PROFESSIONAL SERVICES CONTRACT BETWEEN
THE CITY OF HUNTINGTON BEACH AND
HDR ENGINEERING, INC.
FOR
ON-CALL CIVIL ENGINEERING
& PROFESSIONAL CONSULTING SERVICES

THIS AGREEMENT ("Agreement") is made and entered into by and between the City of Huntington Beach, a municipal corporation of the State of California, hereinafter referred to as "CITY," and HDR ENGINEERING, INC., a California Corporation hereinafter referred to as "CONSULTANT."

WHEREAS, CITY desires to engage the services of a consultant to provide On-Call Civil Engineering & Professional Consulting Services; and

Pursuant to documentation on file in the office of the City Clerk, the provisions of the Huntington Beach Municipal Code, Chapter 3.03, relating to procurement of professional service contracts have been complied with; and

CONSULTANT has been selected to perform these services,

NOW, THEREFORE, it is agreed by CITY and CONSULTANT as follows:

1. SCOPE OF SERVICES

CONSULTANT shall provide all services as described in **Exhibit "A,"** which is attached hereto and incorporated into this Agreement by this reference. These services shall sometimes hereinafter be referred to as the "PROJECT."

CONSULTANT hereby designates Anna Lantin who shall represent it and be its sole contact and agent in all consultations with CITY during the performance of this Agreement.

2. CITY STAFF ASSISTANCE

CITY shall assign a staff coordinator to work directly with CONSULTANT in the performance of this Agreement.

3. TERM; TIME OF PERFORMANCE

Time is of the essence of this Agreement. The services of CONSULTANT are to commence on _____, 20____ (the "Commencement Date"). This Agreement shall automatically terminate three (3) years from the Commencement Date, unless extended or sooner terminated as provided herein. All tasks specified in **Exhibit "A"** shall be completed no later than three (3) years from the Commencement Date. The time for performance of the tasks identified in **Exhibit "A"** are generally to be shown in **Exhibit "A."** This schedule may be amended to benefit the PROJECT if mutually agreed to in writing by CITY and CONSULTANT.

In the event the Commencement Date precedes the Effective Date, CONSULTANT shall be bound by all terms and conditions as provided herein.

4. COMPENSATION

In consideration of the performance of the services described herein, CITY agrees to pay CONSULTANT on a time and materials basis at the rates specified in **Exhibit "B,"** which is attached hereto and incorporated by reference into this Agreement, a fee, including all costs and expenses, not to exceed Two Million Dollars ($2,000,000.00).

5. EXTRA WORK

In the event CITY requires additional services not included in **Exhibit "A"** or changes in the scope of services described in **Exhibit "A,"** CONSULTANT will undertake such work only after receiving written authorization from CITY. Additional compensation for such extra work shall be allowed only if the prior written approval of CITY is obtained.

6. METHOD OF PAYMENT

CONSULTANT shall be paid pursuant to the terms of **Exhibit "B."**

7. DISPOSITION OF PLANS, ESTIMATES AND OTHER DOCUMENTS

CONSULTANT agrees that title to all materials prepared hereunder, including, without limitation, all original drawings, designs, reports, both field and office notices, calculations, computer code, language, data or programs, maps, memoranda, letters and other documents, shall belong to CITY, and CONSULTANT shall turn these materials over to CITY upon expiration or termination of this Agreement or upon PROJECT completion, whichever shall occur first. These materials may be used by CITY as it sees fit.

8. HOLD HARMLESS

A. CONSULTANT hereby agrees to protect, defend, indemnify and hold harmless CITY, its officers, elected or appointed officials, employees, agents and volunteers from and against any and all claims, damages, losses, expenses, judgments, demands and defense costs (including, without limitation, costs and fees of litigation of every nature or liability of any kind or nature) arising out of or in connection with CONSULTANT's (or CONSULTANT's subcontractors, if any) negligent (or alleged negligent) performance of this Agreement or its failure to comply with any of its obligations contained in this Agreement by CONSULTANT, its officers, agents or employees except such loss or damage which was caused by the sole negligence or willful misconduct of CITY. CONSULTANT will conduct all defense at its sole cost and expense and CITY shall approve selection of CONSULTANT's counsel. This indemnity shall apply to all claims and liability regardless of whether any insurance policies are applicable. The policy limits do not act as limitation upon the amount of indemnification to be provided by CONSULTANT.

B. To the extent that CONSULTANT performs "Design Professional Services" within the meaning of Civil Code Section 2782.8, then the following Hold Harmless provision applies in place of subsection A above:

"CONSULTANT hereby agrees to protect, defend, indemnify and hold harmless CITY and its officers, elected or appointed officials, employees, agents and volunteers, from and against any and all claims, damages, losses, expenses, demands and defense costs (including, without limitation, costs and fees of litigation of every nature or liability of any kind or nature) to the extent that the claims against CONSULTANT arise out of, pertain to, or relate to the negligence, recklessness, or willful misconduct of CONSULTANT. In no event shall the cost to defend charged to CONSULTANT exceed CONSULTANT's proportionate percentage of fault. However, notwithstanding the previous sentence, in the event one or more other defendants to the claims and/or litigation is unable to pay its share of defense costs due to bankruptcy or dissolution of the business, CONSULTANT shall meet and confer with CITY and other defendants regarding unpaid defense costs. The duty to indemnify, including the duty and the cost to defend, is limited as provided in California Civil Code Section 2782.8.

C. Regardless of whether subparagraph A or B applies, CITY shall be reimbursed by CONSULTANT for all costs and attorney's fees incurred by CITY in enforcing this obligation. This indemnity shall apply to all claims and liability regardless of whether any insurance policies are applicable. The policy limits do not act as a limitation upon the amount of indemnification to be provided by CONSULTANT.

9. PROFESSIONAL LIABILITY INSURANCE

CONSULTANT shall obtain and furnish to CITY a professional liability insurance policy covering the work performed by it hereunder. This policy shall provide coverage for CONSULTANT's professional liability in an amount not less than One Million Dollars ($1,000,000.00) per occurrence and in the aggregate. The above-mentioned insurance shall not contain a self-insured retention without the express written consent of CITY; however an insurance

policy "deductible" of Ten Thousand Dollars ($10,000.00) or less is permitted. A claims-made policy shall be acceptable if the policy further provides that:

A. The policy retroactive date coincides with or precedes the initiation of the scope of work (including subsequent policies purchased as renewals or replacements).

B. CONSULTANT shall notify CITY of circumstances or incidents that might give rise to future claims.

CONSULTANT will make every effort to maintain similar insurance during the required extended period of coverage following PROJECT completion. If insurance is terminated for any reason, CONSULTANT agrees to purchase an extended reporting provision of at least two (2) years to report claims arising from work performed in connection with this Agreement.

If CONSULTANT fails or refuses to produce or maintain the insurance required by this section or fails or refuses to furnish the CITY with required proof that insurance has been procured and is in force and paid for, the CITY shall have the right, at the CITY's election, to forthwith terminate this Agreement. Such termination shall not effect Consultant's right to be paid for its time and materials expended prior to notification of termination. CONSULTANT waives the right to receive compensation and agrees to indemnify the CITY for any work performed prior to approval of insurance by the CITY.

10. CERTIFICATE OF INSURANCE

Prior to commencing performance of the work hereunder, CONSULTANT shall furnish to CITY a certificate of insurance subject to approval of the City Attorney evidencing the foregoing insurance coverage as required by this Agreement; the certificate shall:

A. provide the name and policy number of each carrier and policy;

B. state that the policy is currently in force; and

C. shall promise that such policy shall not be suspended, voided or canceled by either party, reduced in coverage or in limits except after thirty (30) days' prior written notice; however, ten (10) days' prior written notice in the event of cancellation for nonpayment of premium.

CONSULTANT shall maintain the foregoing insurance coverage in force until the work under this Agreement is fully completed and accepted by CITY.

The requirement for carrying the foregoing insurance coverage shall not derogate from CONSULTANT's defense, hold harmless and indemnification obligations as set forth in this Agreement. CITY or its representative shall at all times have the right to demand the original or a copy of the policy of insurance. CONSULTANT shall pay, in a prompt and timely manner, the premiums on the insurance hereinabove required.

11. INDEPENDENT CONTRACTOR

CONSULTANT is, and shall be, acting at all times in the performance of this Agreement as an independent contractor herein and not as an employee of CITY. CONSULTANT shall secure at its own cost and expense, and be responsible for any and all payment of all taxes, social security, state disability insurance compensation, unemployment compensation and other payroll deductions for CONSULTANT and its officers, agents and employees and all business licenses, if any, in connection with the PROJECT and/or the services to be performed hereunder.

12. TERMINATION OF AGREEMENT

All work required hereunder shall be performed in a good and workmanlike manner. CITY may terminate CONSULTANT's services hereunder at any time with or without cause, and whether or not the PROJECT is fully complete. Any termination of this Agreement by CITY shall be made in writing, notice of which shall be delivered to CONSULTANT as provided herein. In the

event of termination, all finished and unfinished documents, exhibits, report, and evidence shall, at the option of CITY, become its property and shall be promptly delivered to it by CONSULTANT.

13. ASSIGNMENT AND DELEGATION

This Agreement is a personal service contract and the work hereunder shall not be assigned, delegated or subcontracted by CONSULTANT to any other person or entity without the prior express written consent of CITY. If an assignment, delegation or subcontract is approved, all approved assignees, delegates and subconsultants must satisfy the insurance requirements as set forth in Sections 9 and 10 hereinabove.

14. COPYRIGHTS/PATENTS

CITY shall own all rights to any patent or copyright on any work, item or material produced as a result of this Agreement.

15. CITY EMPLOYEES AND OFFICIALS

CONSULTANT shall employ no CITY official nor any regular CITY employee in the work performed pursuant to this Agreement. No officer or employee of CITY shall have any financial interest in this Agreement in violation of the applicable provisions of the California Government Code.

16. NOTICES

Any notices, certificates, or other communications hereunder shall be given either by personal delivery to CONSULTANT's agent (as designated in Section 1 hereinabove) or to CITY as the situation shall warrant, or by enclosing the same in a sealed envelope, postage prepaid, and depositing the same in the United States Postal Service, to the addresses specified below. CITY and CONSULTANT may designate different addresses to which subsequent notices, certificates or other communications will be sent by notifying the other party via personal delivery, a reputable overnight carrier or U. S. certified mail-return receipt requested:

TO CITY:

City of Huntington Beach
ATTN: Director of Public Works
2000 Main Street
Huntington Beach, CA 92648

TO CONSULTANT:

HDR Engineering, Inc.
Attn: Anna Lantin
3220 El Camino Real, Suite 200
Irvine, CA 92602

17. CONSENT

When CITY's consent/approval is required under this Agreement, its consent/approval for one transaction or event shall not be deemed to be a consent/approval to any subsequent occurrence of the same or any other transaction or event.

18. MODIFICATION

No waiver or modification of any language in this Agreement shall be valid unless in writing and duly executed by both parties.

19. SECTION HEADINGS

The titles, captions, section, paragraph and subject headings, and descriptive phrases at the beginning of the various sections in this Agreement are merely descriptive and are included solely for convenience of reference only and are not representative of matters included or excluded from such provisions, and do not interpret, define, limit or describe, or construe the intent of the parties or affect the construction or interpretation of any provision of this Agreement.

20. INTERPRETATION OF THIS AGREEMENT

The language of all parts of this Agreement shall in all cases be construed as a whole, according to its fair meaning, and not strictly for or against any of the parties. If any provision of this Agreement is held by an arbitrator or court of competent jurisdiction to be unenforceable, void, illegal or invalid, such holding shall not invalidate or affect the remaining covenants and provisions of this Agreement. No covenant or provision shall be deemed dependent upon any other unless so expressly provided here. As used in this Agreement, the masculine or

neuter gender and singular or plural number shall be deemed to include the other whenever the context so indicates or requires. Nothing contained herein shall be construed so as to require the commission of any act contrary to law, and wherever there is any conflict between any provision contained herein and any present or future statute, law, ordinance or regulation contrary to which the parties have no right to contract, then the latter shall prevail, and the provision of this Agreement which is hereby affected shall be curtailed and limited only to the extent necessary to bring it within the requirements of the law.

21. DUPLICATE ORIGINAL

The original of this Agreement and one or more copies hereto have been prepared and signed in counterparts as duplicate originals, each of which so executed shall, irrespective of the date of its execution and delivery, be deemed an original. Each duplicate original shall be deemed an original instrument as against any party who has signed it.

22. IMMIGRATION

CONSULTANT shall be responsible for full compliance with the immigration and naturalization laws of the United States and shall, in particular, comply with the provisions of the United States Code regarding employment verification.

23. LEGAL SERVICES SUBCONTRACTING PROHIBITED

CONSULTANT and CITY agree that CITY is not liable for payment of any subcontractor work involving legal services, and that such legal services are expressly outside the scope of services contemplated hereunder. CONSULTANT understands that pursuant to *Huntington Beach City Charter* Section 309, the City Attorney is the exclusive legal counsel for CITY; and CITY shall not be liable for payment of any legal services expenses incurred by CONSULTANT.

24. ATTORNEY'S FEES

In the event suit is brought by either party to construe, interpret and/or enforce the terms and/or provisions of this Agreement or to secure the performance hereof, each party shall bear its own attorney's fees, such that the prevailing party shall not be entitled to recover its attorney's fees from the nonprevailing party.

25. SURVIVAL

Terms and conditions of this Agreement, which by their sense and context survive the expiration or termination of this Agreement, shall so survive.

26. GOVERNING LAW

This Agreement shall be governed and construed in accordance with the laws of the State of California.

27. SIGNATORIES

Each undersigned represents and warrants that its signature hereinbelow has the power, authority and right to bind their respective parties to each of the terms of this Agreement, and shall indemnify CITY fully for any injuries or damages to CITY in the event that such authority or power is not, in fact, held by the signatory or is withdrawn.

28. ENTIRETY

The parties acknowledge and agree that they are entering into this Agreement freely and voluntarily following extensive arm's length negotiation, and that each has had the opportunity to consult with legal counsel prior to executing this Agreement. The parties also acknowledge and agree that no representations, inducements, promises, agreements or warranties, oral or otherwise, have been made by that party or anyone acting on that party's behalf, which are not embodied in this Agreement, and that that party has not executed this Agreement in reliance on any representation, inducement, promise, agreement, warranty, fact or circumstance not expressly set forth in this

Agreement. This Agreement, and the attached exhibits, contain the entire agreement between the parties respecting the subject matter of this Agreement, and supersede all prior understandings and agreements whether oral or in writing between the parties respecting the subject matter hereof.

29. EFFECTIVE DATE

This Agreement shall be effective on the date of its approval by the City Council. This Agreement shall expire when terminated as provided herein.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed by and through their authorized officers.

CONSULTANT,
HDR ENGINEERING, INC.

By: Anna Y Lantin
Anna Lantin
print name
ITS: *(circle one)* Chairman/President/Vice President

AND

By: Erik B. Johnson
Erik B. Johnson
print name
ITS: *(circle one)* Secretary/Chief Financial ~~Officer/Asst.~~ Secretary - Treasurer
Sr. Vice President

CITY OF HUNTINGTON BEACH, a municipal corporation of the State of California

Mayor

City Clerk

INITIATED AND APPROVED:

Director of Public Works

REVIEWED AND APPROVED:

City Manager

APPROVED AS TO FORM:

City Attorney

EXHIBIT "A"

A. STATEMENT OF WORK: (Narrative of work to be performed)

Provide On-Call Civil Engineering and Professional Consulting Services. If Consultant chooses to assign different personnel to the project, Consultant must submit names and qualifications of these staff to City for approval before commencing work.

