTIFICATE HOLDER

Las Virgenes Water District
4232 Las Virgenes Road
Calabasas, CA 91302

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

ITEM 5A

Steven (Steve) Weber, PhD

Project Manager

Dr. Weber has over 20 years of professional experience in the field of water resources and environmental management in both the private and public sectors. As a research scientist and resource manager, Dr. Weber has successfully developed and implemented plans to monitor, restore, and protect various water resources for governmental agencies, homeowner associations, land developers, private interests, and Native American tribes. Dr. Weber's current area of practice focuses on the use of advanced treatment methods to address the need for higher quality effluent to meet new regulatory requirement. As an applied thinker, Dr. Weber has the innate ability to synthesis complex issues into simple stories that both the technical and non-technical members of our society can understand.

EDUCATION

PhD, Environmental Science, University of Nevada – Las Vegas

MS, Water Resources Management (Limnology), University of Wisconsin – Stevens Point

BA, Water Resources Management (Watershed Management), University of Wisconsin – Stevens Point

MEMBERSHIPS/ AFFILIATIONS

Member, North American Lake Management Society

Member, American Society of Limnologist and Oceanography

Member, American Fisheries Society

Member, Association of State Dam Safety Officials

Trustee, Desert Research Institute

Board Member, Las Vegas Valley Clean Water coalition Citizen Advisory Board

Board Member, Lake Mead Water Quality Forum (LMWQF)

Board Member, Las Vegas Wash Coordination Committee (LVWCC)

Technical Advisor, Friends of the Desert Wetlands Park

Relevant Project Experience

Client Service, Lake Management Project, Lake Las Vegas, Henderson, NV

Lake Las Vegas owns and operates a 320 acre multi-use reservoir. Dr. Weber provides services to this client related to: reservoir water quality, federal and state permitting, fisheries management, dam and reservoir operations and vector control. Key project elements include: water budget and reservoir level programming, facilitating federal, state, and local permits; directing compliance monitoring and reporting; directing the annual fish stocking program; directing maintenance of staff on aquatic plant control programs; developing habitat projects; assessing and developing a program to address quagga mussel invasion and represent needs within the local community.

Principal-in-Charge, Modification, Lake Las Vegas, Henderson, NV

Dr. Weber served as Principal-in-Charge and oversaw the design for this project. MWH prepared a computational fluid dynamics (CFD) 3-dimensional model, reservoir routing analysis, final design report, construction plans and technical specifications, and engineering services during construction for the Lake Las Vegas Spillway modification. The proposed improvements consisted of modifying the existing reinforced concrete service morning glory spillway structure at Lake Las Vegas Dam to accommodate two new 65-ft long, 4.5-ft high Obermeyer hydro pneumatic weir gates, and associated lake level monitoring equipment. The two long sides of the service spillway ogee crest were cut down to 5.5-ft to accommodate the weir gates. Included in the design was a control system to operate the new Obermeyer weir gates in either manual or lake level control conditions. The civil portion of the project included embankment grading, detailed pneumatic airline yard piping layout, siting and detailing of a 48-inch diameter, 25-foot deep precast concrete stilling well that houses lake level sensor equipment, preparation of demolition plans, and detailing the temporary sheet pile coffer dam. The scope also included submitting a formal Letter of Map Revision (LOMR) Request to the Federal Emergency Management Agency (FEMA) to lower the lake's effective base flood elevation in order for flood insurance maps (FIRM's) could be updated to reflect the spillway modification.

Lead Design, Spillway Conceptual Alternatives, Lake Las Vegas, Henderson, NV

This study, in partnership between RBF and MWH, assessed alternatives that provide flexibility in the reservoir operations and management. Dr. Weber led the team that developed

the conceptual alternative design considerations for the Henderson Dam and associated spillways. This study was conducted to determine the feasibility of routing additional storm flows through the reservoir that have resulted from recent changes in the FEMA approved hydrology. These modifications needed to effectively double the existing spillway capacity and mitigate for the changes in the surrounding land use's base flood elevation.

Environmental Design, Water Rights Project, Lake Las Vegas, Henderson, NV

Dr. Weber worked with the Nevada Division of Water Resources and local water purveyors to preserve subsurface and surface water rights and develop alternative strategies to create applications for beneficial use.

Principal-in-Charge, Conditional Letter of Map Revision (CLOMR), Lake Las Vegas, Henderson, NV

Dr. Weber served as Principal-in-Charge and oversaw the study and design related to the preparation of a CLOMR that reduced the 100-year Base Flood Elevation of Lake Las Vegas. Elements of this submittal included the restudy of the hydrology of the lower Las Vegas Wash and the design and permitting of two rubber dams within one of the dam's spillways. Dr. Weber facilitated agency coordination and submittals.

Principal Scientist, Ortega Reservoir Planning Study, Santa Margarita Water District, CA

Dr. Weber was the principal scientist of the project consisting of the preliminary design for a 90 acre, reservoir with an approximate volume of 5,196 acre-feet. The reservoir will store reclaimed water for future non-potable use. During preliminary design the reservoir was designed with multiple inlet / outlets to fill and withdraw the water at different elevations. Generally water will be filled and stored during the winter months and withdrawn for use during the summer months. Dr. Weber oversaw the preparation of the water quality report for the reservoir which consisted of water quality characteristics and recommendations, design and recommendations for vegetation and algae control. Recommendations also provided feasible oxygenation/aeration options for the reservoir.

Principal-in-Charge, Advanced Wastewater Treatment (AWT) Membrane/Ozonation Facilities – Phase 1, Clark County Water Reclamation District, NV

Dr. Weber serves as Principal-in-Charge for engineering services during construction for the 30 mgd demonstration facility to treat secondary effluent using tertiary membranes followed by ozone disinfection. The goal of the project is to determine the effectiveness in removal of endocrine disrupting compounds (EDCs), pharmaceuticals and personal care products (PPCPs). Previous pilot testing indicates that the selected processes will effectively meet the project goal; however, the demonstration project will prove this at a larger scale. Construction cost for this project is $55 million.

Lake Planning and Design, Waterman Junction, Suncal Corporation, Barstow, CA

Dr. Weber led a team of engineers and planners that developed a design of a 200 acre recreation reservoir/lake that would utilize reclaimed water as its water source. Dr. Weber and his team worked with the client's planning team to integrate the land plans for the Waterman Junction community with the water resources demands of the project, and utilizing the reservoir to meet the peak irrigation demands for golf course and landscape needs. Waterman Junction is an approximately 7,000 acre mixed use master planned community being developed by Suncal.

Lake Planning and Design, South Lake Reservoir and Park, City of San Marcos, CA

This project consisted of the design of a recreational area that includes the enhancement **of an existing 145 acre lake.** Dr. Weber led the preparation of a lake management and operation plan, a water quality technical report and fish stocking recommendations and habitat restoration recommendations.

Lake Planning and Design, Redwood Saltworks, DMB Associates, CA

Dr. Weber led the effort for the preparation of the lake management and operation plan, aquatic plant and algae control recommendations, sediment control, and habitat restoration recommendations. The Project consisted of the design of conceptual water feature management plan for a 55 acre, 285 acre-foot volume and 5 foot depth water feature for a proposed 1,436 acre development. The water feature was to serve as a flood control storage area and to improve water quality. Ultimately the Developer withdrew their application to build the project in 2012.

James (Jim) Borchardt, PE

MWH

Technical Coordinator

Mr. Borchardt has more than 37 years of experience in project management and engineering for large water treatment, conveyance, and storage facilities. He has managed more than 100 projects with total construction value of over $2.0B. In addition to managing projects, Mr. Borchardt serves as MWH Water Technology Director with expertise in water quality studies, facility planning, process evaluation, site development, hydraulic analysis, design, construction management, startup, and operation of water facilities. Mr. Borchardt has served as Technical Director on more than 200 water supply and treatment facilities throughout the United States, Asia, and Europe.

EDUCATION

MS, Environmental Engineering, University of North Carolina at Chapel Hill

BS, Civil Engineering, Colorado State University

LICENSES/ REGISTRATIONS

Professional Engineer (Civil and Environmental)

– CA, CO, NV

MEMBERSHIPS/ AFFILIATIONS

Member, International Ozone Association (IOA)

Life Member, American Water Works Association (AWWA)

Member, Water Environment Federation (WEF)

Member, American Society of Civil Engineers (ASCE)

Member, Chi Epsilon – Civil Engineering Honor Society

Relevant Project Experience

Project Manager, Advanced Water Treatment (AWT) Membrane/Ozonation Facilites, Clark County Water Reclamation District, NV

Mr. Borchardt served as project manager for the detailed design of new AWT facilities to provide low phosphorus and high levels of disinfection and PPCP control for secondary effluent from the District's Central Plant. The project included drum screens, UF membrane filtration, and ozonation for an initial capacity of 30 mgd average daily flow and 42 mgd peak wet weather flow. Planning for subsequent phases of the work included retrofitting the adjacent existing gravity filter structure for membranes and expanding the facility up to 150 mgd.

Water Quality Engineer, San Luis Reservoir Low Point Improvement Project, US Bureau of Reclamation/Santa Clara Valley Water District, Merced County, CA

Mr. Borchardt served as Technical Director for this evaluation of low water storage levels in San Luis Reservoir, the largest off-stream reservoir in the world. At water levels below 300,000 ac-ft. water delivered by the San Felipe Unit of the CVP was restricted by algae blooms, caused by high water temperatures combined with wind-induced mixing. This condition also resulted in taste and odor problems and the fouling of drip irrigation systems. An appraisal report was prepared defining the issues in a manner acceptable to all parties, allowing a feasibility study to proceed. Also prepared was a work plan for a feasibility study to be jointly led by Reclamation, Santa Clara Valley Water District, and the San Luis Delta Mendota Water Authority.

