



CITY OF LODI COUNCIL COMMUNICATION

AGENDA TITLE: Adopt the Following Resolutions to Complete Plans, Specifications, and Bid Documents for the Mokelumne Water Treatment Plant:

- A. Resolution Awarding Professional Services Agreement to Ecologic, Inc., of Rancho Cordova, for Value Engineering Review of Surface Water Treatment Facility and Transmission Project Preliminary Design (\$50,000) and Appropriating Funds
- B. Resolution Awarding Professional Services Agreement to HDR, Inc., of Folsom, for Final Design of Surface Water Treatment Facility and Transmission Project (\$1,737,302), Appropriating Funds (\$2,000,000), and Approving Selection of Pall Membrane Systems

MEETING DATE: December 16, 2009

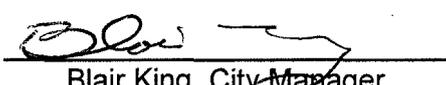
PREPARED BY: Public Works Director

RECOMMENDED ACTION: Adopt the following resolutions to complete plans, specifications, and bid documents for the Mokelumne Water Treatment Plant:

- A. Resolution awarding a professional services agreement to Ecologic, Inc., of Rancho Cordova, for the value engineering review of the Surface Water Treatment Facility and Transmission Project preliminary design in the amount of \$50,000 and appropriating funds
- B. Resolution awarding a professional services agreement to HDR, Inc., of Folsom, for final design of Surface Water Treatment Facility and Transmission Project (\$1,737,302), appropriating funds (\$2,000,000), and approving selection of Pall Membrane Systems

BACKGROUND INFORMATION: On April 4, 2007, the City Council gave approval for HDR, Inc., to prepare the Surface Water Treatment Facility Conceptual Design and Feasibility Evaluation. On March 13, 2009, the City Council gave approval for HDR, Inc., to prepare the 30 percent preliminary plans and the environmental impact report (mitigated negative declaration). At that time, we felt there was an opportunity to secure American Recovery and Reinvestment Act (ARRA) funding for construction of the plant. We have since learned that our project does not qualify for funding under the ARRA program. The project will soon enter the final design phase leading to the start of construction of the plant, potentially in late 2010.

A series of exhibits (A through E) are attached that provide the Council an overview of the project's 30 percent design. Exhibit A provides a computer-generated picture of the view from Turner Road, looking easterly at the water plant/park entry. The unobstructed view of Lodi Lake will result from removal of the raised embankment and many existing trees for construction of the plant/park entry. Exhibit B provides a plan view of the layout plan for the raw water pump station, raw water pipeline, water treatment plant and entrance from Turner Road. The site encompasses approximately four and one-half acres. Exhibit C provides a computer-generated picture of the view of the water plant facilities from the roadway. An existing grove of trees will substantially screen views of the facilities from Turner Road. Exhibit D provides an architectural rendering of the exterior of the filtration/administration building.

APPROVED: 
Blair King, City Manager

Adopt the Following Resolutions to Complete Plans, Specifications, and Bid Documents for the Mokelumne Water Treatment Plant:

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Similar architectural treatments will be included in the chemical handling/maintenance building. Exhibit E presents the alignment of the transmission main and locations for connections to the existing water distribution system. In addition to the improvements depicted in the previous exhibits, each of 25 well sites will be modified to include chlorine injection, chlorine detection, and remote sensing and operations capabilities.

City staff is highly confident in the planning and design experience and qualifications of HDR. However, a surface water treatment plant will be new to the City, and staff believes it is a prudent step to perform a value engineering review of the 30 percent design documents. Objectives of the review include an analysis of plant staffing, treatment processes, equipment, control strategies, building layout, security provisions, constructability and construction cost estimates. HDR recommends this review occurring prior to beginning final construction documents.

The Ecologic team includes specialists in the design and operation of water treatment facilities. Particularly, the team includes the owner/operator of a one-million-gallon-per-day plant and the current operator of the South San Joaquin Irrigation District's 37-million-gallon-per-day South County Water Treatment Plant near Woodward Reservoir. The team's collective experience and numerous advance certifications in the water treatment field well serve the objectives of the review effort.

The scope of services, fee and schedule for the Ecologic agreement is provided as Exhibit F. The estimated cost of these services is estimated to be \$50,000 and charges to the City will be on a time and cost basis. Staff does not expect to perform a similar review of the final construction documents.

The scope of services, fee and schedule for the HDR agreement is provided as Exhibit G. The estimated cost of these services is estimated to be \$1,737,302 and charges to the City will be on a time and cost basis. An important added element of the HDR agreement is development of a preliminary financing plan. Staff anticipates bringing a recommended financing plan to the Council in early 2010. Bid documents are expected to be complete in nine months. The water treatment plant will be constructed under a conventional design/bid/build process and the scope of services reflects this approach. We have determined that pursuing a design/build process does not offer the City a predictable savings in cost or time.

Funding for the HDR and Ecologic contracts plus staff support costs, estimated to be \$2,050,000, will come from the Water Capital Fund. If bond financing were to be used to fund the project, the financing would generate funds to reimburse a portion of the expenditures to date. The total expenditures to date amount to more than \$2,500,000, including alternatives evaluation studies, water plant feasibility study, and preliminary design study.

It is recommended the City Council approve the selection of the Pall Membrane System for the surface water treatment facility based upon the information provided in Exhibit H. In summary, the various membrane systems come in preassembled trains that are connected together at the treatment facility. The Pall Membrane System, when compared to the other most appropriate membrane systems for Lodi, was cost competitive, operates in the preferred outside-in mode, and has superior performance (minimal

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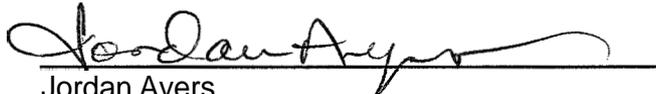
fiber breakage). In addition, there are several successful operating installations, and the company has a sound reputation.

At the March 18, 2009 meeting, Council also authorized the short-term sale of WID water. Shortly after Council's action, a major precipitation event occurred across the Mokelumne River watershed that basically eliminated the need for additional water supplies in the region for that year. Staff will continue to pursue opportunities for the short-term sale of our water resource.

Failure to approve these recommended resolutions will have consequences. First, \$7.5 million has been expended so far on water purchases, and 42,000 acre-feet of water is banked for future use by the City. However, the option to bank purchased water expires in May 2010 and the requirement to pay \$1.2 million per year to Woodbridge Irrigation District continues. Second, delays in moving the project forward to construction will result in higher construction costs.

FISCAL IMPACT: Potential construction and operations cost savings at future water treatment plant. Use of Water Capital funds for this project is unlikely to affect other capital projects.

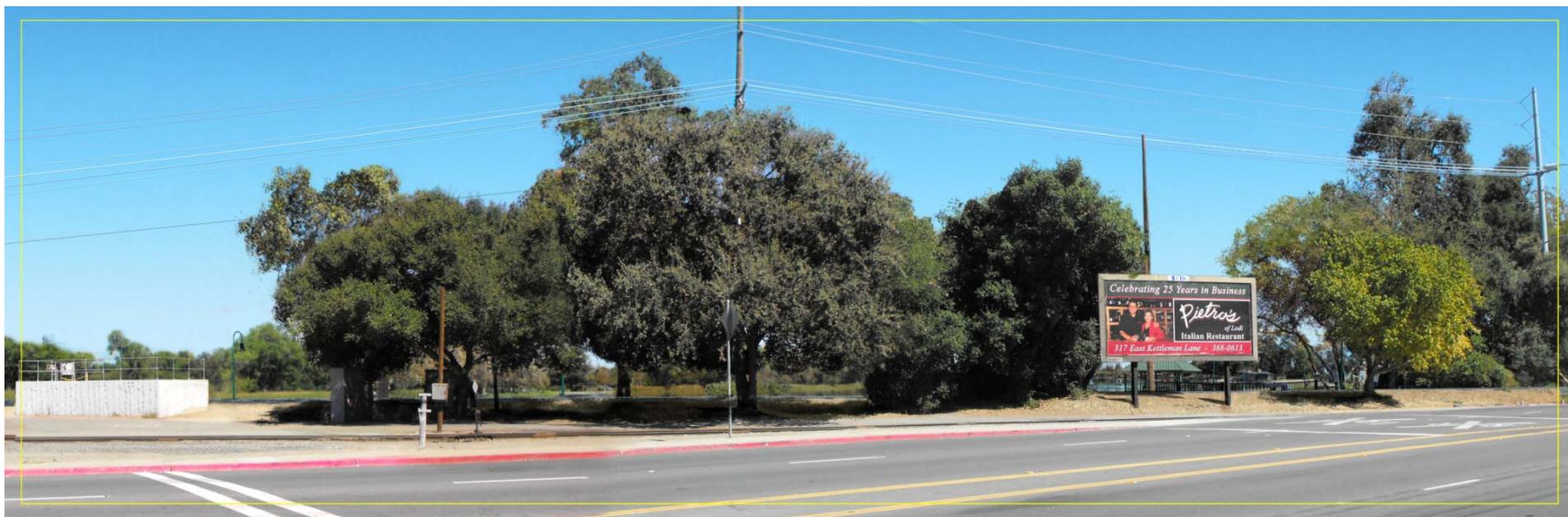
FUNDING AVAILABLE: Requested Appropriation: \$2,050,000 – Water Capital Fund (181)

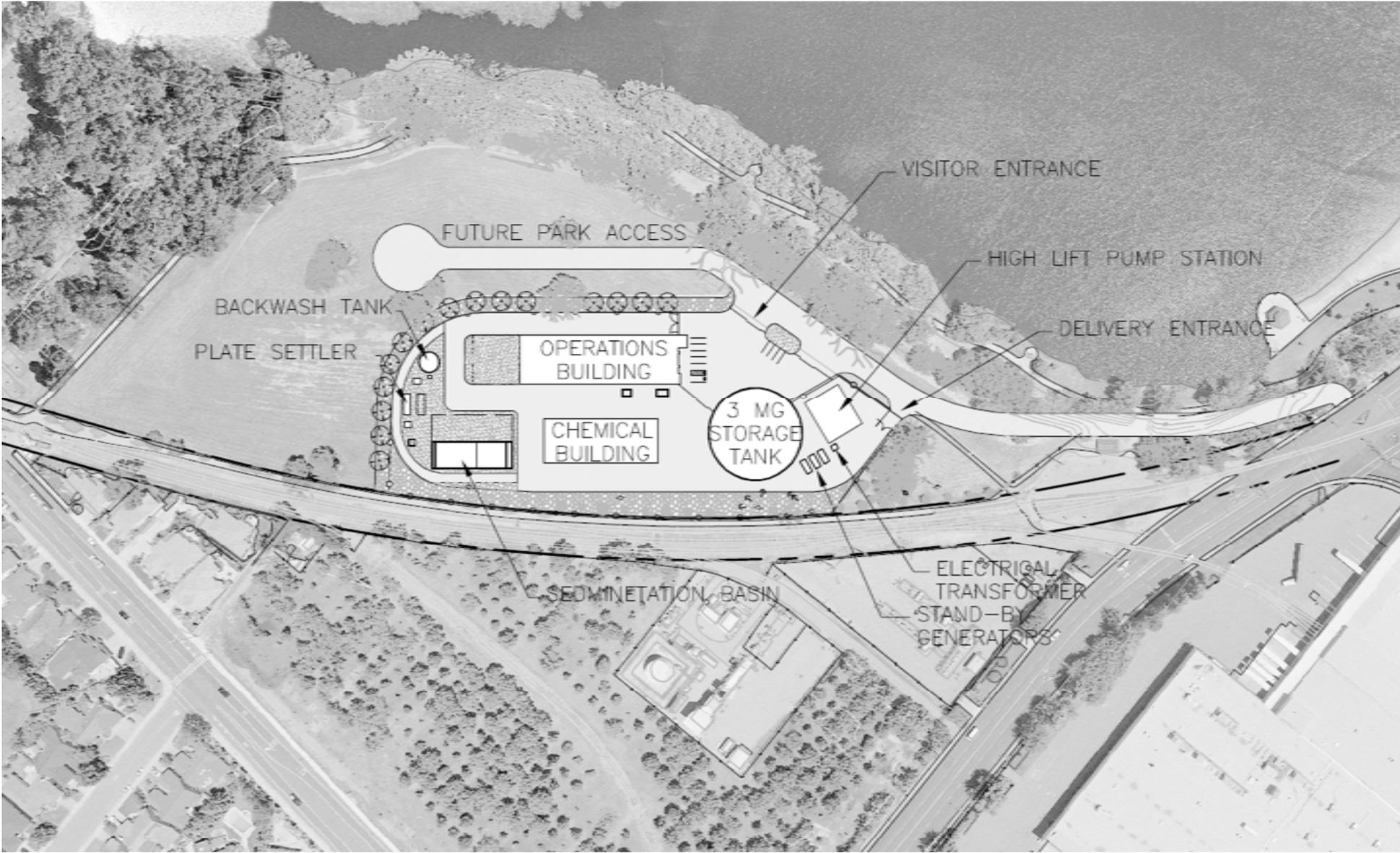

Jordan Ayers
Deputy City Manager/Internal Services Director


F. Wally Sandelin
Public Works Director

FWS/pmf

Attachments





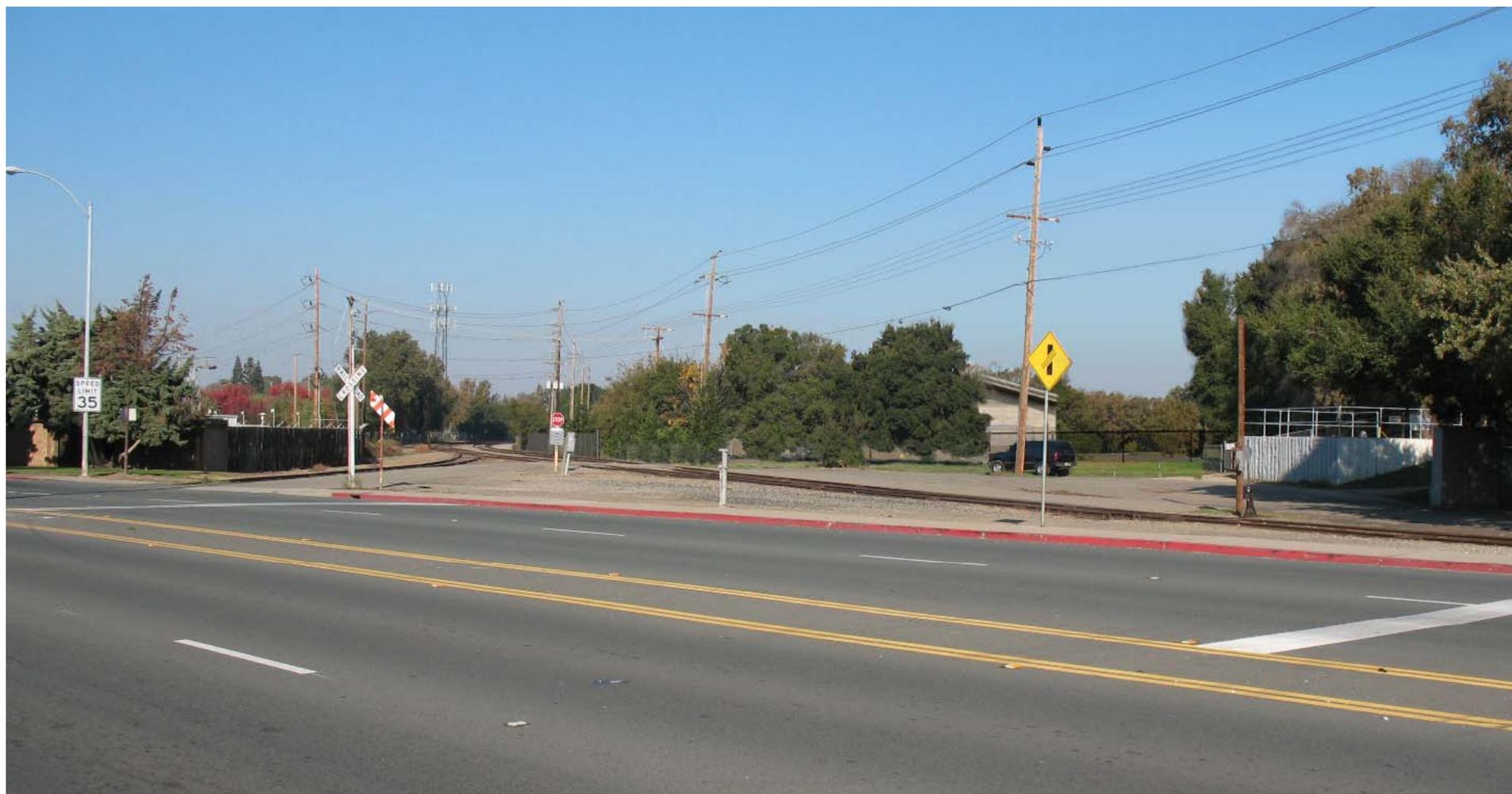




EXHIBIT E



AGREEMENT FOR CONSULTING SERVICES

**ARTICLE I
PARTIES AND PURPOSE**

Section 1.1 Parties

THIS AGREEMENT is entered into on _____, by and between the CITY OF LODI, a municipal corporation (hereinafter "CITY), and ECOLOGIC, INC. (hereinafter "CONSULTANT).

Section 1.2 Purpose

CITY selected the CONSULTANT to provide value engineering review services required in accordance with attached scope of services, Exhibit A.

CITY wishes to enter into an agreement with CONSULTANT for value engineering review of Surface Water Treatment Facility and Transmission Project preliminary design (hereinafter "Project") as set forth in the Scope of Services attached here as Exhibit A.

**ARTICLE 2
SCOPE OF SERVICES**

Section 2.1 Scope of Services

CONSULTANT, for the benefit and at the direction of CITY, shall perform the scope of services as set forth in Exhibit A, attached and incorporated by this reference.

Section 2.2 Time For Commencement and Completion of Work

CONSULTANT shall commence work within ten (10) days of executing this Agreement, and complete work under this Agreement based on a mutually agreed upon timeline.

CONSULTANT shall not be responsible for delays caused by the failure of CITY staff or agents to provide required data or review documents within the appropriate time frames. The review time by CITY and any other agencies involved in the project shall not be counted against CONSULTANT's contract performance period. Also, any delays due to weather, vandalism, acts of God, etc., shall not be counted. CONSULTANT shall remain in contact with reviewing agencies and make all efforts to review and return all comments.

Section 2.3 Meetings

CONSULTANT shall attend meetings as indicated in the Scope of Services, Exhibit A.

Section 2.4 Staffing

CONSULTANT acknowledges that CITY has relied on CONSULTANT's capabilities and on the qualifications of CONSULTANT's principals and staff as identified in its proposal to CITY. The scope of services shall be performed by CONSULTANT, unless agreed to otherwise by CITY in writing. CITY shall be notified by CONSULTANT of any change of Project Manager and CITY is granted the right of approval of all original, additional and replacement personnel in CITY's sole discretion and shall be notified by CONSULTANT of any changes of CONSULTANT's project staff prior to any change.

CONSULTANT represents that it is prepared to and can perform all services within the scope of services specified in Exhibit A. CONSULTANT represents that it has, or will have at the time this Agreement is executed, all licenses, permits, qualifications, insurance and approvals of whatsoever nature are legally required for CONSULTANT to practice its profession, and that CONSULTANT shall, at its own cost and expense, keep in effect during the life of this Agreement all such licenses, permits, qualifications, insurance and approvals.

Section 2.5 Subcontracts

CITY acknowledges that CONSULTANT may subcontract certain portions of the scope of services to subconsultants as specified and identified in Exhibit A. Should any subconsultants be replaced or added after CITY's approval, CITY shall be notified within ten (10) days and said subconsultants shall be subject to CITY's approval prior to initiating any work on the Project. CONSULTANT shall remain fully responsible for the complete and full performance of said services and shall pay all such subconsultants.

**ARTICLE 3
COMPENSATION**

Section 3.1 Compensation

CONSULTANT's compensation for all work under this Agreement shall not exceed the amount of Fee Proposal, attached as a portion of Exhibit A.

CONSULTANT shall not undertake any work beyond the scope of this Agreement unless such additional work is approved in advance and in writing by CITY.

Section 3.2 Method of Payment

CONSULTANT shall submit invoices for completed work on a monthly basis, providing, without limitation, details as to amount of hours, individual performing said work, hourly rate, and indicating to what aspect of the scope of services said work is attributable.

Section 3.3 Costs

The fees shown on Exhibit A include all reimbursable costs required for the performance of the individual work tasks by CONSULTANT and/or subconsultant and references to reimbursable costs located on any fee schedules shall not apply. Payment of additional reimbursable costs considered to be over and above those inherent in the original Scope of Services shall be approved in advance, in writing, by CITY.

CONSULTANT charge rates are attached and incorporated with Exhibit A. The charge rates for CONSULTANT shall remain in effect and unchanged for the duration of the Project unless approved by CITY.

Section 3.4 Auditing

CITY reserves the right to periodically audit all charges made by CONSULTANT to CITY for services under this Agreement. Upon request, CONSULTANT agrees to furnish CITY, or a designated representative, with necessary information and assistance.

CONSULTANT agrees that CITY or its delegate will have the right to review, obtain and copy all records pertaining to performance of this Agreement. CONSULTANT agrees to provide CITY or its delegate with any relevant information requested and shall permit CITY or its delegate access to its premises, upon reasonable notice, during normal business hours for the purpose of interviewing employees and inspecting and copying such books, records, accounts, and other material that may be relevant to a matter under investigation for the purpose of determining compliance with this requirement. CONSULTANT further agrees to maintain such records for a period of three (3) years after final payment under this Agreement.