B. CONSULTANT'S DUTIES AND RESPONSIBILITIES:

See Attached Exhibit A

C. CITY'S DUTIES AND RESPONSIBILITIES:

1. Furnish Scope of Work and provide a request for proposal for each project.

2. City shall issue a task order for each project based upon scope of services, work schedule, and fee proposal submitted.

D. WORK PROGRAM/PROJECT SCHEDULE:

A project schedule will be developed for each project assigned by the City.

EXHIBIT A

EXHIBIT A

March 13, 2025
Public Works Department
City of Huntington Beach
2000 Main Street
Huntington Beach, CA 92648

RE: On-Call Civil Engineering Professional Consulting Services,
Service Category A. Water/Sewer/Storm Water Engineering, Potable Water Pipeline Engineering (Water Distribution)

Dear Selection Committee,

HDR Engineering, Inc. (HDR) understands that the City of Huntington Beach (City) is a very complex organization that provides a full spectrum of water services to a service area of over 200,000 people. HDR is excited to submit our qualifications for On-Call Civil Engineering Professional Consulting Services, Service Category A. Water/Sewer/Storm Water Engineering, Potable Water Pipeline Engineering (Water Distribution). We are currently working with your staff on several pipeline corrosion assessment projects and look forward to continuing our strong working relationship. We are prepared to assist you in all aspects and areas of your organization and to work collaboratively with you and your staff to deliver efficient and implementable designs.

Selecting HDR will provide the City with the following benefits:

- **Responsive Team Led by a Single Point-Of-Contact** – We are ready to mobilize and deliver quickly on any size task order to provide immediate support in the corrosion engineering discipline. The team, for all project types, will be managed by our proposed Contract Manager, Lucy Jaramillo. Lucy has a long-standing relationship with City staff and understands your goals, expectations, and protocols. Lucy has delivered several corrosion engineering task orders for the City and brings technical and managerial expertise. She will work with our proposed technical staff to respond to task order proposals, oversee quality work for each task order, and be attentive to your needs with regular communication.

3230 El Camino Real, Suite 200, Irvine, CA 92602-1377
T 714.730.2300 F 714.730.2301

- **Proven approach to corrosion engineering** – HDR has been and continues to be a leader in the field of tank inspections, cathodic protection evaluations, and condition assessments. Our focus on designing, constructing, and operating structures with low maintenance costs and long trouble-free lives allows the City to focus on delivering water.
- **A best-value approach to all task orders** – As you may be aware from our previous work, we put the City's best interests first; either through our competitive rates, project approach, or collaborative approach with City staff. To help deliver a high quality, best value product, all of our work goes through an established and proven internal quality control process. This approach keeps project designs on track resulting in project savings.

We look forward to continuing our working relationship with the City. Please contact our project manager, Lucy Jaramillo at (661) 537-3220, should you have any questions regarding our SOQ.

Sincerely,
HDR Engineering, Inc.

Anna Lantin
Vice President, Southern California
Area Operations Manager

Lucy Jaramillo, EIT, AMPP CP-2, CIP-2
Project Manager

3230 El Camino Real, Suite 200, Irvine, CA 92602-1377
T 714.730.2300 **F** 714.730.2301

REQUEST FOR PROPOSAL

VENDOR APPLICATION FORM

TYPE OF APPLICANT: ☐ NEW ☒ CURRENT VENDOR

Legal Contractual Name of Corporation: HDR Engineering, Inc.

Contact Person for Agreement: Anna Lantin

Corporate Mailing Address: 3220 El Camino Real, Suite 200

City, State and Zip Code: Irvine, CA 92602-1377

E-Mail Address: anna.lantin@hdrinc.com

Phone: 714.368.5691 Fax: _____

Contact Person for Proposals: Lucy Jaramillo

Title: Project Manager E-Mail Address: luzmila.jaramillo@hdrinc.com

Business Telephone: 661.537.3220 Business Fax: _____

Year Business was Established: 1917

Is your business: (check one)

☐ NON PROFIT CORPORATION ☒ FOR PROFIT CORPORATION

Is your business: (check one)

☒ CORPORATION
☐ INDIVIDUAL
☐ PARTNERSHIP
☐ LIMITED LIABILITY PARTNERSHIP
☐ SOLE PROPRIETORSHIP
☐ UNINCORPORATED ASSOCIATION

Names & Titles of Corporate Board Members
(Also list Names & Titles of persons with written authorization/resolution to sign contracts)

Names	Title	Phone
Kip Field	Southwest Regional Director of Operations	714.730.2400
Anna Lantin	SoCal Area Operations Manager	714.368.5691

Federal Tax Identification Number: 47-0680568

City of Huntington Beach Business License Number: A295855
(If none, you must obtain a Huntington Beach Business License upon award of contract.)

City of Huntington Beach Business License Expiration Date: 04/30/2025

B Background & Project Summary

EXECUTIVE SUMMARY

Founded in 1917, HDR has grown to over 13,000 employees making HDR one of the nation's leading consulting firms. HDR has been part of the Southern California business landscape since 1960 and over time has expanded to 8 locations. This project will be based locally in our Irvine and Claremont offices.

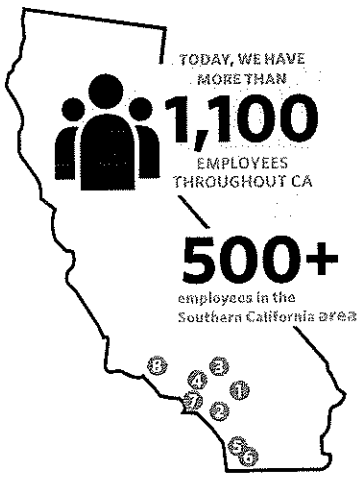
In 2011, HDR acquired Schiff Associates, a corrosion engineering consulting firm headquartered in Claremont, California. Schiff Associates (HDR Claremont) has 60 years of experience providing consulting corrosion engineering services to clients in California and across the United States. This makes HDR one of the oldest corrosion engineering firms in the United States. Many of HDR Claremont's clients are located in Southern California, giving HDR intimate knowledge of the local area and infrastructure of local water agencies and their interaction with one another.

Our corrosion, condition assessment and rehabilitation staff includes many Professional Engineers in various disciplines, including Corrosion, Chemical, and Civil. We also have a full team of Corrosion EITs, Corrosion Technicians, and Coatings Inspectors. Our staff holds numerous NACE International (NACE) corrosion, cathodic protection, and protective coatings certifications as well as SSPC coating certifications.

For the past 13 years, HDR worked closely with City staff to conduct corrosion assessment surveys on the City's existing cathodic protection systems and recommend corrosion protection work to maintain the integrity of the transmission mains. In these surveyed areas, we are familiar with your existing system, pipe condition, and potential work needed to begin right away. HDR has a proven track record of providing custom and collaborative solutions to complex projects. We will work closely with City staff to ensure the correct and efficient action is implemented. The City will furnish a task order or scope of work request for each project, and HDR is prepared to start immediately upon your Notice to Proceed. We have assigned Lucy Jaramillo to lead this effort, she has worked on past as-needed engineering contracts and has extensive experience in corrosion engineering.

Lucy is based locally in the HDR Claremont office, which is only 45 miles from the City's office. As the Project Manager, she will oversee a team of task leaders to effectively manage the as-needed engineering services required by the City. She is an experienced Project Manager and devoted to providing a quality product by implementing necessary quality assurance procedures for successful delivery.

Based on our experience with as-needed contracts, we understand that projects can vary widely in size, complexity, and scope.



HDR'S SOUTHERN CALIFORNIA OFFICE LOCATIONS

1. **Riverside**
   2280 Market Street, Suite 100
   Riverside, CA 92501
2. **Irvine**
   3230 El Camino Real, Suite 200,
   Irvine, CA 92602
3. **Claremont**
   431 W. Baseline Road
   Claremont, CA 91711
4. **Los Angeles**
   350 S. Grand Avenue, Suite 2900, Los Angeles, CA 90017
5. **San Diego**
   591 Camino de la Reina, Suite 300,
   San Diego, CA 92108
6. **San Diego**
   401 B Street, Suite 1110,
   San Diego, CA 92101
7. **Long Beach**
   100 Oceangate, Suite 1120
   Long Beach, CA 90802
8. **Ventura**
   200 E. Santa Clara Street, Suite 200,
   Ventura, CA 93001

FAST FACTS

Our approach, effort, and fee will reflect the need for flexibility. Close coordination and communication with the City and the project team is required for successful delivery. Our corrosion team is tailored to optimize efficient execution and successful completion. Lucy will identify the needed skills and obtain the commitment from team members that will be made available to the City for the duration of each task order.

At each project kick-off meeting, we will identify relevant stakeholders, review procedures and design requirements, and establish clear lines of communication and authority. During project execution, HDR staff will be present for all necessary meetings and prepare detailed notes, progress reports, and interim work products as required. All deliverables will be reviewed by HDR's independent QA/QC team to verify accuracy and completeness prior to submission to the City for review.

HDR strives to provide the City with excellent service and exceed expectations. Our intent is to remain with the project until its implementation and beyond so that we confirm the work was successfully delivered. Our commitment to your corrosion needs and involvement through project development and implementation will allow us to address any issues or discrepancies that should arise in the corrosion assessments, design, or construction.

Example scopes of work are shown in the figure below for typical task orders for corrosion engineering services provided during planning/preliminary design, design, and construction.

EXAMPLE SCOPE OF WORK FOR TYPICAL CORROSION ENGINEERING TASK ORDERS

Our task order scope of services are detailed and thorough, outlining exactly what will be accomplished. A typical outline for a corrosion control preliminary design may include:

- Project Management and Meetings
- Corrosion Evaluation/Assessment of New and Existing Pipelines
  - Facilities Inspections and Record Review
  - Soil corrosivity surveys
  - Cathodic Protection Annual Surveys
  - Potential Survey and Electrical Isolation Testing
  - Stray Current Investigation
  - Electrical Continuity Testing
  - Close-Interval Surveys
  - External Corrosion Direct Assessments (ECDA)

For a corrosion evaluation/assessment of existing reinforced concrete structures:

- Facilities Inspections and Record Review
- Surface Penetrating Radar
- Potential Mapping
- Concrete Core Sampling
- Laboratory tests of concrete core samples
- Corrosion Report with recommendations for corrosion monitoring or protection and improvements to existing cathodic protection systems:

For a corrosion control design project , a typical scope of work may include the following tasks:

- Project Management and Meetings
- Design of Sacrificial Anode Cathodic Protection
- Preparation of Cathodic Protection Design Plans, Specifications, And Cost Opinion
- Bidding Assistance

For a construction management or engineering services during construction of corrosion control projects, a typical scope of work may include the following tasks:

- Project Management and Construction Progress Meetings
- Inspections
- Field Engineering
- Submittal Reviews and RFI Responses
- Change Order Review
- As-Built and O&M Manuals Development

Our goal is to set the industry benchmark for excellence in services

We accomplish this through work well done, staying true to purpose, and exercising discipline. To achieve quality in our work, we have developed a Quality Management System (QMS). Our QMS provides an important framework to reach the highest levels of quality—both for you and for ourselves.

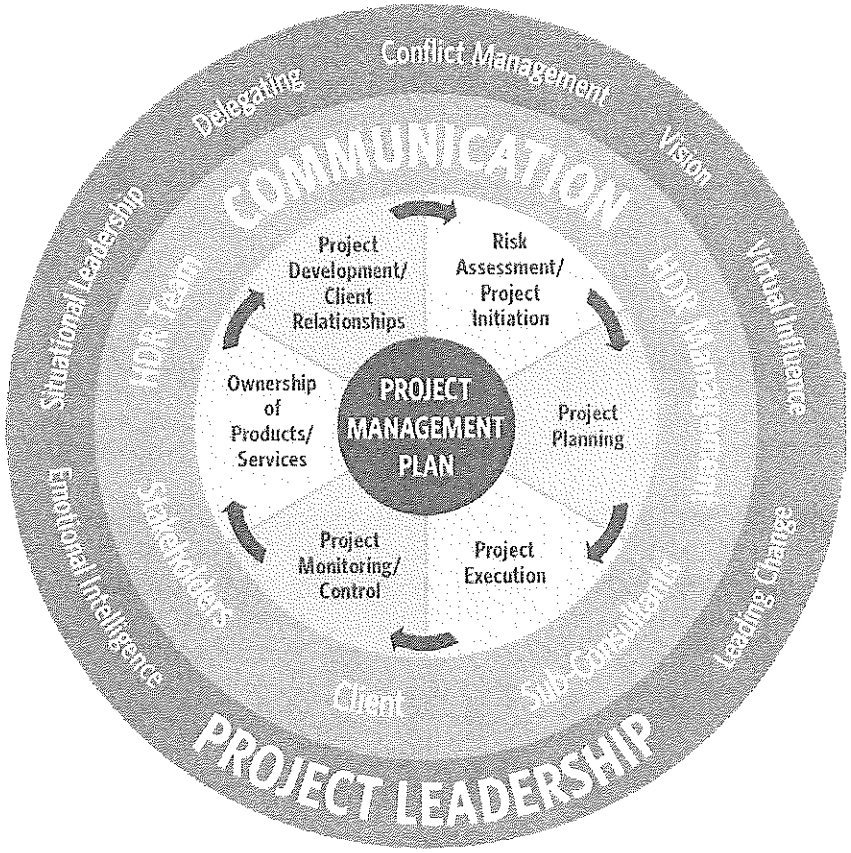
We focus on continual opportunities for improvement throughout our daily activities to achieve client satisfaction and meet performance expectations. The QMS includes programs, policies, and business processes for:

- **Management Responsibility.** Management actively promotes quality in our business activities and defines responsibilities for maintaining our focus on quality.
- **Resource Management.** Resources are trained, available, and committed to providing quality services.
- **Professional Service Delivery.** Processes and procedures are in place that promote quality in the delivery of our products and services.
- **Measurement, Analysis, and Improvement.** Continual improvement is achieved through performance measurement and identification of areas for improvement.

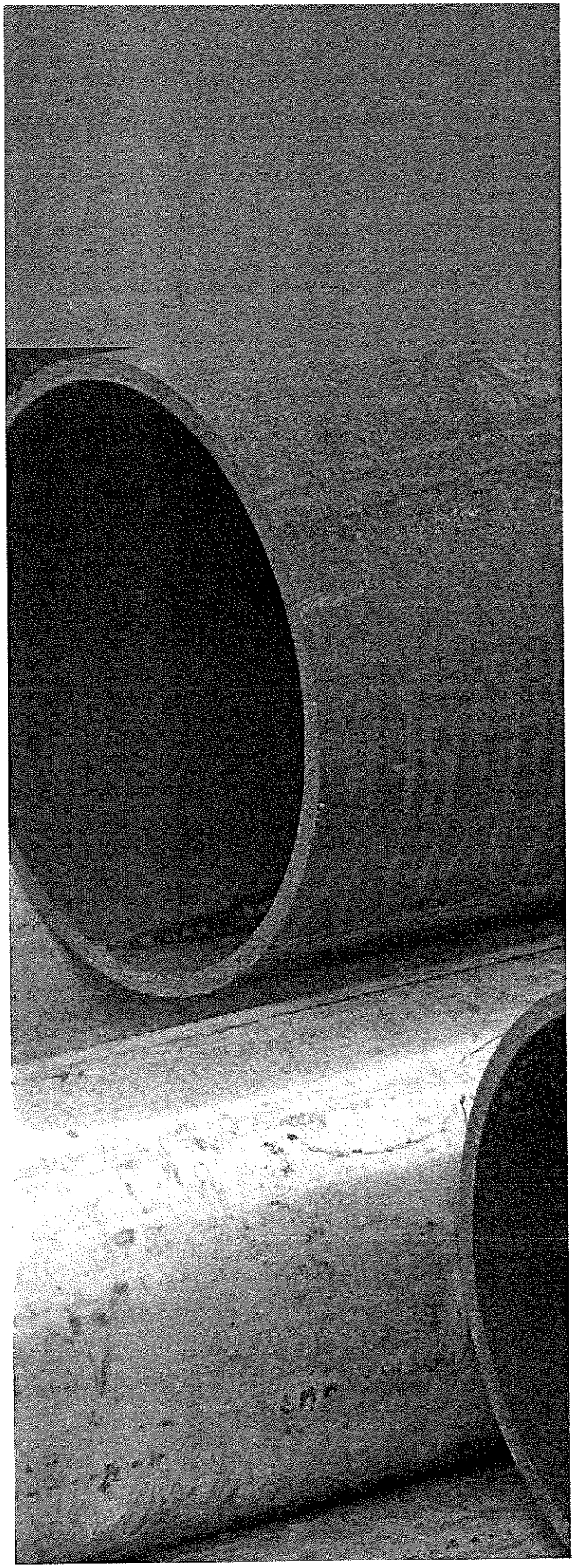
Effective Project Management
The mainstay of a project is the Project Management Plan (PMP). The PMP defines the vision; implementation strategy; schedule and budget criteria; and the policies, procedures, and standards for the project.