Program Director, Projects P-1045 and P-1046, U.S. Navy SWDIV, Camp Pendleton, CA

Mr. Borchardt served as Program Director for the US Navy for two related water projects. The P-1045 Project is designed to allow Camp Pendleton to take water from two different water treatment plants at opposite ends of the base and transfer it to different pressure zones based on system demand. It consists of 126,000 linear feet of 20-inch HDPE water transmission pipeline, a 5 MGD pump station, a 2 MGD pump station, a 1.4 MGD pump station, a 3 MG concrete reservoir, and a pressure reducing station. The P-1046 Project including over 93,000 ft of recycled water piping, 7,000 feet of new sewer, decommissioning of a sewage treatment plant, a new sewage transfer pump station, 4 sewage lift stations, a recycled water treatment plant (MF/RO), 3 new storage tanks and 2 recycled water distribution pump stations. Each of the projects consisted of preparing a 60% RFP design-build package.

Project Manager, Polonio Pass WTP, Central Coast Water Authority, CA

Mr. Borchardt served as project manager for the startup of the 43-mgd Polonio Pass WTP and the Coastal Branch of the California State Water Project. This $450M facility was

designed to treat and deliver potable water through San Luis Obispo and Santa Barbara Counties. At the start of this project, the Authority had only two full-time staff members (General Manager and Secretary), and no operations personnel. Work involved hiring an Operations Manager, developing a plan of operation for organizing a new department, hiring and training staff, developing operating budgets, obtaining required permits, and coordinating distribution water quality issues for the 17 communities receiving the new surface water supply. Start-up of the facilities required extensive coordination with customers; the Department of Water Resources; the individual contractors building segments of the project; and the Authority's new staff, Operations Committee, and Board of Directors.

Project Manager, Surface Water Treatment Facility, City of Fresno, CA

As project manager, Mr. Borchardt led a team whose responsibilities included site development and master planning, water supply planning, pipeline routing, predesign studies, bench-scale testing program, preparation of a watershed sanitary survey, detailed design, construction support, and start-up engineering services for this surface water treatment facility. Other key issues included satisfying regulatory requirements for the raw water supply, permitting, maintaining distribution system water quality during introduction of a surface water supply into a groundwater system, and staffing and start-up of the City's first surface water treatment facility. This project was located adjacent to neighborhood schools, and Mr. Borchardt spent significant time leading public meetings to address both aesthetic and safety concerns, and to develop an acceptable architectural concept.

Project Manager, West Portal WTP, City and County of San Francisco, CA

Mr. Borchardt served as the project manager for the planning and conceptual design of a new 280-mgd WTP with pre-ozonation for the Hetch Hetchy, Calaveras, and San Antonio water supplies. He supervised the work of more than ten subconsultants during the project, and led the team in the completion of extensive siting analyses due to difficult terrain, pipeline routing, tunnel connections, process design, storage analyses, reliability analysis, facility staging, cost-estimating, and integration of the new plant with the Water Supply Master Plan and Phase IA Improvements at the Sunol Valley WTP.

Project Manager, Water Treatment Plant Expansion and DBP Control Project, Antelope Valley East Kern Water Agency, Palmdale, CA

Mr. Borchardt managed conceptual, preliminary design, pilot studies, design, construction, and start-up services for the expansion and upgrade of four water treatment plants ranging in size from 4 to 90 mgd. The four treatment plants (Quartz Hill, Eastside, Acton, and Rosamond) were upgraded to include intermediate ozonation, deep-bed GAC filtration, and chloramines. Standby disinfection was also provided with the addition of chlorine contact basins. In addition, the largest treatment plant was expanded to 90 mgd by the addition of plate settler modules and new sludge removal mechanisms to the existing sedimentation basins. This $90M project included management of

Project Manager, Los Vaqueros Reservoir Oxygenation Project, Contra Costa Water District, CA

Mr. Borchardt served as project manager for the conceptual design and development of bid documents for a hypolimnetic oxygenation system to achieve water quality improvements in the Los Vaqueros Reservoir. Anoxic conditions in the hypolimnion of the reservoir resulted in the release of nutrients and metals from the reservoir sediments, causing high algae counts and dissolved iron and manganese to disrupt the District's treatment plants. The work included a series of facilitated workshops to evaluate alternative systems and resolve conflicts with planned recreational facilities at the Reservoir. A linear diffuser system was ultimately selected with LOX storage at the base of the dam, so that truck traffic and security could be safely maintained away from visitor areas. The final tasks included development of a preliminary design report and request for proposal, which were used to successfully procure a design-build contractor.

Technical Director, Jensen Solids Handling Facilities Project, Metropolitan Water District of Southern California, CA

Mr. Borchardt served as technical director for the solids handling facilities project at the 750-mgd Jensen WTP. In this role, he was responsible for managing all technical aspects of the project, including concept development, discipline engineering, and presentation of results to Metropolitan Water District. Preliminary design was completed for equalization, thickening, four pump stations, temporary and permanent lagoons, belt presses, and elevated storage hoppers and conveyors for processing up to 40 tons of dry weight solids per day.

Sarah Munger, PE, PMP

Assistant Project Manager / Water Quality and Reuse

Ms. Munger is an expert project manager with eleven years of experience. She is familiar with Microstation, H2Omap, and ARC GIS, and she is experienced in Preliminary and Final Designs. Her areas of focus include Hydraulic Modeling, and she is an excellent problem-solver with strong analytical skills, and efficient project management and organizational skills.

EDUCATION

MS, Environmental and Civil Engineering, California Polytechnic State University

BS, Environmental Engineering, California Polytechnic State University

LICENSES/ REGISTRATIONS

Professional Engineer (Civil)

– CA, NV

Project Management Professional – Project Management Institute

Relevant Project Experience

Project Manager, Recycled Water Feasibility Study, City of Signal Hill, CA

Ms. Munger directed the development of a recycled water feasibility study for the City of Signal Hill. Ms. Munger assisted the City in receiving a grant from the State of California to conduct this study. As part of the study Ms. Munger conducted a market assessment for recycled water within the City, developed a mandatory use ordinance as well as a pricing structure for the recycled water. Ms. Munger coordinated with internal staff that will provide the appropriate environmental documentation. Ms. Munger was also responsible for regular updates with the client as well as the monthly financial reports and invoices.

Various Roles, Facility Planning Report, City of Santa Paula, CA

Ms. Munger developed a Facilities Planning Report for the City of Santa Paula's Recycled Water Distribution System. Ms. Munger's responsibilities include customer development, recycled water market assessment, field verification of pipeline alignments and customer points of connection, in addition to the development of the recycled water distribution system.

QA/QC Assistant, Conceptual Design of Advanced Water Treatment Plant (AWTP) and Distribution Systems for Treatment of Tertiary Wastewater Effluent for Groundwater Recharge, Upper San Gabriel Valley Municipal Water District, CA

Ms. Munger assisted as part of quality assurance/quality review team for this recycled water demonstration project for the USGVMWD. The objective of this project is to evaluate the feasibility of constructing an advanced water treatment plant (AWTP) to produce 41-MGD of clean effluent using tertiary wastewater effluent from the San Jose Creek Water Reclamation Plant (SJCWRP) as feed water. The clean effluent will be used to recharge the groundwater in the San Gabriel Basin. Due to the stringent requirements for groundwater recharge in California, the AWTP will include state-of-the-art treatment technology including Microfiltration (MF), Reverse Osmosis (RO), an Advanced Oxidation Process (AOP) based on Ultraviolet light and Hydrogen Peroxide addition (UV/H2O2), and water conditioning using decarbonation and lime addition for pH, alkalinity and corrosion control. Ms. Munger provides support to the team to (i) identify compounds of concern in SJCWRP effluent, (ii) prepare a conceptual development plan for the AWTP, including detailed process design, site layout and conceptual level cost estimates, (iii) evaluate potential implementation timelines and staged construction for treatment units with capacity of 17 MGD (19,440 AFY) in the first stage and ultimately 41 MGD (46,000 AFY), and (iv) prepare a Local Resources Program (LRP) funding application with supporting documentation, and apply to require funding assistance from various agencies.

Project Engineer, P2-89 Solids Thickening and Processing Upgrades, Orange County Sanitation District, CA

Ms. Munger contributed as a project engineer on the design of the dewatering upgrades at the Orange County Sanitation District Plant No. 2. Ms. Munger's primary responsibility has been

the development of the commissioning documents for the Digester Rehabilitation and the utilities. This requires the development for testing documents for each phase of the commissioning, operational reliability tests, factory acceptance test, and reliability acceptance test. These documents provide both instructional guidance to the contractor on how to test as well as forms that the contractor has to fill out to ensure that every I/O point has been tested, after installation, with clean water and finally with sludge. The development of these documents requires careful coordination with the work sequencing of the project as well as with the subconsultant that designed the upgrades to the DAFT system.

Task Lead, Regional Water Quality Control Plant Expansion, City of Riverside, CA

Ms. Munger conducted an analysis of membrane vendors that could fit their product within the confines of the secondary clarifiers at the plant. This analysis included the vendors' experience of similar size projects, installations within the USA, and technical support. A sensitivity analysis was also conducted to determine which of the top three vendors would be invited to propose on the project. Ms. Munger also worked with the consultant that was hired by the City of Riverside to design the plant expansion on the development of the Request for Proposals from the selected vendor and development of the Membrane Supplier Services Agreement that will be assigned to the General Contractor. This process was also repeated for four other pieces of equipment that the City has decided to sole source.