**ARTICLE 4
MISCELLANEOUS PROVISIONS**

Section 4.1 Nondiscrimination

In performing services under this Agreement, CONSULTANT shall not discriminate in the employment of its employees or in the engagement of any

subconsultants on the basis of race, color, religion, sex, sexual orientation, marital status, national origin, ancestry, age, or any other criteria prohibited by law.

Section 4.2 Responsibility for Damage

CONSULTANT shall indemnify and save harmless the City of Lodi, the City Council, elected and appointed Boards, Commissions, all officers and employees or agent from any suits, claims or actions brought by any person or persons for or on account of any injuries or damages sustained or arising from the services performed in this Agreement but only to the extent caused by the negligent acts, errors or omissions of the consultant and except those injuries or damages arising out of the active negligence of the City of Lodi or its agents, officers or agents.

Section 4.3 No Personal Liability

Neither the City Council, the City Engineer, nor any other officer or authorized assistant or agent or employee shall be personally responsible for any liability arising under this Agreement.

Section 4.4 Responsibility of CITY

CITY shall not be held responsible for the care or protection of any material or parts of the work prior to final acceptance, except as expressly provided herein.

Section 4.5 Insurance Requirements for CONSULTANT

CONSULTANT shall take out and maintain during the life of this Agreement, insurance coverage as listed below. These insurance policies shall protect CONSULTANT and any subcontractor performing work covered by this Agreement from claims for damages for personal injury, including accidental death, as well as from claims for property damages, which may arise from CONSULTANT'S operations under this Agreement, whether such operations be by CONSULTANT or by any subcontractor or by anyone directly or indirectly employed by either of them, and the amount of such insurance shall be as follows:

1. COMPREHENSIVE GENERAL LIABILITY

\$1,000,000 Bodily Injury -
Ea. Occurrence/Aggregate

\$1,000,000 Property Damage -
Ea. Occurrence/Aggregate

or

\$1,000,000 Combined Single Limits

2. COMPREHENSIVE AUTOMOBILE LIABILITY

\$1,000,000 Bodily Injury - Ea. Person

\$1,000,000 Bodily Injury - Ea. Occurrence

\$1,000,000 Property Damage - Ea. Occurrence

or

\$1,000,000 Combined Single Limits

NOTE: CONSULTANT agrees and stipulates that any insurance coverage provided to CITY shall provide for a claims period following termination of coverage.

A copy of the certificate of insurance with the following endorsements shall be furnished to CITY:

(a) Additional Named Insured Endorsement

Such insurance as is afforded by this policy shall also apply to the City of Lodi, its elected and appointed Boards, Commissions, Officers, Agents, Employees and Volunteers as additional named insureds insofar as work performed by the insured under written Agreement with CITY. (This endorsement shall be on a form furnished to CITY and shall be included with CONSULTANT'S policies.)

(b) Primary insurance Endorsement

Such insurance as is afforded by the endorsement for the Additional Insureds shall apply as primary insurance, Any other insurance maintained by the City of Lodi or its officers and employees shall be excess only and not contributing with the insurance afforded by this endorsement.

(c) Severability of Interest Clause

The term "insured" is used severally and not collectively, but the inclusion herein of more than one insured shall not operate to increase the limit of the company's liability.

(d) Notice of Cancellation or Change in Coverage Endorsement

This policy may not be canceled by the company without 30 days' prior written notice of such cancellation to the City Attorney, City of Lodi, P.O. Box 3006, Lodi, CA 95241.

(e) CONSULTANT agrees and stipulates that any insurance coverage provided to CITY shall provide for a claims period following termination of coverage which is at least consistent with the claims period or statutes of limitations found in the

California Tort Claims Act (California Government Code Section 810 et seq.). "Claims made" coverage requiring the insureds to give notice of any potential liability during a time period shorter than that found in the Tort Claims Act shall be unacceptable.

Section 4.6 Worker's Compensation Insurance

CONSULTANT shall take out and maintain during the life of this Agreement, Worker's Compensation Insurance for all of CONSULTANT'S employees employed at the site of the project and, if any work is sublet, CONSULTANT shall require the subcontractor similarly to provide Worker's Compensation Insurance for all of the latter's employees unless such employees are covered by the protection afforded by the CONSULTANT. In case any class of employees engaged in hazardous work under this Agreement at the site of the project is not protected under the Worker's Compensation Statute, CONSULTANT shall provide and shall cause each subcontractor to provide insurance for the protection of said employees. This policy may not be canceled nor the coverage reduced by the company without 30 days' prior written notice of such cancellation or reduction in coverage to the City Attorney, City of Lodi, P.O. Box 3006, Lodi, CA 95241.

Section 4.7 Attorney's Fees

In the event any dispute between the parties arises under or regarding this Agreement, the prevailing party in any litigation of the dispute shall be entitled to reasonable attorney's fees from the party who does not prevail as determined by the court.

Section 4.8 Successors

CITY and CONSULTANT each bind themselves, their partners, successors, assigns, and legal representatives to this Agreement without the written consent of the others. CONSULTANT shall not assign or transfer any interest in this Agreement without the prior written consent of CITY. Consent to any such transfer shall be at the sole discretion of CITY.

Section 4.9 Notices

Any notice required to be given by the terms of this Agreement shall be deemed to have been given when the same is personally served or sent by certified mail or express or overnight delivery, postage prepaid, addressed to the respective parties as follows:

To CITY: City of Lodi
F. Wally Sandelin, Public Works Director
221 West Pine Street
P.O. Box 3006
Lodi, CA 95241-1910

To CONSULTANT: Ecologic, Inc.
Neal Colwell, P.E.
3520 Brookside Road, Suite 141
Stockton, CA 95219

Section 4.10 Cooperation of CITY

CITY shall cooperate fully in a timely manner in providing relevant information that it has at its disposal.

Section 4.11 CONSULTANT is Not an Employee of CITY

It is understood that CONSULTANT is not acting hereunder in any manner as an employee of CITY, *but solely* under this Agreement as an Independent contractor.

Section 4.12 Termination

CITY may terminate this Agreement by giving CONSULTANT at least ten (10) days written notice. Where phases are anticipated within the Scope of Services, at which an intermediate decision is required concerning whether to proceed further, CITY may terminate at the conclusion of any such phase. Upon termination, CONSULTANT shall be entitled to payment as set forth in the attached Exhibit A to the extent that the work has been performed. Upon termination, CONSULTANT shall immediately suspend all work on the Project and deliver any documents or work in progress to CITY. However, CITY shall assume no liability for costs, expenses or lost profits resulting from services not completed or for contracts entered into by CONSULTANT with third parties in reliance upon this Agreement.

Section 4.13 Severability

The invalidity in whole or in part of any provision of this Agreement shall not void or affect the validity of any other provision of this Agreement.

Section 4.14 Captions

The captions of the sections and subsections of this Agreement are for convenience only and shall not be deemed to be relevant in resolving any question or interpretation or intent.

Section 4.15 Integration and Modification

This Agreement represents the entire integrated Agreement between CONSULTANT and CITY; supersedes all prior negotiations, representations, or Agreements, whether written or oral, between the parties; and may be amended only by written instrument signed by CONSULTANT and CITY.

Section 4.16 Applicable Law and Venue

This Agreement shall be governed by the laws of the State of California. Venue for any court proceeding brought under this Agreement will be with the San Joaquin County Superior Court.

Section 4.17 Contract Perms Prevail

All exhibits and this Agreement are intended to be construed as a single document. Should any inconsistency occur between the specific terms of this Agreement and the attached exhibits, the terms of this Agreement shall prevail.

Section 4.18 Authority

The undersigned hereby represent and warrant that they are authorized by the parties to execute this Agreement.

Section 4.19 Ownership of Documents

All documents, photographs, reports, analyses, audits, computer tapes or cards, or other material documents or data, and working papers, whether or not in final form, which have been obtained or prepared for this project, shall be deemed the property of CITY. Upon CITY's request, CONSULTANT shall allow CITY to inspect all such documents during regular business hours. Upon termination or completion, all information collected, work product and documents shall be delivered by CONSULTANT to CITY within ten (10) days.

CITY agrees to indemnify, defend and hold CONSULTANT harmless from any liability resulting from CITY's use of such documents for any purpose other than the purpose for which they were prepared.

IN WITNESS WHEREOF, CITY and CONSULTANT have executed this Agreement as of the date first above written.

CITY OF LODI, a municipal corporation

ATTEST:

By _____
RANDI JOHL
CITY CLERK

By _____
BLAIR KING
CITY MANAGER

APPROVED AS TO FORM:

Dated: _____

By _____
D. STEPHEN SCHWABAUER
CITY ATTORNEY



By: _____

Its: _____

November 20, 2009

Wally Sandelin, P.E.
Director of Public Works
City of Lodi
21 W. Pine Street
Lodi, CA 95240

RE: City of Lodi Surface Water Treatment Facility and Transmission Project - Scope of Work for Review of the Predesign Report and 30% Design Plans

Dear Mr. Sandelin:

ECO:LOGIC Engineering is pleased to provide the City of Lodi with this Scope of Services to provide engineering services for the technical and operational review of the Predesign Report and 30% plans for the Surface Water Treatment Facility and Transmission Project (Project) prepared by HDR, Inc.

The project has multiple components including:

- Raw water pump station and pipeline
- Conventional pretreatment and membrane filtration (including chemical systems and disinfection)
- Finished water storage, pump station, and transmission pipeline
- Well site piping improvements and addition of chlorination

The water treatment plant (WTP) is being designed for an initial phase capacity of 8 million gallons per day (MGD), with a buildout design capacity of 20 MGD. The City is considering pre-purchase of the Pall Microza pressure membrane system for the Project.

Presented below is an introduction to ECO:LOGIC's project team, followed by a detailed scope including the following tasks:

- Task 1 – Project Kickoff Meeting
- Task 2 – Predesign Report Review
- Task 3 – 30% Plan Review
- Task 4 – Design Review Workshops

Project Team

ECO:LOGIC's project team includes specialists from all necessary **aspects** of the design and operation of a surface water treatment facility. Presented below is **the** project team, including a brief description of their experience **as** it relates **to** this Project. Resumes for the proposed **team members are** attached for **your** information.

Project Manager – Neal Colwell, P.E.

Neal has **been** responsible **as** design engineer **or** project manager **for** numerous water and wastewater projects in the Central Valley. His experience includes design of small filtration systems, **granular** activated carbon systems, and ion-exchange treatment for nitrate and uranium, and storage **and** pumping of treated water, **Neal** has also **been** heavily **involved** in master planning, feasibility studies, permitting, and detailed design of water **and** wastewater systems for public agencies. Neal manages the Stockton office of ECO:LOGIC and, therefore, would be **responsible** for coordinating the ECO:LOGIC team and monitoring budget and schedule on **this** project.

Principal in Charge – Gerry LaBudde, P.E.

Gerry has **15** years of engineering experience **as** project engineer and manager **on** various projects and will provide QA/QC on this project. **Gerry has State of California Grade V** certifications in both water treatment and distribution. His experience includes design **of** water and wastewater treatment facilities, evaluation **and** design of wastewater collection and water distribution systems, construction management, **master** planning and start-up of various water/wastewater treatment systems. Additionally, he owns and operates a **1 Mgal/d** conventional water treatment plant and oversees the operation of three additional water treatment plants and distribution systems on a contract basis.

Operations Review – Rich Hartman

Richard has over **35 years** experience in the water treatment field. **His** operational and management experience with large water systems along **with** his expertise in plant **start up** and membrane technology trouble shooting **makes him a** valuable asset for **any** design, build, and operation project. Richard has a California Grade **V** Treatment Operator **Certificate** and Grade **IV** Distribution Operator Certificate.

As Water Operations Supervisor with South San Joaquin Irrigations District, Richard lead the start up/commission of a new membrane filtration surface water treatment plant and four remote pump stations that provide potable water to four wholesale city customers. **Rich** will bring this recent relevant experience commissioning and operating a new 40 Mgal/d membrane filtration plant.

Operations and Process Review – Mike Wilkin, P.E. (NV)

Mike has over **20** years of experience in water treatment and distribution operations, plus over **9** years experience **as an** engineer **planning** and designing water treatment plants, pump stations, wells and associated facilities. **Mike** has State of Nevada Grade IV certifications in **both** water treatment and distribution, **and** his resume includes water facilities planning, **surface** and ground water resource planning, river diversions and intakes, well production designs, groundwater treatment plant designs, surface water treatment plant designs, **design** of distribution system improvements, water storage **tanks**, and reclaimed water pumping and distribution systems.

Process and Regulatory Review – Dave Hunt, P.E.

Dave has over **19** years of experience in water treatment and regulatory compliance. He has extensive knowledge in surface water **and** groundwater **treatment** technology studies and water treatment plant designs. These include treatment technology evaluations and design of a uranium water treatment facility, treatment technology evaluations for groundwater treatment of iron, manganese and arsenic, treatment technology evaluation **and** design of a microfiltration **surface** water treatment plant, and **design** of a small diatomaceous **earth** water treatment facility for Bliss State Park. All of **the** treatment technology evaluations and treatment plant designs have included extensive coordination with **the** California Department of Public Health and Nevada State **Health** Division on the ability to **meet** existing, new, and pending Safe Drinking Water Act (**SDWA**) regulations.

Mechanical and Civil Review – Ray Kruth, P.E.

During his 28 years of engineering, Ray has acquired considerable experience in the areas of municipal water and wastewater treatment. His wastewater experience includes facility planning, collection systems, treatment facilities and effluent disposal. **Ray's** water **experience** includes facility planning, water treatment, distribution system modeling and design, storage tanks, pumping facilities, **well** equipping, and **rate** analysis, He has designed numerous water storage tanks, pump stations, **and both new** and replacement distribution systems. **He** has inspected

construction of water mains, **pump stations**, sanitary sewers, effluent force **mains**, and water storage tanks, and personally supervised construction and start-up of a private water pressure filtration plant and wastewater treatment facility.

Electrical/Instrumentation and Controls Review – Bill Cassity, P.E.

Bill is a registered Electrical Engineer in California and Nevada with over 17 years of systems integration and electrical engineering experience in **the** water and wastewater industry. Bill has **been responsible** for the design of power, instrumentation, and **SCADA systems** for numerous small and large treatment plant **projects**, Bill has extensive experience in PLC based **SCADA control systems** and has a great **track record of** delivering projects on-time and under budget.

Electrical/Instrumentation and Controls Review – Matt Boring

Matt has over **18 years** of experience in electrical system design engineering including complex design of **SCADA** and electrical systems specific **to** the water and wastewater industry. He has **been** responsible for installation and maintenance of **various SCADA systems and is experienced** in working with contractors during startup and testing of new systems.

Electrical/Instrumentation and Controls Review – Jeremy Pollet, P.E.

Jeremy **has** **12 years** of electrical engineering experience specializing in process controls/ industrial automation, **SCADA** systems, electrical power engineering, **and** project management. **Jeremy's** industrial sector experience includes water and wastewater treatment plants, pipelines, **pump** stations cogeneration, **electric** power generation, food processing, oil and **gas** processing, petrochemical, and refining.

Scope of Services

Task 1 – Project Kickoff Meeting

ECO:LOGIC will hold **an** initial meeting with the City of Lodi engineering and operations groups **to** gain a thorough understanding of **the** City's project goals and **objectives**, expectations and desired outcomes for the project. This will be **an opportunity to** meet key team members, and **focus** our **efforts** on the issues that **are of greatest** importance to the City.

Task 2 – Predesign Report Review

HDK, Inc. prepared a Feasibility Report and a series of Technical Memoranda (TM) that make up the Predesign Report for the Project. This includes a set of 21 TMs, and an Executive Summary. ECO:LOGIC will review the Feasibility Report and the following TMs from a technical and operational perspective. It is our understanding that TM 9 Corrosion Control, TM 18 Security, and TM 19 Environmental Compliance and Permitting will not be reviewed as part of this Scope of Work.

- TM 2 – Water Quality and Regulatory Compliance
- TM 3 – Raw Water Pump Station
- TM 4 – Pretreatment and Membrane Systems
- TM 5 – Chemical Systems and Disinfection
- TM 6 – Residuals Handling
- TM 7 – Site Plan
- TM 8 – Plant Hydraulics
- TM 10 – Finished Water Pump Station
- TM 11 – Finished Water Storage Tank
- TM 12 – Finished Water Transmission Main
- TM 13 – Well Modifications
- TM 14 – Architecture (from a process and operational standpoint)
- TM 15 – HVAC and Plumbing (from a process and operational standpoint)
- TM 16 – Electrical Systems
- TM 17 – Instrumentation and Control (SCADA)
- TM 20 – Project Implementation and Construction Sequencing
- TM 21 – Operations and Staffing Plan

During our review of these TMs, we will also review pertinent referenced documents prepared as part of the conceptual design phase.

Task 3 – 30% Plan Review

The WTP Predesign Report includes a Preliminary List of Drawings, and identifies those drawings that will be submitted as part of the 30% submittal. There are 93 drawings anticipated in the 30% package. Based on our current understanding of the project, ECO:LOGIC will focus its review on the following design components:

- General
 - WTP process flow schematic and design criteria

- Civil
 - **Raw** water pump station piping and floor plans
 - WTP processes, piping and floor plans
 - Well piping improvements
- Architectural (reviewed only **as they** relate **to process/operational effects**)
 - Floor plans **and** elevations for the raw water pump station, membrane/operations building, and high service pump station/chemical building
- **Process**
 - Raw water pump station piping and **floor** plans
- Pall Corporation
 - Layout plan
 - Overall membrane system **P&ID**
- Siemens/Memcor
 - Layout plan
 - **P&ID** for all systems
 - Backwash system
 - Treated water **tank** plan and sections
 - **Screw** press plan
 - Air compressor room plan
 - Chemical systems **area** plans
 - Flocculation basin plan
 - Plate settler plan
 - **CIP** tank plan **and** sections
 - Well site chemical. **system** plan and **sections**
- Electrical
 - Raw water pump station **plan**
 - **Raw** water pump station single-line diagram
 - Operations building electrical single-line diagram - main switchboard

- Pall Corporation single-line diagrams
- US Filter/Memcor single line diagrams, power and lighting electrical site plans, and well site plan and control
- Instrumentation
 - Process and instrumentation diagrams for the raw water pump station, WTP, autostrainer, membrane system, membrane analysis, screw press and conveyor, sludge pump, storage tank, chemical systems, polymer system, softened water system, generator, and well sites

Task 4 – Design Review Workshops

With a thorough understanding of the City's project goals and objectives, and following our review of the proposed process improvements and design criteria, a series of design review workshops will be conducted with appropriate staff from Lodi, HDR and ECO:LOGIC. Based on our current understanding of the project, the following design review workshops are proposed:

- Workshop 1: Process design criteria;
- Workshop 2: Mechanical equipment and layout;
- Workshop 3: Operational considerations and staffing plan;
- Workshop 4: Instrumentation & control strategy.

At least five working days in advance of each workshop, ECO:LOGIC will provide a brief memorandum to HDR and the City, which outlines the specific comments and topics for discussion. Following each workshop, ECO:LOGIC will provide a summary memo and decision log that documents the key decisions and outcomes.

Budget and Schedule

ECO:LOGIC will provide specialists from the appropriate disciplines to provide a thorough review of the design and operational aspects of the proposed surface water treatment facility. Our focus and level of effort will be directed by the City on the issues that are of greatest importance. Based on our understanding of the project, we estimate a level of effort of approximately \$50,000. Our charges would be based on actual time and expenses applied toward the design review, and will not exceed \$50,000 without your prior authorization. Attached is our 2009 Hourly Rate Fee Schedule which we will hold for the duration of this project as anticipated below.

Mr. Wally Sandelin
City of Lodi
November 20, 2009
Page 8

In order to maximize the value of our **services**, this project will be managed by **Neal** Colwell **from** our nearby Stockton office. We **are** pleased to be able to include substantial local participation on our team. **This** participation will help **reduce the** overall **cost** of these services and will also result in a direct recirculation of City dollars into the Lodi economy, thereby providing a stimulating effect **these** difficult **economic** times.

It is anticipated **that authorization** to **proceed with** this **work** will be provided on or around December 16, 2009. **We** would like to have all pertinent information available for review as soon as possible thereafter. **We** envision holding the initial project **kickoff** meeting in early **January** following the holidays, and completing the four design review **workshops** by **the** end of **February**.

Please contact **me** at **your** earliest convenience if you have any questions regarding this proposal. **Thank you** for the opportunity to serve the City of Lodi on this major undertaking.