The PMP is the master reference document for the team and provides guidance to subconsultants engaged throughout the life of the program, from inception through planning, design, and construction. The PMP provides a level of continuity and standardization to facilitate time and cost-effective communications and decision-making.

The PMP serves as a formal process for reviewing, evaluating, prioritizing, documenting, approving, implementing, and maintaining all aspects of a project.



HDR believes quality assurance and quality control are paramount to the success of any project: we use a process that starts at the kick-off meeting and runs throughout the project.



C Methodology

Methodology

HDR has a strong working knowledge of City Standards and Guidelines from working closely with the City for over 15 years to conduct corrosion assessment surveys on the City's existing cathodic protection systems.

Our team recommends corrosion protection work to maintain distribution system integrity. Below is a summary of our approach and methodology to accomplish the scope of work that may be required for corrosion engineering task orders across the preliminary design, design, and construction phases.

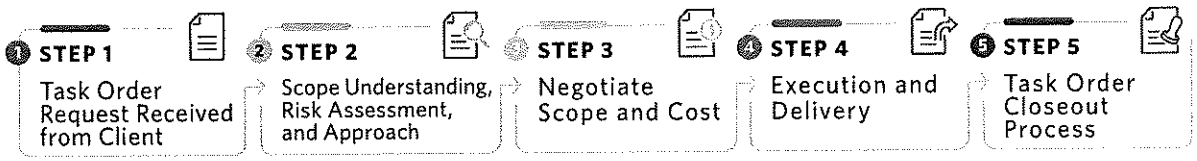
1. Corrosion Control Preliminary Design Phase

1.1. EVALUATION/ ASSESSMENT OF NEW AND EXISTING PIPELINES

A. Soil Corrosivity Surveys

HDR has extensive experience in soil corrosivity evaluation, especially in the City's service area. Results of soil analysis surveys are heavily relied upon for pipeline excavation and evaluation. Soil resistivity is a major indicator of corrosion, and HDR uses three methods to evaluate the soil corrosivity:

The **electromagnetic conductivity (Emag) survey** (ASTM D6639) provides continuous soil resistivity data collection performed by a handheld unit without soil contact, making this a rapid survey method to evaluate the overall alignment for areas of



1. **Upon receipt of a project task order, our Project Manager, Lucy Jaramillo, will meet with the City and key stakeholders to quickly understand the issues and needs associated with the request.** We will prepare a tailored understandable scope of work and an achievable schedule. Our team will function as an extension of the City's staff with seamless cooperation.
2. **For each Task Order, we will custom build our team to optimize successful completion of the project and strive to exceed your expectations.** The HDR team's extensive experience in Southern California and our familiarity with the City will allow for faster implementation of each Task Order.
3. **During the execution phase, alternatives will be developed and vetted with the City. Task order execution will be a team effort with collaboration from all.** Our team will identify alternatives and develop them sufficiently to have meaningful discussions with the City's staff before developing detailed concepts and proceeding to the final product.
4. **HDR's approach delivers quality work on-time and within budget**. From working on projects for the City, our understanding of your procedures, staff, and concerns will provide you with results that stay within budget and meet schedules. HDR will prepare schedule updates using Microsoft Project or a format acceptable to the City. To monitor schedule versus budget, we employ an Earned Value Tracking application weekly to identify whether we are completing the tasks efficiently and we gauge whether we are on schedule, based on expenditures.
5. **Though each project is unique, they also have lessons to apply to the next task.** Our reputation for superior service that clients rely upon is based on providing you with the highest quality product, on time and on budget. Prior to closing out a task order, we would like to conduct a "lessons learned" review. This vital debrief is conducted with City's staff so we can learn where we can be more responsive to your needs in the future. The end result is that we improve our quality and provide better value to you and the community.

high corrosivity. Emag is a great tool for picking up very small pockets of severely corrosive soil.

HDR has extensive experience, having conducted over 4,000 miles of Emag surveys.

Based on the interpretation of the Emag survey, locations for **Wenner Four-Pin testing** per ASTM G57 are selected. Utilizing a specially manufactured multi-conductor wiring harness, the four-pin tests can be completed for pin spacings of 2½-, 5-, 7½-, 10-, and 15-foot spacings. Wenner Four Pin testing provides the average soil resistivity at depths equal to the pin spacings and the soil resistivity of each layer can be calculated, which gives a better picture of the soil strata.

Soil sample collection is completed in areas of most concern based on the results and analysis of the Emag and Wenner four-pin surveys. HDR can collect samples at virtually any pipe depth using a Geoprobe 5400 truck-mounted direct-push machine. Coordination is made with utilities and DigAlert to avoid conflict while sampling.

- Once collected, soil samples are submitted to **HDR's in-house laboratory** for analysis:
  - The electrical resistivity of each sample is measured in a soil box per ASTM G187 or CTM 643 in its as-received condition and again after saturation with distilled water.
  - 5:1 water:soil extract from each sample is then chemically analyzed for the major soluble salts commonly found in soil per ASTM D4327 and D6919 and AWWA 2320. This includes Chloride ion concentration per CTM 422, and Sulfate ion concentration per CTM 417.
  - The pH of the saturated samples is measured per ASTM G51.

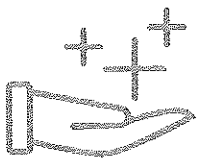
B. Cathodic Protection Surveys

HDR has extensive experience performing pipe-to-soil potential surveys on existing corrosion monitoring and cathodic protection test stations.

These surveys will include inspection of test stations, pipe-to-soil potential readings, rectifier readings, anode current output, and insulating flange and casing isolation testing. Minor maintenance and repairs of minor damage to corrosion test stations, including shunts and identification will be performed by HDR at no additional charge. These surveys provide a cornerstone and building blocks for all pipeline assessments and establish a condition profile of each pipeline at a point in time. Potentials can be compared across time to establish trends and areas of concern as well as ensure that proper levels of cathodic protection are being achieved in accordance with criteria established in Association for Materials Protection and Performance (AMPP) SP0169 or SP0100 as applicable.

C. Indirect Corrosion Pipeline Assessments

The HDR team has expert knowledge on performing indirect pipeline assessments which require a thorough understanding of the principles involved, and in the interpretation of test results, there is no substitute for experience.



Indirect pipeline assessments may include:

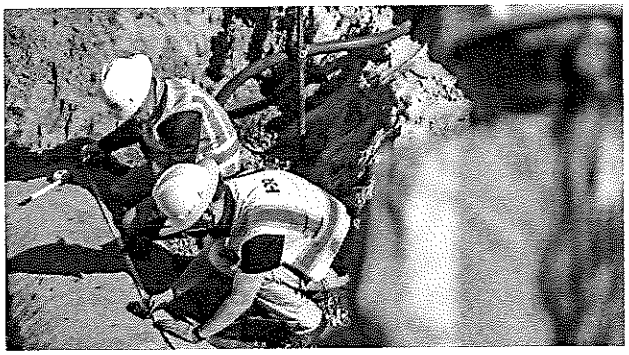
- Electrical Continuity testing is a crucial step in determining the viability of the initial or continued application of cathodic protection and is necessary in order to determine the most appropriate method of close interval survey.
- Electrical isolation between pipelines, structures, facilities, and appurtenances is paramount for the proper functionality of cathodic protection systems, as well as reducing corrosion cells introduced by bimetallic coupling (galvanic corrosion), long-line corrosion cells, and stray current.

The close-interval surveys (CIS) are used to provide high-resolution data to help the corrosion

engineer evaluate the effectiveness of a CP system, identify any pipeline coating anomalies, and investigate stray current interference. There are various configurations for conducting the test depending on the pipeline's condition, electrical continuity, and stray current influences. Traditional CIPS and cell-to-cell are the two main techniques used by HDR's corrosion engineers in accordance with AMPP SP0169 or SC0100. A variant of the cell-to-cell CIS is used for pinpointing electrically discontinuous joints by using cell-to-cell side drains or cell-to-remote-cell measurements in conjunction with circulating current.

D. External Corrosion Direct Assessments (Excavation Work)

Based on the results from the corrosion surveys, a location is selected as the most viable candidate for further assessment. Once a location has been identified for external direct corrosion assessment (ECDA), the pipelines are excavated and inspected. ECDAs consist of conducting a **visual inspection** of the pipe surface to note and quantify any areas of coating damage, measuring potentials of the pipe surface to create a **potential isopleth** and evaluate corrosion activity, selecting an area for coating removal and **inspection**, and performing **ultrasonic thickness** (UT) measurements. Following the assessment, coating repair will be performed in accordance with standard procedures provided by the City, or per standard practice for the particular pipe.



Surface potential mapping of a cement mortar coated pipe

1.2. EVALUATION/ASSESSMENT OF EXISTING REINFORCED CONCRETE STRUCTURES

A. Surface Penetrating Radar

GSSI StructureScan Mini LXT and XT surface penetrating radars (SPR) are used to locate and determine the depth of concrete cover over the embedded steel reinforcement. Steel reinforcement location is needed to facilitate electrical continuity testing and half-cell potential mapping.

B. Half-Cell Potential Mapping

Once the steel reinforcement is located, tests are performed to determine if the steel reinforcement in the concrete is electrically continuous. Electrical continuity is required for half-cell potential mapping and it is performed in accordance with AMPP SP0308, and the International Organization for Standardization (ISO) 12696.

Once electrical continuity testing is performed, half-cell corrosion-potential (voltage) mapping of reinforcing steel in concrete is conducted per ASTM C876. Half-cell potential measurements are performed in a grid pattern on selected uncoated concrete surface areas. Equipotential contour maps are plotted using the data and are used to identify areas where steel reinforcement corrosion could potentially be a concern.

C. Concrete Core Sampling

Concrete cores are collected from the structures for laboratory chemical testing to determine if the concrete still protects the steel reinforcement from corrosion. HDR collects concrete cores at selected locations and patches the concrete core holes using an appropriate material approved by the City.

D. Laboratory Tests of Concrete Core Samples

Laboratory testing of the concrete core samples is performed at selected depths to establish a chloride and hydroxide concentration profile as a function of depth from the concrete surface. Having a concentration profile gives insight into the health of the concrete at varying depths and its ability to protect steel reinforcement from

corrosion. Water-soluble chloride ion content is measured at predetermined increments in accordance with ASTM C1218. The pH of each sample is determined by direct measurement with a glass-bulb pH electrode in contact with pulverized concrete material brought to saturation with distilled water per a modified version of ASTM G51.

1.3 REPORTING

A final report is submitted which includes all information contained within the various tasks completed under the project. Results of all testing, in graphical or tabular form as appropriate, are included and serve as a basis for future corrosion evaluation and maintenance on the pipeline. GPS coordinates of tested facilities are included to aid future maintenance and testing. For annual survey reports, the test results also include GIS-generated maps and graphs summarizing the updates made to the City's database per the newest survey data.

HDR's method of reporting effectively identifies areas of the pipeline which, based on results of testing and the best application of corrosion principles and experience, are more likely to have more significant corrosion or underperforming existing CP systems.

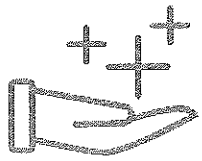
Recommendations are made with respect to required repairs or replacement of compromised sections of the pipeline, as well as a discussion of the possible merits of providing electrical continuity, dielectric isolation, and cathodic protection.

2. Cathodic Protection Design Phase

A. Design of Sacrificial Anode Cathodic Protection

Between impressed current cathodic protection (ICCP) and sacrificial or galvanic anode cathodic protection (GACP), the simplest, cheapest, and most reliable systems are GACP.

For this reason, HDR's default approach is to utilize GACP design unless conditions prevent its use.



HDR has designed hundreds of GACP systems, including many for the City. Most recently this was for the 2020 CP Repairs project and the CP System improvements project that is underway.

To properly design cathodic protection, numerous calculations are performed to account for the specific pipeline size and material, coating type, soil conditions, and anode type and configuration. HDR is an industry leader in corrosion control design analysis and performing cathodic protection calculations. HDR's technical advisor Brien Clark regularly teaches an advanced galvanic anode seminar at a local annual corrosion conference.

B. Cathodic Protection Design Plans Specifications and Cost Options

HDR performs a variety of CP engineering services including design. The best corrosion control measures are those which can be buried and forgotten with the structure. HDR considers CP the last resort due to the maintenance that is necessary to ensure the proper functioning of the system. If CP is necessary, we work to reduce current requirements, minimize economic impact, and simplify CP installation and maintenance.

Drawings and specifications are necessary to properly convey the designed cathodic protection system to the contractor. HDR routinely works with pipeline design engineers to prepare plans, details, technical specifications, and engineer's cost opinion for cathodic protection and corrosion control measures. In the case of the City, HDR employs the City's standard plans and specifications whenever possible.

A staged approach is often employed, where submittals at 90%, 100%, and final design levels are performed. This allows for feedback and an opportunity to incorporate comments while

refinement of the design is still being made. HDR has numerous California-licensed professional engineers available to sign and seal the final corrosion control drawings.

C. Bidding Assistance

HDR design engineers have extensive experience working with owners to effectively execute bid phase processes. Our history of securing clear and competitive bids is a direct result of our ability to provide quality bid documents. We achieve this by using experienced local design staff, properly planning our work, and engaging the best experts on the project and assisting with formal value engineering, constructability and quality review processes. Our technical leads are all skilled in their particular disciplines with extensive experience overseeing and designing similar projects.

3. Corrosion Engineering Services During Construction Phase

A. Inspections, Submittal Reviews, RFI Responses, and Change Order Review

HDR provides construction support services in the majority of our design projects and is used to working in fast-paced situations where responding to RFI's and material submittals review in a timely matter is of the essence. HDR will attend meetings, respond to RFI's and RFC's, review material submittals, prepare CDC's, and review change order requests. HDR construction management team and inspection staff have experience reviewing and understanding construction specifications to effectively perform construction inspection.

Our approach and goal is to take the process from start to finish with as little burden to the District as possible. In order to do so, a full understanding of project milestones, deliverables, specifications, and planned results must be considered and realized.