Project Engineer, Terminal Island Treatment Plant Future Utilization Concept Report, City of Los Angeles Bureau of Engineering, Los Angeles, CA

Ms. Munger worked with the City of LA, Bureau of Engineering, Bureau of Sanitation, Department of Water and Power and several NGOs on developing alternatives associated with the future use of the Terminal Island Treatment Plant and the Advanced Wastewater Treatment Facility. The objective was to identify three or four uses of TITP and the AWTF to best serve the long term interests in providing wastewater and recycled water services in the Harbor Area. This included meeting with several refineries and specialty customers that had specific water quality requirements. Ms. Munger used a cost analysis, ranking system and a sensitivity analysis to identify which of the 23 alternatives best suited the long term interests of the City. Ms. Munger also assisted in the facilitation of the workshops among all interested parties in identifying a long term solution.

Project Manager, Membrane Phase 2, Clark County Water Reclamation District, NV

Ms. Munger is currently leading three projects within this program. These three projects consist of the design and relocation of the chemical facility for the tertiary treatment facilities, the design of the screening facility located upstream of the membrane facility and the procurement of the 30 mgd membrane system and the 30 mgd ozonation system. Each of these projects requires the coordination of the design disciplines and in the case of the procurement it requires coordination and negotiation with the equipment vendors.

Project Manager, IPS Backup Pump Study, Los Angeles Bureau of Engineering, CA

Ms. Munger oversaw project management of a study of the intermediate pump station back pump evaluation. This study evaluated several locations within the Hyperion Treatment plant for a backup pump station for the IPS. Each of the five locations were evaluated based on a set of selection criteria that included, cost, ease of construction, noise, impact to the treatment plant and hydraulic capacity. A sensitivity analysis was performed to ensure that the recommended option was truly the best alternative of those evaluated.

Project Manager, Tertiary Filter Rehabilitation Study, Los Angeles Bureau of Engineering, CA

Ms. Munger drove the project management of the Tertiary Filter Rehabilitation Study at the Terminal Island Water Reclamation Plant. This study evaluated the current condition of the filters and identified alternatives technologies that could replace the filters. The study concluded with a recommendation that it was best to rehabilitate the existing filter and either return them to the original dentirfying condition or conventional condition. This study turned into preliminary and detailed design that is on-going.

Eric Mills, PE, PMP

MWH

QA/QC

Mr. Mills has 20 years of experience with roles spanning from Project Manager, Project Engineer, and Lead Civil Engineer. Although much of his work has been completed in California, Mr. Mills has worked overseas in Argentina and Honduras, which included the development of a master plan for the world's largest privatized water and sewer concession. In addition to facilitating Risk Assessment Methodology (RAM), he has led strategic review of basic IPR concepts, and reviewed the preparation of plans for public works facilities including sewers, wastewater lines, waterlines, and various utility improvements; checked plans for conformance with regulations; verified calculations.

EDUCATION

BS, Civil Engineering, University of Arizona

General Management Program, Harvard Business School

LICENSES/ REGISTRATIONS

Professional Engineer (Civil)

– CA

Project Management Professional – Project Management Institute

Relevant Project Experience

Project Manager, Joint Groundwater Replenishment Study, Metropolitan Water District of Southern California (MWDSC) and the County Sanitation Districts of Los Angeles County (LACSD), Carson, CA

MWDSC and LACSD formed a partnership to assess the potential for augmenting potable supplies with highly purified effluent from LACSD's Joint Water Pollution Control Plant (JWPCP) in Carson, California through a program of indirect potable reuse (IPR). Mr. Mills led the first phase of the assignment to provide a strategic review and assessment of the basic IPR concepts using the JWPCP as a source of purified water for either conventional groundwater replenishment, groundwater recharge and export, or reservoir augmentation. The strategic review and assessment recommended that MWDSC and LACSD further evaluate groundwater storage and export and reservoir augmentation as ways to maximize the amount of water that could be utilized in a regional IPR program.

Project Engineer, Wastewater Collection and Treatment, City of Buenos Aires, Buenos Aires

Mr. Mills served as a project engineer for the development of a master plan for the city of Buenos Aires, Argentina. As a project engineer, Mr. Mills worked for Montgomery Watson Argentina, who is currently supplying engineering services to Aguas Argentinas, the world's largest privatized water and sewage concession. The project, a 30-year massive expansion and rehabilitation effort with an average annual investment program of $200 million, is improving the water supply and sewerage for the 10,000,000 inhabitants of Buenos Aires. The wastewater master plan consisted of a model of Buenos Aires' existing wastewater collection system and the existing water distribution system. This model provides the client with vital information in determining the most economically feasible construction and expansion pattern to serve the entire population of Buenos Aires at the end of the 30-year period.

Project Manager and Lead Facilitator, Vineyard Surface Water Treatment Plant Vulnerability Assessment, Sacramento County Water Agency, CA

Mr. Mills facilitated the Risk Assessment Methodology (RAM) applied to the Vineyard Surface Water Treatment Plant. The resulting risks were reduced through mitigating security elements incorporated into the final design documents.

Project Manager, Expansion of the Anion Exchange Treatment Plant, City of Pomona, CA

Mr. Mills is the Project Manager for the expansion of the City's existing Anion Exchange Plant (AEP). The current plant capacity will be expanded by 2,000 AF/yr as a Dry Year Yield Program sponsored by Metropolitan Water District of Southern California. MWH was the design engineer for the existing AEP currently rated at 15 million gallons per day. Other plant improvements include modifications to the salt storage/brine generation system, a booster pump station, on-site yard piping, and the integration with the existing control system.

Assistant Project Manager, Water & Sewer Master Plan, City of Pomona, CA

Mr. Mills assisted in the project management for the development of integrated water and sewer master plans for the City of Pomona. The project included updating the City's geographical information system (GIS) which served as the basis for water distribution and sewer collection system models. The plans recommended 20-year capital improvement programs totaling nearly $260 million for the Utility Services Department. The primary focus of the CIP is on replacement of aging pipelines.

Contract Manager and Project Manager, Encino Reservoir Microfiltration/Pump Station Facility, Los Angeles Department of Water and Power, CA

Mr. Mills served as contract manager and project manager for the Encino Reservoir Microfiltration/Pump Station Facility for the Los Angeles Department of Water and Power (LADWP). As part of a compliance agreement between the California Department of Health Service, LADWP designed and is constructing a microfiltration plant to remove the Encino Reservoir from direct service to the distribution service. Design included large diameter (42"/54") steel pipelines as inlet/outlet to the microfiltration and pump station. In addition, a large air gap was constructed along the existing 72" reservoir inlet/outlet pipeline. Design responsibilities include the design of all yard piping, vaults, and all site improvements beyond the limits of the microfiltration/pump station buildings. Contract administration duties included management of MWH staff and subconsultants, task scope development, and task management. The contract was recently amended for additional services primarily based on performance.

Interim Utility Services Engineer, Various Projects, City of Pomona, CA

As interim Utility Services Engineer for the City of Pomona, Mr. Mills reviewed the preparation of plans for public works facilities including sewers, wastewater lines, waterlines, and various utility improvements; checked plans for conformance with regulations; verified calculations. Reviewed the plans of consulting engineers and private contractors; made technical engineering decisions and establish technical criteria and standards; and supervised construction. Mr. Mills also attended and helped develop policy decisions for the Chino Basin, Six Basin, and Three-Valleys MWD.

Project Engineer, 7MG Reservoir, City of Santa Maria, CA

Mr. Mills served as the project engineer for the construction support of a 7.0 MG water storage reservoir for the City of Santa Maria. The project includes a partially buried reinforced concrete reservoir with an aluminum roof and wood roof frames adjacent to two existing reservoirs.

Lead Civil Engineer, 25-MGD Treated Water Pump Station Design, Contra Costa Water District, CA

Mr. Mills was Lead Civil Engineer for a 25-MGD Treated Water Pump Station design in the City of Concord, California for the Contra Costa Water District. The Treated Water Pump Station pumps water from the Randall-Bold Water Treatment Plant to the Treated Water Service Area and to the Contra Costa Canal, in the event of an emergency. The water is conveyed through a 42" diameter steel pipeline of over 30 miles in length. This multi-purpose pipeline can be used to not only deliver treated water but also may be used to receive raw water from Contra Costa Canal. The design of the pump station included approximately 750-feet of 36 and 42 inch cement mortar lined and coated steel pipe. The discharge piping is designed to withstand an ultimate operating pressure of 300-psi.

Richard (Rich) Plecker, PE

MWH

Facilitation and Strategy

Mr. Plecker has 28 years of professional and executive management experience in engineering, planning, financial management, and project delivery. He is outgoing, affable and an excellent communicator with significant experience in highly visible and controversial projects and programs involving water, wastewater, and recycled water resources; environmental protection and group facilitation. Mr. Plecker is well-versed in California water resource issues important to California water agencies, including water supply and master planning, conjunctive use planning and operations, and groundwater management. As a former public utility general manager, Rich is a client advocate and fully appreciates the many challenges facing public utilities from a strategy, policy, management and operational perspective.

