City of Ridgecrest  Kern County  Inyo County  San Bernardino County  Indian Wells Valley Water District

# INDIAN WELLS VALLEY GROUNDWATER AUTHORITY

**Ridgecrest City Hall  100 W California Ave., Ridgecrest, CA 93555  760-499-5002**

# BOARD OF DIRECTORS
# A G E N D A

**Wednesday, February 8, 2023**

**Closed Session – 10:00 a.m.**

**Open Session – No earlier than 10:30 a.m.**

***NOTICE:*** ***In accordance with the evolving public health declarations, we will continue to provide live stream video for those wishing to participate virtually. Please see the Public Comment Notice below for detailed instructions on submitting public comment as well as websites for livestream broadcasting. Telephonic participation by members of the Board and staff is expected.***

*In compliance with the Americans with Disabilities Act, if you are a disabled person and you need a disability-related modification or accommodation to participate in this meeting, please contact April Keigwin at (805) 764-5452. Requests must be made as early as possible and at least one full business day before the start of the meeting. Documents and material relating to an open session agenda items that are provided to the IWVGA Board of Directors prior to a regular meeting will be available for public inspection and copying at Ridgecrest City Hall, 100 W California Ave, Ridgecrest, CA 93555, or online at* https://iwvga.org/.

*Statements from the Public*

*The public will be allowed to address the Board during Public Comments about subjects within the jurisdiction of the IWVGA Board and that are NOT on the agenda. No action may be taken on off-agenda items unless authorized by law. Questions posed to the Board may be answered after the meeting or at future meeting. Dialog or extended discussion between the public and the Board or staff will be limited in accordance with the Brown Act. All Public Comment portions of the meeting shall be limited to three (3) minutes per speaker. Each person is limited to one comment during Public Comments.*

1. **CALL TO ORDER**

2. **ADOPTION OF AGENDA AND AB 361 FINDING**

3. **PUBLIC COMMENT ON CLOSED SESSION**

4. **CLOSED SESSION**
   - CONFERENCE WITH REAL PROPERTY NEGOTIATIONS – (Government Code Section 54956.8) - Property: Jackson Ranch - Kings County Assessor's Parcel Numbers 048-010-016, 048-010-018, and 048-020-030; Agency Negotiator: Capitol Core Group; Negotiating Parties: Various; Under Negotiation: Price and terms of payment.

   - CONFERENCE WITH LEGAL COUNSEL – EXISTING LITIGATION (Government Code Section 54956.9(d)(1)): IWVGA v. Inyokern CSD – Kern County Superior Court BCV-22-100281

- CONFERENCE WITH LEGAL COUNSEL – EXISTING LITIGATION
  (Government Code Section 54956.9(d)(1) - Name of case: Searles Valley Minerals Inc v. Indian Wells Valley Groundwater Authority, et. al. - Orange County Superior Court 30-2022-01239487-CU-MC-CJC

- CONFERENCE WITH LEGAL COUNSEL- EXISTING LITIGATION
  (Government Code Section 54956.9(d)(1) - Name of case: Mojave Pistachios, LLC, a California limited liability company, et.al. v. Indian Wells Valley Groundwater Authority, a California Joint Powers Authority, et. al. - Orange County Superior Court 30-2022-0139479-CU-MC-CJC

**5. OPEN SESSION –** No earlier than **10:30 a.m.**

a. Report on Closed Session
b. Pledge of Allegiance
c. Roll Call

**6. PUBLIC COMMENT**

This time is reserved for the public to address the Board about matters NOT on the agenda. No action will be taken on non-agenda items unless authorized by law. Comments are limited to three minutes per person.

**7. BOARD MEMBER COMMENTS**

This time is reserved for comments by Board members and/or staff and to identify matters for future Board business.