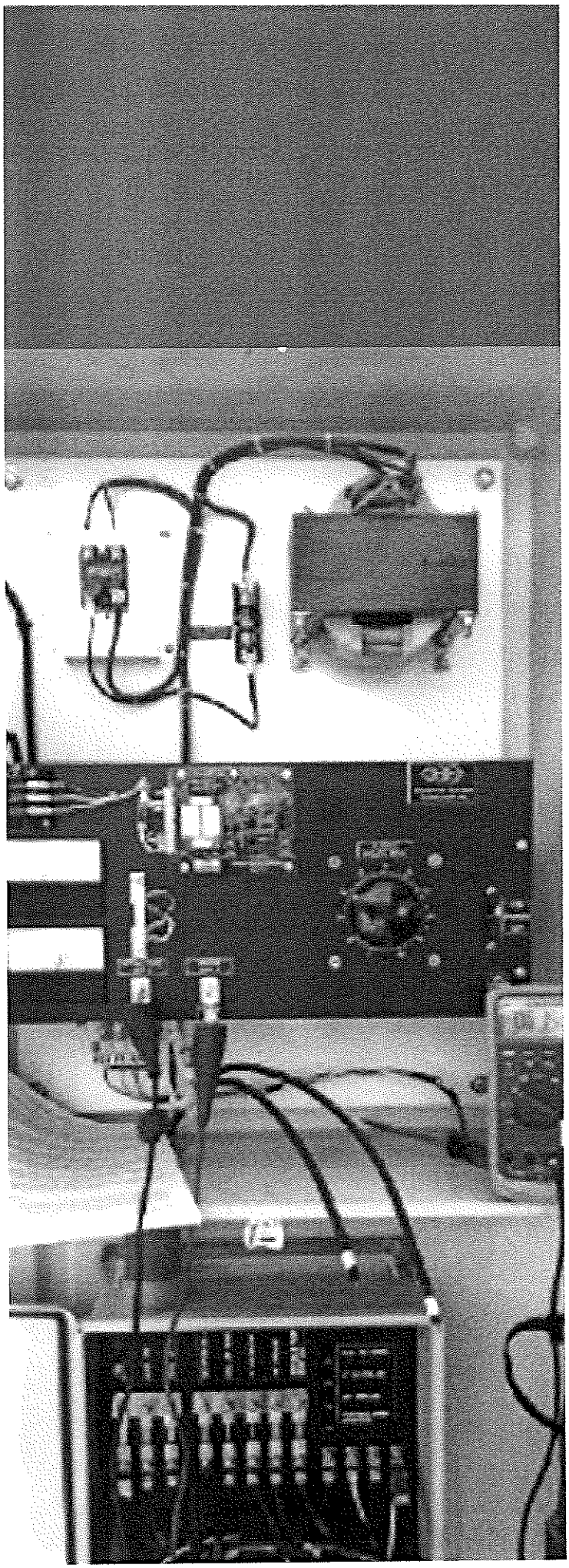
HDR understands that establishing the right team to coordinate communications and execution is essential.

B. As-Built and O&M Manuals Development

HDR has the technical background to perform reviews of consolidated drawing sets prepared by the contractors with their as-built markups indicating the conditions as constructed. The HDR engineering and CAD teams work seamlessly to prepare record drawings. HDR also has the technical background to develop Operation and Maintenance (O&M) Manuals for successful transition between construction and operations.

C. Attend Project Team Meetings

Communication is essential for a successful project. The best way to communicate design review comments is in a face-to-face team meeting. In this setting, the City can easily point to particular aspects of the design for clarification or to convey comments and the designer can quickly respond or note where design changes will be implemented. HDR is local and we are always happy to attend project team meetings. We routinely prepare the agenda and capture the meeting minutes for distribution after the meeting.



D Staffing

Key Personnel & Staffing

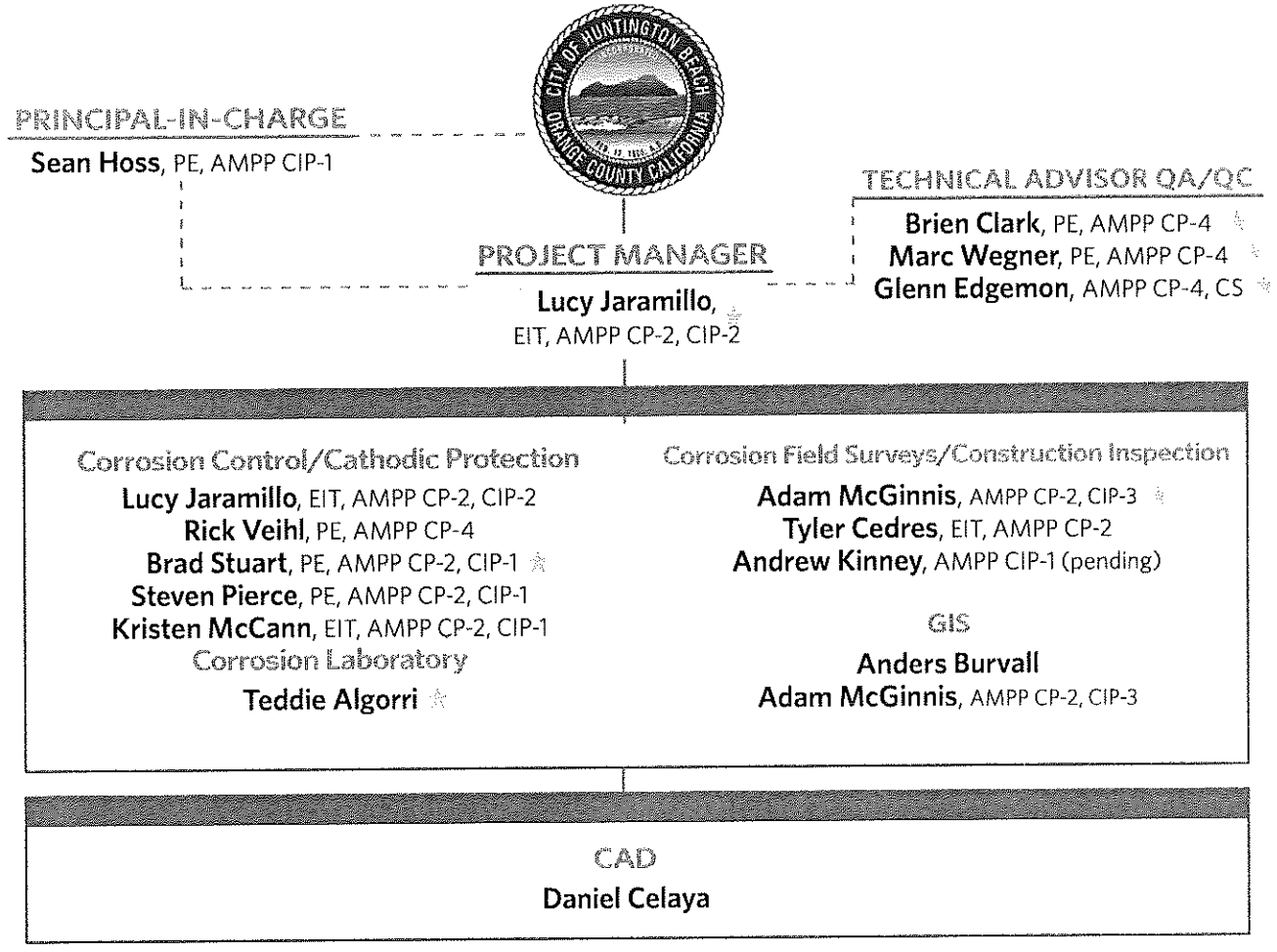
The key to efficient project delivery is assigning qualified professional staff who can deliver results.

We have established good working relationships with many municipalities and will bring those resources to the City to support tasks under this contract. As specific tasks are defined, we will find the right technical staff, either from within our team, or by engaging the appropriate specialized staff.

The City requires a highly qualified, locally based, capable team of experts that can help the District define, plan, design, and implement your CIP projects. HDR is proposing an experienced team of fully committed staff and subconsultants that will work in partnership with the City staff. Our history of partnering with other agencies, such as Metropolitan Water District and the City of Los Angeles Bureau of Sanitation and Bureau of Engineering demonstrates a commitment to provide the right talent at the right time to deliver your projects.

HDR's team exceeds the RFP requirements for the corrosion engineering discipline and is organized around major deliverables and areas of expertise. Our team has the resources, tools, experience, and commitment to be an effective partner for the City in implementing its corrosion projects effectively.

The organization of our team, a table of qualifications of our key staff, and resumes for key team members are provided. Resumes for additional technical support staff are available upon request.



Designated individual resumes included in appendix

Sean Hoss, PE | **Principal-in-Charge**

EDUCATION

Bachelor of Science, Civil Engineering, California State Polytechnic University, Pomona

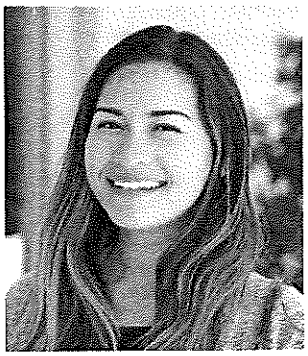
REGISTRATION

Professional Engineer - Civil 79964 California
NASSCO Lateral Assessment; Certification Program, US No. U-0718-0703002372
NASSCO Manhole Assessment Certification Program, US No. U-0718-0703002372
NASSCO Pipeline Assessment and Certification Program, US No. U-0718-0703002372

RELEVANT EXPERIENCE

- City of Huntington Beach, Cathodic Protection Repair
- Rainbow Municipal Water District, Corrosion Protection Program Development

---



Lucy Jaramillo, EIT, AMPP CP-2, AMPP CIP-2 | **Project Manager**

Point of Contact, Corrosion Control/Cathodic Protection

EDUCATION

Bachelor of Science, Chemical Engineering, California State Polytechnic University, Pomona

REGISTRATION

Engineer in Training, CA
AMPP Cathodic Protection Technician, 66998
AMPP Certified Coatings Inspector, 71477

RELEVANT EXPERIENCE

- City of Huntington Beach 2025 Cathodic Protection System Improvements
- City of Huntington Beach, Cathodic Protection Annual Surveys
- West Basin Municipal Water District, Cathodic Protection System Improvement

---

Glen Edgemon, AMPP CP-4, CS | **Technical Advisor | QA/QC**

EDUCATION

Bachelor of Science, Materials Engineering, Georgia Institute of Technology

Masters of Metallurgical Engineering, Georgia Institute of Technology

REGISTRATION

AMPP Corrosion Specialist, 8356
AMPP Cathodic Protection Specialist, 8356
AMPP Materials Selection & Design, 8356

RELEVANT EXPERIENCE

- West Basin Municipal Water District, Cathodic Protection System Improvements
- Eastern Municipal Water District, Sunnymead Pipeline Construction Support

Brien Clark, PE | Technical Advisor | QA/QC

Task Order Manager, Corrosion Control/Cathodic Protection Lead

EDUCATION

Bachelor of Science, Chemical Engineering, California State Polytechnic University, Pomona

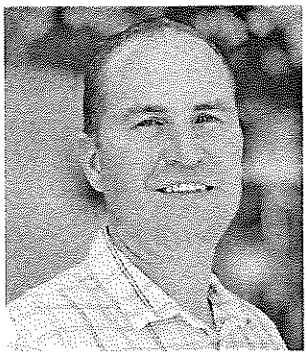
REGISTRATION

Professional Engineer - Chemical CH 6291 CA
AMPP Cathodic Protection Specialist 17978

RELEVANT EXPERIENCE

- City of Huntington Beach Cathodic Protection System Improvements
- City of Huntington Beach | Annual Surveys Pipeline Condition Assessment
- Eastern Municipal Water District, Corrosion Engineering and Protection Services

---



Marc Wegner, PE | Task Order Manager | Technical Advisor | QA/QC

EDUCATION

Masters of Science Civil Engineering, California State University, Los Angeles

Bachelor of Science Civil Engineering, California State University, Los Angeles

Masters of Business Administration, University of Redlands

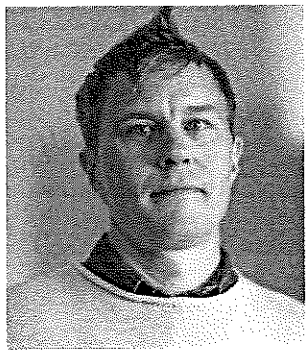
REGISTRATION

Professional Engineer - Civil C73862 CA
AMPP Cathodic Protection Specialist 26528

RELEVANT EXPERIENCE

- City of Huntington Beach, As-Needed Corrosion Engineering and Maintenance Services
- Eastern Municipal Water District, As Needed Non-Design Engineering Services

---



Anders Burvall | GIS Support

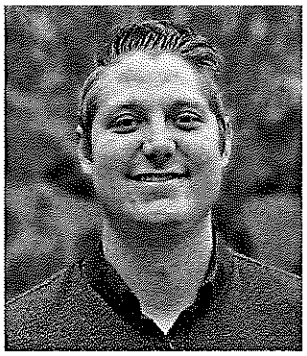
EDUCATION

Masters of Science, Geography, San Diego State University

Bachelor of Science, Environmental Science, San Diego State University

RELEVANT EXPERIENCE

- West Basin Municipal Water District, Cathodic Protection System Improvements
- City of Carlsbad Cathodic Protection Program Improvements



Bradley Stuart, PE | Corrosion Control/Cathodic Protection

EDUCATION

Masters of Materials Engineering,
California Polytechnic State
University, Pomona

Bachelor of Science
Chemical Engineering, California
Polytechnic State University, Pomona

REGISTRATION

Professional Engineer CH 7036 CA
AMPP Cathodic Protection Technician 71968
AMPP Basic Coatings Inspector 83205
SPRAT Level 1 2001754

RELEVANT EXPERIENCE

- City of Huntington Beach, As-Needed Corrosion Engineering and Maintenance Services
- City of Huntington Beach 2025 Cathodic Protection System Improvements

---

Adam McGinnis, AMPP CP-2, CIP-3 | Corrosion Field Surveys/ Construction Inspection

REGISTRATION

AMPP Senior Certified Coating Inspector, 70460
AMPP Cathodic Protection Technician 59492

RELEVANT EXPERIENCE

- West Basin Municipal Water District, Cathodic Protection System Improvements
- City of Huntington Beach, Cathodic Protection System Improvements
- City of Huntington Beach, Cathodic Protection Annual Surveys

---

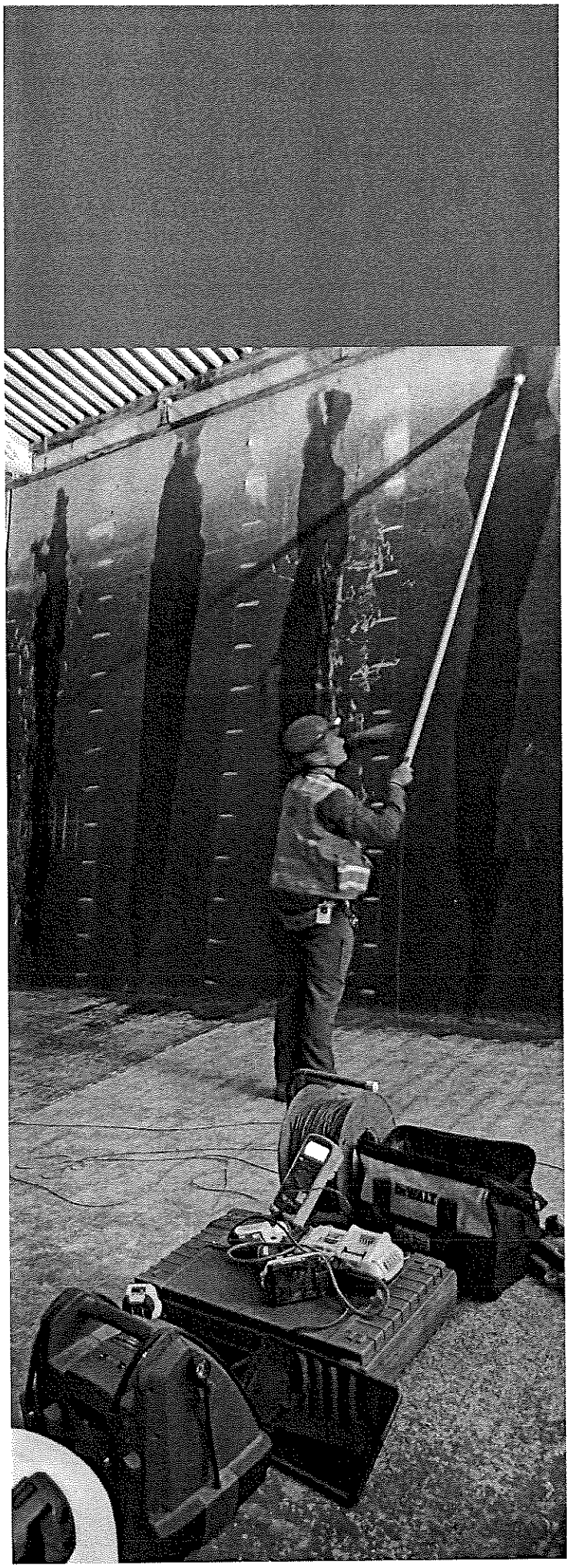
Teddie Algorri | Corrosion Laboratory

EDUCATION

Bachelor of Science,
Civil Engineering,
California State Polytechnic University, Pomona

RELEVANT EXPERIENCE

- City of Huntington Beach, Cathodic Protection Repair
- West Basin Municipal Water District, Cathodic Protection System Improvements
- Eastern Municipal Water District, Sunnymead Pipeline Construction Support



E Qualifications

FIRM QUALIFICATIONS

Our experience makes it possible. HDR is one of the oldest corrosion engineering firms in the United States with 60 years of experience providing corrosion engineering services to clients in California and across the country. In this section, we provide a description of corrosion protection services and expertise, followed by recent project experiences directly related to these services.