EDUCATION

BS, Civil Engineering, University of Alaska – Fairbanks

LICENSES/ REGISTRATIONS

Professional Engineer

– CA, NV

MEMBERSHIPS/ AFFILIATIONS

Member, American Water Works Association (AWWA)

Water Environment Federation (WEF)

Member, American Society of Civil Engineers (ASCE)

Relevant Project Experience

Principal-in-Charge and Project Manager, Recycled Water Faculties Plan Development Project, Sacramento Regional County Sanitation District, CA

Mr. Plecker is currently leading a team to advance Regional Sans development in water including 1) a Feasibility Plan Report (10% Design and CEQA Project Description); 2) prepare environmental documentation and permitting approach (CEQA and NEPA); 3) investigate recycled water system institutional and governance options and preferences; and 4) customer development and stakeholder engagement of public agencies, influencers, customers and the public for the SRCSD, City of Sacramento and Sacramento Power Authority (SPA) Project and the South Sacramento County Agriculture (South County Ag) Project. In addition to daily project management duties, Mr. Plecker personally leads the project strategy, customer development and negotiations and the institutional and governance tasks. MWH is also providing 30%, final design services and is leading environmental permitting efforts for the SPA project through a complicated levee and wetlands section of the service alignment, while the $2B EchoWater Program is underway at the Sacramento River Wastewater Treatment Plant.

Project Director and Principal-in-Charge, District 29 Water Supply Master Plan (Malibu), Los Angeles County Department of Public Works, CA

Rich and his team were responsible for establishing the technical direction of the Water Master Plan development including data gathering, GIS and data conversion, user demand analysis, field work, hydraulic modeling, extended period simulation (EPS), project prioritization for CIP development, financial planning and public presentation before a local community committee with diverse interests and positions. Rich directly led the analysis of user rates and impact fees and presenting conventional and alternative financing strategies. The Water Master Plan will be followed up by a more detailed implementation plan that will sequence projects in more detail, consider 3rd party participation, grant funding opportunities. The implementation plan will also include a much more detailed financial plan and provide assistance for securing funds from specific sources.

Program Manager, Regional Water Authority Formation, Sacramento County, CA

Rich was elected to form the Regional Water Authority (RWA) where he was later elected as the first chairperson of the RWA. He led a two-year process of consolidating three regional

organizations/associations into a single, focused organization with more than 18 member agencies. An important part of this effort was recruiting new and significant members to the RWA who had not previously participated in regional efforts due to strongly held attitudes beliefs, and opinions. Rich worked to find common ground and opportunities for members to agree, resolving differences while building interpersonal trust and mutual respect. Rich played an intricate part in helping member agencies receive a $22M Proposition 13 Grant for regional infrastructure improvements. In recognition of his efforts on behalf of forming the RWA, Rich received the Lyle N. Hoag Water Statesperson of the Year Award in 2001.

Principal-in-Charge and Lead Consultant, Western Placer County Groundwater Management Plan (GMP), City of Roseville, CA

Rich established institutional relationships between the agencies, negotiated cost sharing agreements, developed technical objectives in the plan, and assisted in policy development for governing and implementing the ongoing guaranteed maximum price (GMP) effort. He supervised the consulting team in the subject study, which sought to estimate current and historic groundwater extractions in the basin, update the groundwater model, trace historic groundwater elevations, and relate them to current and historic groundwater extraction and hydrology. Under his direction, the team also sought to estimate current natural recharge of the groundwater basin underlying western Placer County based upon current land use and the safe yield of the basin, define potential land use change scenarios and estimate their impacts on groundwater elevations, develop and evaluate groundwater recharge/recovery alternatives for purposes of enhancing the groundwater basin, and identify recharge source alternatives including direct and in-lieu mechanisms with injection and spreading. Rich managed the development and delivery of this study and has presented it numerous times to various technical and political bodies. This study has become the seminal work (and is often referenced) in Placer County for water supply planning that involves using the underlying groundwater basin as a measure to increase the reliability of surface or recycled water supplies.

Principal-in-Charge and Lead Consultant, Central Basin Groundwater Management Plan (GMP), Sacramento County Water Agency, CA

Rich supervised the consulting team in the development of a stakeholder-based GMP and managed stakeholder coordination efforts with the technical consulting team. Significant issues involved educating participants in groundwater management objectives, understanding how surface water interacts with groundwater supplies and how existing and future water uses impact supplies, and water quality considerations for a wide range of constituencies' land uses within a region. This effort was an offshoot of the seven- year Sacramento Water Forum Agreement, which sought to meet the water supply needs of the greater Sacramento region while preserving the environmental values of the Lower American River. The GMP contributed significantly to an Integrated Regional Water Management Plan (IRWMP) that was prepared separately (by MWH) for the region.

Project Manager, Urban Water Management Plan (UWMP) and Water Supply Assessment, San Luis Water District (SLWD), CA

Rich led the preparation of the UWMP for SLWD in anticipation of the district's emerging role as an urban water supplier and helped SLWD understand its transitioning role as an urban water supplier. Historically, SLWD had been an agricultural water supplier, and the UWMP was seen as a way to help the district prepare for their potential role as a municipal water supplier. Specifically, SB 610/221 water supply certifications as development proposals were being received. Because SLWD was more familiar with agricultural water issues, Rich spent significant time and effort educating the District and developers on the differences in agricultural and urban water supply operations, especially in understanding the reliability of agricultural, municipal, and industrial water supplies. Rich led the development of an interactive water supply and reliability model, which illustrated differing water supply sources that could be brought to SLWD (by developers) and reviewed for their benefits to the district. Rich managed the plan development and also led the Staffing, Water Rates, and Impact Fee Development Program.

Oliver Slosser, PE

MWH

Research and Implementation

Mr. Slosser is a Professional Engineer at MWH and has been working for over two years on projects including water and wastewater distribution system modelling, groundwater and surface water remediation, water resources planning, construction management, and design projects. Mr. Slosser comes from an editorial background, having worked for nearly three years with an internationally circulated magazine. His editorial sensibility as well as his written and verbal communication skills translate well in a professional consulting environment. In addition to his technical and communication abilities, Mr. Slosser also has experience with a multitude of modelling and technical applications.

EDUCATION

MS, Civil Engineering, Loyola Marymount University

BA, Environmental Science, U.C. Berkeley

LICENSES/ REGISTRATIONS

Professional Engineer – CA

MEMBERSHIPS/ AFFILIATIONS

Member, Water Environment Federation (WEF)

Member, APWA Ventura County Chapter

Member, California Water Environment Association

Relevant Project Experience

Project Engineer, Water System Master Plan, Hi Desert Water District, Yucca Valley, CA

Mr. Slosser is project engineer for Hi Desert's Water System Master Plan. He is responsible for modelling activities on the project, including model creation, calibration, and system analysis. Innovyze's InfoWater software is being used to model the system, and using the results, Mr. Slosser will help develop a phased improvement plan. In addition to modelling activities, Mr. Slosser also presents to Hi Desert's management and staff, and will generate most of the deliverables and final report sections for the project.

Project Engineer, Collection System Master Plan, Valley Sanitary District, Indio, CA

As part of Valley Sanitary District's (VSD) Collection System Master Plan, Mr. Slosser was responsible for the creation of the collection system model. The collection system model was created using existing VSD data input into Bentley SewerGEMS modeling software. Along with creation of the model, Mr. Slosser analyzed flow monitoring data in order to calibrate and run the model, and used the model to evaluate system deficiencies and to recommend future upgrades to the system. The final report was delivered to Valley Sanitary District in November of 2013 and included a phased CIP with over $49 Million in recommended improvements and replacements. The client is currently constructing an Interceptor pipeline estimated to cost over $11 Million.

Project Engineer, Confidential Client, Simi Valley, CA

- Groundwater – Injection Test

To assess the viability of injecting treated surface water and groundwater into a confined aquifer as an alternative to discharging the water into a local river, an injection test of an existing well to estimate the volume it could accept was conducted. The test included installation of three 20,000 gallon Baker tanks and a piping system to deliver water to the well via gravity. Mr. Slosser was tasked with collecting data for the test and running the injection system during portions of the test. He also oversaw redevelopment of the well and is taking part in analysis of the data.

- Groundwater – 30 Day Pumping Test

As part of the client's efforts to better understand the hydrology of their site, a 30–day pumping test of a well was conducted. As part of this effort, Mr. Slosser was responsible for operation of the well during parts of the test as well as collecting data from the pumping well

and 12 nearby monitoring wells using transducers. He also took part in some of the analysis of the collected data.

- Soil Characterization

Mr. Slosser helped oversee several teams of drill rigs and field teams collecting soil and soil vapor samples to characterize the pattern of contamination on the site. Mr. Slosser's duties included verifying GPS coordinates, staking locations for sampling, and documenting areas after sampling.

- Surface Water Collection and Treatment

As part of the client's remediation efforts, runoff from dozens of acres is collected in a series of outfalls and treated in two temporary plants constructed by MWH. These plants then discharge the treated water offsite. Mr. Slosser assisted in plant optimization and collection/analysis of treatment water samples.

Project Engineer, Pump Station and Pipeline Conceptual Study, Metropolitan Water District of Southern California

Mr. Slosser assisted on the hydraulic analysis for a conceptual study for Metropolitan to route water from an existing reservoir, against over 300 ft. of head, to a feeder pipeline serving thousands of customers. The purpose of the study was to provide preliminary recommendations and present the feasibility of building of a pump station to convey up to 180 cfs of water. This project is an effort to use existing resources during drought conditions, and includes turbines to generate power during periods with gravity flow. The study recommended the installation of a station with four 3,000 HP pumps in a 3 + 1 configuration.

Project Engineer, Chlorine Contact Study, Simi Valley, CA

Mr. Slosser was tasked with creating the protocol for a chlorine contact study to be conducted at the City of Simi Valley's 12.5 MGD Water Quality Control Plant (WQCP). The study called for onsite testing of the plants two chlorine contact basins. The intent of this study is to certify the tertiary treatment process at the WQCP with the California Department of Public Health for Title 22 water classification.