**8. CONSENT AGENDA**

a. Approve Minutes of Board Meeting January 11, 2023
b. Approve Minutes of Special Board Meeting January 25, 2023
c. Brown Armstrong Request for Additional Funding
d. Approve Expenditures
   **To view itemized invoices please visit https://iwvga.org/iwvga-meetings*
   i. $194,950.07 – Stetson Engineers
   ii. $26,519.75 – Regional Government Services – (Replenishment / Extraction)
   iii. $13,731.25 – Capitol Core Group – (Replenishment)
   iv. $219,961.48 – Provost & Pritchard – (SGMA IP Grant)
   v. $1,558.80 – Wellntell – (Extraction)

**9. APPROVAL OF LETTER OF INTEREST TO U.S. ARMY CORPS OF ENGINEERS**

**10. HERITAGE VILLAGE SHALLOW WELL IMPACT MITIGATION EVALUATION**

**11. AUTHORIZE THE WATER RESOURCE MANAGER TO SUBMIT THE 2022 WATER YEAR ANNUAL REPORT TO THE DEPARTMENT OF WATER RESOURCES**

**12. RESOLUTION 02-23 TO AUTHORIZE AWARD OF CONTRACT TO PROVOST AND PRITCHARD CONSULTING GROUP FOR DESIGN SERVICES FOR THE IMPORTED WATER PIPELINE**

**13. RESOLUTION 03-23 TO AUTHORIZE AWARD OF CONTRACT TO OVERLAND, PACIFIC AND CUTLER, LLC FOR RIGHT-OF-WAY AND PARCEL ACQUISITION SERVICES FOR THE IMPORTED WATER PIPELINE**

**14. RESOLUTION 04-23 TO AUTHORIZE AWARD OF CONTRACT TO PROVOST AND PRITCHARD CONSULTING GROUP FOR CEQA/NEPA DOCUMENTS AND PERMIT DOCUMENTATION SERVICES FOR IMPORTED WATER PIPELINE**

**15. WATER RESOURCES MANAGER REPORT**

a. Grant Funding
b. GSP Implementation Projects/Management Action Updates
   i. Recycled Water Program
   ii. Imported Water Program
   iii. Shallow Well Mitigation Program
   iv. Draft Annual Report
c. Miscellaneous Items
   i. Data Collection and Monitoring
   ii. IWVGA Basin Model Configuration Management Plan
   iii. Rose Valley Subflow Update

**16. GENERAL MANAGER'S REPORT**

a. Monthly Financial Report
b. Report on IWVGA's Water Marketer (Capitol Core Group)

**17. PAC REPORT**

**18. DATE OF NEXT MEETING –** MARCH 8, 2023

**19. ADJOURN**

**PUBLIC COMMENT NOTICE**

On September 16, 2021, Governor Newsom signed into law Assembly Bill 361, relating to the convening of public meetings in light of the COVID-19 pandemic. At this time, the Indian Wells Valley Groundwater Authority is continuing to hold board meetings in order to conduct essential business. IWVGA meetings will be open to the public for physical attendance; However, for those who wish to continue using virtual alternatives please follow the directions below for access to live steam video as well as ways to submit public comment.

- **Watch meetings on-line:**
  All of our meetings are streamed live at https://ridgecrest-ca.gov/369/Watch (4 second streaming delay) or on YouTube at https://www.youtube.com/cityofridgecrest/live (22 second streaming delay) and are also available for playback after the meeting.

- **Call in for public comments:**
  If you wish to make verbal comment, ***please call (760) 499-5010.*** This phone line will allow only one caller at a time, so if the line is busy, please continue to dial. We will be allowing a 20-30 second pause between callers to give time for media delays and callers to dial in. Due to media delays, please mute your streaming device while making public comment. If you wish to comment on multiple items, you will need to call in as each item is presented.
  *Please Note – This process will be a learning curve for all, *please be patient.*

- **Submit written comments:**
  We encourage submittal of written comments supporting, opposing, or otherwise commenting on an agenda item, for distribution to the Board prior to the meeting. Send emails to akeigwin@rgs.ca.gov written correspondence may be sent to April Keigwin, Clerk of the Board, 100 W. California Ave., Ridgecrest, CA 93555. Please specify to which agenda item your comment relates.

- **Large Groups:**
  If you are part of a large group that would like to comment on an agenda item, please consider commenting in writing. This will be as impactful to the Board as having a large group in attendance.