External Corrosion Services

Cathodic Protection Services:
HDR performs a variety of cathodic protection (CP) services including corrosion surveys, engineering, and construction. The best corrosion control measures are those which can be buried and forgotten with the structure. Cathodic protection is the last resort. If CP is necessary, we work to reduce current requirement, minimize economic impact, and simplify CP installation.

Corrosion Test Station Monitoring:
From designing new facilities to conducting annual surveys, HDR performs a variety of corrosion test station-related services. Our test station design incorporates tried-and-true materials and established best practices to provide monitoring facilities with low maintenance requirements and increased ease of use. We also perform construction support to ensure the proper material procurement, installation, and testing of the test stations. HDR has extensive experience conducting annual corrosion test station surveys. We utilize state-of-the-art data acquisition software to reduce costs and to integrate survey data directly with existing client GIS databases. Our experienced engineering staff analyzes the data and provides decisive conclusions and recommendations to prevent future failures.

External Corrosion Direct Assessment:
External Corrosion Direct Assessment (ECDA) improves safety by assessing and reducing the impact of external corrosion on pipeline integrity. It enhances the assessment of external corrosion by identifying and addressing corrosion activity and proactively prevents defects from growing large enough to impact structural integrity. ECDA identifies and addresses where corrosion activity has occurred, is occurring, or may occur. Lastly, it integrates data from multiple field and pipe examinations, physical examinations and operating history. ECDA is a four- step process that includes pre-assessment, indirect examinations, direct examinations and post assessment.

Internal Corrosion Services

Internal Corrosion Assessments:
HDR provides internal corrosion assessment services on pipelines and other facilities for asset management, failure analysis, and rehabilitation purposes. Numerous techniques are employed to assess coatings, concrete, and metals. Our experienced condition assessment personnel are knowledgeable in corrosion mechanisms and propagation methods to efficiently diagnose issues and provide recommended rehabilitation.

Corrosion Rate Monitoring Services:
Our staff performs field evaluations of facilities and environments in order to apply sensors and instrumentation for monitoring corrosion rates both internally (pipelines and vessels) and externally (pipelines with and without cathodic protection applied). They also provide system engineering to integrate monitoring systems with existing data acquisition systems or remote monitoring systems. Data collection and analysis services are also available. HDR can assist you in selecting the best communication system for remote monitoring. Our engineers will provide recommendations for procurement, installation, and system commissioning.

Laboratory Services

Failure Analysis:
HDR has over 50 years of experience in determining the cause of a variety of failures due to corrosion of metals or concrete. Our experts use state of the art equipment to image and measure the failures. Our laboratory is equipped to analyze the contributing factors to a failure due to metallurgical microstructure, corrosive elements in soils, concrete, and water; microbiologically influenced corrosion (MIC) and coatings defects. Failure site visits are recommended.

Corrosivity Testing:

Our in-house laboratory provides support services including soil corrosivity testing, water testing, and concrete testing. Routine services include resistivity per ASTM G187 or CTM 643, pH measurement per ASTM D4972, electrical conductivity measurement per ASTM D1125, analysis of anions and cations by ion chromatography per ASTM D4327 and ASTM D6919 respectively, alkalinity analysis of carbonate and bicarbonate per ASTM D513, qualitative sulfide and redox tests per AWWA C105, soil thermal resistivity per ASTM D5334, and concrete chloride concentration per AASHTO T-260. Other specialty testing is also available.

Research:

HDR performs research projects on new technologies related to corrosion control and monitoring. One of our research projects involved a non- destructive testing tool, called Giatec ICOR™, used for detailed corrosion evaluations of reinforced concrete structures without an electrical connection to the rebar.

Material Selection/Design

Protective Coatings and Linings Selection:

HDR is constantly researching, reviewing, and updating the need for new coating systems that meet regulations while maintaining the performance that is expected by our clients for successful coating and lining projects. We review, generate, and update coating and lining client/project specifications in order to use the latest technologies for each client's project requirements.

Unfortunately coating failures are a reality. Our approach to a coating failure analysis is to gather historical information available in regards to coating applications and review, perform a site visit for the purpose of destructive and non-destructive testing, gather samples and perform forensic analysis, and compile all data into a comprehensive final report of findings with conclusions and recommendations.

Material Selection:

Many questions must be answered before a structural material can be selected for specific services: Is the alloy available in the size and thickness required? Is it the most economical choice? Should welded or seamless be specified? Is the material suitable for maximum anticipated operating temperature, pressure, and stresses? Is electrical isolation of the material necessary? Most importantly, are different materials compatible with each other in the corrosive environment? At HDR, we ask all the necessary questions and make sure all materials are suitable for the project.

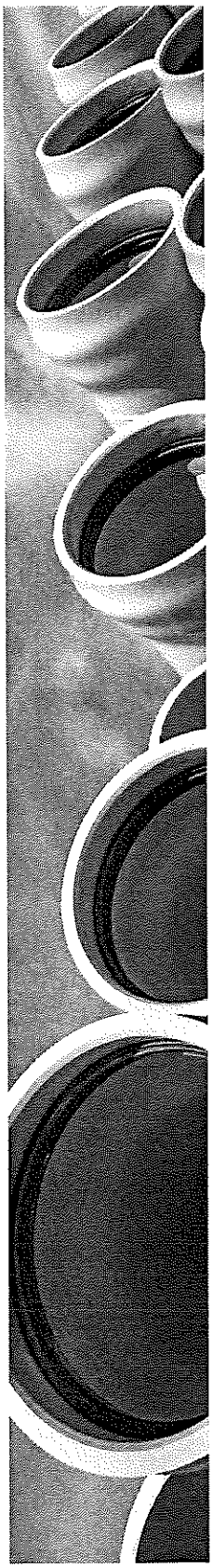
Regulatory and Quality Control

Coating Inspections:

Our coating inspections provide full-time or periodic surveillance inspection programs to help ensure specification compliance of major coatings projects. These services include survey assessments of existing structures, specification development, failure analysis, material selection, and installation inspection of both liquid applied and solid sheet linings. Our field inspectors have years of experience and diverse backgrounds in the industrial coatings industry. Each inspector is NACE certified and is assigned to projects based on their level of experience with the individual project scope.

Corrosion Construction Inspections:

HDR routinely conducts construction inspections on corrosion control related construction. From anodes to Z-type steel sheet piles, HDR is well versed in the appropriate testing methods and expected outcomes to ensure the final product meets the project documents and industry standards. All our activities are documented with daily inspection reports and photo documentation to provide a construction record. This also ensures that nothing is missed when it comes time to create and clear the final punch list. Our inspection staff knows the urgency of construction schedules and regularly accommodates expedited inspection schedules.



Project Experience and References

The following references and associated project descriptions demonstrate innovative solutions that may be applied to your projects' challenges. These projects represent successful partnerships—reaching performance goals and delivering within the required schedule. We've partnered and worked alongside you **since 2005**. Below are some of our projects with the City that are in-progress or completed.

City of Huntington Beach Projects	Soil Corrosivity	Cathodic Protection Survey	Pipeline Corrosion Assessments	Design	Construction
2025 CPS Improvements **Project Manager**: Lili Hernandez **Key Staff**: L. Jaramillo, M. Wegner, B. Stuart, A. McGinnis	♦		♦	♦	♦
2023 Annual CP Survey **Project Manager**: Andrew Ferrigno/Lili Hernandez **Key Staff**: L. Jaramillo, M. Wegner, B. Stuart, A. McGinnis		♦	♦		
2020 CP Repairs **Project Manager**: Andrew Ferrigno **Key Staff**: L. Jaramillo, R. Veihl, K. McCann, A. McGinnis	♦		♦	♦	♦
2020 Annual CP Survey **Project Manager**: Andrew Ferrigno **Key Staff**: L. Jaramillo, R. Veihl, K. McCann, A. McGinnis		♦	♦		
2018 Annual CP Survey **Project Manager**: Andrew Ferrigno **Key Staff**: L. Jaramillo, B. Clark, B. Stuart, A. McGinnis		♦	♦		
2017 Annual CP Survey **Project Manager**: Andrew Ferrigno **Key Staff**: L. Jaramillo, B. Clark, R. Veihl, A. McGinnis		♦	♦		
2015 Annual CP Survey **Project Manager**: Andrew Ferrigno **Key Staff**: L. Jaramillo, B. Clark, R. Veihl, A. McGinnis		♦	♦	♦	
2011 30 inch Yorktown Transmission Main CP Rehab		♦			♦
2009 Feeders OC-9 & OC-35 Desktop Assessment			♦		
2008 Harbor Channel 12 inch Waterline Crossing			♦	♦	

CITY OF HUNTINGTON BEACH

AS-NEEDED CORROSION ENGINEERING SERVICES; ON-CALL WATER AND ENGINEERING SERVICES

CLIENT REFERENCE:
Lili Hernandez
City of Huntington Beach
714.374.5386
lhernandez@surfcity-hb.org

KEY STAFF:

Project Manager and Technical Advisor:
Brien Clark

Project Manager and Project Engineer:
Lucy Jaramillo

Project Engineer:
Kristen McCann
Brad Stuart
Steven Pierce

Field Lead & GIS:
Adam McGinnis

Technical Advisor & QA/QC:
Rick Veihl
Marc Wegner

PROJECT DATES:
2005 - Ongoing

Since 2005, HDR has provided corrosion engineering services for the City of Huntington Beach's pipeline systems. These systems include: 16 pipelines, 215 test stations, 64 CP sacrificial anode beds, and 9 rectifiers. Beginning in 2013, HDR also included new facilities that were added including: the Huntington Beach Utility Yard, the 12-inch Harbor Crossing, and the 30-inch Yorktown Pipeline CP systems that HDR helped design and observed installation. These CP systems were designed by or inspected during construction by HDR under separate contracts. Over the years, some of the services have included: desktop condition study and corrosion recommendations, pipeline condition assessments, annual survey of all corrosion monitoring test stations & CP rectifiers, instant off survey of all impressed current systems, minor repairs at rectifiers and corrosion monitoring test stations, minor maintenance and cleaning of all CP test stations, corrosion protection design for slip lining, monitoring slip-lined 30-inch DIP within the 42-steel pipeline (special CP probes), CP design of 12-inch harbor channel crossing pipeline, and construction support and checkout testing (30-inch CML&C).

Relevant services include annual survey of all corrosion monitoring test stations & and condition assessment of pipelines. Born out of years of hard work, technical excellence, and dedicated service, HDR has become the City of Huntington Beach's trusted advisor when it comes to all things cathodic protection and corrosion control.

EASTERN MUNICIPAL WATER DISTRICT

CORROSION ENGINEERING AND PROTECTION SERVICES

CLIENT REFERENCE:
Gabriel Buenagua, PE
Eastern Municipal Water District
951.928.3777
buenagug@emwd.org

KEY STAFF:

Project Manager and Technical Advisor
Brien Clark

Project Manager and Project Engineer:
Lucy Jaramillo

Project Engineer:
Kristen McCann
Brad Stuart

Corrosion Technican:
Adam McGinnis

Technical Advisor & QA/QC:
Rick Veihl
Marc Wegner

PROJECT DATES:
2012 - Ongoing

Since 1984, HDR and the District have enjoyed a professional relationship. First starting with an assessment of the Graeber Street Tie-Line, in what was then March Air Force Base. HDR has performed well over 135 projects for the District in the 30 years since. This vast experience with the District's infrastructure has put HDR in the unique position to well-understand the District's advantages and challenges moving forward.

In this contract HDR served as a consultant responsible for corrosion engineering consulting services, construction, and coordination of aspects of the projects involved, including, the evaluation/ assessment of existing pipeline, excavation work to examine anodic areas, and/or to repair continuity bonds. Most recent projects included under this contract include: *Reach II Reclaimed Water Transmission Main Condition Assessment, Winchester Reclaimed Water Transmission Main Failure Analysis, Corrosion Indirect Condition Assessment, CP Design. and Sunnymead Effluent Transmission Pipeline Phase IV: Pipeline Assessment, Cathodic Protection Design.*

Assessments included external corrosion direct assessments, soil corrosivity surveys, baseline potential surveys, electrical isolation and continuity testing, close interval surveys, global positioning system (GPS) location and data collection; ultrasonic thickness (UT) measurements, and soil corrosivity testing.