Project Engineer, Confidential Client, Commerce, CA

As part of the client's efforts to construct a milk and bread plant, Mr. Slosser was responsible for the collection of utility maps and right-of-ways. He assisted in the design and approval process by coordinating plan checks and revisions from the City of Commerce, Los Angeles Department of Public Works, and Los Angeles Sanitation Districts. Mr. Slosser also worked closely with the client and key stakeholders in the public sector in order to obtain the proper clearances and approvals for the creation of the plant which is currently under construction.

Project Engineer, Ammonia Storage and Feed Facility, Las Virgenes Municipal Water District (LVMWD), Calabasas, CA

MWH provided LVMWD with engineering services during construction of their Ammonia Storage and Feed Facility. As part of this effort, Mr. Slosser performed project management duties including reviewing requests for information and submittals and coordinating communication between the client and different stakeholders for the project.

Project Engineer, Collection System Master Plan Update, Clark County Water Reclamation District, Las Vegas, NV

As part of the District's Collection System Master Plan, Mr. Slosser worked on creating design standards and cost estimates for the improvement projects recommended as part of the Master Plan. As part of the cost estimate, Mr. Slosser used past and current bid data in order to set prices adjusted to current dollar values.

Project Engineer, Water Master Plan, City of Malibu, CA

As part of the City of Malibu's Water Master Plan, Mr. Slosser was involved in the final stages of the project. His involvement consisted of review of the final report for the City, as well as incorporating comments from City staff.

Sarah Garber, CPP, PMP

Permitting

Ms. Garber is a principal environmental scientist with 27 years of experience in environmental impact assessments for infrastructure projects. In addition to National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) documentation, Ms. Garber also specializes in permit acquisition. Ms. Garber routinely conducts public scoping meetings for environmental documents, participates in stakeholder coordination meetings, and presents the environmental issues of projects at public hearings. In addition, Ms. Garber is involved in surface water investigations and permitting for stream discharges. She has worked as a field biologist, concentrating in water quality analysis, and including fisheries investigations and natural resource surveys.

EDUCATION

MS, Biology, State University of New York

BS, Natural Resources, Cornell University

LICENSES/ REGISTRATIONS

Certified Permitting Professional – South Coast Air Quality Management District

Project Management Professional – Project Management Institute

MEMBERSHIPS/ AFFILIATIONS

Member, California Water Environment Association

Los Angeles Chapter President, Association of Environmental Professionals

Member, Water Environment Federation (WEF)

Relevant Project Experience

Project Scientist, City of Riverside Backup Power Source (Cogeneration) Project, City of Riverside, CA

Ms. Garber prepared an Environmental Impact Statement and Negative Declaration (ND) for the City of Riverside Backup Power Source (Cogeneration) project. Under this proposal, both landfill and digester gas will be used to generate electric power. Since project facilities are located immediately adjacent to the Santa Ana River, extensive mitigation was required to avoid significant biological impacts. Ms. Garber prepared the CEQA documentation to comply will all requirements of the State Water Resources Control Board since project funding was obtained from the State Revolving Fund (SRF).

Permitting Lead, Demineralization Facility Discharge Permit, Sweetwater Authority, CA

The Sweetwater Authority desalination facility discharges brine to the Sweetwater River in Chula Vista. Ms. Garber worked with the California Regional Water Quality Control Board, San Diego Region to revise the Authority's NPDES permit to allow additional intermittent discharges from the treatment plant and from nearby groundwater wells. Currently, MWH is investigating elevated copper levels in the brine discharge. Ms. Garber is working with the Authority and the Regional Board on a time schedule for resolving the copper issue.

Project Manager, San Jacinto River Watershed Sanitary Survey, Elsinore Valley Municipal Water District, CA

Ms. Garber was Project Manager for the 2006 update to the San Jacinto River Watershed Sanitary Survey (WSS) in Riverside County. The 718-square mile watershed is a tributary to Canyon Lake, which serves as a source for the Elsinore Valley Municipal Water District (EVMWD) potable water distribution system. MWH prepared the original report in 1995, in compliance with the Surface Water Treatment Rule (SWTR). Ms. Garber was also Project Manager for the WSS update conducted in 2001. In addition to filing the update with the State Health Department, the WSS document and other information on Canyon Lake were submitted to the California Legislature in compliance with Senate Bill 979.

Environmental and Permitting Task Manager, Lower Owens River Project Permitting and CEQA Compliance, City of Los Angeles Department of Water & Power, Bishop, CA

MWH currently assists the City of Los Angeles Department of Water & Power (DWP) with a host of issues related to their Owens Valley operations. Under this contract, Ms. Garber

manages tasks related to environmental documentation and permitting. Recent activities have included permitting for the Lower Owens River Project (LORP) – a project to rewet over 60 miles of the Owens River as mitigation for past water exportation in the Valley. Permits were obtained from the State Lands Commission, California Department of Fish and Game (CDFG), and Lahontan Regional Water Quality Control Board, and the U.S. Army Corps of Engineers.

Ms. Garber has also assisted DWP during preparation of the draft EIR/EIS, final EIR, and Supplemental EIR for the project. Ms. Garber conducted the public scoping meeting for the SEIR. On an as-needed basis, Ms. Garber reviews and prepares CEQA documents for other DWP projects in the Valley. One current project involves an irrigation conservation program. Ms. Garber conducted the public scoping meeting for this project. Past projects have included coordination with CDFG on a long-term maintenance agreement for DWP's system of open water conveyance features.

Technical Reviewer, Water Management Plan Program EIR, Coachella Valley Water District, CA

For the Coachella Valley Water District, Ms. Garber is the technical reviewer for the Water Management Plan Program EIR. The Water Management Plan is a comprehensive program to manage the groundwater resources of the Coachella Valley. Key environmental issues include groundwater quality and quantity as well as impacts to surface waters from recharge activities.

Project Scientist, Lake Elsinore Stabilization and Enhancement Project, Lake Elsinore and San Jacinto Watersheds Authority, CA

Ms. Garber was Project Scientist for preparation of a Program EIR that documented the effects of the Lake Elsinore Stabilization and Enhancement Program. The lead agency, the Lake Elsinore and San Jacinto Watersheds Authority, is planning to implement a series of lake management actions in order to improve water quality and enhance the aesthetics of Lake Elsinore. Project elements include addition of recycled water, wetlands treatment, chemical addition, aeration, and biomanipulation. In addition, Ms. Garber is currently Project Manager for water quality monitoring projects being conducted on both Lake Elsinore and Canyon Lake in compliance with the Regional Board total daily maximum load (TMDL) programs for these water bodies.

Geoffrey Carthew, PE, PMP

Infrastructure

Mr. Carthew has 45 years of experience in the planning, design, design-build, construction, and start-up of water, wastewater, and environmental projects worldwide. These projects have included the predesign and design of water and sewer pipelines, wastewater and water treatment plants, water process design, solids disposal facilities, and pilot plant studies. In addition, Mr. Carthew has worked on a wide range of design-build projects for both public and private sector clients and has served on these projects in a variety of leadership roles, including principal-in-charge, project manager, and technical reviewer.

As MWH's Director of Wastewater Services, he has overall responsibility for strategy, business development, project delivery, and recruiting for wastewater services throughout southern California. Mr. Carthew's recent career focus has been leading major wastewater planning and design projects throughout southern California. In this role, he has directed and conducted client-focused meetings at which a wide range of technical, operations, political, and strategic issues have been defined and resolved. Building consensus among stakeholders and arriving at acceptable solutions has been a hallmark of many of Mr. Carthew's projects.

EDUCATION

BE, Civil Engineering, University of Melbourne

LICENSES/ REGISTRATIONS

Professional Engineer

– CA, AZ, CO, NE, UT, WA

Project Management Professional – Project Management Institute

MEMBERSHIPS/ AFFILIATIONS

Member, Institution of Engineers, Australia

Member, Australian Water and Wastewater Association

Member, Water Pollution Control Federation

Member, American Water Works Association (AWWA)

Member, American Society of Civil Engineers (ASCE)

Relevant Project Experience

Project Manager, Terminal Island Treatment Plant Future Utilization Concept Report, City of Los Angeles Bureau of Sanitation, CA

Mr. Carthew managed the evaluation of future uses of the City-owned 30-mgd wastewater treatment plant located on Terminal Island in the Port of Los Angeles. This project involved extensive stakeholder participation and conducting several public workshops to define optional uses, establish evaluation criteria, and develop the three highest-rated project options. The project evaluated providing recycled water throughout the harbor area and included coordination with multiple governmental agencies, environmental organizations, and community groups.

Principal-in-Charge, Terminal Island Treatment Plant Centrifuge Additions, Los Angeles, CA

Mr. Carthew directed the planning and subsequent design of solids dewatering centrifuge additions to the City's 17-mgd Terminal Island Treatment Plant. The project evaluated different procurement options, multiple layout and equipment choices, and coordination between the engineering and operations groups within the City.

Project Director, Preliminary and Final Design, Lancaster Water Reclamation Plant Expansion, County Sanitation Districts of Los Angeles County, CA

Mr. Carthew directed the preliminary design and the final design team for the planned upgrades and expansion of the Districts' Water Reclamation Plant to 21mgd. In an innovative approach to the preparation of a final design, MWH and District staff worked as an integrated team to deliver the final product.

Project Director, P2-74 Secondary Treatment Upgrade, Orange County Sanitation District, CA

Mr. Carthew directed and oversaw the design of improvements to the secondary treatment processes at the 80-mgd secondary treatment facility at the Orange County Sanitation District's Treatment Plant 2.