Sincerely,

ECO:LOGIC Engineering



Neal Colwell, P.E.
Project Manager

Attachments:

- A - 2009 Rate Schedule
- B - Resumes

Attachment A

2009 Rate Fee Schedule

ECO:LOGIC Engineering
2009 HOURLY RATE FEE SCHEDULE

Labor	Hourly Rate	Labor	Hourly Rate
Engineer/Scientist		Construction Management	
Principal Engineer	\$208.00	Engineer (Various)	Per Above
Managing Engineer	\$197.00	Construction Manager/Inspector V	\$153.00
Supervising Engineer	\$187.00	Construction Manager/Inspector IV	\$139.00
Senior Engineer	\$178.00	Inspector III	\$118.00
Associate Engineer II	\$163.00	Inspector II	\$105.00
Associate Engineer I	\$151.00	Inspector I	\$95.00
Engineer	\$141.00		
Assistant Engineer II	\$127.00	Finance	
Assistant Engineer I	\$117.00	Senior Finance Specialist	\$179.00
Junior Engineer	\$104.00	Finance Specialist	\$116.00
Environmental Compliance Manager	\$187.00		
Chief Hydrogeologist	\$165.00	Technical	
Senior Hydrogeologist	\$151.00	Supervising Designer	\$129.00
Staff Hydrogeologist II	\$137.00	Senior Designer	\$121.00
Staff Hydrogeologist I	\$103.00	Designer III	\$110.00
Water Quality Scientist	\$163.00	Designer II	\$100.00
Biologist	\$138.00	Designer I	\$88.00
Soils Scientist	\$110.00	Graphics Specialist	\$95.00
Environmental Specialist	\$82.00	GIS Specialist	\$118.00
		Engineering Technician III	\$95.00
Electrical Engineering		Engineering Technician II	\$78.00
Senior Electrical Engineer	\$179.00	Engineering Technician I	\$66.00
Associate Electrical Engineer I	\$153.00	Engineering Intern	\$56.00
Electrical Engineer	\$143.00	Data Management Specialist	\$84.00
Assistant Electrical Engineer	\$127.00		
Junior Electrical Engineer	\$105.00	Administrative	
Sr. Field/SCADA Technician	\$151.00	Principal	\$215.00
Sr. SCADA Programmer	\$151.00	Administrative Assistant II	\$77.00
Asst SCADA/PLC Programmer	\$127.00	Administrative Assistant I	\$70.00
Operations		OTHER EXPENSES	RATE/AMOUNT
Project Manager II	\$160.00	Vehicle Mileage	\$0.55/mile
Senior Operations Specialist	\$155.00	CADD Equipment	\$15.00/hour
Project Manager I	\$130.00	Outside Services (Subconsultants)	Cost plus 10%
Operations Specialist	\$130.00	Reproductions	Cost plus 10%
Chief Plant Operator II	\$140.00		
Chief Plant Operator I	\$105.00		
Senior Operator	\$100.00		
Maintenance Supervisor	\$105.00		
Operator II	\$85.00		
Operator	\$80.00		
Operator I	\$60.00		
Lab Director	\$95.00		
Maintenance Mechanic	\$80.00		
Lab Analyst	\$78.00		
Operations Administrative Assistant	\$74.00		

Note: Hourly billing rates will be updated annually by ECO:LOGIC and the revised fees will be in effect as of January 1st of each year. The revised rates will be provided at the client's request.

Attachment B

Project Team Resumes

Neal T. Colwell, P.E.

Project Manager

Professional Registration

Civil Engineer No. 59437,
California, July 1999

Civil Engineer No. 014565,
Nevada, October 2000

Professional Engineer No. 62843
P.E., Oregon, Jan. 2000

Professional Engineer No. 500891,
Utah, December 1999

Water Treatment Plant Operator
Grade 1, California

Education

MS., Civil Engineering, Oregon
State University, Corvallis, 1999

B.S., Civil Engineering, University
of California, Berkeley, 1993

B.A., Environmental Studies,
University of California, Santa
Cruz, 1993

Professional Affiliations

Water Environment Federation,
Active Member Since 1996

American Water Works
Association, Member Since 1996

American Society of Civil
Engineers, Associate Member,
Since 1997

Publications

Reviewer, *Existing Sewer Evaluation
and Rehabilitation, Third Ed.*, Water
Environment Federation, 2009

Mr. Colwell joined ECO:LOGIC in 1997 following three years in Ecuador working with the United States Peace Corps and the Ecuadorian Foundation "E Q" where he served as Project Engineer. Before returning to school for graduate studies, he assisted in the design and planning of water treatment facilities, wastewater collection and transmission facilities and wastewater treatment facilities.

Since 2002, Mr. Colwell has managed the Stockton office of ECO:LOGIC and is working on numerous water, wastewater and groundwater projects for clients within the San Joaquin Valley and Sierra Nevada foothills.

Project Experience

Water Facilities Planning and Design

Lodi Flying J. Project Manager for the Lodi Flying J Well No. 3 Nitrate Treatment System Site Improvements. Retained design documents were prepared to accommodate the use of ion-exchange for nitrate reduction at this site. Our work included permitting assistance, startup, and preparation of an operation plan to meet the requirements of the local Environmental Health Department.

Prepared the preliminary design report for the Storage tank and booster pump station for Flying J, Lodi. This project consisted of preliminary design for a complex piping and control scheme to maintain refreshed water in an essentially "off-line" storage tank necessary to meet peak demands and fire flow requirements.

Following startup of the nitrate treatment system, an evaluation of the system for removing uranium was necessary. A monitoring program was developed to demonstrate uranium removal and document system performance for permit modification. Disposal of spent regeneration brine was a critical component of this evaluation.

Zone 7 Water Agency. Lead designer for the Zone 7 Water Agency Chain of Lakes Wells No. 1 and 2. Prepared detailed specifications for implementing a drilling program in this difficult setting. Project entailed two 18-in diameter municipal production wells using HSLA and 304 Stainless Steel well casing and screen to depths of 650 feet. Final well production ranged from 2,500 gpm to 3,500 gpm.

Amador County Water Agency. Assisted in the design/build of the Tanner Water Treatment Plant expansion for the Amador County Water Agency within very strict budgetary constraints.

Calaveras County Water District. Prepared the Copper Cove Water System Master Plan Update for the Calaveras County Water District, including updating the requirements for raw water facilities, treatment facilities and distribution and storage.

Prepared the follow-up phasing plan for the Copper Cove Water System Master Plan Update for the Calaveras County Water District including revised development schedules and projected capital improvement cash flow requirements.

Mountain House Community Services District. Assisted the preliminary design and final constructability-biddability review of the new Mountain House Water Treatment Plant.

Engineering Administration

District Engineer for Bear Valley Water District since 2001. Assisting the Water District with complex regulatory issues regarding wastewater disposal in the High Sierra including permitting of land disposal facilities and seasonal NPDES discharge.

Acting District Engineer for Calaveras County Water District during 2001. Responsible for engineering issues related to permitting, design, management and regulatory compliance of 5 water systems and 12 wastewater systems.

Project Manager for the Delhi County Water District for their proposed wastewater treatment facilities expansion to 2.4 Mgal/d. As Project Manager responsible for managing several engineering and environmental consultants, coordinating with agency committees and Board and managing project schedule.

Wastewater Facilities Design and Construction Management

Bear Valley Water District. Project manager and lead designer for the Bear Valley Water District outfall and outfall pipeline, including flow control and monitoring equipment necessary to meet permit requirements.

City of Rio Vista. Served as resident engineer/construction inspector on the City of Rio Vista WWTP Expansion.

City of Ceres. Reviewed the City designed new sewer trunk main and prepared a preliminary design report for headworks improvements to accommodate flows up to 17.3 Mgal/d from new sewer trunk main for the City of Ceres.

Managed and designed the City of Ceres WWTP expansion, including increased headworks capacity and odor control facilities, and increased treatment capacity using additional aeration and increased pond kinetics.

Lead designer of an effluent pump station for the City of Ceres capable of pumping initially 1.0 MGD and ultimately 59 MGD of secondary treated wastewater to the City of Turlock through a 13 mile long force main.

Gerry O. LaBudde, P.E.

Principal-In-Charge

Professional Registration

Civil Engineer No. **55767**
California

Water Treatment Plant Operator
Grade **4**, California

General Engineering Contractor
No. **772955**

Education

M.S. Environmental Engineering,
University of **California**, Davis

B.S., Civil/Environmental
Engineering,
California Polytechnic State
University, San **Luis** Obispo

Mr. LaBudde has **15** years of engineering experience as project engineer and manager on various **projects**. His experience includes design of water and **wastewater** treatment facilities, evaluation and design **wastewater** collection and water distribution systems, construction management, master planning and start-up of various **water/wastewater** treatment systems. Additionally, he **owns and** operates a **1 Mgal/day** conventional water treatment plant and **oversees the** operation of **three** additional water treatment plants and distribution systems on a contract operations basis. **As** part of the water treatment business he also performs general engineering contracting, including underground and **small mechanical jobs**.

Project Experience

Water Treatment

Dublin San Ramon Services District Fluoride Refurbishment Project. Project Engineer. The project included complete refurbishment of three fluoride storage/feed **systems** and water quality monitoring systems at three separate turnouts where the District purchased and diverted water from **Zone 7**.

City of Lincoln/Nevada Irrigation District Water Treatment Plant Siting Study. Project Engineer. Project included development of water demands within potential service area, estimation of the **overall** water demand reduction as **agricultural** land converted to municipal development, identified **13** potential sites for treatment plants including raw/treated **storage**, treatment facilities, and distribution system alignments to the City of **Lincoln**. Identified the preferred **site**, which was accepted by **both** the City and **District**,

Northstar Community Services District 1 MGD Water Treatment Plant Design. Project Engineer. Project includes retrofitting **existing** treatment plant to replace existing sand filters with membrane unit including various other improvements including chemical feed **and** residual handling.

Zone 7 Well Chloramination System Project, Project Engineer. Predesign and design of wells and centralized treatment **system** for the addition of chlorine **and** ammonia.

Mountain House Water Treatment Plant. Project Engineer for the preliminary **and** detailed design of the Mountain **House** Water Treatment Plant, which included **two** Trident treatment units with a capacity of **3 MGD** each, and **two** welded steel storage **tanks**, each with a capacity of **4.5 MG**.

Water Master Plans for the cities of Lockeford, Live Oak, Foresthill, Escalon, Christian Valley and Newman. Project Engineer for numerous water master plans for various communities including, Lockeford, Live Oak, Foresthill, Escalon, Christian Valley and Newman. Systems include groundwater wells and surface water treatment plants including conjunctive use systems.

Angels Camp Water Treatment Plant Expansion. Project Engineer for the expansion of the Angels Camp Water Treatment Plant including a new pressure filter, rehabilitation of an existing filter, new headworks, and a 2.5 MG welded steel storage tank.

Sierra Lakes County Water District Water Storage Tank. Project Engineer for the detailed design of the Sierra Lakes County Water District Water Storage Tank, which included a new booster pumping station and a 0.5 MG welded steel storage tanks.

Mustang Valley Mutual Water Company System. Performed hydraulic modeling analysis of irrigation distribution system to determine cause(s) of low pressure in the Mustang Valley Mutual Water Company System. Analysis provided recommendations to alleviate problem and further expand the system.

Hidden Valley Water System. Provided evaluation of the Hidden Valley Water System including review of Contractor submittal to rehabilitate pump station, provided hydraulic model assessment of distribution system, prioritized distribution and pumping system improvements and provided operational input to improve system efficiency.

Micke Grove Regional Park Feasibility Analysis. Performed feasibility analysis to evaluate treatment alternatives for DBCP removal versus an alternative water supply from the City of Lodi. Currently preparing contract documents for interim well head treatment system.

Master Planning

City of Williams Facility Plan, Developed a facility plan for the City of Williams considering new discharge regulations including the California Toxics Rule, DOHS requirements and nutrients. Evaluated the cost and reliability of several options including continuation of surface water discharge, construction of pipeline to discharge to an alternative receiving water and conversion to land discharge.

Lockeford CSD Water Master Plan. Prepared Water Master Plan for the Lockeford CSD. Evaluation included an alternative analysis of installation of additional wells or versus provision of storage, projection of future flows, distribution system improvements and development of annexation and connection charges.

Regional Water Quality Control Board, San Luis Obispo. Performed non-point source study to determine sources of total and fecal coliform affecting the Santa Barbara Channel while working at the Regional Water Quality Control Board, San Luis Obispo.

Richard Hartman

Senior Operator

Professional Registration

Grade V Treatment Operator
Certificate, #4967

Grade IV Distribution Operator
Certificate, #17804

Education/Certification

Certificate Water Treatment
Technologies

A.A., General Science

Currently taking courses at
California State University,
Sacramento to satisfy CEU
requirements

Professional Affiliation

American Water Works
Association

Mid Valley Water Association

Southwest Membrane Association

Richard retired in 2003 from City & County of San Francisco after 30 years continuous employment in the Water Treatment Industry. In 2003, he accepted seasonal part-time employment with CA Department Fish & Game; duties consisted of biological studies of Chinook Salmon and water quality data collection in the Central Valley Delta. In 2005, Richard left CA Fish & Game.

In February 2005, Richard accepted a permanent position as Water Operations Supervisor with South San Joaquin Irrigations District to start up/commission new membrane filtration surface water treatment plant and four remote pump stations that provide potable water to four wholesale city customers.

Richard has over 35 years experience in the water treatment field. His operational and management experience with large water systems along with his expertise in plant start up and membrane technology trouble shooting makes him a valuable asset for any design, build, and operation project.

Project Experience

South San Joaquin Irrigations District. (2005-2010 – Retiring in 2010) Water Operations Supervisor for South San Joaquin Irrigations District; responsible for operations, maintenance, regular reporting for 37 mgd surface water, DAF/ ultra-filtration treatment plant 4 38 miles transmission pipeline and 4 turnout pump stations.

Worked with B&V Engineer to complete construction, start up, testing and commissioning of all facilities. Plant was commissioned in July, 2005. Actively involved with developing treatment methodology to minimize affects of recycling citric acid waste and rate of fouling on membrane fibers; sludge handling and disposal, high dose recovery clean protocol, standard operations procedures, and hiring and training new operators.

Directly supervised 10 operators and 2 general laborers. Acting Plant Manager in his absence. Assist plant manager in budget preparation, monthly cost analysis and usage reports, DHS reports, lab reporting, monitoring and purchasing,

In 2007, Richard worked with B&V Engineer to finalize design and detail for a \$1.5 million optimization project, which encompasses chemical feed, mechanical, electrical and computer programming to optimize operation and design issues.

City and Council of San Francisco Department.

Supervisor EBFF - T5 DHS/ D2 DHS (1995 - 2003).

Water Supply & Treatment Division, Sunol. Responsible for supervising 5 employees in operation-maintenance repair of WH disinfection facility, 160 mgd San Antonio P. Station, Emergency Inter-tic P. Station, Sunol filtration P. Station, Pleasanton Well Field/Castlewood Reservoir, Town of Sunol P. Station Storage Tanks, 5 WQ monitoring/reporting stations.

Assistant Superintendent, Water Treatment Facilities T5 DHS. Responsible for EBFF & Sunol facilities in Tracy, Sunol, Pleasanton, and Irvington. Primary responsibility to deliver potable water to 2 million customers, 22 cities.

Chief Stationary Engineer Sunol Water Treatment Plant (1990 - 1995). T5 DHS. Directly supervised 3 shift supervisors, 11 water plant operators and various trades. Pro-active in developing Haz Mat Business Plan, reduction in THM treatment methods utilizing potassium permanganate, direct filtration methodology to reduce sludge production, completed plant upgrade construction project improving reliability.

Senior Station Engineer, Sunol WTP/EBFF (1984-1990). T4 DHS
Major responsibilities: to ensure safe and reliable delivery of potable water, safety training of all personnel, maintenance/repair of equipment and water quality online instruments, operate SCADA system to maintain operation parameters, purchase supplies and materials. Operate and maintain Pleasanton Well field facilities.

Station Engineer, Sunol WTP (1979 - 1984) T3 DHS

Assigned Water Plant Operator with responsibilities including, operating chemical metering pumps, utility water pumps, remotely operate large raw water supply pumps, calculate chemical dosages, monitor transmission system, operate sludge removal system, wash dual media filters, mix chemicals, operate and maintain chlorine feed system, complete plant reports.

Alameda County Zone 7 (1976 - 1979). Water Plant Operator T3 DHS

Operated various chemical metering systems to optimize coagulation, sedimentation, filtration and disinfection. Wash dual media filters, calculate dosages, operate sludge removal systems, operate gas chlorine system, monitor transmission system, complete reports.

City of Pleasanton (1974 - 1976).

General Laborer T1 DHS. Assigned to Water Department. Assisted journey level maintenance personnel in operation of several Well field facilities; pumps, chlorine and fluoridation chemical systems, storage tanks. Assisted in repairs of pipelines, service connections, fire hydrants.

Michael Wilkin, P.E.

Senior Engineer

Education

B.S., Environmental
Engineering, University of
Nevada, Reno

Registration

**Civil Engineer, No. 17270,
Nevada**

~~Water Treatment~~ Operator,
Grade 4, No. 217

Water Distribution Operator,
Grade 4, No 828

Mike has 8 years of experience as a senior engineer with ECO:LOGIC and has 28 years of experience in the operation, maintenance, planning, and design of water distribution and treatment facilities. Mike has State of Nevada Grade IV certifications in both water treatment and distribution, and his resume includes water facilities planning, surface and ground water resource planning, river diversions and intakes, well production designs, groundwater treatment plant designs, surface water treatment plant designs, design of distribution system improvements, water storage tanks, and reclaimed water pumping and distribution systems. Mike has 20 years of water treatment and distribution systems operations experience, including 10 years operations supervision and 5 years of maintenance supervision of two surface water treatment plants, 27 production wells with a combined production capability of over 150 Mgal/d, and a distribution system with more than 200 remote facilities, 98 pump stations, 30 pressure zones, and 25 water storage tanks. Mike has 5 years of maintenance management experience; including project manager for a SCADA system installation upgrade, and a Computerized Maintenance Management System (CMMS) installation for the Water Production Department. He has participated in a variety of design projects, including a new 70 Mgal/d surface water treatment plant design, construction, and stamp, plus upgrades to an existing 37.5 Mgal/d surface water treatment plant to meet current SDWA regulations, installations, including the construction and startup of three PCE well remediation facilities.

Project Experience

ECO:LOGIC Project Manager for the Shasta River Grenada Irrigation District Intake and Pump Station Replacement Project . ECO:LOGIC is a sub consultant to NHC on this project, and is providing the structural, civil, and mechanical design for a new 40 CFS intake and pump station for the irrigation district that meets current fish passage and screening criteria.

Project Manager for the City of Galt Arsenic Treatment Project. Project Manager for the design of 10 MGD retrofit arsenic treatment project that included four well sites for the City of Galt, California. The project includes arsenic treatment piloting, retrofit facility design for arsenic treatment and CM for installation.

Project Manager for the Glendale Water Supply Improvement Project. Design to provide 60 CFS of supply capacity to the Glendale Water Treatment Plant (ongoing project). As the leader of this team, Mike was instrumental in defining the site selection and design criteria for this replacement river diversion including civil design, hydraulic modeling, and fish screening issues, to ensure meeting. This project involves removal of an existing rubble and concrete diversion dam on the Truckee River, and

replacement with a new rock grade control structure. The project required extensive hydraulic modeling.

Project Manager for the Sierra Pacific Power Company Tracy Power Plant Design Build RO WTP. This design build WTP project was in conjunction with KG Walters Construction Company, and included membrane Microfiltration and reverse osmosis of 500 GPM to provide boiler feed water from a high TDS groundwater well.

Design Engineer for the Northstar Community Services District. ECO:LOGIC Project Design Engineer for the installation of a 700 GPM membrane treatment plant retrofit for the Northstar Community Services District, California.

Project Manager for the Sparks Water Resource Plan. Project Manager for the Truckee Meadows Water Authority Sparks Resource Plan. Plans include evaluation of surface and groundwater resources, groundwater treatment requirements and alternatives, alternative treatment plant locations, distribution system improvements, estimated capital and O&M costs. This project included arsenic pilot treatment for five groundwater wells.

Project Engineer for TMWA Arsenic Compliance Plan - Reno, NV. The Arsenic Compliance Plan included evaluation of the best available arsenic treatment technologies, combined with onsite or regional treatment facilities. The regional treatment facility plans including identifying treatment sites, required treatment technologies, distribution pipeline alignment, and capital costs associated with each alternative.

Project Engineer for TMWA Water Resource / Facility Plan - Reno, NV. Detailed analysis of TMWA's water production capabilities in both drought and non-drought situations were performed to provide TMWA with a resource facility plan that allows for maximum groundwater production during periods of diminished surface water supply, and maximum surface water production with scheduled conservation of groundwater resources during periods of adequate surface water supply.

National Avenue Water Treatment Plant Improvement Project - Tahoe Vista, CA. Project engineer and construction management team member for the National Avenue Water Treatment Plant Improvement Project. The project consisted of converting an existing Lake Tahoe pump station to a 25 micron screened, UV disinfection facility. This facility is the first potable water UV installation in the country.

Tonopah Public Utilities Water Distribution Improvements - Washoe County, NV. Project design team member for the Tonopah Public Utilities Water Distribution Improvements that included modeling and design of four new water tanks, 10,000 feet of new potable water lines, and installation of a new radio telemetry SCADA system.

Glendale Water Treatment Plant. Resign and operations / construction / startup coordinator for the installation of the Glendale WTP solids handling and filter upgrade project. Also responsible for the installation of the SCADA system upgrade.

David T. Hunt, P.E.
Senior Engineer

Education

M.S. Environmental Engineering,
California State University, Long
Beach

B.S., Civil Engineering, California
State University, Long Beach

Registration

Civil Engineer No. 11341, Nevada

Civil Engineer No. 71254, Calif.

Mr. Hunt has over **19 years** of public water system experience in Nevada and California, including more **than 9 years** as a senior engineer and project manager for ECO:LOGIC Engineering. Past responsibilities include overseeing the Surface Water Treatment Rule for the Nevada State **Health** Division, and assisting **utilities** with compliance requirements. Project experience includes research, **analysis** and design of water **treatment** facilities and process improvements; start-up, troubleshooting and treatment process optimization.

Project Experience

Truckee Meadows Water North Virginia Pipeline Project. Project Manager and Engineer for the planning and design of more than 30,000 linear feet of **large** diameter water main for the Truckee Meadows Water Authority **North** Virginia Pipeline Project. **This** project included extensive **permitting** and multiple **contracts** for the procurement of materials and installation of the pipeline and appurtenances.

Northstar Community Services District Pump Station and Pipeline Project Project Manager and Engineer for the Northstar Community Services **District Pump Station and Pipeline Project** which **1,500 gpm pump station** and approximately 3,000 feet of **suction** piping to the pump station and another 1,000 feet of **discharge** piping to the **Districts** Reservoir **D** water **storage** tank **along** Northstar **Drive**.

Northstar Community Services District Water Treatment Facility. Project Manager and Engineer for the Northstar **Community** Services District Water Treatment Facility Upgrade Project which included the **planning** and design to retrofit an existing gravity filtration system with membrane filtration.