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# INDIAN WELLS VALLEY GROUNDWATER AUTHORITY

City of Ridgecrest, Indian Wells Valley Water District, Inyo County, Kern County, San Bernardino County

## BOARD OF DIRECTORS MEETING MINUTES

**Wednesday, January 11, 2023**

**IWVGA Members Present:**

| | |
|---|---|
| Chairman Scott Hayman, City of Ridgecrest | Carol Thomas-Keefer, IWVGA General Manager |
| Phillip Peters, Kern County | Keith Lemieux, Legal Counsel |
| Chuck Griffin, IWVWD | Steve Johnson, Stetson Engineers |
| John Vallejo, Inyo County | Commander Benjamin Turner, US Navy, DoD Liaison |
| Tim Itnyre, San Bernardino County | April Keigwin, Clerk of the Board |
| Thomas Bickauskas, Bureau of Land Management | |

Attending via teleconference is Tim Itnyre, John Vallejo, Carol Thomas-Keefer, and Steve Johnson.

Meeting recording, public comment letters submitted, and all board meeting related documents are made available at:
https://iwvga.org/iwvga-meetings/

**1. CALL TO ORDER:**

Chairman Hayman calls the meeting to order at 10:00 a.m.

**2. ADOPTION OF AGENDA AND AB-361 FINDING:**

Motion made by John Vallejo and seconded by Chuck Griffin to make a finding that health and safety risks as stated in AB-361 are still of concern.
Motion carries by the following roll call vote:

| | |
|---|---|
| Chairman Hayman | Aye |
| Vice Chair Peters | Aye |
| Director Itnyre | Aye |
| Director Griffin | Aye |
| Director Vallejo | Aye |

**3. PUBLIC COMMENT ON CLOSED SESSION:**

None.

Chairman Hayman calls the meeting into Closed Session at 10:03 a.m.

**4. CLOSED SESSION:**

- CONFERENCE WITH REAL PROPERTY NEGOTIATIONS –
(Government Code Section 54956.8) - Property: Jackson Ranch - Kings County Assessor's Parcel Numbers 048-010-016, 048-010-018, and 048-020-030; Agency Negotiator: Capitol Core Group; Negotiating Parties: Various; Under Negotiation: Price and terms of payment.

- CONFERENCE WITH LEGAL COUNSEL – EXISTING LITIGATION
(Government Code Section 54956.9(c)): IWVGA v. Inyokern CSD

- CONFERENCE WITH LEGAL COUNSEL – EXISTING LITIGATION
(Government Code Section 54956.9(d)(1) - Name of case: Searles Valley Minerals Inc v. Indian Wells Valley Groundwater Authority, et. al. - Orange County Superior Court 30-2022-01239487-CU-MC-CJC

- CONFERENCE WITH LEGAL COUNSEL- EXISTING LITIGATION
(Government Code Section 54956.9(d)(1) - Name of case: Mojave Pistachios, LLC, a California limited liability company, et.al. v. Indian Wells Valley Groundwater Authority, a California Joint Powers Authority, et. al. - Orange County Superior Court 30-2022-0139479-CU-MC-CJC

Closed Session adjourns at 10:36 a.m.

**5. OPEN SESSION – No earlier than 10:30 a.m.**

Meeting reconvenes into Open Session at 10:38 a.m.

a. Report on Closed Session – Counsel Lemieux reports no action was taken that would require disclosure under The Brown Act.
b. Pledge of Allegiance is led by Chairman Hayman
c. Roll Call

| | |
|---|---|
| Chairman Hayman | Present |
| Vice Chair Peters | Present |
| Director Itnyre | Absent |
| Director Griffin | Present |
| Director Vallejo | Present |

**6. PUBLIC COMMENT:**

The Board hears public comment from Mike Neel.

**7. BOARD MEMBER COMMENTS:**

None.