SAN DIEGO COUNTY WATER AUTHORITY

AS-NEEDED CORROSION ENGINEER, CORROSION TECHNICIAN, AND CORROSION MAINTENANCE SUPPORT SERVICES

CLIENT REFERENCE:
Brian DiLuca
San Diego County Water Authority
bdiluca@sdcwa.org
760.233.3225

KEY STAFF:

Interim Project Manager and QA/QC:
Brien Clark

Project Manager and Project Engineer:
Lucy Jaramillo

Project Engineer:
Kristen McCann
Marc Wegner

Corrosion Technician:
Adam McGinnis

Project Engineer and QA/QC:
Rick Veihl

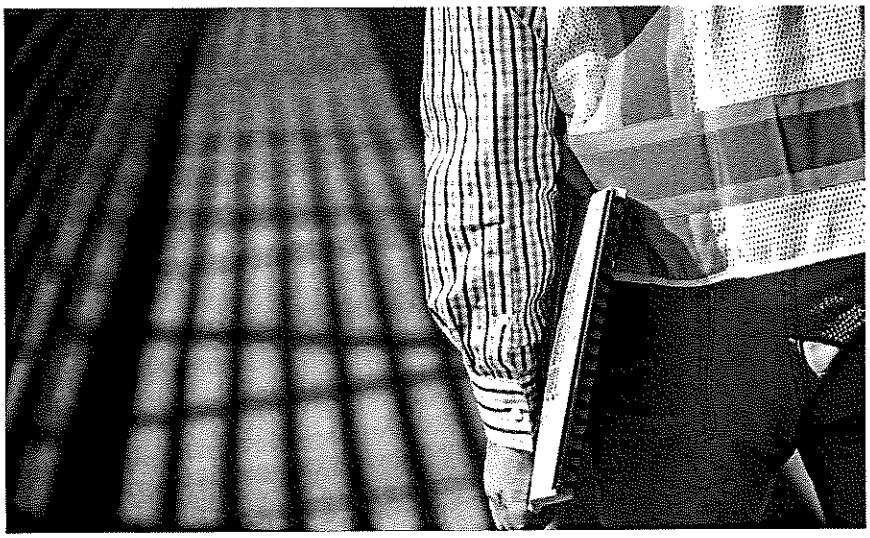
PROJECT DATES:
2000 - 2022

HDR provided as-needed corrosion engineering services to San Diego County Water Authority (SDCWA) which included: assisting AMP staff with designing, installing, monitoring, reviewing, and maintaining the Authority's corrosion control systems; perform field investigations and testing related to corrosion issues; assist with internal pipeline inspections; perform data collection, interpretation, assessment, and analysis; prepare written reports; prepare design drawings and technical specifications for CP systems; inspect coatings of pipelines and associated appurtenances; investigate and recommend measures to prevent or control corrosion on all Authority water delivery system facilities; develop, prepare, and update corrosion control operations and procedure manuals; review, install repair, and assess CP systems; perform specialized testing required for coordinated interference testing; and troubleshoot and remedy issues with impressed current rectifiers.

A major component of this project has been to help SDCWA design, manage, and maintain their cathodic protection systems. Conclusions of the effectiveness of the Authority's CP systems has been verified by follow-up direct condition assessment through excavations. Additionally, HDR has performed numerous coating inspections as part of this project.

WEST BASIN MUNICIPAL WATER DISTRICT

CATHODIC PROTECTION TESTING AND SYSTEM IMPROVEMENTS PROJECTS



CLIENT REFERENCE:
Kevin Cullen
West Basin Municipal Water District
KevinC@westbasin.org
310.713.7796

KEY STAFF:

Technical Advisor, QA/QC:
Brien Clark, Marc Wegner, Rick Veihl, Glenn Edgemon

Project Manager and Project Engineer:
Lucy Jaramillo

Project Engineer:
Kristen McCann
Brad Stuart

Corrosion Technician:
Adam McGinnis

GIS Lead:
Anders Burvall

CAD Lead:
Daniel Celaya

Corrosion Laboratory:
Teddie Algorri

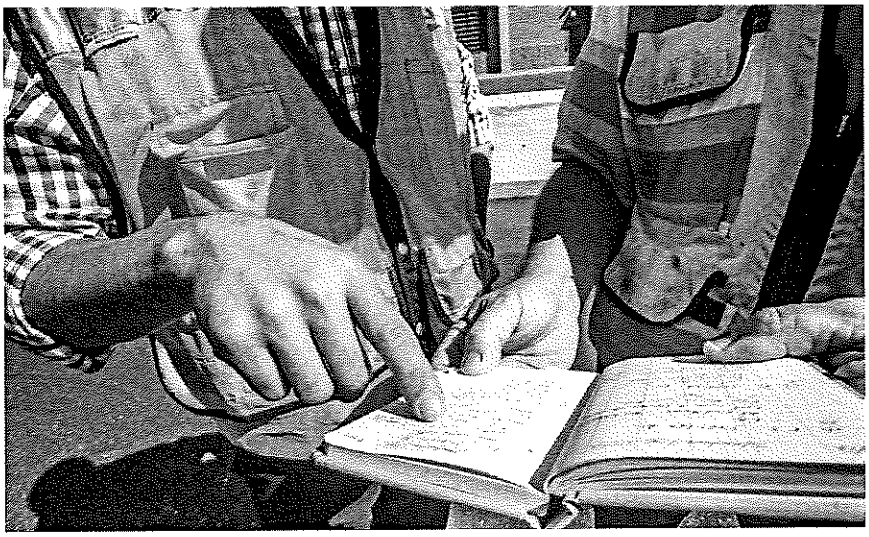
PROJECT DATES:
2018 - 2023

The District owns and operates 22 pipelines as part of their recycled water distribution system. HDR's primary goal for this project was to provide the District with site testing and engineering services for the design and construction necessary to produce a comprehensive solution for the District's CPSIP. Site testing included soil resistivity testing, electrical continuity testing, estimating the coating quality, calculating the remaining useful anode life for existing cathodic protection (CP) systems, performing minor repairs to existing test stations, and gathering data for future design of new CP systems and rehabilitation of existing CP systems. Pipelines involved included the secondary effluent force main, groundwater barrier injection pipelines, and other recycled water pipelines without CP systems. The project included rehabilitating thirteen (13) existing galvanic anode cathodic protection systems (GACP), and designing new CP systems for nine unprotected pipelines.

A history of working with the District provided HDR with a better understanding of the District's CP systems and recycled water infrastructure. This knowledge enabled us to develop cost effective solutions that satisfied the project needs, without sacrificing the District's requirements.

INLAND EMPIRE
UTILITES AGENCY

AS-NEEDED CORROSION ASSESSMENT SERVICES



CLIENT REFERENCE:
Francis Concemino
Inland Empire Utilities Agency
fconcemino@ieua.org
909.993.1459

KEY STAFF:

Project Manager, Technical Advisor, QA/QC:
Brien Clark

Project Manager and Project Engineer:
Lucy Jaramillo

Project Engineer:
Kristen McCann
Brad Stuart

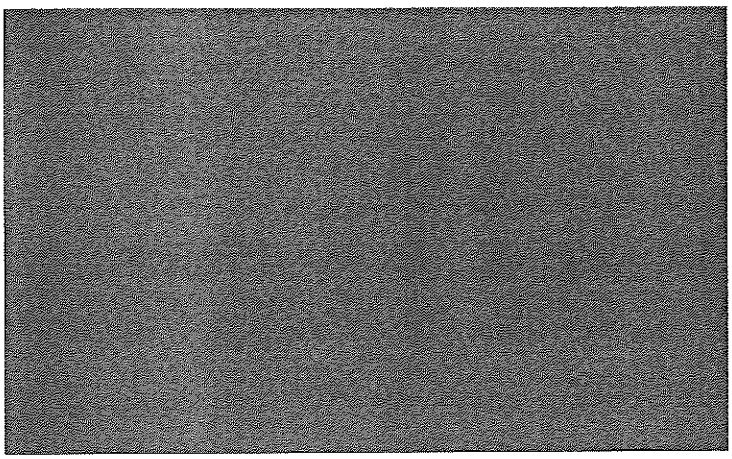
Corrosion Technician:
Adam McGinnis

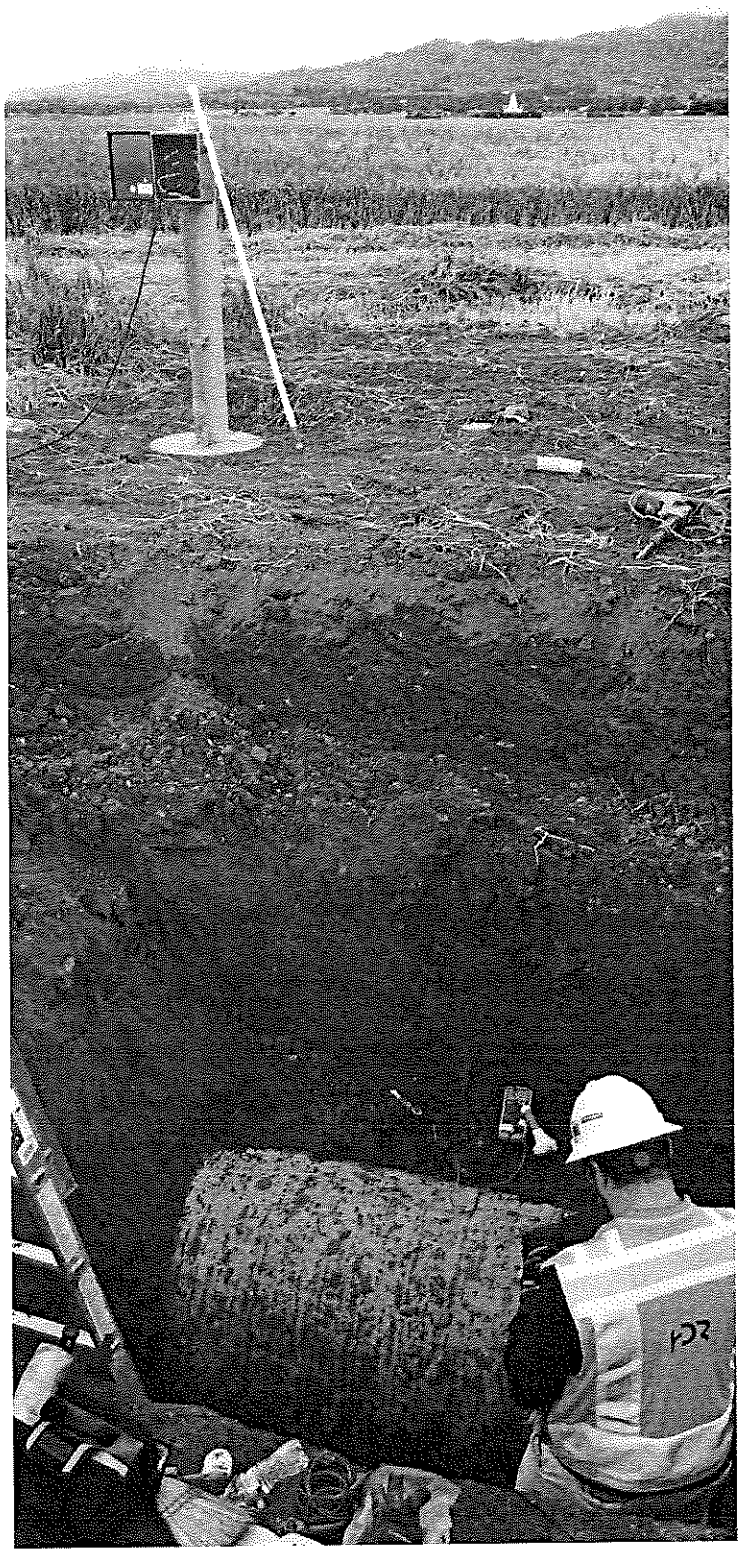
PROJECT DATES:
2014 - Ongoing

HDR was selected as a consultant to provide corrosion assessment services as-needed since 2014. Since inception, condition assessments have been conducted on numerous headworks, wet wells, influent pump stations, grit chambers, diversion structures, splitter boxes, primary clarifiers, secondary clarifiers, digesters, aeration basins, and various process piping across the five treatment facilities.

Each structure was evaluated and given a condition rating congruent with IEUA's Asset Management Plan. Conclusions and recommendations for rehabilitation or renewal were provided for each evaluated structure.

HDR has helped IEUA achieve the goals of its Asset Management Program for more than 20 years by providing integral corrosion engineering services to support asset needs identification and prioritization for capital project planning.





F Appendices

References of Work Performed Form

(List 5 Local References)

Comany Name: HDR Engineering, Inc

1. Name of Reference: City of Huntington Beach

Address: 19001 Huntington Street, Huntington Beach, CA 92648

Contact Name: Ms. Lili Hernandez Phone Number: 714.374.5386

Email: lhernandez@surfcity-hb.org

Dates of Business: 2018-2025

2. Name of Reference: Eastern Municipal Water District

Address: 2270 Trumble Road, Perris, CA 92572

Contact Name: Gabriel Buenagua Phone Number: 951.928.3777

Email: buenagug@emwd.org

Dates of Business: 2017-2022

3. Name of Reference: West Basin Municipal Water District

Address: 17140 Avalon Blvd., Carson, CA 90746

Contact Name: Mr. Kevin Cullen Phone Number: 310.713.7796

Email: KevinC@westbasin.org

Dates of Business: 2018-2023

4. Name of Reference: San Diego County Water Authority

Address: 4677 Overland Ave., San Diego, CA 92648

Contact Name: Mr. Brian DiLuca Phone Number: 760.233.3225

Email: bdiluca@sdcwa.org

Dates of Business: 2018-2022

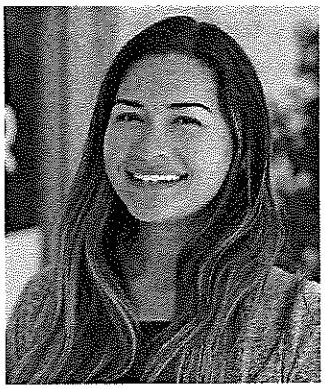
5. Name of Reference: Inland Empire Utilities Agency

Address: 2662 East Walnut Street, Ontario, CA 91761

Contact Name: Mr. Francis Concemino Phone Number: 909.993.1459

Email: fconcemino@ieua.org

Dates of Business: 2021-2025



Luzmila Jaramillo, EIT, AMPP, CP-2, CIP-2

Project Manager

Ms. Jaramillo has over 10 years of experience performing and managing field surveys, design services, and construction support services focusing on cathodic protection, corrosion control, industrial coatings, and condition assessment of water and wastewater facilities including pipelines, reservoirs, and reinforced concrete structures. She has developed rehabilitation designs and performed contractor submittal reviews during construction. She has conducted field surveys consisting of soil corrosivity studies, industrial coating inspections, condition assessments of reinforced concrete structures, internal and external corrosion condition assessments of pipelines, and cathodic protection surveys on pipelines and reservoirs.

EDUCATION

Bachelors, Engineering (Chemical Engineering), California State Polytechnic University, Pomona, 2014

Construction Project Management Certificate – California State University, Dominguez Hills (Expected June 2025)

REGISTRATIONS

Engineer in Training, CA #166938

AMPP – Cathodic Protection Technician, #66998

AMPP – Certified Coating Inspector (CIP-2), #N-71477

SSPC – C-2 Planning and Specifying Industrial Coatings Projects

RELEVANT EXPERIENCE

City of Huntington Beach, 2025 Cathodic Protection System Improvements | Huntington Beach, CA

Project Manager. The project scope consists of providing corrosion engineering services to the City during the pre-design, design, and construction phases of the 2025 CP Improvements project based on recommendations from previous cathodic protection (CP) annual surveys. Pre-design services include performing soil resistivity and current requirement testing. Design services include designing supplemental galvanic anode cathodic protection (GACP), preparing a detailed work plan for the improvements, and performing a design alternatives feasibility study. HDR will work with the City construction crews during construction and provide corrosion consulting services as well as engineering hold-point inspections of CP system improvements across 11 different pipelines. Ms. Jaramillo is providing project management, managing all client interactions, and leading the field and design teams. She will oversee the construction inspections and complete quality reviews of all deliverables.