Truckee Meadows Water Authority Arsenic Compliance Plan. Project Engineer for Truckee Meadows Water Authority **Arsenic Compliance Plan** including regulatory negotiations with local, state, and federal EPA.

Squaw Valley Public Service District (SVPSD). Project Manager for the preparation of water master plan for the Squaw **Valley** Public Service District (SVPSD), which included preparation of a water **distribution** system model.

Squaw Valley Public Service District (SVPSD). Project Manager for the design of **two** water supply wells for the **SVPSD**, including preparation of CEQA mitigated negative declaration.

Squaw Valley Public Service District (SVPSD). Project Manager for the design of civil improvements for the new SVPSD Fire Station and Administration Building, including CEQA documentation, SWPPP, drainage improvements, and grading plan.

Squaw Valley Public Service District (SVPSD). Project Manager for the design and construction of 1,500 feet of 12-inch waterline along Squaw Valley Road.

Death Valley National Park. Project Manager for potable and non-potable water system analysis at Death Valley National Park for Xanterra Parks & Resorts.

Town of Gerlach. Project Manager for the design of a uranium water treatment facility using ion exchange for the Town of Gerlach. This project included environmental negotiations with the BLM regarding waste disposal options.

Town of Gerlach. Project Manager for design and construction of water meter installation for the Town of Gerlach.

Town of Gerlach. Prepared Treatment Technology Evaluation for Gerlach General Improvement District for uranium removal from their drinking water supply.

North Valley Facility Plan. Provided water distribution system analysis for the North Valley Facility Plan to determine facility and operational requirements to meet the potable water demands of existing and future customers in the Stead/North Valley area.

Glenbrook Water Cooperative Waterline Replacement Project. Project Engineer and Manager for Glenbrook Water Cooperative Waterline Replacement Project, involving replacement of approximately 1,100 LF of water line through NDOT tight-of-way.

South Truckee Meadows Water Supply. Developed build-out water demands for the South Truckee Meadows Water Supply, Wastewater and Stormwater Facility Plan.

Squaw Creek Embankment Reinforcement Project. Project Manager for Squaw Creek Embankment Reinforcement Project, which included fast-track permitting through California Regional Water Quality Control Board, California Department of Fish and Game, and U.S. Army Corps of Engineers for the construction of a 20' high rockery wall to stabilize a portion of the bank of Squaw Creek.

Raymond C. Kruth, P.E.

Senior Engineer

Education

B.S., Chemical Engineering,
University of California, Berkeley

Registration

Civil Engineer No. **C31861,**
California

Civil Engineer No. **CE 6233,**
Nevada

Civil Engineer No. 25197, Arizona

Mr. Kruth has acquired considerable experience in **the areas of** municipal water **and** wastewater **treatment**. His wastewater experience includes **facility planning, collection systems, treatment facilities and effluent disposal**. Water **experience** includes **facility planning, distribution system modeling and design, storage tanks, well equipping, rate analysis**. He **has** designed a number of **AWWA** water storage tanks and both new **and** replacement **distribution systems**. His wastewater **tasks** have included design of sewage collection **systems, sewage** pump stations, odor control systems, and wastewater treatment **systems**. He has inspected construction **of** water **mains, sanitary sewers, effluent force mains, and water storage tanks, and personally supervised construction and start-up of a private water pressure filtration plant and wastewater treatment facility**. Most of his projects involved Federal or State **agency** funding, and Ray is **very familiar** with the requirements of the **Rural** Development, CDBG, AB198, and State Revolving Loan Fund, EDA and other funding agencies.

Project Experience

Town of Tonopah Water System Improvements. Project Manager for the **Town** of Tonopah water **system** improvements, including 20,000 LF of water line, telemetry, three new storage **tanks**, and recoating of five **additional tanks**. Funding is provided by AB198 and Rural Development.

South Truckee Meadows General Improvement District (STMGID). Design engineer for the STMGID **Wells 1 & 2** Aquifer Storage and Recovery project **south** of Reno, NV.

Project Manager for the Wastewater Collection and Treatment Project, East Quincy, California. Design and construction administration **of** 110,000 lf of sewer collection system, three pump stations **and** a new wastewater treatment facility. **The project total was 69.13 million.**

City of Loyalton. Project manager for the City of Loyalton wastewater treatment facility, which is involved in **performance** evaluation and litigation with **the** design engineer. Issues involve effluent disposal, surface water discharge conditions, and **treatment** evaluation.

Reno/Sparks Water Reclamation Facility and South Truckee Meadows Water Reclamation Facility. Prepared the majority of the **effluent distribution system analysis** for the Regional Water Reclamation Facility Study for the Reno/Sparks WRF and the South Truckee **Meadows WRF**.

Rio Vista Airport Improvement Project. Project Manger for the 1999 Rio Vista, CA airport improvement project, consisting of water, wastewater, taxiway and industrial park improvements. Funding included FAA, CALTRANS Aeronautical, ERA, and EDBG grants.

Kingsbury General Improvement District Project Design Engineer and Manager for the Kingsbury G.I.D. Station 2 Tank Replacement, involving demolition and replacement of a 400,000 gallon water storage tank at Station 2.

Jackpot Water Modeling. Project Manager for the Jackpot Water Modeling, Elko County, Nevada. Prepared a Cybernet water model and calibration and results analysis for a system involving five wells and three water storage tanks.

Douglas County Mountain View Water System. Project Manager for the Douglas County Mountain View Water System, Douglas County, Nevada. Prepared a preliminary engineering report and design of water system improvements to include 15,000 lf water line, 1.5 million gallon water tank, and 1,000 gpm booster pumps station.

Kingsbury General Improvement District Prepared design and administered construction of a new 500,000 gallon welded steel water storage tank for the Kingsbury General Improvement District, Stateline, Nevada.

Kingsbury General Improvement District Lake Pump Station. Preliminary engineering, design and construction of a large 4,000gpm pump station at lake level including a 25" intake line, vertical turbine pumps, building and electrical controls for the Kingsbury General Improvement District Lake Pump Station, Stateline, Nevada.

Fallon, Nevada Wastewater Facilities. Designed two raw sewage pump stations; and 8,000 lf of 8" to 24" sewer interceptors for the Wastewater Facilities in Fallon, Nevada, Pump station capacities vary from 1,000 to 8,000 gpm.

Wells, Nevada Sewer Collection System. Preliminary engineering, design and construction administration of several thousand feet of 10" sewer collection system, water line replacement and storm drainage collection system for Wells, Nevada. Preparation of a wastewater facility plan for the treatment of wastewater and development of a master plan for major interceptors and pump stations for Fallon, Nevada.

Wells, Nevada. Design of distribution piping, water storage, new well, pumphouse, pumping equipment, rehabilitated existing pumping facility, telemetry, and water meters in Wells, Nevada. The total project cost was \$1.9 million, and was funded by FmHA and EDA.

William P. Cassity, P.E.

Electrical Engineer

Education

B.S., Electrical and Electronic Engineering, California State University, Sacramento, CA.
Graduated Magna cum Laude

Registration

State of California Professional Engineer – Electrical No. 17132

State of Nevada Professional Engineer – Electrical No. 15775

State of California Electrical Contractor RME

C-10 License No. 917327

William is a knowledgeable, energetic and focused Professional Electrical Engineer with 15 years experience in control systems integration and operations management. His major strengths include project design planning, initiation and management. Also skilled in budgeting, teambuilding, programming and accessing/ managing risk. Extensive experience in PLC based SCADA control systems. William has a great track record of delivering projects on-time and under budget with satisfied customers.

Project Experience

Electrical Design Projects

City of Reno Stead WWRF Upgrade. Provided Electrical Design for major plant upgrade including new 24.5KV feed and 4160V switchgear to feed new and existing electrical system. The Modicon Quantum based SCADA control system was enhanced and extended in support of the plant upgrades.

City of Reno Stead Solids Pump Station. Provided Electrical Design for solids pump station and pipeline as well as adding in new PLCs to existing SCADA system.

PCWA Bickford Ranch BPSs. Provided electrical and PLC based controls design in support of 2 water booster pump stations and reservoir.

Donner Summit PUD WWTP Improvements. Provided electrical and controls design assistance for plant improvements including a new Lime Silo and rehabilitation of a treatment unit.

City of Rio Vista Reservoir and BPS. Provided electrical and PLC based controls design in support of a water booster pump station and reservoir

SCADA Projects

Vidler Water Company – Fish Springs Ranch Water SCADA System Providing SCADA and PLC programming as well as SCADA and fiber optic networking gear. Project links 5 wells and a terminal tank to the medium voltage booster pump station using fiber optic cabling. SCADA system is Wonderware Industrial Application Server SCADA platform that communicates to AB Compact and Controllogix PLCs. Acting as PM and overall project engineer for the project.

NCSD TH2 Water Well SCADA System. Installed an A 3 Micrologic 1100 PLC based Wonderware SCADA system. The PLCs communicate over radio and eventually will have a fiberbackbone with a radio backup channel. System is being upgraded to include new filter plant and other sites including lift stations. Acted as PM and project engineer for the project.

City of Reno Stead WWRF SCADA. Upgraded SCADA system from

<1000 I/O tags to over 4500 during major plant expansions. Added 2 Modicon Quantum PLCs and connected to several other PLCs from vendor supplied panels using a variety of media and protocols including wireless, fiber and serial. Acted as Project Engineer/PM and programmer for the Wonderware SCADA system.

City of Hawthorne Whisky Flats Well Radio Telemetry System. SCADAPack PLC based controls that utilized licensed radios to control well pump operations. The radio system transmitted data and commands to and from the Hawthorne SCADA system. Also designed a bucket brigade style of repeater that allowed one radio to collect information on one side of the mountain (Mina) and then retransmit it to the main SCADA system in Hawthorne to allow remote monitoring of the Mina sites. Acted as project engineer and PM for radio telemetry work.

City of Hayward Sewer SCADA. SCADA system with 28 Intellimatic RTUs that communicate over licensed radios to a Wonderware based SCADA system. Acted as Project Engineer/PM and programmer for both SCADA and RTUs.

Other Experience

Electrical Engineer - ATEEM Engineering (Reno, NV). Prepared project documentation including drawings and project specifications for electrical and instrumentation, electrical engineering project analysis and design. Project specifications included preparing detailed descriptions of control strategies used by contractors to program the PLC and setup Graphic Operator Interface. Perform software programming of PLCs and SCADA in system startups as required.

Project Engineer - Arora Engineering (Reno, NV). Managed projects in the Water / Wastewater industries. Coordinate efforts of support engineers and manage active projects through lifecycle.

Manager of Engineering/Maintenance - Ralston Foods (Sparks, NV) Managed efforts of staff engineers and 24 maintenance personnel. Responsible for budget and energy costs as well as proper operation of overall plant assets. Developed, implemented and championed, using a cross-functional team, Equipment Reliability processes which improved work and material management.

Project Engineer - Sierra Controls Systems (Carson City, NV). Engineered and managed wireless based SCADA systems throughout Northern NV. Worked in a team environment to complete assigned projects. Systems included PLCs, Radio Telemetry and PC based front-end programs. Ladder Logic and C programming. Introduced new hardware that reduced cost of services by 20 percent allowing a lower cost unit to be developed and sold.

Matt Boring Senior Electrical Specialist

Matt has over 18 years of experience in electrical system design engineering including complex design of SCADA and electrical systems specific to the water and wastewater industry. Matt has been responsible for installation and maintenance of various SCADA systems and is experienced in working with contractors during startup and testing of new systems. Matt joined ECOLOGIC in 2006 following five years with A.T.E.M. Electrical Engineering as a field manager. Prior to A.T.E.M., Matt served as SCADA technician, electrician and system mechanic for El Dorado Irrigation District (EID).

As an Electrical/SCADA Group Leader, Matt's responsibilities include the following:

- Manage field personnel and electrical/SCADA design projects of varying size.
- Prepare electrical/SCADA designs for projects such as Auburn WWT expansion, City of Angels WWT expansion and Koncidi Water District, Raw Water Pumping Station.
- Responsible for collecting field data and working closely with plant operators for design of complex SCADA and electrical systems.
- Design, construct and install control panels and equipment for various SCADA and pilot projects.
- Provide factory/field testing of process and motor control systems for treatment plant projects.
- Complete constructability, peer, and QA/QC reviews for treatment plant designs.
- Provide electrical inspection and prepare reports for client projects.

Project Experience

City Of Auburn Wastewater Treatment Plant Expansion. Responsible for electrical and SCADA system design. Project included a new Trojan UV Disinfection system and secondary clarifier. A complete control system upgrade was also included that replaced an outdated proprietary system. Design documents included P&IDs, electrical one-lines, conduit schedules, lighting panel and power panel schedules, lighting fixture schedules, and division 16 electrical specifications. Additional duties included electrical inspections and submittal reviews.

City of Angels Wastewater Treatment Plant Expansion. Developed electrical and control drawings for plant expansion. Expansion included a new WEBDECO UV Disinfection System as well as filter feed pumping and headwork's rehabilitation. SCADA System was also upgraded to include new equipment as well as enhancement to existing process. Design documents included P&IDs, electrical one-lines, electrical power plans, conduit schedules, lighting panel and power panel schedules, lighting fixture schedules, installation details, and division 16 electrical specifications. Other duties included installation of Allen Bradley ControlLogix Bridge to enable communication between older Allen Bradley SLC controllers and newer ControlLogix programmable controllers. Additional duties included electrical inspection and submittal reviews.

City of Colfax Collection System Improvements. Managed electrical design for the modification of four sewage lift stations. Including: Process and Instrumentation Drawings (P&ID's), Power and control drawings and site electrical plans. System was connected to a Cellular telephone, Web based monitoring and alarm system.

Konicti Water District Raw Water Pump Station. Responsible for the design of the Districts Raw Water pump station electrical system replacement. Provided Power and Control drawings as well as division 16 electrical specifications for 600 Horse Power pump station

Flying J Nitrate Removal System. Designed power and controls for variable speed well pumping system. Project also included process controls for blending of raw water with treated water from a vendor supplied Nitrate removal system. Design documents included P&IDs, electrical one-lines, electrical power plans, conduit schedules, lighting panel and power panel schedules, lighting fixture schedules, installation details, and division 16 electrical specifications. Additional duties included electrical inspection and submittal reviews;

Jamestown Sanitary District Dewatering Equipment Addition. Design and construction assistants for the installation of solids handling equipment.

Cache Creek Casino Storm Drainage Pump Station. Designed power and control for storm drain pumping station. System was integrated into an existing SCADA network for remote control and monitoring.

City of Woodland Chemical Facility Improvements. Responsible for power and control design and division 16 electrical specification for new chemical feed system. Project included four coagulant pumps as well as a polymer blending system for pre filtration chemical addition. Additional duties included electrical inspection and submittal reviews.

Northstar SCADA System Upgrade. Responsible for constructing, installing and testing of several Remote Telemetry Units (RTU's) for water and wastewater facilities. Project included a complete replacement of a proprietary SCADA system including approximately ten stations.

City of Reno Pump Controls. Design, construct, install and test control panel for scum Drainage pump station.

Micke Grove Pressure Monitoring System. Designed and built four pressure monitoring panels for installation around the park. Panels included a pressure transmitter and circular chart recorder with an alarm beacon to alert operators of low pressure conditions.

□ City of Woodland RAS Pump Station Electrical/SCADA Improvements

A T.E.E.M. Electrical Engineering - Technician/Field Manager

- Responsible for gathering field data for design of complex SCADA and electrical systems specific to the water and waste water industry.
- Prepare drafting ready electrical/SCADA designs for water and waste water projects.
- Provide factory/field testing of process and motor control systems.
- Complete constructability and peer reviews for water and waste water projects.
- Provide electrical inspection and prepare reports for client projects.
- Assist client technical staff with complex troubleshooting issues/provide technical reports outlining findings and providing sound solution for process control problems.

Jeremy J. Pollet, P.E., CAP

Registered Electrical Engineer & Certified Automation Professional®

Education

B.S., Electrical Engineering
University of New Orleans,
Louisiana

Registration

Electrical Engineer, No. 17557,
California

ISA Certified Automation
Professional, No. 40116

Wonderware® ArchestrA™
Certified Developer

Wonderware® Certified Systems
Integrator

Jeremy has 12 years of electrical engineering experience specializing in process controls/ industrial automation, SCADA systems, electrical power engineering, and project management. Jeremy's industrial sector experience includes water and wastewater treatment plants, pipelines, pump stations cogeneration, electric power generation, food processing, oil and gas processing, petrochemical, and refining. Expertise areas include:

Electrical Design Engineering

- ❑ Electrical power distribution design and analysis
- ❑ Electrical system modeling
- ❑ **Single-line diagrams**
- ❑ Motor controls, wiring **schedules**, load calculations, electrical specifications
- ❑ Economic evaluations, feasibility **studies**, technical **memorandums**, submittal reviews
- ❑ Pre-design and design reports
- ❑ **Cost** estimates and bid document preparation

Process Controls / Industrial Automation

- ❑ **Hardware, software, and instrumentation specifications**
- ❑ Piping and instrumentation diagrams (P&IDs)
- ❑ PLC programming (experienced with a wide variety of PLCs)
- ❑ Control panel design
- ❑ Communication **networks** design
- ❑ Control strategies and system **documentation**
- ❑ System startup & commissioning

SCADA Systems

- ❑ **Process** monitoring and control interface screens (multiple SCADA system packages)
 - ❑ Database development, data collection, reporting, **trending**
 - ❑ **Alarm** philosophies, alarm systems, auto-dialer configuration
- Project Management

Project Management

- ❑ Project definition, project scoping and **estimates**
- ❑ Resource planning
- ❑ Project lifecycle tracking
- ❑ Project **reporting** and analysis

Project Experience

City of Davis, CA – SCADA Pilot Project. Designed, integrated, and installed a new Ethernet-based SCADA system for the City's public works department. The system consisted of Motorola Canopy Ethernet Radios and Allen Bradley MicroLogix PLCs. This project also included video surveillance over the Ethernet radio system. The City's elevated water storage tank, water wells, storm drain stations, and sewage lift stations were included in this project.

Nevada County Sanitation District Lake Wildwood WWTP – Complete Plant Automation. Supervisory Control of the entire wastewater plant utilizing Wonderware's Industrial Application Server (IAS) Platform (version 2.1, patch 2). SCADA system architecture consisted of a three servers running Microsoft® Windows Server 2003 (two IAS terminal servers – one primary and one failover, and one InSQL Historian). Workstations throughout the plant used Microsoft® Remote Desktop Connections to run InTouch for Terminal Services 9.5 sessions from the primary IAS server. Allen Bradley ControlLogix Programmable Automation Controllers were polled with Wonderware® DA Server. SCADAalarm version 6.0 patch 1 was used for alarm annunciation to the on-call operator's cell phone or pager.

City of Woodland Water Pollution Control Facility – SCADA Systems Integration. SCADA system development with Intellution (GE/Proficy) iFIX to accommodate the plant expansion. SCADA system architecture consisted of a primary and backup SCADA node (each running Microsoft® Windows XP), one terminal server (running Microsoft® Windows Server 2003) and one iHistorian computer (running Microsoft® Windows 2000 Professional). Workstations throughout the plant used terminal services sessions to view the plant data. SCADAalarm version 5.0 was used for alarm annunciation to the on-call operator's cell phone or pager.

El Dorado Irrigation District - Electrical Power and Controls Design
Licensed Electrical Engineer in responsible charge for the electrical power and controls design for a very large scale Waste Water Treatment Plant expansion. Design documents included P&IDs, electrical one-lines, electrical power plans, conduit schedules, lighting panel and power panel schedules, lighting fixture schedules, installation details, and division 16 electrical specifications.

City of Merced - Electrical Power and Controls Design. Licensed Electrical Engineer in responsible charge for the electrical power and controls design for a very large scale Waste Water Treatment Plant expansion. Design documents included P&IDs, electrical one-lines, electrical power plans, conduit schedules, lighting panel and power panel schedules, lighting fixture schedules, installation details, and division 16 electrical specifications. In addition to multiple individual design responsibilities, this project involved direct management and supervision of a team of design engineers and technical assistants.

AGREEMENT FOR CONSULTING SERVICES

**ARTICLE 1
PARTIES AND PURPOSE**

Section 1.1 Parties

THIS AGREEMENT is entered into on _____, by and between the CITY OF LODI, a municipal corporation (hereinafter "CITY"), and HDR, INC. (hereinafter "CONSULTANT").

Section 1.2 Purpose

CITY selected the CONSULTANT to provide the conceptual design services required in accordance with attached scope of services, Exhibit A.

CITY wishes to enter into an agreement with CONSULTANT for SURFACE WATER TREATMENT FACILITY AND TRANSMISSION PROJECT – FINAL DESIGN SERVICES project (hereinafter "Project") as set forth in the Scope of Services attached here as Exhibit A.

**ARTICLE 2
SCOPE OF SERVICES**

Section 2.1 Scope of Services

CONSULTANT, for the benefit and at the direction of CITY, shall perform the scope of services as set forth in Exhibit A, attached and incorporated by this reference.

Section 2.2 Time For Commencement and Completion of Work

CONSULTANT shall commence work within ten (10) days of executing this Agreement, and complete work under this Agreement based on the schedule included in Exhibit A.

CONSULTANT shall not be responsible for delays caused by the failure of CITY staff or agents to provide required data or review documents within the appropriate time frames. The review time by CITY and any other agencies involved in the project shall not be counted against CONSULTANT's contract performance period. Also, any delays due to weather, vandalism, acts of God, etc., shall not be counted. CONSULTANT shall remain in contact with reviewing agencies and make all efforts to review and return all comments.

Section 2.3 Meetings

CONSULTANT shall attend meetings as indicated in the Scope of Services, Exhibit A.