**8. CONSENT AGENDA:**

a. Approve Minutes of Board Meeting December 14, 2022
b. Approve Expenditures

**To view itemized invoices please visit https://iwvga.org/iwvga-meetings*

i. $140,641.55 – Stetson Engineers
ii. $21,017.75 – Regional Government Services – (Replenishment / Extraction)
iii. $9,725.00 – Capitol Core Group – (Replenishment)

Motion made by Phillip Peters and seconded by Chuck Griffin to approve Minutes of Board Meeting December 14, 2022, and the following expenditures in the amount of, $140,641.55 to Stetson Engineers, $21,017.75 to Regional Government Services, and $9,725.00 to Capitol Core Group.
Motion carries by the following roll call vote:

| | |
|---|---|
| Chairman Hayman | Aye |
| Vice Chair Peters | Aye |
| Director Itnyre | Absent |
| Director Griffin | Aye |
| Director Vallejo | Aye |

**9. RESOLUTION 01-23 AUTHORIZING THE GENERAL MANAGER TO EXECUTE FUNDING AGREEMENT FOR THE URBAN COMMUNITIES DROUGHT RELIEF PROGRAM:**

Carol Thomas-Keefer presents staff report and Resolution 01-23.

The Board hears public comment from West Katzenstein and Mike Neel.

Motion made by Phillip Peters and seconded by Chuck Griffin to approve Resolution 01-23. Motion carries by the following roll call vote:

| | |
|---|---|
| Chairman Hayman | Aye |
| Vice Chair Peters | Aye |
| Director Itnyre | Absent |
| Director Griffin | Aye |
| Director Vallejo | Aye |

**10. WATER RESOURCES MANAGER REPORT:**

Steve Johnson and Jean Moran provide updates on the following grants/programs:

a. Grant Funding
   i. Proposition 1
   ii. Proposition 68
   iii. SGMA Implementation Project Grant Funds
b. GSP Implementation Projects/Management Action Updates
   i. Recycled Water Program
   ii. Bureau of Reclamation Grant Funding Feasibility Study
   iii. Draft Annual Report
   iv. Shallow Well Mitigation Update
c. Miscellaneous Items
   i. Data Collection and Monitoring
   ii. IWVGA Basin Model Configuration Management Plan
   iii. Rose Valley Subflow Update

*Director Itnyre joins the meeting at 11:01 a.m.*

The Board hears public comment from Judie Decker, Renee Westa-Lusk and Mike Neel.

**11. GENERAL MANAGER'S REPORT:**

Carol Thomas-Keefer provides updates on the following items:

a. Monthly Financial Report
b. Report on IWVGA's Water Marketer (Capitol Core Group)
c. Well Permit Approval for Residential Well in Inyo County

The Board hears public comment from Larry Mead.

**12. PAC UPDATE:**

Dave Janiec provides PAC update.

**13. DATE OF NEXT MEETING –** February 8, 2023

**14. ADJOURN**:

Chairman Hayman adjourns the meeting at 11:36 a.m. on January 11, 2023.

Respectfully submitted,

*April Keigwin*
Clerk of the Board
Indian Wells Valley Groundwater Authority

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# INDIAN WELLS VALLEY GROUNDWATER AUTHORITY

City of Ridgecrest, Indian Wells Valley Water District, Inyo County, Kern County, San Bernardino County

## BOARD OF DIRECTORS SPECIAL MEETING MINUTES

**Wednesday, January 25, 2023; 11:30 a.m.**

**IWVGA Members:**

| | |
|---|---|
| Chairman Scott Hayman, City of Ridgecrest | Carol Thomas-Keefer, IWVGA General Manager |
| Phillip Peters, Kern County | Keith Lemieux, Legal Counsel |
| Chuck Griffin, IWVWD | Steve Johnson, Stetson Engineers |
| John Vallejo, Inyo County | Commander Benjamin Turner, US Navy, DoD Liaison |
| Tim Itnyre, San Bernardino County | April Keigwin, Clerk of the Board |
| Thomas Bickauskas, Bureau of Land Management | |

Attending via teleconference is Phillip Peters, Tim Itnyre, John Vallejo, Carol Thomas-Keefer, Scott Hayman, Chuck Griffin, Keith Lemieux and Steve Johnson.

Meeting recording and public comment letters submitted are made available at:
https://iwvga.org/iwvga-meetings/

### 1. CALL TO ORDER:

Chairman Hayman calls the meeting to order at 11:31 p.m.

a. The Pledge of Allegiance is led by Chairman Hayman.
b. April Keigwin calls the following roll call:

| | |
|---|---|
| Chairman Hayman | Present |
| Vice Chair Peters | Present |
| Director Itnyre | Present |
| Director Griffin | Present |
| Director Vallejo | Present |

### 2. ADOPTION OF AGENDA AND AB361 FINDING:

Motion made by John Vallejo and seconded by Phillip Peters to make a finding that health and safety risks as stated in AB-361 are still of concern.
Motion carries by the following roll call vote:

| | |
|---|---|
| Chairman Hayman | Aye |
| Vice Chair Peters | Aye |
| Director Itnyre | Aye |
| Director Griffin | Aye |
| Director Vallejo | Aye |

### 3. PUBLIC COMMENT:

None.