Project Manager, Riverside Wastewater Treatment Plant Design-Build Bid Evaluation, Riverside County, CA

Mr. Carthew evaluated the life-cycle cost analysis for the lowest design cost bid for the $24M, 8-mgd wastewater treatment plant in Riverside and compared it against the life-cycle cost for a conventionally designed and bid treatment facility. Several major design and construction details were clarified and confirmed with the proposed contractor during the evaluation.

Project Director, Preliminary and Final Design, Water Supply System at Mesquite Regional Landfill, Los Angeles County Sanitation District, Imperial County, CA

Mr. Carthew directed preliminary and final design team for pipelines, booster pump station, high-voltage electrical switchgear, motor control centers, and control systems. The water system will serve proposed landfill operations being developed by the Districts as well as ongoing mining operations in the same locality.

Project Director, Analysis of Treatment Costs for Chloride for Santa Clarita Valley Joint Sewerage System, Los Angeles County Sanitation District, Santa Clarita, CA

Mr. Carthew directed project team analyzing the options and costs associated with the ultimate disposal of brine and wastewater effluent generated by the Districts wastewater reclamation plants in the Santa Clarita Valley.

Project Manager, Design-Build Bid Evaluation, Riverside County, CA

Mr. Carthew evaluated the life cycle cost analysis for the lowest design cost bid for the $24M, 8-mgd wastewater treatment plant in Riverside and compared it against the life cycle cost for a conventionally designed and bid treatment facility. Several major design and construction details were clarified and confirmed with the proposed contractor during the evaluation.

Project Director, Design-Build Upgrade and Expansion for Microchip Manufacturing Plant, Puyallup, WA

Mr. Carthew led a project delivery team for evaluation, upgrade design, equipment procurement, chemical systems replacement, and wastewater treatment system installation at microchip manufacturing plant. The existing four-mile outfall pipeline required rehabilitation, pigging, and cleaning to restore full capacity. The existing inactive plant required on site repair, upgrades and replacement to restore full waste treatment capacity. The delivery team was responsible for a new waste treatment system design, procurement and installation. The project schedule was extremely intense to enable the owner to meet market demand for high demand microchip components.

Technical Reviewer, Pipeline and Pump Station, Honeywell, Antioch, CA

Mr. Carthew was involved in a design-build project to deliver an $8M, fast-track raw-water pipeline (30-inch diameter) and 16-mgd pump station.

Project Manager, Design-Build Bid Evaluation, Western Riverside County Regional Wastewater Authority, Riverside, CA

Mr. Carthew evaluated the life-cycle cost analysis for the lowest design cost bid for the $24M, 8-mgd wastewater treatment plant and compared it against the life-cycle cost for a conventionally designed and bid treatment facility.

Principal-in-Charge, Treatment Process Design, City of Omaha, NE

Mr. Carthew was involved in the design of a 70-mgd secondary treatment process for the Papillion Creek plant. Secondary facilities included trickling filters, trickling filter pump station, solids contact basin, secondary clarifiers and chlorine contact basins for a TF/SC process.

Michael (Mike) Rogers, PE

MWH

Dams and Reservoirs

EDUCATION

MS, Civil Engineering, University of Minnesota

BS, Civil Engineering, Illinois Institute of Technology

LICENSES/ REGISTRATIONS

Professional Engineer – CA, IL

MEMBERSHIPS/ AFFILIATIONS

United States Society on Dams (USSD), past president

Association of State Dam Safety Officials (ASDSO)

Chi Epsilon - Civil Engineering Honor Society

American Society of Civil Engineers (ASCE)

International Commission on Large Dams (ICOLD)

AWARDS

ASCE Rickey Medal for his work on the Task Committee on Lessons Learned from the Design, Construction, and Operation of Hydroelectric Facilities

Legacy Alumni Award – High School District 230, Palos Hills, Illinois

Mr. Rogers is a principal civil engineer and senior project manager with 31 years of experience in the study, design, and construction management of dams and hydroelectric projects. Within the last 10 years, he was the Project Engineer of Record for the 310-ft-high Olivenhain (roller-compacted concrete – RCC) Dam (largest RCC dam in North America at the time of construction; 3.1 million cubic yards, San Diego, CA), Project Manager for the final design of a 117-ft RCC raise of San Vicente Dam (largest dam raise in the world using RCC; 700,000 cubic yards, Lakeside, CA) and Project Manager/Project Engineer for an RCC buttress at the Diemer Water Treatment Plant (185,000 cubic yards; Irvine, CA) to support a DSOD-regulated water storage tank.

Mike is well suited for this project role based on his planning, design and project management experience, combined with his hands-on laboratory and field construction work with RCC dams. He has performed laboratory RCC mix designs during the design phase; prepared plans and technical specifications; then supervised execution of those specifications in the field during the construction phase. Mr. Rogers is the past President of the American Association of Dam Builders and has a close relationship with DSOD.

Relevant Project Experience

Design Manager, John Hart Hydroelectric Project, BC Hydro, Vancouver, Canada

As Design Manager, Mike provided management and supervision of his Client's (BC Hydro) Design Team to prepare design-build technical specifications for a new 126 MW hydroelectric powerhouse, (hard rock) tunnel, intake structure and bypass system to replace an existing hydropower plant. The work included 18 months seconded to BC Hydro working in their Burnaby, BC (Canada) office.

Project Manager and Resident Design Engineer, San Vicente Dam RCC Raise Project, San Diego County Water Authority, CA

Mike was Project Manager and Resident Design Engineer (construction phase) for a multidisciplinary team during the preliminary design, final design and construction of a 117-ft RCC raise on an existing 220-ft-high concrete gravity dam. Completed in 2014, the raised portion of the dam was constructed with RCC—the largest raise of a concrete dam using RCC in the world. His responsibilities included design team coordination, quality review, client interface, coordination with other client designers and construction management teams, quality reviews and public interactions. The design scope included foundation excavation, structural assessment of interaction between the existing conventional concrete and new RCC dam; RCC materials and mix design; on-site quarry assessment; access roads layout; and new inlet/outlet facilities. Mike was also directly involved in the project's regulatory approval from the California Dam Safety office (DSOD).

Deputy Project Manager and Design Manager/Engineer, Olivenhain RCC Dam – Design, San Diego County Water Authority, San Diego, CA

As Deputy Project Manager and Design Manager (Project Engineer of Record), Mike was responsible for oversight of design engineers, including preliminary design, final design, and preparation of contract documents. The Olivenhain Dam is a new 318-ft-high RCC gravity dam with a multiport inlet/outlet tower on the upstream face and an elaborate flow control facility at the downstream toe. The RCC design included mix design, RCC placement methods, integration of upstream facing system, and RCC test sections.

Mike was also the resident design engineer during the construction phase as well. He was responsible for on-site design support services during construction, including review of contractor submittals, contractor request for information, design changes, design control, RCC Mix Design, RCC Placement and record drawings. Mike provided on-site support to the Owner, including interface to construction manager, environmental support, safety team, and public relations. He prepared the project's operation and maintenance (O&M) manual, including review of contractor-provided detailed O&M manuals. Mike also provided periodic field inspection supporting the construction manager, including final review and approval of the dam foundation prior to RCC placement. Mike was also directly involved in the project's regulatory approval from the California Dam Safety office (DSOD).

Project Manager and Project Engineer, Diemer Site Preparation Project, Metropolitan Water District of Southern California, Los Angeles, CA

As Project Manager and Project Engineer, Mike supervised the design for 185,000 cubic yards of roller-compacted concrete (RCC) foundation replacement and retaining wall. His responsibilities included the preparation of final design of the buttress structure, RCC mix design, and preparation of plans and specifications for bidding. The design features included RCC mix proportions using readily-available materials, foundation interface, RCC lift joint details, contraction joint details, facing treatment and temporary shoring during construction. The RCC buttress was needed to stabilize an existing slope to create a stable foundation for a new ozone water treatment facility. His work included evaluation of different approaches for RCC, including off-site versus on-site production. The study evaluated the issue of RCC placement on an undulating rock surface and lift exposure treatments. This work required extensive involvement with the owner and its other design consultants on an integrated design team of experts. Mike coordinated regulatory approval through California Division of Safety of Dams (DSOD). He also coordinated engineering support during construction.

Resident Design Engineer, Al-Wehdah RCC Dam, Jordan Water Authority, Yarmouk River, Jordan

Mike was Resident Design Engineer during construction for a new roller-compacted concrete (RCC) gravity dam. He reviewed contractor submittals for means and methods of RCC placement for consistency with specifications. Mike witnessed RCC test placement, including evaluation of placement methods and review of concrete material tests and aggregate tests. He provided orientation training classes to the contractor and CM inspection staff on RCC placement expectations and best practices. Prior to RCC placement, he review and approved the final foundation condition for RCC placement.

Client's Engineer, Bear Valley Dam Rehabilitation, Big Bear Municipal Water District, Big Bear Lake, CA

Mike is the Client's Engineer of Record for dam safety aspects of Bear Valley Dam (Big Bear, CA) since 2005. He has been responsible for design oversight, quality control and client coordination for dam safety rehabilitation measures, including the strengthening of a multi-barrel arch dam section, placement of erosion control riprap on the downstream side of the dam, and upgrading the operational features of the dam. The operational upgrades included adding remote control and monitoring of gates and valves, and addition of security video systems. His work included preparation of a Condition Assessment Report based on a site inspection and engineering assessment of the dam.