Section 2.4 Staffing

CONSULTANT acknowledges that CITY has relied on CONSULTANT's capabilities and on the qualifications of CONSULTANT's principals and staff as identified in its proposal to CITY. The scope of services shall be performed by CONSULTANT, unless agreed to otherwise by CITY in writing. CITY shall be notified by CONSULTANT of any change of Project Manager and CITY is granted the right of approval of all original, additional and replacement personnel in CITY's sole discretion and shall be notified by CONSULTANT of any changes of CONSULTANT's project staff prior to any change.

CONSULTANT represents that it is prepared to and can perform all services within the scope of services specified in Exhibit A. CONSULTANT represents that it has, or will have at the time this Agreement is executed, all licenses, permits, qualifications, insurance and approvals of whatsoever nature are legally required for CONSULTANT to practice its profession, and that CONSULTANT shall, at its own cost and expense, keep in effect during the life of this Agreement all such licenses, permits, qualifications, insurance and approvals.

Section 2.5 Subcontracts

CITY acknowledges that CONSULTANT may subcontract certain portions of the scope of services to subconsultants as specified and identified in Exhibit A. Should any subconsultants be replaced or added after CITY's approval, CITY shall be notified within ten (10) days and said subconsultants shall be subject to CITY's approval prior to initiating any work on the Project. CONSULTANT shall remain fully responsible for the complete and full performance of said services and shall pay all such subconsultants.

ARTICLE 3 **COMPENSATION**

Section 3.1 Compensation

CONSULTANT's compensation for all work under this Agreement shall conform to and shall not exceed the provisions of Fee Proposal, attached as a portion of Exhibit A.

CONSULTANT shall not undertake any work beyond the scope of this Agreement unless such additional work is approved in advance and in writing by CITY.

Section 3.2 Method of Payment

CONSULTANT shall submit invoices for completed work on a monthly basis, providing, without limitation, details as to amount of hours, individual performing said work, hourly rate, and indicating to what aspect of the scope of services said work is attributable.

Section 3.3 Costs

The fees shown on Exhibit A include all reimbursable costs required for the performance of the individual work tasks by CONSULTANT and/or subconsultant and references to reimbursable costs located on any fee schedules shall not apply. Payment of additional reimbursable costs considered to be over and above those inherent in the original Scope of Services shall be approved by CITY.

CONSULTANT charge rates are attached and incorporated with Exhibit A. The charge rates for CONSULTANT shall remain in effect and unchanged for the duration of the Project unless approved by CITY.

Section 3.4 Auditing

CITY reserves the right to periodically audit all charges made by CONSULTANT to CITY for services under this Agreement. Upon request, CONSULTANT agrees to furnish CITY, or a designated representative, with necessary information and assistance.

CONSULTANT agrees that CITY or its delegate will have the right to review, obtain and copy all records pertaining to performance of this Agreement. CONSULTANT agrees to provide CITY or its delegate with any relevant information requested and shall permit CITY or its delegate access to its premises, upon reasonable notice, during normal business hours for the purpose of interviewing employees and inspecting and copying such books, records, accounts, and other material that may be relevant to a matter under investigation for the purpose of determining compliance with

this requirement. CONSULTANT further agrees to maintain such records for a period of three (3) years after final payment under this Agreement.

ARTICLE 4 **MISCELLANEOUS PROVISIONS**

Section 4.1 Nondiscrimination

In performing services under this Agreement, CONSULTANT shall not discriminate in the employment of its employees or in the engagement of any subconsultants on the basis of race, color, religion, sex, sexual orientation, marital status, national origin, ancestry, age, or any other criteria prohibited by law.

Section 4.2 Responsibility for Damage

CONSULTANT shall indemnify and save harmless the City of Lodi, the City Council, elected and appointed Boards, Commissions, all officers and employees or agent from any suits, claims or actions brought by any person or persons for or on account of any injuries or damages sustained or arising from the services performed in this Agreement but only to the extent caused by the negligent acts, errors or omissions of the consultant and except those injuries or damages arising out of the active negligence of the City of Lodi or its agents, officers or agents.

Section 4.3 No Personal Liability

Neither the City Council, the City Engineer, nor any other officer or authorized assistant or agent or employee shall be personally responsible for any liability arising under this Agreement.

Section 4.4 Responsibility of CITY

CITY shall not be held responsible for the care or protection of any material or parts of the work prior to final acceptance, except as expressly provided herein.

Section 4.5 Insurance Requirements for CONSULTANT

CONSULTANT shall take out and maintain during the life of this Agreement, insurance coverage as listed below. These insurance policies shall protect CONSULTANT and any subcontractor performing work covered by this Agreement from claims for damages for personal injury, including accidental death, as well as from claims for property damages, which may arise from CONSULTANT'S operations under this Agreement, whether such operations be by CONSULTANT or by any subcontractor or by anyone directly or indirectly employed by either of them, and the amount of such insurance shall be as follows:

1. COMPREHENSIVE GENERAL LIABILITY

\$1,000,000 Bodily Injury -

Ea. Occurrence/Aggregate

\$1,000,000 Property Damage -

Ea. Occurrence/Aggregate

or

\$1,000,000 Combined Single Limits

2. COMPREHENSIVE AUTOMOBILE LIABILITY

\$1,000,000 Bodily Injury - Ea. Person

\$1,000,000 Bodily Injury - Ea. Occurrence

\$1,000,000 Property Damage - Ea. Occurrence

or

\$1,000,000 Combined Single Limits

NOTE: CONSULTANT agrees and stipulates that any insurance coverage provided to CITY shall provide for a claims period following termination of coverage.

A copy of the certificate of insurance with the following endorsements shall be furnished to CITY:

(a) Additional Named Insured Endorsement

Such insurance as is afforded by this policy shall also apply to the City of Lodi, its elected and appointed Boards, Commissions, Officers, Agents and Employees as additional named insureds insofar as work performed by the insured under written Agreement with CITY. (This endorsement shall be on a form furnished to CITY and shall be included with CONSULTANT'S policies.)

(b) Primary Insurance Endorsement

Such insurance as is afforded by the endorsement for the Additional Insureds shall apply as primary insurance. Any other insurance maintained by the City of Lodi or its officers and employees shall be excess only and not contributing with the insurance afforded by this endorsement.

(c) Severability of Interest Clause

The term "insured" is used severally and not collectively, but the inclusion herein of more than one insured shall not operate to increase the limit of the company's liability.

(d) Notice of Cancellation or Change in Coverage Endorsement

This policy may not be canceled by the company without 30 days' prior written notice of such cancellation to the City Attorney, City of Lodi, P.O. Box 3006, Lodi, CA 95241.

(e) CONSULTANT agrees and stipulates that any insurance coverage provided to CITY shall provide for a claims period following termination of coverage which is at least consistent with the claims period or statutes of limitations found in the California Tort Claims Act (California Government Code Section 810 et seq.). "Claims made" coverage requiring the insureds to give notice of any potential liability during a time period shorter than that found in the Tort Claims Act shall be unacceptable.

Section 4.6 Worker's Compensation Insurance

CONSULTANT shall take out and maintain during the life of this Agreement, Worker's Compensation Insurance for all of CONSULTANT'S employees employed at the site of the project and, if any work is sublet, CONSULTANT shall require the subcontractor similarly to provide Worker's Compensation Insurance for all of the latter's employees unless such employees are covered by the protection afforded by the CONSULTANT. In case any class of employees engaged in hazardous work under this Agreement at the site of the project is not protected under the Worker's Compensation Statute, CONSULTANT shall provide and shall cause each subcontractor to provide insurance for the protection of said employees. This policy may not be canceled nor the coverage reduced by the company without 30 days' prior written notice of such cancellation or reduction in coverage to the City Attorney, City of Lodi, P.O. Box 3006, Lodi, CA, 95241.

Section 4.7 Attorney's Fees

In the event any dispute between the parties arises under or regarding this Agreement, the prevailing party in any litigation of the dispute shall be entitled to reasonable attorney's fees from the party who does not prevail as determined by the court.

Section 4.8 Successors and Assigns

CITY and CONSULTANT each bind themselves, their partners, successors, assigns, and legal representatives to this Agreement without the written consent of the others. CONSULTANT shall not assign or transfer any interest in this Agreement without the prior written consent of CITY. Consent to any such transfer shall be at the sole discretion of CITY.

Section 4.9 Notices

Any notice required to be given by the terms of this Agreement shall be deemed to have been given when the same is personally served or sent by certified mail or express or overnight delivery, postage prepaid, addressed to the respective parties as follows:

To CITY: City of Lodi
 F. Wally Sandelin, Public Works Director
 221 West Pine Street
 P.O. Box 3006
 Lodi, CA 95241-1910

To CONSULTANT: HDR Engineering, Inc.
 Timothy R. Fleming, Senior Vice President
 2365 Iron Point Road, Suite 300
 Folsom, CA 95630

Section 4.10 Cooperation of CITY

CITY shall cooperate fully in a timely manner in providing relevant information that it has at its disposal.

Section 4.1 CONSULTANT is Not an Employee of CITY

It is understood that CONSULTANT is not acting hereunder in any manner as an employee of CITY, but solely under this Agreement as an independent contractor.

Section 4.12 Termination

CITY may terminate this Agreement by giving CONSULTANT at least ten (10) days written notice. Where phases are anticipated within the Scope of Services, at which an intermediate decision is required concerning whether to proceed further, CITY may terminate at the conclusion of any such phase. Upon termination, CONSULTANT shall be entitled to payment as set forth in the attached Exhibit A to the extent that the work has been performed. Upon termination, CONSULTANT shall immediately suspend all work on the Project and deliver any documents or work in progress to CITY. However, CITY shall assume no liability for costs, expenses or lost profits resulting from

services not completed or for contracts entered into by CONSULTANT with third parties in reliance upon this Agreement.

Section 4.13 Severability

The invalidity in whole or in part of any provision of this Agreement shall not void or affect the validity of any other provision of this Agreement.

Section 4.14 Captions

The captions of the sections and subsections of this Agreement are for convenience only and shall not be deemed to be relevant in resolving any question or interpretation or intent.

Section 4.15 Integration and Entire Agreement

This Agreement represents the entire integrated Agreement between CONSULTANT and CITY; supersedes all prior negotiations, representations, or Agreements, whether written or oral, between the parties; and may be amended only by written instrument signed by CONSULTANT and CITY.

Section 4.16 Applicable Law and Venue

This Agreement shall be governed by the laws of the State of California. Venue for any court proceeding brought under this Agreement will be with the San Joaquin County Superior Court.

Section 4.17 Contract: Terms Prevail

All exhibits and this Agreement are intended to be construed as a single document. Should any inconsistency occur between the specific terms of this Agreement and the attached exhibits, the terms of this Agreement shall prevail.

Section 4.18 Authority

The undersigned hereby represent and warrant that they are authorized by the parties to execute this Agreement.

Section 4.19 Ownership of Documents

All documents, photographs, reports, analyses, audits, computer tapes or cards, or other material documents or data, and working papers, whether or not in final form, which have been obtained or prepared for this project, shall be deemed the property of CITY. Upon CITY's request, CONSULTANT shall allow CITY to inspect all such documents during regular business hours. Upon termination or completion, all information collected, work product and documents shall be delivered by CONSULTANT to CITY within ten (10) days.

CITY agrees to indemnify, defend and hold CONSULTANT harmless from any liability resulting from CITY's use of such documents for any purpose other than the purpose for which they were prepared.

IN WITNESS WHEREOF, CITY and CONSULTANT have executed this Agreement as of the date first above written.

CITY OF LODI, a municipal corporation

ATTEST:

By _____
RANDI JOHL
CITY CLERK

By _____
BLAIR KING
CITY MANAGER

APPROVED AS TO FORM:

Dated: _____

HDR, Inc.

By _____
D. STEPHEN SCHWABAUER
CITY ATTORNEY

By: _____

Its: _____



EXHIBIT A SCOPE OF WORK

City of Lodi *Surface Water Treatment Facility and Transmission Project - Final Design Services*

TASK 1 – PROJECT MANAGEMENT AND QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

Subtask 11 - Project Management

This task includes the management activities required to ensure the project is completed on time and within budget, and addresses the City's goals. A project management work plan will be developed to serve as a communication tool for the City, HDR staff, and subconsultants. HDR will prepare invoices and decision log updates on a monthly basis. Other activities include coordinating with the subconsultants, scheduling staff, and coordinating the quality assurance effort.

Deliverables: Project management work plan, monthly invoices, and decision log updates.

Subtask 12 - QA/QC Program

HDR will institute and maintain a QA/QC program for the work performed on this project. To ensure objectivity, senior technical staff not specifically involved in the project will assist with the internal QA/QC upon completion of all deliverables before they are submitted.

In addition, HDR will conduct an in-house constructability/value engineering review by senior construction management and engineering staff as part of the 90 percent quality control to ensure that the bid documents are biddable and do not contain unnecessarily expensive or difficult to construct items.

Deliverables: To be incorporated into the design documents.

TASK 2 -WATERSHED SANITARY SURVEY

HDR will prepare a watershed sanitary survey of the Lower Mokelumne River watershed for the proposed surface water treatment facility. The watershed sanitary survey will take advantage of the work already completed in TM 3 - Watershed Assessment as part of the *Conceptual Design and Feasibility Evaluation* report. We understand that the City of Stockton may participate in this study because of their plans to utilize water purchased from Woodbridge Irrigation District. (WID).

The California Code of Regulations, Title 22, Chapter 17, establishes the Surface Water Treatment Rule (SWTR), which requires that all surface water suppliers conduct a watershed sanitary survey of their watershed(s) at least once every five years. The main objective of this watershed sanitary survey is to assess the microbial contaminant loads and other potential contaminants at the raw water diversion from the Mokelumne River. The degree of treatment required at the point of diversion will be confirmed in terms of log removals of *Giardia* cysts, *Cryptosporidium* oocysts, and viruses. Methods to comply with Section 64665 Watershed Requirements of the SWTR will be recommended. In addition, current watershed management practices will be reviewed and additional management practices will be identified that are economically feasible and within the City's legal authority. Subtasks include the following:

Subtask 2.1 - Background Data Review

Readily available information will be collected for the Mokelumne River watershed upstream of the WID canal intake to Camanche Reservoir. This background information may include precipitation records, water quality data, land ownership and use, land use planning, existing agreements regarding watershed use, and the location of sources of contamination. We will document the sanitary survey information for the upper Mokelumne River watershed prepared by others.

Subtask 2.2 -Watershed and Water Supply System

Descriptions of the watershed, treatment plant intake, treatment plant facilities, and ability to treat the available water quality will be included. Watershed descriptions shall contain information regarding the area, topography, climate, soil composition, significant geologic features, hydrology, and vegetation.

Subtask 2.3 - Identification of Potential Contaminant Sources

Natural and man-made activities on the watershed that might influence water quality at present or in the future will be identified. At least two days will be spent in the field observing the watershed and documenting observed contamination sources. Naturally occurring activities may include erosion, animal populations, and wildfires. Man-made activities to be reviewed include wastewater collection systems, septic tanks, grazing animals, recreational activities (i.e., dirt biking, fishing, swimming, hiking, and camping), agricultural drainage, and other activities identified during the study.

Subtask 2.4 -Water Quality Summary and Review

Existing monitoring records for inorganic, organic, and microbiological parameters (including total and fecal coliform, turbidity, and, if available, *Giardia*, *Cryptosporidium*, coliform, and viruses) will be summarized and reviewed. Water quality data will be plotted to identify trends where they exist. The correlation between microbial loading and turbidity will also be evaluated.

Subtask 2.5 - Initial Checklist Preparation

The American Water Works Association (AWWA) Guidance Manual initial checklist will be prepared based upon the preliminary findings of the above tasks. The draft checklist will be reviewed by both City and California Department of Public Health (CDPH) staffs at a joint meeting. The results of this meeting will direct the watershed management control program.

Subtask 2.6 - Watershed Management Control Program Definition

HDR will review the current management practices in the watershed with respect to land use, erosion control, inspection and surveillance, emergency response, and public education. From the above tasks, recommendations for a control plan to mitigate the impact of different activities on the watershed will be made.

Subtask 2.7 - Report Preparation

HDR will prepare and submit a draft watershed sanitary survey report (five copies) for City and CDPH staff review. The report will analyze existing conditions within the watershed, expected development, methods by which the watershed is managed, and confirm degrees of treatment required. Following review of the draft report, a meeting will be conducted between City and CDPH staffs to receive all comments. These comments will be incorporated into the final watershed sanitary survey. Ten copies of the final report will be provided.

Deliverables: Five copies of the draft watershed sanitary survey report for review by City and CDPH staff, meeting agenda and minutes, and 10 copies of the final watershed sanitary survey report.

TASK 3 – DESIGN COMPLETION

A preliminary listing of drawings is included as Attachment A-1. A preliminary listing of specifications is included as Attachment A-2

Subtask 3.1 - 60 Percent Design Workshop

Our team will move forward with design after incorporation of the comments from the 30 percent submittal. At the 60 percent design stage, we will meet with the City to review progress and solicit feedback. Our team will bring working copies of the drawings and specifications to review with City staff. Drawings will include civil, structural, architectural, process, mechanical, electrical, and instrumentation. Technical specifications will include major equipment items and the City's boiler-plate front-end documents with supplementary Division 1 specification sections from HDR's master specification system.

Deliverables: Workshop agenda, minutes, and decision log.

Subtask 3.2 - 90 Percent Design

HDR's team will incorporate the comments from the 60 percent design workshops to prepare the 90 percent design. The 90 percent design submittal will include complete drawings, including civil, structural, architectural, process, mechanical, electrical, and instrumentation drawings. Complete technical specifications will also be provided, and will include the City's boilerplate front-end documents with supplementary Division 1 specification sections from HDR's master specification system. The engineer's opinion of probable construction cost will include a 15 percent contingency.

Deliverables: Five copies of the half-size (11" x 17") drawings, technical specifications, and cost estimate to the City for review and comment,

Subtask 3.3 - 90 Percent Design Workshop

A one-day workshop will be conducted after the City reviews the 90 percent design submittal. This workshop will be used to finalize the design comments. A log of review comments will be maintained to ensure all design comments are incorporated.

Deliverables: Meeting agenda and minutes, action items, and review comments log,

Subtask 3.4 - Final Design (Bid Set)

HDR's team will incorporate final comments from the 90 percent design submittal, and will prepare a bid set to include final drawings and technical specifications, along with a final engineer's opinion of cost. HDR will submit the final documents to either the City or their designated reproduction house. Our budget assumes the City will advertise the project and reproduce the documents for distribution to prospective contractors.

Deliverables: Full-size (22" x 34") drawings, half-size drawings, technical specifications, cost estimate (one reproducible copy each).

TASK 4 - BIDDING AND CONTRACTOR SELECTION ASSISTANCE

Subtask 4.1 - Prebid Meeting

HDR will coordinate and conduct a prebid meeting and prepare and distribute prebid meeting minutes. This task assumes the City will host the meeting location and provide staff as need to convey the City's construction bidding requirements and policies.

Deliverables: Prebid meeting minutes.

Subtask 4.2 - Bidding Services

HDR will provide assistance during the bidding period, which includes responding to written and faxed questions by the bidders, issuing addenda to the contract documents for distribution to plan

and specification holders, assisting the City with evaluating and reviewing the bids for conformation with the contract documents, and providing input in the awarding of the contract. This task assumes that the City will receive and forward questions from bidders and will prepare, negotiate, and execute the construction agreement with the selected bidder.

***Deliverables:** Up to three addenda to the bid set & contract documents, bid tabulation sheet, written clarification & contractor questions, and recommendation for award letter.*

Subtask 4.3 - Conformed Construction Set

HR will incorporate the addenda into the bid set and provide a “conformed” set of construction documents (drawings and specifications) for reproduction and issuance by the City.

***Deliverables:** Five half-size and five full-size copies & the construction documents, plus PDF files on CD.*

TASK 5 - ENGINEERING SERVICES DURING CONSTRUCTION (OPTIONAL)

Subtask 5.1 - Preconstruction Meeting

HDR will participate in the preconstruction meeting and provide information regarding the engineering role, shop drawing review procedures, communication protocol, and other pertinent information.

***Deliverables:** Meeting agenda and minutes.*

Subtask 5.2 - Submittals

HDR will review the contractor’s submittals, including shop drawings and equipment operations and maintenance (O&M) manuals, for conformance with the contract documents.

***Deliverables:** Up to 200 submittals and 20 re-submittals.*

Subtask 5.3 – Site Visits

Alternative 1 - Monthly Construction Meetings: HDR will visit the construction sites a minimum of once a month concurrent with a construction meeting to assist the City with reviewing the acceptability of the work and resolving field problems. This task includes additional visits by various engineering disciplines (i.e., electrical, structural, etc) at critical stages of work. The budget for this task is based on 24 visits within the 18-month construction period.

Alternative 2 - Weekly Construction Meetings: HDR will attend all regular weekly construction meetings during the 18-month construction period and include additional site visits as needed by various engineering disciplines at critical stages of construction.

Deliverables: Field reports.

Subtask 5.4 - Contract Clarifications

HDR will provide written interpretations of the contract documents in response to requests for information submitted by the contractor.

Deliverables: Up to 200 requests for information (RFIs).

Subtask 5.5 - Contract Change Orders and Potential Changes

HDR will review contract change orders and potential changes prepared by the City, and review and make recommendations on contractor's price proposals. Independent estimates will be prepared, as required.

Deliverables: Up to 10 potential changes and five change orders.

Subtask 5.6 - Startup and Testing, and Project Closeout

HDR will oversee facility startup and testing, and help address operational and performance problems identified during startup. HDR and the City will jointly conduct a final inspection prior to startup, and HDR will prepare the final punch list for City review and approval prior to submission to the contractor for completion. The City will process the project close-out documentation, including any release of retentions and bonds, and the Notice of Completion. This task assumes two site visits by each engineering discipline (i.e., mechanical, electrical, etc.), 10 total, for developing and confirming punch list items, and 80 hours for startup and testing.

Deliverables: One copy of a final inspection punch list and one copy of a final startup testing and acceptance report.