### 4. PUBLIC COMMENT ON CLOSED SESSION:

None.

Meeting is called into Closed Session at 11:33 a.m.

**5. CLOSED SESSION:**

- CONFERENCE WITH REAL PROPERTY NEGOTIATIONS –
  (Government Code Section 54956.8) - Property: Jackson Ranch - Kings County Assessor's Parcel Numbers 048-010-016, 048-010-018, and 048-020-030; Agency Negotiator: Capitol Core Group; Negotiating Parties: Various; Under Negotiation: Price and terms of payment.

Closed Session adjourns at 11:45 a.m.

**6. REPORT ON CLOSED SESSION**

Meeting reconvenes in Open Session at 11:45 a.m.

Counsel Lemieux states the Board received a report from agency negotiators and authorized release of amended letter of intent regarding the water purchase.

**7. DATE OF NEXT MEETING –** FEBRUARY 8, 2023

**8. ADJOURN:**

Chairman Hayman adjourns the meeting at 11:46 a.m. on January 25, 2023.

Respectfully submitted,

*April Keigwin*
Clerk of the Board
Indian Wells Valley Groundwater Authority

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BROWN ARMSTRONG
CERTIFIED PUBLIC ACCOUNTANTS

www.ba.cpa
661-324-4971

January 17, 2023

Board of Directors and
Carol Thomas-Keefer, General Manager
Indian Wells Valley Groundwater Authority
100 W California Avenue
Ridgecrest, California 93555

Dear Board of Directors and Ms. Thomas-Keefer:

Our existing contract for the December 31, 2021 audit was $12,000. However, due to the additional work associated with obtaining an understanding of, and auditing, the new basin replenishment fee, we propose a new not-to-exceed maximum fee of $20,000 for the audit, an $8,000 increase from the original audit contract. The total $8,000 fee increase more than likely will not be entirely charged as the majority of the audit is already completed.

If you accept this proposal, please sign the attachment and provide any further agreements you required for our signing.

Please call me if I can clarify or expand on any item contained in this proposal. We appreciate the opportunity to provide you with the outstanding service you expect.

Sincerely,

BROWN ARMSTRONG
ACCOUNTANCY CORPORATION

By: Thomas M. Young

TMY:jav
Enclosures
I:\..\PROPOSAL\2021\Special Districts\Indian Wells Valley Groundwater Authority\Revised Fee Increase Letter.doc

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**ACCEPTANCE:**

This letter correctly sets forth the understanding Indian Wells Valley Groundwater Authority.

By: _____

Title: _____

Date: _____

By: _____

Title: _____

Date: _____

STETSON ENGINEERS INC.
2171 E. Francisco Blvd., Suite K • San Rafael, California 94901
Phone: (415) 457-0701 • FAX: (415) 457-1638 • Website: www.stetsonengineers.com
Northern California • Southern California • Arizona • Colorado • Oregon

# Invoice

Indian Wells Valley Groundwater Authority
Mr. Alan Christensen
100 W. California Ave.
Ridgecrest, CA 93555

**Invoice Number:** **2652-65**
**Invoice Date:** **02/03/23**

Project #: 2652 **Indian Wells Valley Groundwater Authority**

Professional Services through 12/31/2022

## Water Resources Management 2022

### 01 - Meetings & Prep

| **Professional Services** | Bill Hours | Bill Rate | Charge |
|---|---|---|---|
| Principal | 26.50 | $237.00 | $6,280.50 |
| Supervisor I | 44.25 | $206.00 | $9,115.50 |
| Senior Associate | 12.50 | $128.00 | $1,600.00 |
| Associate III | 5.00 | $111.00 | $555.00 |
| Contract Management | 0.50 | $103.00 | $51.50 |
| Assistant I | 65.75 | $98.00 | $6,443.50 |
| | *Professional Services Subtotal:* | | *$24,046.00* |

| **Reimbursables** | Charge |
|---|---|
| Reproduction (Color) | $56.96 |
| Lodging | $100.00 |
| Mileage | $263.13 |
| Reproduction | $2.40 |
| *Reimbursables Subtotal:* | *$422.49* |
| *Meetings & Prep Subtotal:* | *$24,468.49* |