Project and Design Manager, Vail Dam Rehabilitation, Rancho California Water District, CA

As Project and Design Manager, Mike was responsible for design oversight, quality control, and client coordination for replacement of entire inlet/outlet works at Vail Dam, including eight submerged intakes on the upstream side of the dam and piping/flow control valves on the downstream side of the dam. He prepared a Condition Assessment Report based on a diving inspection of the upstream equipment, including a recommendation to client for the overall project scope. His work included preparation of contract plans and specifications for construction, including client support during the bidding process. Project design was performed under the jurisdiction of the DSOD.

James (Jim) Stahl, PE, BCEE

MWH

Regulatory Alignment

Mr. Stahl has 49 years of environmental engineering experience in the water field. He joined MWH in August 2007 and has been an advisor to municipal and industrial clients in formulating strategies for economically and environmentally sound wastewater treatment systems; water reuse programs and successful communication with regulatory agencies for permitting and compliance matters. Prior to joining MWH, Mr. Stahl was the Chief Engineer and General Manager of the Los Angeles County Sanitation Districts (LACSD). In his 38-year tenure with the agency he was closely involved with the planning, permitting, design, construction and operation of LACSD facilities. These included 11 Water Reclamation Facilities, the resultant Title 22+ effluent serves over 700 reuse sites in 30 cities resulting in an alternative water supply of 95,000 AFY. The key reuse unit was the Montebello Forebay Groundwater Recharge Project, which is a multi-agency partnership. Mr. Stahl focused the LACSD successes through collaborative efforts with public agencies, cities and private entities to expand water reuse opportunities through cost-sharing agreements and the tapping of new water sources, such as the acceptance of dry-weather flow from storm drains.

Currently, Mr. Stahl is involved in the analysis of managerial and technical issues for a variety of municipalities and government agencies, including design and operational tasks across the United States. Mr. Stahl represents MWH in developing strategies at the board room level to improve quality and services to the people they serve.

EDUCATION

MS, Environmental Engineering, Stanford University

BS, Civil Engineering, Loyola Marymount University

LICENSES/ REGISTRATIONS

Professional Engineer (Civil)

– CA

MEMBERSHIPS/ AFFILIATIONS

Member, American Academy of Environmental Engineers (AAEE)

Member, Water Environment Federation (WEF)

Member, American Public Works Association (APWA)

Member, American Society of Civil Engineers (ASCE)

Member, National Academy of Engineering

Member, California Water Environment Association

AWARDS

Edward K Cleary Award and Gordon Maskew Fair Award, American Academy of Environmental Engineers

Relevant Project Experience

Chief Engineer and General Manager, Various Projects, Sanitation Districts of Los Angeles County, CA

Mr. Stahl is the recently retired Chief Engineer and General Manager of the Sanitation Districts of Los Angeles County. In various stages of his 38 year tenure with the Districts, he was in technical leadership positions involving the reduction of TDS in the Santa Clarita Valley Sanitation Districts catchment and the investigation of the operational capabilities of high purity oxygen activated sludge (HPOAS) systems, including the use of selectors, as well as the use of both circular and rectangular sedimentation tanks. Mr. Stahl was also a key participant in the planning, design, start-up, and implementation of operating techniques for the Districts' 400-mgd HPOAS facility at the Joint Water Pollution Control Plant (JWPCP). Mr. Stahl has given a number of presentations on the Districts' various process developments and environmental safeguards.

Chief Engineer and General Manager, Sanitation Districts of Los Angeles County, CA

Mr. Stahl provided the Districts with research, planning, design, construction management, and operation services in wastewater collection and treatment, solid waste management, and energy production systems for approximately 5M people and industries located in 78 cities and county unincorporated territory. In this top staff position, Mr. Stahl was responsible for all the Districts personnel and actions and reported to a Board of Directors comprised of the

mayors of the cities served, the President of the Los Angeles City Council, and the Chair of the Board of Supervisors.

Assistant Chief Engineer and Assistant General Manager, Various Projects, Sanitation Districts of Los Angeles County, CA

Mr. Stahl was responsible for managing the daily activities of the Districts technical departments and human resources comprised of 1,800 employees, including approximately 250 engineers and scientists. Particular attention was given to the efficient operation of all Districts field facilities including 10 Water Reclamation Plants and the 400-mgd Joint Water Pollution Control Plant with its HPOAS system.

Solid Waste Management Department Head, Various Projects, Sanitation Districts of Los Angeles County, CA

Mr. Stahl was in charge of the Districts landfills, transfer station, recycling operations, and waste-to-energy and gas-to-energy plants.

Head of Treatment Plant Design, Various Projects, Sanitation Districts of Los Angeles County, CA

Mr. Stahl was in charge of the technical sections encompassing Civil-Environmental, Mechanical, Electrical, Instrumentation and Structural engineering, involved in the design and construction management of wastewater treatment and biosolids handling facilities. The group's design projects included the then 200-mgd HPOAS facility at the JWPCP and expansion of the San Jose Creek Water Reclamation Plant.

Superintendent of Operations, Water Reclamation Plants, Sanitation Districts of Los Angeles County, CA

Mr. Stahl managed the operation and maintenance of the Districts 10 Water Reclamation Plants employing air activated sludge, rectangular final sedimentation tanks, multi-media filtration and chlorination – dechlorination. Conducted plant testing to ascertain operating schemes to minimize aeration tank foaming, maximize control of SVI, and improve performance of the final sedimentation tanks.

Supervisor of Research, JWPCP, Sanitation Districts of Los Angeles County, CA

Mr. Stahl supervised a group of engineers and technicians in the study and field testing of equipment and processes for the cost effective optimization and upgrade of wastewater treatment and sludge processing at the JWPCP. The work included the design, construction, and operation of a 1-mgd HPOAS plant with rectangular sedimentation tanks, and an analysis of the resultant data for development of design parameters for a full scale phased 200-mgd HPOAS system. Mr. Stahl was critically involved in key decisions for the full scale design of the aeration system and the evaluation determining the choice of rectangular over circular final sedimentation tanks.

Ronald Gastelum

Stakeholder Engagement

Ronald R. Gastelum's professional career began in 1971 following his graduation from UCLA Law School. His legal career has focused on environmental, municipal, and corporate law, with a particular emphasis on water, waste management, and energy. His expertise can best be described as essential public services and public infrastructure, including a detailed understanding of the associated administrative and legislative processes, finance, strategic planning, and public policy development.

EDUCATION

Juris Doctorate, UCLA School of Law

BA, Economics and Political Science, Whittier College

MEMBERSHIPS/ AFFILIATIONS

Member, Board of Directors, LA Area Chamber of Commerce

Member, Board of Directors, The Nature Conservancy, California Chapter

Member, Board of Directors, Unite LA

Member, Board of Directors, Southern California Water Committee

Relevant Experience

Chief Executive Officer, Metropolitan Water District of Southern California

Mr. Gastelum was responsible for managing the operations of one of the largest wholesale water suppliers in the world with an annual budget of over $1 billion, serving the 18 million residents of urban Southern California. Metropolitan is a regional public agency. It has 26 member public agencies with diverse local water supply capabilities and strategic interests. Mr. Gastelum was notably successful in leading the agency to further diversify the region's water supply sources with the development of new large water transfer, groundwater banking. reclaimed water, and conservation programs, This was during a period of extended drought conditions, a statewide energy crisis, and a major reduction in Southern California's Colorado River water rights, set in motion by an adverse court decision in the 1960s (Arizona v. California).

During his tenure as CEO, the agency accomplished a major restructuring of its management, adopted a new Strategic Plan with unprecedented public participation, updated its long term resources plan, completed a $2 billion dollar new reservoir, advanced a stalled major pipeline project under the San Bernardino Mountains, adopted a long term capital improvement and finance plan, and completed a major overhaul of its rate structure.

Vanessa Nishikawa, PE

MWH

Funding

Ms. Nishikawa has more than 20 years of experience in the development and implementation of multidisciplinary water resources projects. She has served as Project Manager, Technical Lead, and Engineer for numerous multi-objective water resources planning studies of surface and groundwater systems. Her experience includes management and development of integrated water resources management plans and programs, including integration and prioritization of regional projects for flood management, water supply, ecosystem restoration, and related objectives. She has specialized expertise in the operation and management of the State's major water resource projects, including Sacramento and San Joaquin Valley flood control systems, the Central Valley Project (CVP) and State Water Project (SWP). Her broad planning experience includes comprehensive flood management studies, water transfers and associated laws and regulations, recycled water studies and projects, conjunctive water management, computer modelling of surface water hydrology and project operations, watershed management, data collection and analysis, permitting, and grant writing.

EDUCATION

MS, Civil Engineering, University of California – Davis

BS, Biomedical Engineering, Northwestern University

LICENSES/ REGISTRATIONS

Professional Engineer – CA

Relevant Project Experience

Project Lead, 2014 Integrated Regional Water Management Drought Grant Solicitation, Regional Water Authority, CA

Ms. Nishikawa is the Project Lead for the preparation of a $9.8M funding proposal under the California Department of Water Resources' 2014 IRWM Drought Grant Solicitation. This grant proposal includes 17 projects to be implemented by 12 local agencies with $26.1M in total project costs. Project types include pipelines, and pump stations, interties, groundwater wells, and water efficiency incentive programs. Notification is anticipated in Fall 2014.Technical Director, Corona del Mar WTP Design-Build Upgrades and Modifications, Goleta Water District (GWD), Goleta, CA

Deputy Project Manager, Water Recycling Program – Facilities Plan Development Project, Sacramento Regional County Sanitation District, CA

Ms. Nishikawa is a Deputy Project Manager for the further development of recycled water projects within SRCSD's service area. Project activities include preliminary engineering analyses; development and selection of alignment alternatives; hydraulic analyses; CEQA and NEPA compliance documents; Phase I Environmental Site Assessments; identification and exploration of institutional options and governance arrangements; outreach involving stakeholders, potential recycled water end users (or customers), and the public; and project management.