Subtask 5.7 - Record Drawings

HDR will translate as-built mark-ups from the contractor's set to the electronic set of drawings. This task relies on the premise that adequate "as-built" records are maintained by the contractor per the contract terms and conditions.

Deliverables: Full-size drawings, half size drawings (one reproducible set of each), and CD containing electronic files in PDF format.

TASK 6 - O&M MANUAL (OPTIONAL)

A facility O&M manual can be prepared that covers the operation of the treatment plant. The O&M manual will be a complete document with process schematics and P&IDs. It will cover operation of each of the plant's components, programming and normal facility setpoints, equipment specifications, and general troubleshooting procedures. The O&M manual will be submitted to the City for review and approval prior to preparing the final copies for binding.

Deliverables: PDF copy of the draft O&M manual for City review and three copies of the final O&M manual in three-ring binders, plus a CD with both PDF and MSWord versions.

TASK 7 - CONSTRUCTION MANAGEMENT AND INSPECTION SERVICES (OPTIONAL)

Subtask 7.1 - Preconstruction Activities

7.1.1 - Documentation Management System Setup

HDR will set up the file system for the project, which includes files, software, and administrative procedures. The filing system will be designed to provide an efficient archival of documents during and after construction.

HDR will also implement the document management system, which will involve organizing, tracking, filing, storing, retrieving, and managing paper and electronic correspondence, including letters, RFIs, field memoranda and clarifications, submittals, contracts, reports, progress payments, change orders, monthly cash flow projections, and other relevant documentation. HDR's Project Tracker software will be used to track RFIs, change orders, submittals, design clarifications, field orders, and other miscellaneous correspondence.

This task is important for the management of any project during construction, as well as for providing usable documentation for claims defense, record drawings, and future design efforts.

7.1.2 - Preconstruction Conference

HDR will conduct a preconstruction conference with the City and contractor immediately after issuance of the notice to proceed. Specifically, the conference will cover the project administration procedures, schedule requirements, and other project specific issues. All parties attending the conferences will receive a copy of the meeting minutes.

Deliverables: A meeting agenda will be issued prior to the conference. Meeting minutes for the conference will be compiled.

Subtask 7.2 - Construction Contract Administration

7.2.1 - Document Existing Site Conditions and Project Progress

Daily inspection logs and records will be prepared and archived in the file system. Photo documentation will be utilized throughout the construction sequence to provide a visual database of existing site conditions, project progress, and areas of concern or interest. All photographs will be digital, compiled on CDs, and indexed by date.

Deliverables: A copy of the photographs will be provided to the City at the end of construction.

7.2.2 - RFIs

RFIs received from the contractor will be logged and tracked to assure prompt and complete responses.

7.2.3 - Submittals

Submittals will be tracked by number, CSI specification section, date received, action taken, and date returned to the contractor. HDR will track each submittal “age” to assure timely processing of submittals.

7.2.4 - Schedule:

7.2.4.1 - Initial Schedule Review: The contractor’s initial schedule will be reviewed for completeness and appropriateness in regard to the specified milestone dates, end date, and practicality.

7.2.4.2 - Schedule Monitoring: HDR will review the contractor’s monthly schedule. The City will be notified of deviations from the schedule.

7.2.5 - Weekly Progress Meetings

Weekly progress meetings are necessary to maintain continuing and effective dialogue between team members, and to keep the project on track. Progress meetings will be held on-site to discuss the general project schedule; two-week look ahead schedule; current, past, and potential issues; permit and mitigation and monitoring plan issues; and outstanding items such as RFIs and submittals. HDR will conduct the progress meetings and issue meeting minutes.

Deliverables: Meeting minutes.

7.2.6 - Monthly Status Reports

HDR will prepare and submit to the City monthly reports highlighting project progress, change orders, budget (including City budget), and schedule status. This task assumes **18** monthly status reports.

Deliverables: Monthly status reports.

7.2.7 - Issues Management

Issues management relates to the solution of unanticipated problems that arise during construction. A coordinated issues management approach minimizes delays in the field and provides a vehicle for cost effective resolutions.

7.2.7.1 - Unforeseen Conditions or Situations: HDR field personnel will work with the contractor to resolve issues resulting from unforeseen site conditions.

7.2.7.2 - Conflict Resolution: HDR, in conjunction with the contractor, will analyze the problem and seek to solve the problem in the field. HDR will seek appropriate advice from City staff if any redesign is required.

7.2.7.3 - Field Memoranda and Clarifications: “No cost” solutions to field issues will be documented by issuing a field memorandum or clarification. Solutions with an associated cost will be handled as a potential change order and negotiated with the contractor. The City will receive copies of field memoranda and clarifications.

Deliverables: Copies of field memoranda and clarifications.

7.2.8 - Contract Changes

HDR will implement a change order review process that will include the following:

7.2.8.1 - Schedule Impact Review: The impact on the schedule of the proposed change will be evaluated and reviewed. Any time extensions requested in the change will be evaluated for merit.

7.2.8.2 - Discrepancy Negotiation: HDR will negotiate with the contractor in the event that HDR’s cost estimate or schedule impacts review does not agree with the contractor’s request. These negotiations will be conducted to produce an acceptable change request that can be presented to the City for consideration.

7.2.8.3 - Disposition Recommendations: HDR will prepare a disposition recommendation for each potential contract change, which will provide a narrative justification for either the recommendation of execution of a change or the denial of the change. HDR will provide assistance to the City staff in regard to the preparation of justifications for changes that are deemed necessary.

7.2.8.4 - Cumulative Impacts: HDR will track the cumulative impact of change orders on the project cost and schedule. This information will be summarized in the monthly reports.

7.2.9 - Progress Payment Applications

HDR will determine the amount owed to the contractor based on HDR’s observations at the site and the data comprising the application for payment, and will recommend in writing the payments to the contractor in such amounts. Such recommendations of payment will constitute representation to the City that the work has progressed to the point indicated, and that, to the best of HDR’s knowledge, information, and belief, the quality of work is in accordance with the contract documents. The foregoing representations are subject to an evaluation of the work for conformance with the contract documents upon substantial completion, to results of subsequent tests and inspections by others, to minor deviations from the contract documents correctable prior to completion, and to specific qualifications expressed by HDR. The issuance of a

recommendation will further constitute a representation that the contractor is entitled to payment in the amount recommended. HDR will process pay requests in the following manner.

7.2.9.1 - Payment Request Review: The contractor's progress payment applications will be reviewed for compliance with the project specifications in terms of format and content. Retention amounts and numerical addition will be verified.

7.2.9.2 - Quantity Verification: Each pay item in the payment application will be verified with the contractor and through field inspection.

7.2.9.3 - Payment Application Documentation: HDR will prepare payment documentation for execution by the City to support the contractor's application.

Deliverables: Up to 18 pay applications.

7.2.10 - Claims Mitigation (Optional)

If this optional task is needed, HDR will assist the City in claims analysis and resolution strategy development if so requested.

Subtask 7.3 - Construction Monitoring

7.3.1 - On-Site Personnel

The budget for this subtask assumes that the resident engineer/inspector will be on-site, full-time for approximately **18** months. The resident engineer will observe construction activities, and will be responsible for coordinating construction documents and RFIs, and scheduling inspections and testing.

Deliverables: Daily inspection reports.

7.3.2 - Electrical Inspection

The budget for this subtask assumes an electrical inspector will be on site part-time (**80** hours per month) while the electrical subcontractor performs their work.

Deliverables: Daily inspection reports.

7.3.3 - Permit Compliance

HDR will monitor the contractor's compliance with all relevant permits. The City and contractor will be immediately notified of any identified permit infractions.

7.3.4 - Testing

HDR's geotechnical subconsultant will provide testing to determine soil compaction. Requests for testing and scheduling will be coordinated with the contractor. Test results will be documented in progress reports. HDR will work with the City on the selection of the geotechnical testing consultant. The estimate is based on the value of construction.

Subtask 7.4 - Contract Closeout Activities

7.4.1 - Notice of Substantial Completion

HDR will compile and execute the notice of substantial completion for the project. The notice will be provided to the City and the contractor.

Deliverables: Notice of substantial completion.

7.4.2 - Walk-Through/Punch List

When the construction of the project is substantially complete, HDR will perform a project walk-through with the City to compile a punch list. The punch list will be provided to the contractor, and items tracked to resolution.

Deliverables: Punch list.

7.4.3 - Administrative Requirements Verification

HDR will verify that the required certificates of compliance, warranty certificates, final record drawing information, training, and other administrative items required by the contract documents have been executed and delivered by the contractor.

7.4.4 - Final Punch List Walk-Through

HDR will perform one final walk-through to verify that all punch list items have been completed to the City's satisfaction. The completion of each punch list item will be verified and the completion date noted.

Deliverables: Final punch list,

7.4.5 - Contract Retention

HDR will review the contractor's final payment application for retention, and will make a recommendation to City staff for payment of retention.

7.4.6 - Final Payment

The contractor's final progress payment application will be reviewed for conformance and completeness. Final payment quantities will be verified. HDR will review the status of all stop notices, mechanics liens, and other claims against the project prior to reviewing the contractor's final payment request.

7.4.7 - Notice of Completion

Upon verification of completion of all punch list items, HDR will assist the City with executing and filing the notice of completion for the project. The notice of completion will verify that the contractor has fulfilled the contract requirements and that all work is complete.

Deliverables: Notice of completion.

ATTACHMENT A-1

PRELIMINARY LISTING OF DRAWINGS

No.	Sheet No.	Drawing Description
General - G		
1	G1	Cover Sheet
2	G2	Symbols and Abbreviations I
3	G3	Symbols and Abbreviations II
4	G4	General Notes I
5	G5	General Notes II
6	G6	Water Treatment Plant Process Flow Schematic and Design Criteria I
7	G7	Water Treatment Plant Process Flow Schematic and Design Criteria II
8	G8	Hydraulic Profile
Civil - C		
9	C1	Key Plan
10	C2	Raw Water Pump Station Grading and Paving Plan
11	C3	Raw Water Pump Station Piping Plan
12	C4	Water Treatment Plant Grading & Paving Plan I
13	C5	Water Treatment Plant Grading & Paving Plan II
14	C6	Water Treatment Plant Process Piping Plan I
	c 7	Water Treatment Plant Process Piping Plan II
16	C8	Water Treatment Plant Chemical and Sample Piping Plan
17	C9	Raw Water Pipeline Profile STA 0+00 - 05+00
18	C10	Raw Water Pipeline Profile STA 0+50 - 10+00
19	C11	Raw Water Pipeline Profile STA 10+00 - 15+00
20	c12	Raw Water Pipeline Profile STA 15+00 - 19+50
21	C13	Miscellaneous Pipeline Profiles I
22	C14	Miscellaneous Pipeline Profiles II
23	C15	Distribution Pipeline Profile STA 0+00 - 05+00
24	C16	Distribution Pipeline Profile STA 05+00 - 10+00
25	C17	Distribution Pipeline Profile STA 10+00 - 15+00
26	C18	Distribution Pipeline Profile STA 15+00 - 20+00
27	C19	Distribution Pipeline Profile STA 20+00 - 25+00
28	C20	Well Site 3R Piping Improvements

No.	Sheet No.	Drawing Description
29	c 21	Well Site 6R Piping Improvements
30	c22	Well Site 9 Piping Improvements
31	C23	Well Site 14 Piping Improvements
32	C24	Well Site 17 Piping Improvements
33	C25	Well Site 25 Piping Improvements
34	C26	Pipe Tunneling Details I
35	C27	Pipe Tunneling Details II
36	C28	Civil Details I
37	C29	Civil Details II
38	C30	Civil Details III
39	C31	Civil Details IV
Architectural - A		
40	A1	Raw Water Pump Station Site Code Plan
41	A2	Raw Water Pump Station Code Plan
42	A3	Raw Water Pump Station Floor Plan
43	A4	Raw Water Pump Station Roof Plan
44	A5	Raw Water Pump Station Elevations I
45	A6	Raw Water Pump Station Elevations II
46	A7	Raw Water Pump Station Building Sections
47	A8	Membrane/Operations Building Code Plan First Floor
48	A9	Membrane/Operations Building Code Plan Second Floor
49	A10	Membrane/Operations Building Code Plan Text
50	A11	Membrane/Operations Building First Floor Plan I
51	A12	Membrane/Operations Building First Floor Plan II
52	A13	Membrane/Operations Building Second Floor Plan
53	A14	Membrane/Operations Building Reflected Ceiling Plan
54	A15	Membrane/Operations Building Roof Plan
55	A16	Membrane/Operations Building Exterior Elevations I
56	A17	Membrane/Operations Building Exterior Elevations II
57	A18	Membrane/Operations Building Sections I
58	A19	Membrane/Operations Building Sections II
59	A20	Membrane/Operations Building Wall Sections I
60	A21	Membrane/Operations Building Wall Sections II
61	A22	Membrane/Operations Building Wall Sections III

No.	Sheet No.	Drawing Description
62	A23	Membrane/Operations Building Interior Finish Plan
63	A24	Membrane/Operations Building Enlarged Laboratory Plan
64	A25	Membrane/Operations Building Enlarged Locker Room Plan
65	A26	Membrane/Operations Building Enlarged Lobby/Stair and Elevator Plan
66	A27	Membrane/Operations Building Interior Elevations I
67	A28	Membrane/Operations Building Interior Elevations II
68	A29	Membrane/Operations Building Interior Elevations III
69	A30	Membrane/Operations Building Interior Elevations VI
70	A31	Membrane/Operations Building Interior Elevations V
71	A32	High Service Pump/Chemical Building Code Plan
72	A33	High Service Pump/Chemical Building Code Plan Text
73	A34	High Service Pump/Chemical Building Floor Plan
74	A35	High Service Pump/Chemical Building Reflected Ceiling Plan
75	A36	High Service Pump/Chemical Building Roof Plan
76	A37	High Service Pump/Chemical Building Exterior Elevations I
77	A38	High Service Pump/Chemical Building Exterior Elevations II
78	A39	High Service Pump/Chemical Building Sections
79	A40	Finish Schedule
80	A41	Wall Types/Schedule
81	A42	Door Schedule
82	A43	Door Types
83	A44	Window and Louver Schedule
84	A45	Window and Louver Types
85	A46	Equipment Schedule
86	A47	Details I
87	A48	Details II
88	A49	Details III
89	A50	Details IV
90	A51	Details V
91	A52	Details VI
92	A53	Details VII
93	A54	Details VIII
94	A55	Details IV
95	A56	Details X

No.	Sheet No.	Drawing Description
96	A57	Details XI
97	A58	Details XII
Landscaping - L		
98	L1	Planting Plans I
99	L2	Planting Plans II
100	L3	Irrigation Plans I
101	L4	Irrigation Plans II
102	L5	Landscape Details
103	L6	Irrigation Details
Structural - S		
104	S1	General Structural Notes
105	S2	Standard Concrete Details I
106	S3	Standard Concrete Details II
107	S4	Standard Concrete Details III
108	S5	Standard Concrete Details IV
109	S6	Standard Concrete Masonry Unit Details I
110	S7	Standard Concrete Masonry Unit Details II
???	S8	Standard Reinforcing Steel Details
112	S9	Standard Metal Deck Details
113	S10	Standard Steel Details
114	S11	Standard Railing Details I
115	S12	Standard Railing Details II
116	S13	Standard Grating Details
117	S14	Miscellaneous Slab-on-grade Plans
118	S15	Miscellaneous Slab-on-grade Sections & Details
119	S16	Raw Water Pump Station Foundation/Ground Floor Plan
120	S17	Raw Water Pump Station Roof Plan
121	S18	Raw Water Pump Station Building Sections
122	S19	Raw Water Pump Station Building Sections
123	S20	Raw Water Pump Station Sections & Details I
124	S21	Raw Water Pump Station Sections & Details II
125	S22	Grit & Flocculation Basin Foundation Plan
126	S23	Grit & Flocculation Basin Sections & Details I
127	S24	Grit & Flocculation Basin Sections & Details II

No.	Sheet No.	Drawing Description
128	S25	Grit & Flocculation Basin Sections & Details III
129	S26	Operations Building Foundation Plan I
130	S27	Operations Building Foundation Plan II
131	S28	Operations Building Ground Floor Plan I
132	S29	Operations Building Ground Floor Plan II
133	S30	Operations Building Second Floor Framing Plan I
134	S31	Operations Building Second Floor Framing Plan II
135	S32	Operations Building Roof Framing Plan I
136	S33	Operations Building Roof Framing Plan II
137	S34	Operations Building Sections and Details I
138	S35	Operations Building Sections and Details II
139	S36	Operations Building Sections and Details III
140	S37	Operations Building Sections and Details IV
141	S38	Operations Building Partial Framing Plans and Details I
142	S39	Operations Building Partial Framing Plans and Details II
143	S40	Operations Building Sections and Details I
144	S41	Operations Building Sections and Details II
145	s42	Operations Building Sections and Details III
146	s43	Operations Building Sections and Details IV
147	s44	Operations Building Sections and Details V
148	s45	Backwash Tank and Treatment System Foundation Plan
149	S46	Backwash Tank and Treatment System Section & Details
150	s47	High Service Pump/Chemical Building Foundation/Ground Floor Plan
151	S48	High Service Pump/Chemical Building Roof Framing Plan
152	s49	High Service Pump/Chemical Building Sections I
153	S50	High Service Pump/Chemical Building Sections II
154	S51	High Service Pump/Chemical Building Sections and Details I
155	S52	High Service Pump/Chemical Building Sections and Details II
156	s53	High Service Pump/Chemical Building Sections and Details III
157	s54	Treated Water Storage Tank Ring Foundation Plan
158	s55	Treated Water Storage Tank Sections and Details I
159	S56	Treated Water Storage Tank Sections and Details II
160	s57	Miscellaneous Pipe Support Details I
161	S58	Miscellaneous Pipe Support Details II

No.	Sheet No.	Drawing Description
162	S59	Microfiltration System Miscellaneous Details
Process - P		
163	P1	Raw Water Pump Station Plan
164	P2	Raw Water Pump Station Sections and Details I
165	P3	Raw Water Pump Station Sections and Details II
166	P4	Membrane Piping Plan
167	P5	Membrane Piping Sections and Details I
168	P6	Membrane Piping Sections and Details II
Pall Corporation		
166	P7	Layout Plan
167	P8	Layout Sections and Details
168	P9	Layout Sections I
169	P10	Layout Sections II
170	P11	P&ID Legends and Abbreviations
171	P12	P&ID Overall Membrane Filtration System
172	P13	P&ID Primary Filtration System
173	P14	P&ID Clean-In-Place System
174	P15	P&ID Process Control and Air Scour System
175	P16	P&ID Backwash Recovery System
176	P17	P&ID Neutralization System
177	P18	Backwash Tank Plan and Elevation
178	P19	Backwash Tank Details I
179	P20	Backwash Tank Details II
180	P21	Backwash Reclaim Pump Station Plan
181	P22	Backwash Reclaim Pump Station Details
182	P23	Treated Water Tank Plan and Sections
183	P24	Treated Water Storage Tank Details I
184	P25	Treated Water Storage Tank Details II
185	P26	Treated Water Storage Tank Baffles
186	P27	High Service & Backwash Pumping Station Plan
187	P28	High Service & Backwash Pumping Station Sections and Details I
188	P29	High Service & Backwash Pumping Station Sections and Details II
189	P30	Air Compressor Room Plan
190	P31	Air Compressor Room Sections & Details

No.	Sheet No.	Drawing Description
191	P32	Chemical Systems Area Plan I
192	P33	Chemical Systems Area Plan II
193	P34	Chemical Systems Area Plan III
194	P35	Chemical System Sections and Details I
195	P36	Chemical System Sections and Details II
196	P37	Chemical System Sections and Details III
197	P38	Polymer System Plan and Sections
198	P39	Plate Settler Plan
199	P40	Plate Settler Sections
200	P41	CIP Tank Plan and Sections
201	P42	Soda Ash System Plan and Sections
202	P43	Well Site Chemical System Plan and Sections 1
203	P44	Well Site Chemical System Plan and Sections 2
204	P45	Well Site Chemical System Plan and Sections 3
205	P46	Well Site Chemical System Plan and Sections 4
206	P47	Well Site Chemical System Plan and Sections 5
207	P48	Well Site Chemical System Plan and Sections 6
208	P49	Well Site Chemical System Plan and Sections 7
209	P50	Well Site Chemical System Plan and Sections 8
210	P51	Well Site Chemical System Plan and Sections 9
211	P52	Well Site Chemical System Plan and Sections 10
212	P53	Well Site Chemical System Plan and Sections 11
213	P54	Well Site Chemical System Plan and Sections 12
214	P55	Well Site Chemical System Plan and Sections 13
215	P56	Well Site Chemical System Plan and Sections 14
216	P57	Well Site Chemical System Plan and Sections 15
217	P58	Well Site Chemical System Plan and Sections 16
218	P59	Well Site Chemical System Plan and Sections 17
219	P60	Well Site Chemical System Plan and Sections 18
220	P61	Well Site Chemical System Plan and Sections 19
221	P62	Well Site Chemical System Plan and Sections 20
222	P63	Well Site Chemical System Plan and Sections 21
223	P64	Well Site Chemical System Plan and Sections 22
224	P65	Well Site Chemical System Plan and Sections 23