### 02 - Prop 1 / Prop 68 Grant Administration

| **Professional Services** | Bill Hours | Bill Rate | Charge |
|---|---|---|---|
| Principal | 1.50 | $237.00 | $355.50 |
| Supervisor II | 12.00 | $191.00 | $2,292.00 |
| Assistant I | 5.50 | $98.00 | $539.00 |
| | *Professional Services Subtotal:* | | *$3,186.50* |
| | *Prop 1 / Prop 68 Grant Administration Subtotal:* | | *$3,186.50* |

### 02.01 - SGMA IP Grant Administration

| **Professional Services** | Bill Hours | Bill Rate | Charge |
|---|---|---|---|
| Supervisor I | 1.50 | $206.00 | $309.00 |
| Senior Associate | 0.50 | $128.00 | $64.00 |
| Assistant I | 4.50 | $98.00 | $441.00 |
| | *Professional Services Subtotal:* | | *$814.00* |
| | *SGMA IP Grant Administration Subtotal:* | | *$814.00* |

### 03 - Grant Review & Application Preparation

| **Professional Services** | Bill Hours | Bill Rate | Charge |
|---|---|---|---|
| Principal | 5.50 | $237.00 | $1,303.50 |
| Supervisor I | 5.75 | $206.00 | $1,184.50 |

**03 - Grant Review & Application Preparation**

| **Professional Services** | Bill Hours | Bill Rate | Charge |
|---|---|---|---|
| Supervisor II | 28.50 | $191.00 | $5,443.50 |
| Senior Associate | 27.75 | $128.00 | $3,552.00 |
| GIS Specialist I | 1.00 | $101.00 | $101.00 |
| | *Professional Services Subtotal:* | | *$11,584.50* |
| | *Grant Review & Application Preparation Subtotal:* | | *$11,584.50* |

**04 - Data Mgmt System Support**

| **Professional Services** | Bill Hours | Bill Rate | Charge |
|---|---|---|---|
| Associate I | 11.25 | $122.00 | $1,372.50 |
| GIS Manager | 0.25 | $122.00 | $30.50 |
| | *Professional Services Subtotal:* | | *$1,403.00* |
| | *Data Mgmt System Support Subtotal:* | | *$1,403.00* |

**05 - General Project Mgmt**

| **Professional Services** | Bill Hours | Bill Rate | Charge |
|---|---|---|---|
| Principal | 2.00 | $237.00 | $474.00 |
| Supervisor I | 5.50 | $206.00 | $1,133.00 |
| | *Professional Services Subtotal:* | | *$1,607.00* |
| | *General Project Mgmt Subtotal:* | | *$1,607.00* |

**06 - Model Transfer & Upgrade**

| **Professional Services** | Bill Hours | Bill Rate | Charge |
|---|---|---|---|
| Principal | 6.00 | $237.00 | $1,422.00 |
| Supervisor I | 15.50 | $206.00 | $3,193.00 |
| Supervisor II | 1.00 | $191.00 | $191.00 |
| Senior Associate | 1.50 | $128.00 | $192.00 |
| Associate III | 1.50 | $111.00 | $166.50 |
| | *Professional Services Subtotal:* | | *$5,164.50* |

| **Sub-Contractors** | Charge |
|---|---|
| Board of Regents | $11,788.33 |
| *Sub-Contractors Subtotal:* | *$11,788.33* |
| *Model Transfer & Upgrade Subtotal:* | *$16,952.83* |