Project Engineer, 2006 American River Basin Integrated Regional Water Management Plan (ARB IRWMP) and 2013 ARB IRWMP Update, USACE/Regional Water Authority/Sacramento County Water Agency, CA

Ms. Nishikawa was a Project Engineer for the 2006 ARB IRWMP – a logical extension of the planning efforts previously conducted in the region, the majority of which she has been an active participant. An IRWMP is a comprehensive planning document prepared on a region-wide scale that identifies priority water resources projects and programs with multiple benefits.

She assisted in specific and focused local and sub-regional planning efforts for its foundation, and helped investigate a broad spectrum of water resources issues including water supply, flood management, water quality, environmental restoration, environmental justice, stakeholder involvement, and far-reaching community and statewide interests. She supported ARB IRWMP implementation and was the Project Lead for the 2013 plan update designed to address evolving regional issues and needs.

Integrated Flood Management Consultant, Statewide Flood Management Planning Program, California Department of Water Resources, CA

Ms. Nishikawa was an Integrated Flood Management consultant for the development of the report – California's Flood Future: Recommendations for Managing the State's Flood Risk (California's Flood Future) – as part of the Statewide Flood Management Planning Program's effort to help guide local, State, and Federal decisions about policies and financial investments to improve public safety, environmental stewardship, and economic stability. When released, California's Flood Future will contain the first comprehensive look at flooding throughout the State, along with the challenges, opportunities, and recommendations for improving flood management. Ms. Nishikawa was involved in development of the research questions and protocols, interview conduct, evaluation of collected data, and documentation.

Assistant Project Manager, Water Recycling Opportunities Study (WROS) and Feasibility Studies, Sacramento Regional County Sanitation District, CA

Ms. Nishikawa was the Assistant Project Manager for the SRCSD WROS. In this role, she participated in study management and coordination; development and implementation of stakeholder involvement and partnership strategies; conduct of briefings and meetings of the project team, stakeholders, management, and elected officials (including development of presentation and collateral materials); and direction of staff and sub-consultants. She was involved in the formulation, analysis, refinement, and prioritization of alternatives and other opportunities; the assessment of treatment technologies; and the development of cost estimates and comparisons of the avoided cost of using recycled water over potable water. She developed technical memoranda and related reports for both technical and non-technical audiences. She reviewed existing water recycling studies to assess the applicability of results and identified water recycling opportunities. She assisted SRCSD staff with the preparation and submittal of State and Federal grant funding applications. She helped conduct feasibility studies on several of the water recycling alternatives developed in the WROS. These feasibility studies included detailed demand analyses, pipeline routing, evaluation of irrigation practices and regulatory requirements, satellite treatment plant siting, feasibility-level design of facilities, conceptual operations plans, cost estimation, and financing/revenue program development.

American River Basin Cooperating Agencies Regional Water Master Plan, American River Basin Cooperating Agencies (Cooperating Agencies), CA

Ms. Nishikawa was a Project Engineer for the Cooperating Agencies' RWMP. She assisted the fourteen water purveyors (within northern Sacramento and southern Placer counties) in the development of mechanisms for implementing the conjunctive use program envisioned by the Sacramento Area Water Forum. Factors considered for this program include the potential quantity of available supply, supply reliability, water quality, facilities and operations, capital and annual costs, and implementation feasibility. She directed the analysis of the program, including working with agency personnel to simulate alternative scenarios using the CALSIM model and overseeing the activities of sub-consultants. She co-authored several technical memoranda and related reports. She utilized the RWMP as the basis for the Groundwater Recharge Facilities Program feasibility study grant applications submitted by the Sacramento Groundwater Authority (submitted on behalf of several of its member agencies), the Sacramento Groundwater Authority's Environmental Water Account Banking and Exchange Pilot Study (conducted on behalf of several of its member agencies), and the Regional Water Authority's American River Basin Regional Conjunctive Use Program (submitted on behalf of several of its member agencies).

Gregory (Greg) Baird

MWH

Finance

Mr. Baird is a principal consultant in MWH's Financial, Commercial, and Risk Services team. Greg has served as a municipal finance officer in California with rate design and implementation experience, and as the CFO of Colorado's third largest utility - overseeing all financial and customer service aspects of a $150M water, wastewater, and storm drain operation and $2B capital program. He managed all financial issues of the $650M Prairie Waters Project (Reuse). Mr. Baird has issued over $1B in municipal debt and participated on the AWWA team to update the M1 Manual on Rates. He is widely published and presents on utility infrastructure asset management and financial issues for the U.S. and Canadian water and wastewater industry and is currently helping GFOA coordinate a better focus on utility management issues and working on the financial components of DWR's California Water Plan Update.

EDUCATION

MPA, Public Administration, Brigham Young

BA, Brigham Young

CERTIFICATIONS

Certified Public Finance Officer Candidate (Debt Management and Capital and Operating Budgeting), Government Finance Officers Association (GFOA)

Certificate of Training in Asset Management (CTAM)

Rate Making – National Association of Regulatory Utility Commissioners (NARUC), Institute of Public Utilities, Michigan State

MEMBERSHIPS/ AFFILIATIONS

Advisor to the Economic Development and Capital Planning committee for the US and Canada for the Government Finance Officers Association (GFOA)

Committee Member-Rates and Charges, Affordability, Sustainable Infrastructure and Asset Management for the American Water Works Association (AWWA)

Author of the Money Matters Column in the AWWA Journal (2010-2013)

Water Environment Federation (WEF)

American Public Works Association (APWA)

California Society of Municipal Finance Officers (CSMFO)

Relevant Project Experience

Financial Reviewer, Water Enterprise Fund Financial Analysis and Reviews, Various Clients and Locations

Mr. Baird has completed the Water Enterprise Fund financial analysis and reviews for the following locations: Miami Dade; WSSC; Toronto; PRASA; Baltimore; DC Water; Louisville; San Francisco; New York; Philadelphia; Montreal; Dallas; Houston; Fort Collins; Fort Worth; Boston; Knoxville; Jacksonville; Detroit; Chicago; Seattle; Los Angeles Department of Water and Power; Denver; Detroit; Calgary; Raleigh; Santa Clara; Portland; San Diego; and Atlanta.

Project Lead, Water, Sewer and Canal Cost of Service and Rate Design, Coachella Valley Water District, CA

Mr. Baird is the project lead for the Rate and Financial Analysis for three enterprise funds and recycled water and drought rates. This effort also focuses on developing long-term financial planning models to forecast impacts from changing regulations.

Financial Lead, Financial Planning and Capital Project Oversight, Aurora Water Prairie Waters Project (PWP), Aurora, CO

Mr. Baird had financial oversight of the $754.8M PWP project and was able to help delivery the project $100M under budget through phased funding and delivery, passing on cost and contingency savings to rate payers in the form of lower than expected rate increases for several years in a row. He also restructured rate tiers to better accommodate use and conservation goals, issued over $421M in revenue bonds (won the Southwestern Bond Deal of the Year), and avoided entering the municipal debt market for another $159M during the economic downturn by utilizing project prioritization and reviewing water drought hardening projects. The project leveraged existing water rights in a cost effective manner and included extensive Due Diligence and Financial Feasibility work.

Financial Lead, Engineering and Financial Feasibility Report/Financial Forecast Certification for Improvement Revenue Bonds supporting the $1B Southern Delivery System Pipeline, Colorado Springs Utility, CO

Mr. Baird was the lead for the City of Colorado Springs' Bond Ordinance requirement to review all financial forecasting system and inputs/outputs and preparing an Engineers'

Certification and Official Statement Recommendations prior to bond issuance.

Financial Lead, Wastewater Utility Infrastructure Asset Management and Financial Assets Review, Union Sanitation District, CA

Mr. Baird performed asset management, hierarchy, condition assessment, business process review, financial asset capitalization, and fixed asset database correlation for the Union Sanitary District which provides wastewater collection, treatment, and disposal services to the residents and businesses of the cities of Fremont, Newark, and Union City, in Southern Alameda County, California.

Financial Lead, Water and Sewer Financial Planning for Rate and Developer Fee Increases, City of Modesto, CA

Mr. Baird transitioned 10 water systems and 3 water rate zones into a single water rate district through legal challenges under the California Proposition 218 process, including applying price elasticity of demand; converting unmetered flat rates to a metered lot size rate design; and utilizing new city codes, financial policies, master plans, engineering reports, and cost of service and rate studies. Greg also developed a low income assistance program and successfully negotiated new developer fees after conducting impact and connection fee studies.

Municipal Financial Liaison for Surface Water Development, Ag to Urban Water Transfers with Modesto Irrigation District (MID) and the Turlock Irrigation District (TID), CA

Mr. Baird was assigned as the financial liaison to MID and TID to develop financial plans supporting the regional development of surface water treatment plants for municipal use in Stanislaus County, CA.

Project Lead, Financial Capability and Affordability Assessment, Integrated Planning Framework Approach, Springfield Water and Sewer Commission, Springfield, MA; Narragansett Bay Commission, Providence, RI

Mr. Baird served as the financial and affability project lead addressing the 1997 EPA FCA and an enhanced census track level affordability analysis and 3D GIS time series mapping.

Financial Lead, Water, Sewer, Storm Drain Rate Design and Implementation, Drought Surcharges and System Development Charges, Aurora Water, CO

Mr. Baird directed the Aurora Water transition between water budgets and five tiered conservation rates to new community and politically acceptable rates.

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