SSPC – C-1 Fundamentals of Protective Coatings

OSHA 10-Hour Construction Safety, #36-006143415

Permit Required Confined Spaces

PROFESSIONAL MEMBERSHIPS

AMPP (formerly NACE International) #1296361

SSPC – The Society for Protective Coatings #1111191044

INDUSTRY TENURE

11 years

SELECTED PRESENTATIONS

ASCE Geo-Omaha 41st Annual Geotechnical Seminar: "Soil Corrosivity: What it is and what to do about it" – 2024

ASCE Geo-Omaha 41st Annual Geotechnical Seminar Short Course: "Soil Corrosivity for the Civil Engineer" – 2024

City of Huntington Beach, Cathodic Protection Annual Surveys| Huntington Beach, CA

Project Manager. HDR completed the 2021 and 2023 annual surveys as two separate projects under the existing on-call contract. The projects consisted of a corrosion survey of the City's 16 pipelines, consisting of 215 test stations, and providing recommendations for future corrosion control. The surveys included interrupting existing rectifiers and galvanic anodes and measuring the on/off potentials to verify the cathodic protection systems were functioning adequately. A report was prepared to document all the testing data with recommendations for general corrosion control and GIS database updates. Ms. Jaramillo managed all field surveys, client interactions, and project deliverables for both annual surveys.

West Basin Municipal Water District, Cathodic Protection System Improvements Project | Carson, CA

Project Manager. The District owns and operates 22 pipelines as part of their recycled water distribution system. HDR's primary goal for this project was to provide the District with corrosion engineering services for the design and construction necessary to rehabilitate 13 existing GACP systems and nine new CP systems for unprotected pipelines. A history of working with the District provided HDR with a better understanding of the District's CP systems and recycled water infrastructure. This knowledge enabled us to develop cost effective solutions that satisfied the project needs and the District's requirements. Ms. Jaramillo provided project management, performed field testing, assisted in developing a preliminary design report, permit plan, and design drawings and specifications, performed contractor RFI and submittal reviews, and consolidated the contractor's as-built markups into record drawings and specifications.

Irvine Ranch Water District, 3-Year Cathodic Protection Monitoring Program | Irvine, CA

Corrosion Task Lead. Surveyed cathodic protection systems for 59 metallic pipelines and 16 reservoir tanks. Ms. Jaramillo analyzed CP survey data, reported the status of the cathodic protection systems, and provided troubleshooting where directed to improve the functionality of the cathodic protection systems.

Eastern Municipal Water District, Winchester Reclaimed Water Transmission Main | Winchester, CA

Project Manager. HDR provided construction support services for the District's Winchester Pipeline CP Rehabilitation Project. The Winchester pipeline consists of approximately 3.9 miles of 24-inch CML&C. Improvements included the installation of new CP test stations, anode groundbeds, electrically discontinuous joint repairs, and CP system activation. Ms. Jaramillo provided project management, performed electrical continuity testing, reviewed and responded to RFIs/RFCs and contractor submittals, and developed record drawings to consolidate the contractor's as-built markups.

Mesa Consolidated Water District, Cathodic Protection Systems Survey | Costa Mesa, CA

Corrosion. Provided cathodic protection system testing services, comprising of corrosion control testing and evaluation on 19 pipelines. The 19 pipeline alignments consisted of approximately 141,000 linear feet (LF) of piping that included cement mortar lined and coated (CML&C) welded steel pipe, concrete cylinder pipe (CCP), cement mortar lined and coal tar coated (CML&CTC) welded steel pipe, and ductile iron pipe (DIP). The objective of the cathodic protection system testing was to determine the operating effectiveness of the cathodic protection systems, identify limitations in the existing cathodic protection systems that resulted in the pipelines not meeting industry criteria for corrosion protection, and provide recommendations to improve the effectiveness of the cathodic protection systems.

Brien Clark, PE, AMPP CP-4

Technical Advisor/QAQC

Brien is a senior corrosion engineer and has conducted more than 1,500 condition assessments, failure analyses, soil corrosivity studies, water aggressivity studies, cathodic protection surveys, and cathodic protection/corrosion control designs. He has performed field surveys, designed cathodic protection systems and corrosion monitoring systems, and specified coatings and other corrosion control mitigation measures. He has prepared plans and specifications, implemented quality control procedures, and revised the standard drawings and specifications with respect to corrosion for water and wastewater agencies. He is a coauthor on numerous Water Research Foundation studies.

EDUCATION

Bachelors, Chemical Engineering, California State Polytechnic University 2004

REGISTRATIONS

AMPP – Cathodic Protection Specialist, US, #17978

Professional Engineer - Chemical, CA #CH 6291

Professional Engineer - Chemical, AZ #48417

Professional Engineer - Chemical, ID #15476

Professional Engineer - Chemical, NM #21879

Professional Engineer - Chemical, OR #95361PE

Professional Engineer - Chemical, HI #PE-18921

RELEVANT EXPERIENCE

City of Huntington Beach | Cathodic Protection System Improvements (2020–2022)

Technical Advisor/QC Reviewer. Based on HDR's previous surveys, this innovative project included pre-design, design, and construction support for city maintenance staff to repair and rehabilitate the existing cathodic protection (CP) components of the water transmission systems located throughout the city. By using simplified design documents and leveraging city staff in lieu of contractors, the City saved capital and gained valuable experience with rehabilitating CP systems.

City of Huntington Beach | Annual Surveys Pipeline Condition Assessment (2016, 2019-2020, 2023)

Technical Advisor/QC Reviewer. The projects consisted of an annual corrosion survey of the City's 16 pipelines, consisting of 215 test stations, and providing recommendations for future corrosion control. The surveys performed included interrupting existing rectifiers and galvanic anodes and measuring the on/off potentials to verify the cathodic protection systems were functioning adequately. A report was prepared documenting all the testing data with recommendations for general corrosion control.

Professional Engineer - Chemical, NV #031816

PROFESSIONAL MEMBERSHIPS

American Water Works Association, Cal-Nev, Member

Association of Materials Protection and Performance (AMPP), Member

INDUSTRY TENURE

24 years

HDR TENURE

24 years

Willamette Water Supply Program | Program Wide Corrosion Engineering (2018–2024)

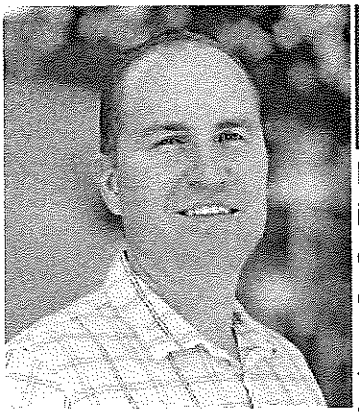
Technical Lead/Technical Advisor/QC Reviewer. The program consists of 33.9 miles of new dielectrically coated steel pipeline, raw water facility, water treatment plant, and water storage tanks. The design was split into 11 different design packages. A cathodic protection (CP) review and gap analysis was performed to revise the CP design guide, standard details, CP guide specification. Provided Owner's Engineer (OE) corrosion control reviews of project specific submittals was performed. Various technical memorandums were also issued to help formulate positions on technical topics.

Eastern Municipal Water District | Cathodic Protection Feasibility Study, Rehabilitation Design, and Construction Support, Reach II Reclaimed Water Transmission Main (2017–2020)

Project Manager/QC Reviewer. The Reach II pipeline consists of approximately 9.5 miles of 24-, 30-, and 36-inch cement mortar lined and wrapped (CML&W) steel pipe with galvanic anode cathodic protection (CP). Previous surveys indicated the CP levels were waning. Recent failures were indicative that the pipeline was experiencing active corrosion and was the driver for the project. The first phase consisted of a CP feasibility study that included condition assessment of the existing CP system, evaluation of soil corrosivity for CP design, verification of the pipeline's electrical continuity, and recommendations for CP System rehabilitation. HDR completed a bid-ready CP rehabilitation design based on the CP feasibility study. Bid and construction support services were also provided.

City of Huntington Beach | 30-inch Yorktown Transmission Main Rehabilitation (2011)

Project Manager/Project Engineer. The project entailed the installation of corrosion test stations, three impressed current cathodic protection deep wells and rectifiers, pipeline internal and external joint bonding, and electrical isolation joints for an existing 30-inch cement mortar lined and coated (CML&C) steel water transmission main. Technical construction management services were provided including interpreting design document intent for the City, responding to contractor RFIs and RFCs, and performing construction witnessing and check-out testing.



Marc Wegner, PE, AMPP CP-4

Technical Advisor/QAQC

Marc has more than 16 years of office and field experience inspecting, evaluating, and providing recommendations on corrosion mitigation strategies for both local and national clients. He has been involved with AMPP leadership on the local section level as a board member for six years, including three years as chairman and trustee. He was also on the Western Area Board for four years, including two terms as chairman. Throughout his career, Marc has managed and performed internal and external condition assessments of pipelines, been involved in pipeline failure investigations, and managed projects of similar size and scope.

EDUCATION

Masters, Civil Engineering, California State University, Los Angeles, 2008

Masters, Master of Business Administration (MBA), University of Redlands, 2011

Bachelors, Civil Engineering, California State University, Los Angeles, 2005

REGISTRATIONS

Professional Engineer Civil, CA #73862

Professional Engineer Civil, UT #8465770-2202

Professional Engineer Civil, HI #PE-14089

AMPP – Cathodic Protection Specialist, #26528

RELEVANT EXPERIENCE

City of Huntington Beach, As-Needed Corrosion Engineering and Maintenance Services
Huntington Beach, CA

Cathodic Protection Engineer. For the last 15 years, HDR has provided corrosion engineering services for the City of Huntington Beach's pipeline systems. These systems include: 11 pipelines, 138 test stations, 34 insulating joint (IJ) test stations, 35 cathodic protection (CP) sacrificial anode beds, and three rectifiers. Services under this contract have included, but are not limited to: desktop condition study and corrosion recommendations, pipeline condition assessments, annual survey of all corrosion monitoring test stations and CP rectifiers, instant off-survey of all impressed current systems, minor repairs at rectifiers and corrosion monitoring test stations, minor maintenance and cleaning of all CP test stations, corrosion protection design for slip- lining, monitoring slip-lined 30-in ductile iron pipe (DIP) within the 42-steel pipelines (special CP probes), CP design of 12-in harbor channel crossing pipeline, and construction support and checkout testing (30-in CML&C).

PROFESSIONAL MEMBERSHIPS

Chi Epsilon, National Civil Engineering Honor Society, Member

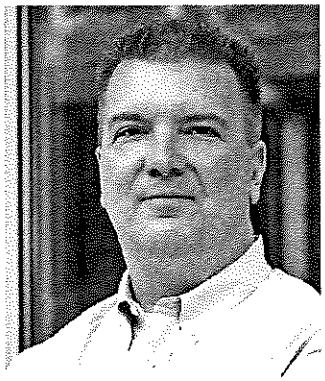
INDUSTRY TENURE

20 years

San Diego County Water Authority, As- Needed Cathodic Protection Engineer. HDR provided as-needed corrosion engineering services to the Authority which included: assisting staff with designing, installing, monitoring, reviewing, and maintaining the Authority's corrosion control systems; perform field investigations and testing related to corrosion issues; assist with internal pipeline inspections; perform data collection, interpretation, assessment, and analysis; prepare written reports; prepare design drawings and technical specifications for CP systems; inspect coatings of pipelines and associated appurtenances; investigate and recommend measures to prevent or control corrosion on all Authority water delivery system facilities; develop, prepare, and update corrosion control operations and procedure manuals; perform specialized testing required for coordinated interference testing, and; troubleshoot and remedy issues with impressed current rectifiers.

Eastern Municipal Water District, As-Needed Non-Design Engineering Services (Condition Assessment) | Perris, CA
Cathodic Protection Engineer. HDR provided condition assessment services under our As-Needed Non-Design Engineering Services (Condition Assessment) contract. Projects have included inspection and condition assessment for the Moreno Valley Regional Water Reclamation Facility and related equipment, condition assessment for the Perris Valley Regional Water Reclamation Facility Digester No. 1, and assessment and improvement of various equipment for Temecula Valley Regional Water Reclamation Facility.

City of Phoenix, Zone 3D/4A Water System Improvements Apache Junction, Arizona
Senior Corrosion Specialist. HDR designed a new booster pump station (4A-B9) and pressure reducing valve (PRV) station (3D-R12) as part of the Zone 3D/4A Improvement Program. HDR performed engineering services required to prepare construction documents which consisted of civil, structural, process piping, mechanical and electrical systems, instrumentation and control systems, security, landscape, and other project features requested by the City of Phoenix.



Glenn Edgemon, AMPP, CP-4, CS

Technical Advisor/QAQC

Glenn Edgemon has over 30 years of experience in metallurgical and corrosion engineering and control across a variety of industries. Glenn is presently one of three engineers in the United States certified by AMPP (formerly NACE) as a Corrosion Specialist, Cathodic Protection Specialist, and Materials Selection and Design Specialist. He does condition assessments of existing metallic and concrete water and wastewater systems, leak detection, developing failure/degradation analyses, and making recommendations for rehabilitation and future corrosion mitigation strategies. He is a well-rounded, and recognized expert in the design and operation of corrosion monitoring and control systems.

EDUCATION

Masters, Metallurgical Engineering (Materials and Corrosion Engineering), Georgia Institute of Technology, 1993

Bachelors, Materials Engineering (Metals and Composites), Georgia Institute of Technology, 1992

PROFESSIONAL MEMBERSHIPS

AMPP – Certified Corrosion Specialist

No. 8356

AMPP – Certified Cathodic Protection Specialist (CP 4)

No. 8356

AMPP – Certified Materials Selection and Design Specialist

No. 8356

RELEVANT EXPERIENCE

Regional San, Phase II Cathodic Protection Rehabilitation | Elk Grove, CA

Corrosion Specialist. Provided engineering services to evaluate and develop designs for the rehabilitation of 13 cathodic protection systems at the 181 mgd Sacramento Regional Wastewater Treatment Plant (SRWTP). Mr. Edgemon supported field testing and evaluation of intermediate repairs made to existing pipeline and tank cathodic protection systems, documented test results, supported the development of business case evaluations and cost estimates for upgrades and repairs required to bring remaining cathodic protection systems into compliance with NACE criteria for adequate cathodic protection.

Central Contra Costa Sanitary District, Martinez, Fairview, and Maltby Pumping Station Upgrades (Agreement 047878) | Contra Costa County, CA

Corrosion Specialist. Glenn performed the corrosion analysis to support HDR's design work. The team provided geotechnical, structural, HVAC/plumbing, architectural, corrosion, flood protection, contaminated soil/groundwater handling, quality assurance/quality control review, and constructability review during design of the upgrades to these pump stations.

AMPP – Basic Coatings Inspector

No. 8356

INDUSTRY TENURE

31 years

Eastern Municipal Water District, Sunnymead Pipeline Construction Support | Claremont, CA

Corrosion Specialist. Recent failures indicated that the CML&C steel pipeline was experiencing active corrosion and was the driver for the project. The first phase of the project consisted of an indirect assessment that indicated the mortar coating might be compromised and no longer provide protection to the underlying steel hull. HDR completed a bid-ready CP design including new post-mounted corrosion test stations, restoration of electrically discontinuous joints, a new CP system consisting of galvanic anodes suitable for each segment of the pipeline, and coordination for direct assessment sites.

Tarrant Regional Water District, Corrosion Control Engineering Services for Cedar Creek Section 2 Pipeline Replacement | North Texas Area

Technical Advisor. Mr. Edgemon served as a technical advisor providing cathodic protection design support services for the cathodic protection systems being designed for sections of large diameter pre-stressed concrete cylinder pipe (PCCP) and polyurethane-coated welded steel raw water transmission main owned and managed by the Tarrant Regional Water District. Services on the project to date have included cathodic protection design calculations for the PCCP and welded steel sections of pipe, the layout of anode beds to provide for both adequate corrosion protection and serviceability for the operators, and QC checking of design drawings and details.

North Texas Municipal Water District, Water Transmission Main Cathodic Protection System Design and Specification Preparation| Wylie, TX

Technical Advisor. Mr. Edgemon served as a technical advisor and principal design reviewer for the design of a cathodic protection for approximately eight miles of 72-inch dimeter dielectrically coated welded steel water main to be installed by NTMWD. Services on the project to date have included review of cathodic protection design calculations, design drawings, layout/spacing of anode beds, and engineering specifications.