No.	Sheet No.	Drawing Description
225	P66	Well Site Chemical System Plan and Sections 24
202	P43	Piping Support Details
203	P44	Piping Details I
204	P45	Piping Details II
205	P46	Piping Details III
Mechanical - M		
206	M1	Energy Compliance Forms I
207	M2	Energy Compliance Forms II
208	M3	Mechanical Symbols
209	M4	Raw Water Pump Station HVAC Plan
210	M5	Raw Water Pump Station HVAC Sections
211	M6	Raw Water Pump Station Plumbing Plan
212	M7	Raw Water Pump Station Water & Waste Isometrics
213	M8	Operations Building 1st Floor HVAC Plan I
214	M9	Operations Building 1st Floor HVAC Plan II
215	M10	Operations Building 2nd Floor HVAC Plan I
216	M11	Operations Building HVAC Roof Plan I
217	M12	Operations Building HVAC Roof Plan II
218	M13	Operations Building HVAC Sections I
219	M14	Operations Building HVAC Sections II
220	M15	Operations Building Enlarged Mechanical Room Plan
221	M16	Operations Building Temperature Control Diagrams
222	M17	Operations Building Airflow Schematics
223	M18	Operations Building 1st Floor Plumbing Plan I
224	M19	Operations Building 1st Floor Plumbing Plan II
225	M20	Operations Building 2nd Floor Plumbing Plan I
226	M21	Operations Building Water Isometrics
227	M22	Operations Building Waste Isometrics
228	M23	Operations Building Hot Water Loop Schematic
229	M24	Operations Building Chilled Water Loop Schematic
230	M25	High Service Pump/Chemical Building HVAC Plan I
231	M26	High Service Pump/Chemical Building HVAC Plan II
232	M27	High Service Pump/Chemical Building HVAC Roof Plan I
233	M28	High Service Pump/Chemical Building HVAC Roof Plan II

No.	Sheet No.	Drawing Description
234	M29	High Service Pump/Chemical Building Plumbing Plan I
235	M30	High Service Pump/Chemical Building Plumbing Plan II
236	M31	High Service Pump/Chemical Building HVAC Sections I
237	M32	High Service Pump/Chemical Building HVAC Sections II
238	M33	High Service Pump/Chemical Building Temperature Control Diagrams
239	M34	High Service Pump/Chemical Building Airflow Schematics
240	M35	High Service Pump/Chemical Building Water Isometrics
241	M36	High Service Pump/Chemical Building Waste Isometrics
242	M37	Mechanical Details I
243	M38	Mechanical Details II
244	M39	Mechanical Details III
Electrical - E		
245	E1	Electrical Symbols, Abbreviations, and Notes
246	E2	Title 24 Sheet
247	E3	Raw Water Pump Station Site Plan
248	E4	Raw Water Pump Station Power Plan
249	E5	Raw Water Pump Station Lighting Plan
250	E6	Raw Water Pump Station Grounding Plan
251	E7	Raw Water Pump Station Single-line Diagram
252	E8	Operations Building Electrical Single-Line Diagram - Main Switchboard
253	E9	Operations Building Electrical Single-Line Diagram - MCC I
254	E 10	Operations Building Electrical Single-Line Diagram - MCC II
255	E 11	Operations Building Electrical 1st Floor Lighting Plan
256	E 12	Operations Building Electrical 2nd Floor Lighting Plan
257	E 13	Operations Building Electrical 1st Floor Power Plan I
258	E 14	Operations Building Electrical 1st Floor Power Plan II
259	E 15	Operations Building Electrical 2nd Floor Power Plan
260	E 16	Operations Building Electrical Roof Power Plan
261	E 17	Operations Building Electrical Roof Power Plan
262	E 18	Operations Building Electrical Room Plan
263	E 19	Operations Building Electrical Grounding Plan
264	E20	Single-Line Diagrams
265	E21	Schedules

No.	Sheet No.	Drawing Description
266	E22	Control Wiring Block Diagram
267	E23	Power Plan
268	E24	Water Treatment Plant Electrical Site Plan - Power & Lighting I
269	E25	Water Treatment Plant Electrical Site Plan - Power & Lighting II
270	E26	Water Treatment Plant Operations Building Elevator Plan
271	E27	Emergency Generator Plan
272	E28	Emergency Generator Sections and Details
273	E29	Emergency Generator Fuel Storage
274	E30	Control Schematic I
275	E31	Control Schematic II
276	E32	Control Schematic III
277	E33	Control Schematic VI
278	E34	Control Schematic V
279	E35	Panel Schedules I
280	E36	Panel Schedules II
281	E37	Fixture Schedule
282	E38	Control Room Plan
283	E39	Water Treatment Plant Electrical Schedules I
284	E40	Water Treatment Plant Electrical Schedules II
285	E41	Water Treatment Plant Conduit and Conduit Schedule I
286	E42	Water Treatment Plant Conduit and Conduit Schedule II
287	E43	Water Treatment Plant Conduit and Conduit Schedule III
288	E44	Water Treatment Plant Conduit and Conduit Schedule IV
289	E45	Reclaim Pump Station and Backwash Tank Power Plan
290	E46	Flocculation Basin Power Plan
291	E47	Plate Settler Power Plan
292	E48	Treated Water Storage Tank Power Plan
293	E49	High Service Pump/Chemical Building Power Plan I
294	E50	High Service Pump/Chemical Building Power Plan II
295	E51	High Service Pump/Chemical Building Lighting Plan
296	E52	High Service Pump/Chemical Building Lighting Plan
297	E53	High Service Pump/Chemical Building Electrical Room Plan
298	E54	High Service Pump/Chemical Building Grounding Plan
299	E55	Well Site Plan and Control 1

No.	Sheet No.	Drawing Description
300	E56	Well Site Plan and Control 2
301	E57	Well Site Plan and Control 3
302	E58	Well Site Plan and Control 4
303	E59	Well Site Plan and Control 5
304	E60	Well Site Plan and Control 6
305	E61	Well Site Plan and Control 7
306	E62	Well Site Plan and Control 8
307	E63	Well Site Plan and Control 9
308	E64	Well Site Plan and Control 10
309	E65	Well Site Plan and Control 11
310	E66	Well Site Plan and Control 12
311	E67	Well Site Plan and Control 13
312	E68	Well Site Plan and Control 14
313	E69	Well Site Plan and Control 15
314	E70	Well Site Plan and Control 16
315	E71	Well Site Plan and Control 17
316	E72	Well Site Plan and Control 18
317	E73	Well Site Plan and Control 19
318		
319	E75	Well Site Plan and Control 21
320	E76	Well Site Plan and Control 22
321	E77	Well Site Plan and Control 23
322	E78	Well Site Plan and Control 24
323	E79	Electrical Details I
324	E80	Electrical Details I
325	E81	Electrical Details III
326	E82	Communications Plan
Instrumentation - I		
327	I1	Instrumentation Abbreviations and Symbols
328	I2	Raw Water Pump Station Process & Instrumentation Diagram
329	I3	Water Treatment Plant PLC Layout & Communication Diagram
330	I4	Autostrainer Process & Instrumentation Diagram
331	5	Membrane System Process & Instrumentation Diagram
332	6	Membrane Analysis Process & Instrumentation Diagram

No.	Sheet No.	Drawing Description
333	I7	Screw Press Process & Instrumentation Diagram
334	I8	Screw Conveyor Process & Instrumentation Diagram
335	I9	Sludge Pump Process & Instrumentation Diagram
336	I10	Storage Tank Process & Instrumentation Diagram
337	I11	Chemical Systems Process & Instrumentation Diagram I
338	I12	Chemical Systems Process & Instrumentation Diagram II
339	I13	Chemical Systems Process & Instrumentation Diagram III
340	I14	Chemical Systems Process & Instrumentation Diagram IV
341	I15	Chemical Systems Process & Instrumentation Diagram V
342	I16	Polymer System Process & Instrumentation Diagram
343	I17	Soften Water Process & Instrumentation Diagram
344	I18	Generator Process & Instrumentation Diagram
345	I19	Well Site Process & Instrumentation Diagram
346	I20	Main Control Panel MCP Elevation
347	I21	Main Control Panel Panelboard Layout
348	I22	High Service Pump Station PLC Layout & Communication Diagram
349	I23	Raw Water Pump Station PLC Layout & Communication Diagram
350	I24	Instrumentation Details I
351	I25	Instrumentation Details II
352	I26	Instrumentation Details III

ATTACHMENT A-2

PRELIMINARY LISTING OF SPECIFICATIONS

Division 0 - BIDDING REQUIREMENTS, CONTRACT FORMS, AND CONDITIONS OF THE
CONTRACT
BY CITY

Division 1 - GENERAL REQUIREMENTS

01010 SUMMARY OF WORK AND PROCEDURES
01011 SURVEYING
01060 SPECIAL CONDITIONS
01340 SUBMITTALS
01370 SCHEDULE OF VALUES
01560 ENVIRONMENTAL PROTECTION & SPECIAL CONTROLS
01621 INSTALLATION OF MEMBRANE EQUIPMENT BY CONTRACTOR
01650 SYSTEM START-UP
01670 ACCEPTANCE TESTING OF MEMBRANE EQUIPMENT
01710 CLEANING
01730 TRAINING OF OPERATIONS & MAINTENANCE PERSONNEL
01800 OPENINGS AND PENETRATIONS IN CONSTRUCTION

Division 2 - SITE WORK

02110 SITE CLEARING
02200 EARTHWORK
02221 TRENCHING, BACKFILLING, AND COMPACTING FOR UTILITIES
02260 TOPSOILING AND FINISHED GRADING
02502 CONCRETE CURB, SIDEWALK AND STEPS
02513 ASPHALTIC CONCRETE PAVING
02515 PRECAST CONCRETE MANHOLE STRUCTURES
02810 IRRIGATION SYSTEM
02950 PLANTS AND PLANTING

Division 3 - CONCRETE

03002 CONCRETE
03108 FORMWORK
03346 CONCRETE SURFACE SEALER
03348 CONCRETE FINISHING AND REPAIR OF SURFACE DEFECTS
03540 SELF-LEVELING UNDERLAYMENT

Division 4 - MASONRY

04110 CEMENT AND LIME MORTARS

- 04155 MASONRY ACCESSORIES
- 04220 CONCRETE MASONRY
- 04510 MASONRY CLEANING

Division 5 - METALS

- 05120 STRUCTURAL STEEL
- 05131 STRUCTURAL ALUMINUM
- 05211 STEEL JOINTS
- 05313 METAL DECK
- 05410 LOAD BEARING METAL STUD SYSTEM
- 05505 METAL FABRICATIONS
- 05522 ALUMINUM RAILINGS
- 05800 INTERIOR EXPANSION JOINT COVERS

Division 6 - WOOD AND PLASTICS

- 06100 ROUGH CARPENTRY
- 06610 FIBERGLASS REINFORCED PLASTIC FABRICATIONS

Division 7 - THERMAL AND MOISTURE PROTECTION

- 07171 BENTONITE/HDPE WATERPROOFING (WP-BH)
- 07176 WATER REPELLENT COATING - TRANSPARENT
- 07270 FIRESTOPPING
- 07320 PORTLAND CEMENT TILE ROOFING
- 03532 FULLY ADHERED EPDM ROOFING
- 07729 ROOF HATCHES
- 07900 JOINT SEALANTS

Division 8 - DOORS AND WINDOWS

- 08100 HOLLOW METAL (HM) DOORS AND FRAMES
- 08120 SOUND CONTROL DOOR ASSEMBLIES
- 08211 FLUSH WOOD DOORS (WD)
- 08212 CHEMICAL RESISTANT DOORS
- 08305 ACCESS DOORS
- 08312 ACCESS PANELS AND DOORS
- 08363 OVERHEAD DOOR (INSULATED - SECTIONAL STEEL)
- 08410 ALUMINUM STORE FRONT
- 08525 ALUMINUM WINDOWS - THERMAL - WITH BLINDS
- 08625 ALUMINUM FRAMED SKYLIGHT
- 08700 FINISH HARDWARE
- 08800 GLASS AND GLAZING

Division 9 - FINISHES

- 09000 COLOR SCHEDULE
- 09110 NON-LOAD BEARING WALL FRAMING SYSTEMS

09201 METAL FURRING AND LATHING
09218 POLISHED PLASTER
09220 PORTLAND CEMENT (PC) PLASTER
09227 EXTERIOR STUD WALL SYSTEM
09250 GYPSUM WALLBOARD
09510 ACOUSTICAL & CEILING TILE MATERIALS (AM)
09601 CONCRETE PREPARATION FOR FLOOR FINISHES
09605 WATER VAPOR EMISSION CONTROL SYSTEM
09660 RESILIENT TILE FLOORING (RT)
09670 CONCRETE STAIN (CS)
09705 SEAMLESS EPOXY FLOORING (SEF)
09720 DRY ERASE WALL COVERING (DWC)
09726 TACKABLE WALL COVERING
09762 CONCRETE SURFACE SEALER (CSS-HD)
09800 PROTECTIVE COATINGS BLENDING STRUCTURE INTERIOR
09902 EXTERIOR PAINTING
09904 INTERIOR PAINTING
09905 PAINTING AND PROTECTIVE COATINGS

Division 10 - SPECIALTIES

10165 PLASTIC LAMINATE TOILET PARTITIONS
10181 PREFABRICATED SHOWER STALLS
10260 WALL PROTECTION SPECIALTIES
10265 CORNER GUARDS
10416 DIRECTORIES AND BULLETIN BOARDS
10444 SIGNAGE
10500 METAL LOCKERS AND LOCKER BENCHES

Division 11 - EQUIPMENT

11005 EQUIPMENT: BASIC REQUIREMENTS
11060 PUMPING EQUIPMENT: BASIC REQUIREMENTS
11061 NON-CLOG CENTRIFUGAL PUMP
11065 SUMP PUMP
11066 WATER SEAL SYSTEM FOR PUMPS
11069 PROGRESSING CAVITY PUMP
11072 VERTICAL TURBINE (LINE SHAFT) PUMP
11076 SUBMERSIBLE NON-CLOG PUMP
11128 DEWATERING EQUIPMENT
11211 HORIZONTAL END-SUCTION PUMPS
11213 MEMBRANE FEED PUMP
11214 MAGNETIC DRIVE HORIZONTAL END SUCTION PUMPS
11215 HYDRAULIC DIAPHRAGM CHEMICAL METERING PUMPS
11223 INCLINED PLATE SETTLERS
11249 PLASTIC TANKS

- 11301 MEMBRANE FILTRATION SYSTEM
- 11340 AUTOMATIC SELF-CLEANING STRAINERS
- 11341 BASKET STRAINERS
- 11500 INTERMEDIATE BULK CONTAINERS (TOTES)
- 11923 LIQUID POLYMER PREPARATION SYSTEM
- 11948 FLASH MIXERS

Division 12 - FURNISHINGS

- 12338 LABORATORY CASEWORK
- 12340 ARCHITECTURAL CASEWORK (AC) PLASTIC LAMINATE FACED
- 12511 VERTICAL LOUVER BLINDS
- 12690 ENTRANCE MATS

Division 13 - SPECIAL CONSTRUCTION

- 13110 CATHODIC PROTECTION
- 13321 INSTRUMENTATION & CONTROL SYSTEM GENERAL REQUIREMENTS
- 13325 PROGRAMMABLE LOGIC CONTROL EQUIPMENT
- 13326 SCADA SYSTEM
- 13327 PROCESS INSTRUMENTATION GENERAL REQUIREMENTS AND SWITCHES
- 13328 PROCESS INSTRUMENTATION METERS AND TRANSMITTERS
- 13329 PROCESS INSTRUMENTATION ANALYZERS
- 13330 CONTROL PANELS, ENCLOSURES AND PANEL INSTRUMENTS
- 13441 CONTROL LOOP DESCRIPTIONS
- 13448 CONTROL PANELS AND ENCLOSURES

Division 15 - MECHANICAL

- 15060 PIPE AND PIPE FITTINGS: BASIC REQUIREMENTS
- 15061 PIPE - STEEL
- 15062 PIPE - DUCTILE
- 15063 PIPE - COPPER
- 15064 PIPE - PLASTIC
- 15065 DOUBLE CONTAINMENT PIPING SYSTEM
- 15069 PIPE - REINFORCED CONCRETE
- 15070 PIPE - REINFORCED CONCRETE CYLINDER
- 15073 PIPE - CAST-IRON SOIL
- 15074 PIPE - CAST-IRON ACID-RESISTANT WASTE
- 15075 PIPE - POLYVINYL CHLORIDE (PVC) CHEMICAL WASTE
- 15090 PIPE SUPPORT SYSTEMS
- 5100 VALVES - BASIC REQUIREMENTS
- 5101 GATE VALVES
- 5102 PLUG VALVES
- 5103 BUTTERFLY VALVES
- 5104 BALL VALVES
- 5105 GLOBE VALVES

15106 CHECK VALVES
15114 MISCELLANEOUS VALVES
15115 WATER CONTROL GATES
15440 PLUMBING FIXTURES AND EQUIPMENT
15510 FIRE HYDRANT
15605 HVAC - EQUIPMENT
15651 EVAPORATIVE AIR-COOLING UNITS
15890 HVAC - DUCTWORK

Division 16 - ELECTRICAL

16010 ELECTRICAL: BASIC REQUIREMENTS
16060 GROUNDING
16120 WIRE AND CABLE - 600 VOLT AND BELOW
16130 RACEWAYS AND BOXES
16132 CABLE TRAY
16135 ELECTRICAL - EXTERIOR UNDERGROUND
16220 MOTORS
16230 STANDBY ENGINE GENERATOR
16265 VARIABLE FREQUENCY DRIVES - LOW VOLTAGE
16410 SAFETY SWITCHES
16440 SWITCHBOARDS
16441 PANELBOARDS
16491 LOW VOLTAGE SURGE PROTECTIVE DEVICES (SPD)
~~16500~~ INTERIOR AND EXTERIOR LIGHTING
16710 TELECOMMUNICATION SYSTEM
16720 COMMUNICATIONS SYSTEM

EXHIBIT B - ESTIMATED WORK EFFORT AND COST

City of Lodi

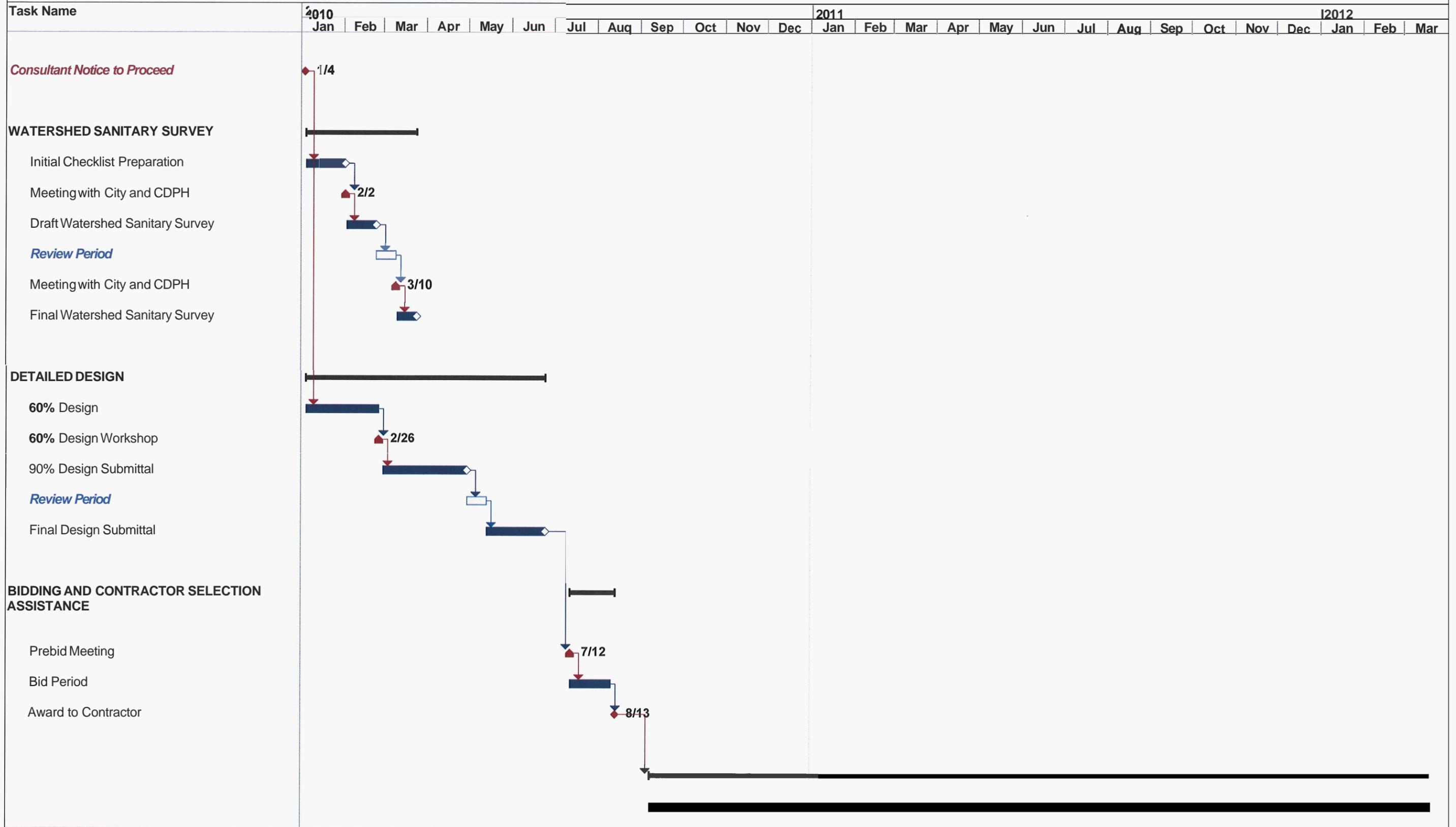
Surface Water Treatment Facility and Transmission Project