Teddie Algorri

Corrosion Laboratory

Teddie brings extensive laboratory, field, and technical experience to her role as Laboratory Manager. She started as a Laboratory Intern in HDR's Claremont Corrosion Laboratory before completing her degree in Civil Engineering. From there, she was promoted to HDR Claremont's Laboratory Manager. During her time with HDR, Teddie has increased the lab testing efficiency and streamlined lab processes to produce accurate and reliable data. In her role, she has become proficient in quality control and data accuracy review, while delivering results and testing reports with varying deadlines.

EDUCATION

Bachelor of Science, Civil Engineering, California State Polytechnic University, Pomona, 2020

INDUSTRY TENURE

5 years

RELEVANT EXPERIENCE

Kiewit-Shea II, Task Order: Carlsbad Seawater Desalination Plant Intake Phase 2 Preliminary Design | Carlsbad, CA
Laboratory Coordinator. Teddie performed water and/or soil corrosivity testing of all samples received from the client. As part of a Design-Build team with Kiewit, HDR completed the preliminary design of the Phase 2 modifications of a new seawater intake structure for the Claude "Bud" Lewis Carlsbad Seawater Desalination Plant - the nation's largest seawater desalination plant.

Port of Long Beach, Pier B On-Dock Rail Support Facility Program - Final Design | Long Beach, CA
Laboratory Coordinator/Field Engineer. Teddie's duties included conducting field condition assessments of the Pier B On-Dock Rail Support Facility, as well as laboratory testing of soil and concrete. HDR provided final engineering design services for the Pier B On-Dock Rail Support Facility.

DRP Engineering, Inc, Long Beach Utilities Department, Reservoir Condition Assessment | Long Beach, CA
Laboratory Coordinator. Teddie's duties included performing concrete corrosivity testing using a pH probe, electrical conductivity, and ion chromatography. HDR, as a subconsultant, completed an investigation of an 14-MG reinforced concrete cistern, built in 1959 and located within Long Beach Water

District's (LBWD/LBUD) Water Treatment Plant in Long Beach, California.

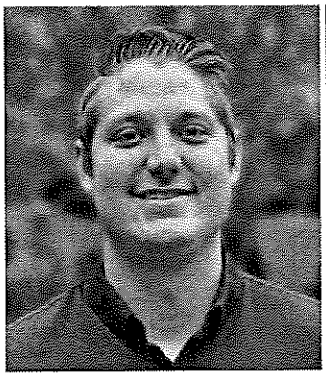
Earth Systems California, Lab Testing | Claremont, CA
Laboratory Manager. Teddie's duties included conducting quality control of laboratory testing data, as well as authoring recommendations to minimize corrosion based on laboratory testing data. HDR performed soil, water, or concrete corrosivity testing of all samples received from the client.

Eastern Municipal Water District, San Jacinto Raw Water Conveyance Facilities Construction Services | Perris, CA
Laboratory Manager. Teddie's duties included conducting quality control of laboratory testing data. HDR performed soil, water, or concrete corrosivity testing of all samples received from the client.

Inland Empire Utilities Agency, Task Order: RP-1 Biofilter Assessment | Ontario, CA
Laboratory Coordinator/Field Engineer. Teddie's duties included performing field condition assessment of the biofilter structure at the RP-1 Treatment Plant. IEUA retained HDR to conduct a condition assessment of one of the two biofilter structures while it was out of service at the RP-1 Treatment Plant. The condition assessment included visual inspections, in-situ pH testing, surface penetrating radar testing, and laboratory analyses of concrete core samples for pH and chlorides.

Irvine Ranch Water District, On-Call Asbestos Cement Pipe Failure Analysis | Irvine, CA
Laboratory Coordinator. Teddie's duties included authoring a technical memorandum of the data findings, as well as conducting tests using a microbiologically induced corrosion (MIC) Kit for microbiological corrosion analyses.

Kansas City Area Transportation Authority, Riverfront Streetcar Final Design | Kansas City, MO
Laboratory Coordinator/Field Engineer. Teddie's duties included conducting field soil corrosivity surveys of the proposed construction site. HDR provided final design and associated engineering services for the Riverfront extension of the Kansas City Streetcar.



Bradley Stuart, PE, AMPP CP-2, CIP-1, SPRAT I

Corrosion Control/Cathodic Protection

Brad is a corrosion engineer and has been with HDR since 2015. He has performed various field-testing procedures such as structure-to-electrolyte potential surveys of cathodically protected pipelines, pipeline electrical continuity, discontinuous joint locating, close-interval-potential surveys, electromagnetic potential survey testing, fall- of-potential impedance testing, electrical resistivity testing of soil using Wenner 4-pin and Schlumberger methods, soil sample collection and soil corrosivity analysis. He has also performed multiple condition assessments of both metallic and concrete structures ranging from transportation to wastewater applications.

EDUCATION

Masters, Materials Engineering, California State Polytechnic University, Pomona, 2024

Bachelors, Chemical Engineering, California State Polytechnic University, Pomona, 2017

REGISTRATIONS

Professional Engineer - Chemical, CA Professional Chemical Engineer / 7036

AMPP – Cathodic Protection Technician, CA, #AMPP CP-2 / 71968

AMPP – Coating Inspector Level 1, CA #AMPP CIP-1 / 83205

SPRAT Level I, CA, #SPRAT 1 / 2001754

INDUSTRY TENURE

6 years

RELEVANT EXPERIENCE

City of Huntington Beach, 2025 CP System Improvements | Huntington Beach, CA

Design Engineer. The project scope consists of providing corrosion engineering services to the City during the pre-design, design, and construction phases of the 2025 CP Improvements project based on recommendations from previous CP annual surveys. Pre-design services include performing soil resistivity and current requirement testing. Design services include designing supplemental galvanic anode cathodic protection (GACP), preparing a detailed work plan for the improvements, and performing a design alternatives feasibility study. HDR will work with the City construction crews during construction and provide corrosion consulting services as well as engineering hold-point inspections of CP system improvements across 11 different pipelines. Mr. Stuart is designing supplemental GACP systems, preparing a detailed work plan for City construction crews, and performing a design alternatives feasibility study.

Irvine Ranch Water District, 3-Year Cathodic Protection Monitoring Program for Metallic Pipelines and Reservoir Tanks | Irvine, CA

Field Engineer. The District contracted with HDR to conduct multi-year CP surveys on the protected water transmission systems throughout Irvine. The District's protected infrastructure

consists of 15 steel potable water reservoirs and 42 transmission pipelines. The pipelines vary in size between 16 and 54 inches in diameter comprised of various pipe materials including CCP, SCC, DIP, and CML&C steel. The assessment included the review of provided pipeline drawings and historical documents, initial surveys of the protected pipelines and reservoirs including 581 cathodic protection test stations (CPTS) and 37 rectifiers, three quarterly surveys to validate the rectifiers were operating correctly, with a final report, and troubleshooting of deficient systems. Mr. Stuart performed the CP surveys and developed the reports to document the findings.

Eastern Municipal Water District, Moreno Valley Regional Water Recycling Facility (MVRWRF) Air Line Condition Assessment | Moreno Valley, CA

Field Engineer. HDR assessed the condition of the aeration pipeline at the MVRWRF during two site visits. The condition assessment included indirect and direct assessment techniques. Indirect assessments included an electromagnetic conductivity (Emag) survey, pipeline electrical continuity testing, and a close interval potential survey (CIPS). Direct assessments of the pipe were made at two excavation locations selected based on an analysis of the indirect assessment data. Mr. Stuart performed indirect pipeline assessments and prepared a detailed report to document the findings.

City of Huntington Beach, Cathodic Protection Annual Surveys| Huntington Beach, CA

Field Engineer. HDR completed the 2021 and 2023 annual surveys as two separate projects under the existing on-call contract. The projects consisted of a corrosion survey of the City's 16 pipelines, consisting of 215 test stations, and providing recommendations for future corrosion control. The surveys included interrupting existing rectifiers and galvanic anodes and measuring the on/off potentials to verify the cathodic protection systems were functioning adequately. A report was prepared to document all the testing data with recommendations for general corrosion control and GIS database updates. Mr. Stuart performed field surveys and developed project deliverables for both annual surveys.

Adam McGinnis, AMPP CP-2, CIP-3

Corrosion Field Surveys/GIS

As a Senior Corrosion/GIS Technician with over 20 years of experience, Adam has assisted with GIS database applications, analyzed spatial features and relationships for GIS projects, provided technical assistance and troubleshooting advice to employees and management, and implemented GPS data with the GIS database. He has also performed numerous potential surveys of cathodically protected and unprotected pipelines, pipeline electrical continuity, discontinuous joint locating, close-interval-potential surveys, electromagnetic potential survey testing, electrical resistivity testing of soil using Wenner 4-pin soil sample collection and soil corrosivity analysis.

REGISTRATIONS

AMPP – Coating Inspector Level 3 #N-70460

AMPP – Cathodic Protection Technician, CA, #AMPP CP-2 / 59492

Confined Space Entry Supervisor (ENT & ATTN)

OSHA 30-Hour Construction Safety

PROFESSIONAL MEMBERSHIPS

AMPP (formerly NACE International)

INDUSTRY TENURE

23 years

RELEVANT EXPERIENCE

City of Huntington Beach, Cathodic Protection Annual Surveys| Huntington Beach, CA

Corrosion/GIS Technician. HDR has completed annual surveys as separate projects under various on-call contracts. The projects consisted of a corrosion survey of the City's 16 pipelines, consisting of 215 test stations, and providing recommendations for future corrosion control. The surveys included interrupting existing rectifiers and galvanic anodes and measuring the on/off potentials to verify the cathodic protection systems were functioning adequately. A report was prepared to document all the testing data with recommendations for general corrosion control and GIS database updates. Mr. McGinnis performed field surveys, updated the City's GIS database, and developed project GIS deliverables for multiple annual surveys.

Otay Water District, Annual Corrosion Surveys | San Diego County, CA

Corrosion/GIS Technician. Adam served as a Corrosion Field Technician for the annual surveys conducted for the OWD. HDR performed corrosion monitoring and CP surveys of pipelines and reservoirs, internal pipeline inspections, reservoir rehabilitation projects, construction and replacement of cathodic protection systems, as well as training Otay personnel. Surveys included measuring pipe-to-soil potentials, soil corrosivity,

pipeline electrical continuity testing, external condition assessments (ECDA), and troubleshooting. He created and maintained the GIS database used for data reduction and annual reports. This included georeferencing the District's corrosion control facilities, pipeline infrastructure and related attributes, graphing pipe-to-soil potentials, hyperlinking photographs and aerial maps for more than 100 pipeline alignments and potable water reservoirs.

Irvine Ranch Water District, 3-Year Cathodic Protection Monitoring Program for Metallic Pipelines and Reservoir Tanks | Irvine, CA

Corrosion/GIS Technician. The District contracted with HDR to conduct multi-year CP surveys on the protected water transmission systems throughout Irvine. The District's protected infrastructure consists of 15 steel potable water reservoirs and 42 transmission pipelines. The pipelines vary in size between 16 and 54 inches in diameter comprised of various pipe materials including CCP, SCC, DIP, and CML&C steel. The assessment included the review of provided pipeline drawings and historical documents, initial surveys of the protected pipelines and reservoirs including 581 cathodic protection test stations (CPTS) and 37 rectifiers, three quarterly surveys to validate the rectifiers were operating correctly, with a final report, and troubleshooting of deficient systems. Mr. McGinnis performed field surveys, updated the City's GIS database, and developed project GIS deliverables for the CP surveys.

San Diego County Water Authority, As-Needed Corrosion Engineer, Corrosion Technician, and Corrosion Maintenance Support Services | San Diego County, CA

Corrosion Technician. HDR provided as-needed corrosion engineering services to San Diego County Water Authority which included: assisting AMP staff with designing, installing, monitoring, reviewing, and maintaining the Authority's corrosion control systems; performing field investigations and testing related to corrosion issues; assisting with internal pipeline inspections; inspecting coatings of pipelines and associated appurtenances; perform specialized testing required for coordinated interference testing, and troubleshoot and remedy issues with impressed current rectifiers.

Disciplines of Civil Engineering Services Application Form

Circle all that apply

Civil Engineering Service Area	Bidding? Y/N (circle)
• Water/Sewer/Storm Water Engineering	(Yes) / No
• General Civil Engineering	Yes / (No)
• Ocean Engineering	Yes / (No)
• Environmental/Water Quality	Yes / (No)

EXHIBIT "B"

Payment Schedule (Hourly Payment)

A. Hourly Rate

CONSULTANT'S fees for such services shall be based upon the following hourly rate and cost schedule:

Principal in Charge	$345.00	$420.00
Sr. Engineer Mgr/Sr. Project Manager	$280.00	$355.00
Sr. Corrosion Engineer	$275.00	$335.00
Project Manager	$185.00	$270.00
Sr. CADD/BIM/GIS/Designer	$190.00	$270.00
Construction Inspector	$185.00	$250.00
Safety Specialist	$220.00	$260.00
CADD/BIM/GIS/Designer	$140.00	$180.00
Administrative Manager	$205.00	$230.00
Corrosion Engineer	$180.00	$250.00
Project Engineer	$125.00	$180.00
Project Administrator	$125.00	$150.00
Document Production Specialist	$120.00	$150.00
Corrosion EIT	$115.00	$135.00
Corrosion Technician	$80.00	$100.00
Intern	$80.00	$100.00

B. Travel Charges for time during travel are not reimbursable.

C. Billing

1. All billing shall be done monthly in fifteen (15) minute increments and matched to an appropriate breakdown of the time that was taken to perform that work and who performed it.

2. Each month's bill should include a total to date. That total should provide, at a glance, the total fees and costs incurred to date for the project.

3. A copy of memoranda, letters, reports, calculations and other documentation prepared by CONSULTANT may be required to be submitted to CITY to demonstrate progress toward completion of tasks. In the event CITY rejects or has comments on any such product, CITY shall identify specific requirements for satisfactory completion.

4. CONSULTANT shall submit to CITY an invoice for each monthly payment due. Such invoice shall:

   A) Reference this Agreement;
   B) Describe the services performed;
   C) Show the total amount of the payment due;
   D) Include a certification by a principal member of CONSULTANT's firm that the work has been performed in accordance with the provisions of this Agreement; and
   E) For all payments include an estimate of the percentage of work completed.

   Upon submission of any such invoice, if CITY is satisfied that CONSULTANT is making satisfactory progress toward completion of tasks in accordance with this Agreement, CITY shall approve the invoice, in which event payment shall be made within thirty (30) days of receipt of the invoice by CITY. Such approval shall not be unreasonably withheld. If CITY does not approve an invoice, CITY shall notify CONSULTANT in writing of the reasons for non-approval and the schedule of performance set forth in **Exhibit "A"** may at the option of CITY be suspended until the parties agree that past performance by CONSULTANT is in, or has been brought into compliance, or until this Agreement has expired or is terminated as provided herein.

5. Any billings for extra work or additional services authorized in advance and in writing by CITY shall be invoiced separately to CITY. Such invoice shall contain all of the information required above, and in addition shall list the hours expended and hourly rate charged for such time. Such invoices shall be approved by CITY if the work performed is in accordance with the extra work or additional services requested, and if CITY is satisfied that the statement of hours worked and costs incurred is accurate. Such approval shall not be unreasonably withheld. Any dispute between the parties concerning payment of such an invoice shall be treated as separate and apart from the ongoing performance of the remainder of this Agreement.