Final Design Services

Task No.	Task Description	Principal/ QA/QC	Project Manager	Civil/ Process	Arch	Struct Engr	Mech Engr	Elect Engr	Cost Est	Env	CADD Tech	Admin/ Clerical	Total HDR Labor Hours	Total HDR Labor (\$)	Total HDR Expenses (\$)	Subs (\$)	Total Cost (\$)
Task 1 - Project Management and Quality Assurance/Quality Control (QA/QC)																	
1.1	Project Management	24	140	45								80	289	\$52,905	\$ 5,291	\$ 8,800	\$ 66,996
1.2	QA/QC Program	52										60	112	\$16,147	\$ 1,615	\$ 6,600	\$ 24,362
	Subtotal Task 1	76	140	45	-	-	-	-	-	-	-	140	401	\$69,053	\$ 6,905	\$ 15,400	\$ 91,358
Task 2 - Watershed Sanitary Survey																	
2.1	Background Data Review		2	6						8			16	\$2,765	\$ 255		\$ 3,043
2.2	Watershed and Water Supply System		4	6						4			14	\$2,554	\$ 336		\$ 2,809
2.3	Identification of Potential Contaminant Sources		2							16			18	\$3,362	\$ 114		\$ 3,698
2.4	Water Quality Summary and Review		2	2						2			6	\$1,138	\$		\$ 1,252
2.5	Initial Checklist Preparation (includes one meeting)		2	6						2		2	12	\$1,847	\$ 185		\$ 2,032
2.6	Watershed Management Control Program Definition		2	2						8			12	\$2,210	\$ 221		\$ 2,431
2.7	Report Preparation (includes one meeting)	4	8	22						24	16	26	100	\$14,011	\$ 1,401		\$ 15,412
	Subtotal Task 2	4	22	44	-	-	-	-	-	64	16	28	178	\$27,888	\$ 2,789	\$ -	\$ 30,676
Task 3 - Final Design																	
3.1	60 Percent Design Workshop		8	12	8			8				8	44	\$6,629	\$ 663	\$ 3,000	\$ 10,292
3.2.1	90 Percent Design Specifications	82	37	226	233	201	90	320	80			80	1,350	\$208,018	\$ 20,802	\$ 89,066	\$ 317,886
3.2.2	90 Percent Design Drawings	192	87	528	543	470	209	746	80		3,494		6,350	\$841,485	\$ 84,149	\$207,821	\$1,133,454
3.3	90 Percent Design Workshop		8	8	8			8				8	40	\$6,073	\$ 607		\$ 6,680
3.4	Final Design (Bid Set)	19	8	51	52	45	20	72	90		235	40	633	\$86,364	\$ 8,636	\$ 20,000	\$ 115,000
	Subtotal Task 3	294	149	825	845	716	318	1,154	250	-	3,730	136	8,416	\$1,148,569	\$ 114,857	\$319,887	\$1,583,313
Task 4 - Bidding and Constructor Selection Assistance																	
4.1	Prebid Meeting			4								4	8	\$862	\$ 86		\$ 948
4.2	Bidding Services (up to 3 addenda)		4	8	8			8			24	24	76	\$8,956	\$ 896	\$ 2,500	\$ 12,351
4.3	Conformed Construction Set		4	12	12	4	4	12			40	40	128	\$14,960	\$ 2,196	\$ 1,500	\$ 18,656
	Subtotal Task 4	-	8	24	20	4	4	20	-	-	64	68	212	\$24,777	\$ 3,178	\$ 4,000	\$ 31,955
COLUMN TOTALS		374	319	938	865	720	322	1,174	250	64	3,810	372	9,207	\$1,270,286	\$ 127,729	\$339,287	\$1,737,302

EXHIBIT C - PROJECT SCHEDULE

09294



MEMBRANE SYSTEMS EVALUATION

City of Lodi Surface Water Treatment Facility 30 percent Design

November 30, 2009

Reviewed by: Gary Fuller, P.E.

Prepared by: Richard Stratton, P.E.

Introduction

The proposed Surface Water Treatment Facility (SWTF) project will allow for the City of Lodi to utilize the Mokelumne River to supplement the City's existing groundwater supply. Based on the evaluation comparing membranes to conventional treatment performed as part of the Conceptual Design study, the preferred treatment technology for the SWTF is a membrane system. The City has evaluated membrane systems from several suppliers in order to determine the best system for the City's SWTF. This technical memo documents the evaluation process used to select a membrane supplier. Details of membrane filtration alternatives are discussed briefly below.

Membrane Filtration Alternatives

Typical microfiltration (MF) and ultrafiltration (UF) membranes used in drinking water application use a hollow-fiber configuration operating at low pressures. There are two types of configurations for MF/UF membranes – pressure-driven system with membrane modules mounted in pressure vessels operating under positive pressure; and submerged systems with membrane modules mounted in open basin with water drawn through under vacuum.

The drawback of submerged systems is that large diameter piping is required for backwashing and refilling the large basins, which require transferring and handling of large volumes of water. In addition, membrane suppliers that manufacture both pressure and submerged membranes have reported that the pressure membranes would be more cost effective for this size of facility. Another consideration is that currently the only suppliers of submerged membranes are GE-Zenon and Siemens Memcor. Both of these membrane systems have struggled recently with excessive fiber breakage in their submerged systems. For these reasons, submerged membranes will not be considered further.

Pressure Vessel Membranes

Pressure membranes come in two configurations – outside-in (Pall, Memcor) or inside-out (Norit, Metawater). As the name indicates, inside-out membranes are fed on the inside of the fibers where the filtration takes place and collect filtrate on the lumen side of the fibers. Because the fibers have relatively small inside diameters (0.5 – 1.2 mm), fine screens or strainers must be installed to prevent plugging of the fibers. Cleaning of these type of

membranes is done by hydraulic backwash using permeate and periodic chemical cleaning, usually referred to as clean-in-place (CIP), or chemically enhanced backwash (CEB).

Outside-in membranes are commonly used when membrane feed water consists of higher solid loading because plugging of this type of membrane is less of a concern, although material can collect between the fibers if appropriate hydraulic flushing is not achieved. To enhance solids removal, most of these systems use air scouring during the backwash stage. Fine screens or strainers are needed to prevent entry of large particles that could damage the fibers or become lodged in the module.



Pall Pressure Membranes, Yucaipa, CA

Evaluation Procedures

The membrane evaluation is based on a comparison of the following criteria:

- Capital cost (membrane equipment and installation)
- Present worth of membrane system O&M costs (includes power, chemicals, and membrane replacement)
- Fiber breakage track record
- Ease of operation and maintenance

Membrane Manufacturer Information

HDR contacted four reputable membrane suppliers: Pall, Siemens-Memcor, Kruger—Norit, and Kruger Ceramic Membranes (KCM) to obtain information about their systems. Design criteria and features for each supplier are summarized in Table 1. A cost comparison of the listed membrane suppliers is presented in Table 2. The estimates are based on an 8 mgd system with 1 redundant membrane train. Estimates are based on recently bid projects or budget quotations and are meant to be a representative comparison; actual bid results could vary. O&M costs are based on treating 6,000 acre-feet of water per year.

Advantages and disadvantages of the evaluated membrane systems are presented in Table 3.

Table 1 - Summary of Proposed Membrane Systems Design Information by Manufacturer

Item	Pall	Siemens-Memcor	Kruger-Norit	Kruger-Ceramic
Configurations	5 trains total, 4 duty, 1 standby	5 trains total, 4 duty, 1 standby	1 train	4 trains total, 3 duty, 1 standby
Membrane type	Pressure	Pressure	Pressure (horizontal)	Pressure
Membrane material	PVDF	PVDF	PES	Ceramic (aluminum oxide)
Firm Capacity	8 MGD	8 MGD	8 MGD	8 MGD
Peak Capacity	10 MGD	10 MGD	10 MGD	10 MGD
Number of Modules per train	84	134	672	55
Water Temperature	15°C Summer, 5°C Winter	15°C Summer, 5°C Winter	15°C Summer, 5°C Winter	15°C Summer, 5°C Winter
Instantaneous Flow per Module	17.5 gpm	10.94 gpm	13.6 gpm	36 gpm
Design Flux	55 - 60 gal/SF/day (gfd)	30.4 gal/SF/day (gfd)	56 gal/SF/day (gfd)	140 gal/SF/day (gfd)
Backwash Interval	30 minutes	22-26 minutes	30 minutes	60 minutes
CIP Interval	60 days	45 days	1 year	180 days
Chlorine Maintenance Wash Interval or Enhanced Flux Maintenance (EFM)	36 hours (EFM)	24 hours	24 hours (CEB)	24 hours
Acid Maintenance Wash Interval (if needed)	120 hours	168 hours	48 hours (CEB)	24 hour
Estimated Recovery	95% (without backwash recovery)	95% (without backwash recovery)	93.3% (without backwash recovery)	>97% (without backwash recovery)

Table2 - Summary of Representative Membrane System Costs by Manufacturer

Cost Item	Pall	Siemens-Memcor	Kruger-Norit	Kruger-Ceramic
Capital Cost	\$3,200,000	\$3,300,000	\$3,280,000	\$6,690,000
Annual Operating Cost (average)	\$73,500	\$85,500	\$93,100	\$80,600
Present Worth Annual cost (i=4%, n=20 yrs)	\$999,000	\$1,162,000	\$1,265,000	\$1,095,000
Total Present Worth	\$4,199,000	\$4,462,000	\$4,545,000	\$7,785,000

Table 3 - Membrane Systems Advantages and Disadvantages

Membrane Supplier	Advantages	Disadvantages
Siemens – Memcor CMF (Pressure, outside-in)	Proven company. Conservative design flux. Competitive initial cost.	Many plants have reported excessive fiber breakage. Difficult to remove modules from rack. Cannot meet HDR membrane fiber breakage specification.
Pall (Pressure, outside-in)	Proven company. Several successful operating installations. No plants reporting significant fiber breakage problems. Can tolerate high turbidity for short durations. Effective maintenance cleaning. Cost competitive.	Tried to operate at too aggressive flux at some installations. Operates typically at higher flux compared to competitors – less conservative design.
Kruger-Norit (pressure, inside out)	Requires less water and energy for backwashing compared to outside-in membranes. No fiber breakage issues reported. CIP only needed once per year.	Limited installations in the US. Fiber failure problems at Minneapolis plant.
Kruger Ceramic (Metawater) Membrane(ceramic, pressure, inside out)	Robust design - zero fiber breakage. Tolerant of high solids loading. Highest flux at comparable pressure. Once or twice CIP per year. Skid shipped preassembled to minimize field error. Lower operating pressure. 20-year life warranty with 10 year cliff.	No operating installations in US, only one 10-mgd facility currently under design. Very high capital cost making them cost prohibitive.

Summary

The key findings from the information provided above is summarized as follows:

1. The Siemens Memcor membranes are ruled out because of fiber breakage problems being reported at several plants coupled with the difficulty in removing the modules to do repairs.
2. The Kruger-Norit pressure membranes have limited installations in the US and are still considered to be unproven. The first installation in the U.S. in Minneapolis, MN suffered many membrane fiber failures.
3. The Kruger Ceramic (Metawater) membranes are also unproven in the U.S. and are not cost competitive due to their over two times higher capital cost when compared to a comparable Pall membrane system.
4. The Pall membranes have several successfully operating systems in California and are cost competitive.

Advantages of Pall Membranes provide a number of advantages for this project, including:

- Capital cost is competitive with other membrane suppliers.
- O&M costs are competitive with other membrane suppliers.
- Membrane fibers have a low incidence of breakage. The present worth of replacement costs is lower than for other membrane systems.
- Highly permeability with typical operating flux of 55 to 60 gfd minimizes the footprint of the membrane system.
- High recovery efficiency that minimizes waste backwash water and treatment costs.
- Over 20 successfully operating installations in California and hundreds world wide.
- Operators contacted report the systems are easy to operate and maintain.

Recommendation

Based on the above considerations, HDR recommends the sole source selection of the Pall Microza Hollow Fiber membrane system for the City of Lodi SWTF. The specifications for the Pall membranes should limit the flux to a relatively conservative rate (<60 gfd) to reduce operating costs and extend membrane life.

RESOLUTION NO. 2009-176

A RESOLUTION OF THE LODI CITY COUNCIL
AWARDING PROFESSIONAL SERVICES AGREEMENT
FOR VALUE ENGINEERING REVIEW OF SURFACE
WATER TREATMENT FACILITY AND TRANSMISSION
PROJECT PRELIMINARY DESIGN AND FURTHER
APPROPRIATING FUNDS

WHEREAS, the City is moving forward in the process of designing a surface water treatment plant for the water purchased from Woodbridge Irrigation District, and HDR, Inc., has been retained to prepare 30 Percent Preliminary Design documents; and

WHEREAS, while City staff is highly confident in the planning and design experience and qualifications of HDR, Inc., it is a prudent step to perform a value engineering review of the preliminary design documents; and

WHEREAS, objectives of the review include an analysis of plant staffing, treatment processes, equipment, control strategies, building layout, security provisions, constructability, and construction cost estimates; and

WHEREAS, the Ecologic team includes specialists in the design and operation of water treatment facilities, and the team's collective experience and numerous advance certifications in the water treatment field well serve the objectives of the review effort.

NOW, THEREFORE, BE IT RESOLVED that the Lodi City Council does hereby award a professional services agreement in the amount of \$50,000 to Ecologic, Inc., of Stockton, California, for value engineering review of Surface Water Treatment Facility and Transmission Project preliminary design; and

BE IT FURTHER RESOLVED that funds in the amount of \$50,000 be appropriated from the Water Capital Fund.

Dated: December 16, 2009

I hereby certify that Resolution No. 2009-176 was passed and adopted by the City Council of the City of Lodi in a regular meeting held December 16, 2009, by the following vote:

AYES: COUNCIL MEMBERS – Hansen, Johnson, and Mayor Katzakian

NOES: COUNCIL MEMBERS – Hitchcock and Mounce

ABSENT: COUNCIL MEMBERS – None

ABSTAIN: COUNCIL MEMBERS – None


RANDI JOHL
City Clerk

RESOLUTION NO. 2009-177

A RESOLUTION OF THE LODI CITY COUNCIL AWARDING PROFESSIONAL SERVICES AGREEMENT FOR FINAL DESIGN OF SURFACE WATER TREATMENT FACILITY AND TRANSMISSION PROJECT, APPROVING SELECTION OF PALL MEMBRANE SYSTEM, AND FURTHER APPROPRIATING FUNDS

WHEREAS, on April 4, 2007, the City Council gave approval for HDR, Inc., to prepare the Surface Water Treatment Facility Conceptual Design and Feasibility Evaluation and on March 13, 2009, gave approval for HDR, Inc., to prepare the 30 percent preliminary plans and the environmental impact report (mitigated negative declaration); and

WHEREAS, staff recommends awarding a professional services agreement to HDR, Inc., of Folsom, for the final design of the Surface Water Treatment Facility and Transmission Project in the amount of \$1,737,302; and

WHEREAS, the scope of service for the HDR agreement provides for an accelerated design process that will produce bid documents in less than nine months, with the water treatment plant being constructed under a conventional design/bid/build process, and for the development of a preliminary financing plan; and

WHEREAS, staff recommends the approval of the Pall Membrane System for the surface water treatment facility as the Pall Membrane System, when compared to the other most appropriate membrane systems for Lodi, was cost competitive, operates in the preferred outside-in mode, and has superior performance (minimal fiber breakage). In addition, there are several successful operating installations, and the company has a sound reputation; and

WHEREAS, staff recommends the appropriation of \$2,000,000 from the Water Utility Capital Fund to fund the HDR contract and staff support costs.

NOW, THEREFORE, BE IT RESOLVED that the Lodi City Council does hereby award a professional services agreement to HDR, Inc., of Folsom, California, for the final design of the Surface Water Treatment Facility and Transmission Project in the amount of \$1,737,302; and

BE IT FURTHER RESOLVED that the City Council does hereby approve the selection of the Pall Membrane System; and

BE IT FURTHER RESOLVED that funds in the amount of \$2,000,000 be appropriated from the Water Utility Capital Fund for this project.

Dated: December 16, 2009

I hereby certify that Resolution No. 2009-177 was passed and adopted by the City Council of the City of Lodi in a regular meeting held December 16, 2009, by the following vote:

AYES: COUNCIL MEMBERS – Hansen, Johnson, and Mayor Katzakian

NOES: COUNCIL MEMBERS – Hitchcock and Mounce

ABSENT: COUNCIL MEMBERS – None

ABSTAIN: COUNCIL MEMBERS – None


RANDI JOHL
City Clerk

The City of Lodi
**Public Works
Water Services**



Mokelumne Water Treatment Plant

December 16, 2009

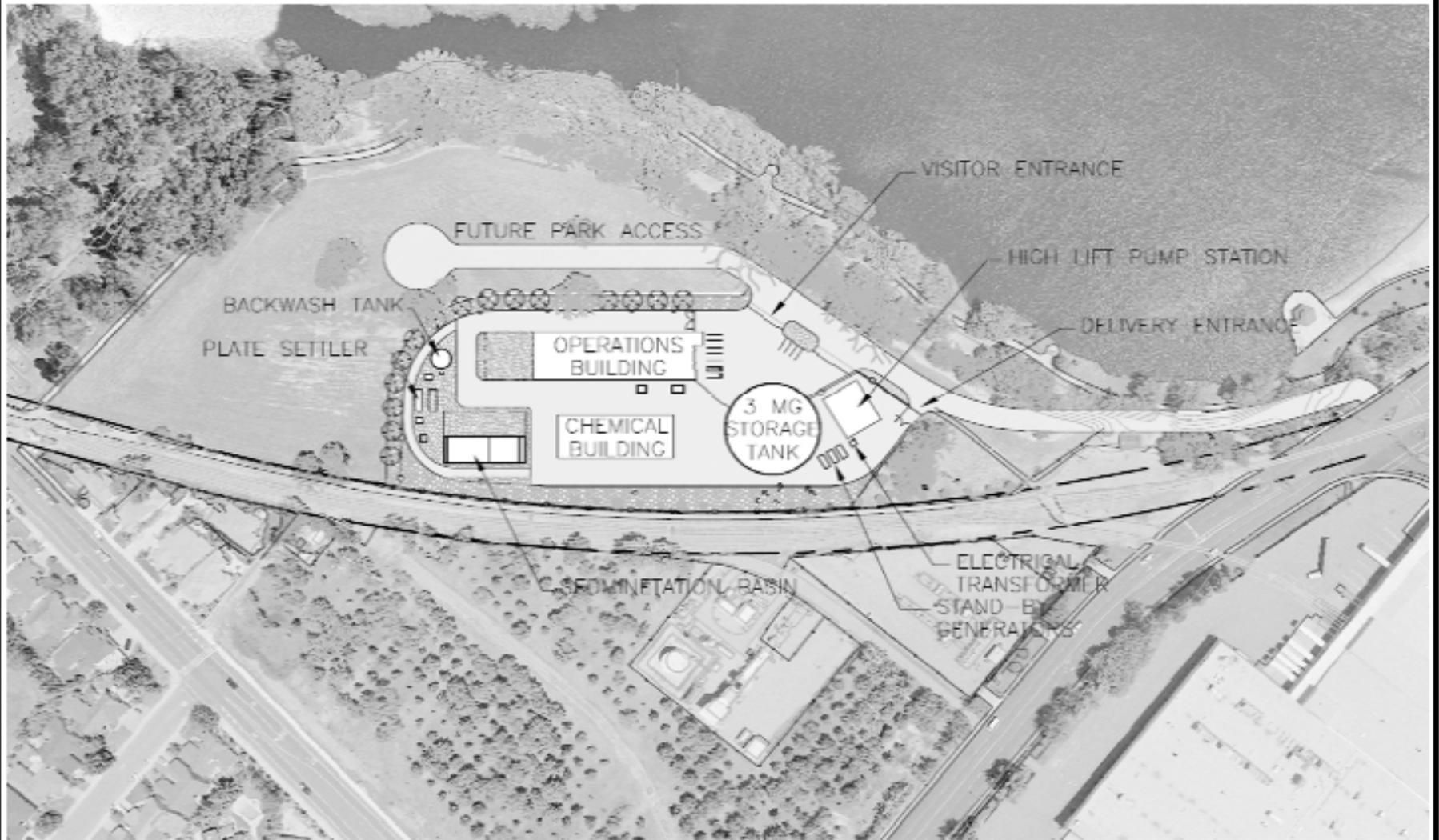
Milestones



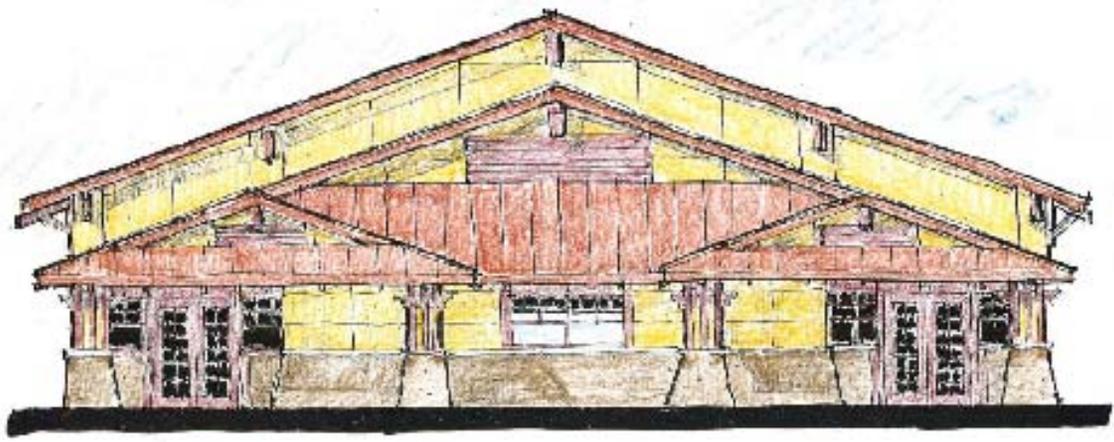
- ✓ WID Contract Approved April 2003
- ✓ Treat & Drink Option Approved Dec. 2006
- ✓ Preliminary Design Contract March 2009
- ✓ Final Design Contract Dec. 2009

- Banking Ends May 2010
- Financing Plan June 2010
- Award Construction Contract Sep. 2010











Questions?