**07 - Imported Water: Engineering & Analysis**

| **Professional Services** | Bill Hours | Bill Rate | Charge |
|---|---|---|---|
| Principal | 10.50 | $237.00 | $2,488.50 |
| Supervisor I | 29.25 | $206.00 | $6,025.50 |
| Senior Associate | 0.75 | $128.00 | $96.00 |
| GIS Manager | 0.75 | $122.00 | $91.50 |
| Assistant I | 74.50 | $98.00 | $7,301.00 |
| | *Professional Services Subtotal:* | | *$16,002.50* |

| **Reimbursables** | Charge |
|---|---|
| Data | $1,875.00 |
| *Reimbursables Subtotal:* | *$1,875.00* |
| *Imported Water: Engineering & Analysis Subtotal:* | *$17,877.50* |

**07.01 - 01 Imported Water: Planning/Design/Environmental**

| **Professional Services** | Bill Hours | Bill Rate | Charge |
|---|---|---|---|
| Supervisor I | 2.00 | $206.00 | $412.00 |

**07.01 - 01 Imported Water: Planning/Design/Environmental**

| **Professional Services** | Bill Hours | Bill Rate | Charge |
|---|---|---|---|
| Assistant I | 21.00 | $98.00 | $2,058.00 |
| *Professional Services Subtotal:* | | | *$2,470.00* |
| *01 Imported Water: Planning/Design/Environmental Subtotal:* | | | *$2,470.00* |

**09 - Recycled Water**

| **Professional Services** | Bill Hours | Bill Rate | Charge |
|---|---|---|---|
| Principal | 1.50 | $237.00 | $355.50 |
| Supervisor I | 15.25 | $206.00 | $3,141.50 |
| Assistant I | 88.00 | $98.00 | $8,624.00 |
| *Professional Services Subtotal:* | | | *$12,121.00* |
| **Sub-Contractors** | | | Charge |
| Trussell Technologies, Inc | | | $81,300.00 |
| *Sub-Contractors Subtotal:* | | | *$81,300.00* |
| *Recycled Water Subtotal:* | | | *$93,421.00* |

**11 - Data Collection, Monitoring & Data Gaps**

| **Professional Services** | Bill Hours | Bill Rate | Charge |
|---|---|---|---|
| Supervisor I | 5.50 | $206.00 | $1,133.00 |
| Supervisor II | 0.50 | $191.00 | $95.50 |
| Senior II | 10.00 | $149.00 | $1,490.00 |
| Associate I | 0.75 | $126.00 | $94.50 |
| Associate I | 6.25 | $122.00 | $762.50 |
| Associate III | 3.50 | $111.00 | $388.50 |
| Senior Assistant | 25.25 | $103.00 | $2,600.75 |
| *Professional Services Subtotal:* | | | *$6,564.75* |
| *Data Collection, Monitoring & Data Gaps Subtotal:* | | | *$6,564.75* |

**15 - TSS: El Paso Well Drilling Support**

| **Professional Services** | Bill Hours | Bill Rate | Charge |
|---|---|---|---|
| Associate I | 14.00 | $122.00 | $1,708.00 |
| *Professional Services Subtotal:* | | | *$1,708.00* |
| *TSS: El Paso Well Drilling Support Subtotal:* | | | *$1,708.00* |

**17 - Navy/Coso Royalty Fund: Develop FY23 Projects & Secure Funding**

| **Professional Services** | Bill Hours | Bill Rate | Charge |
|---|---|---|---|
| Principal | 2.50 | $237.00 | $592.50 |
| Supervisor I | 13.00 | $206.00 | $2,678.00 |
| Associate I | 0.50 | $126.00 | $63.00 |
| Associate I | 13.75 | $122.00 | $1,677.50 |
| *Professional Services Subtotal:* | | | *$5,011.00* |
| *Navy/Coso Royalty Fund: Develop FY23 Projects & Secure Funding Subtotal:* | | | *$5,011.00* |

**18 - Navy/Coso Royalty Fund: FY21 Rose Valley MW Permitting, Bid Doc Support & Dı**

| **Professional Services** | Bill Hours | Bill Rate | Charge |
|---|---|---|---|
| Associate I | 8.50 | $122.00 | $1,037.00 |
| *Professional Services Subtotal:* | | | *$1,037.00* |
| *Navy/Coso Royalty Fund: FY21 Rose Valley MW Permitting, Bid Doc Support & Dr* | | | *$1,037.00* |

**20 - Shallow Well Mitigation Program: Outreach & Impacts Evaluation**

| **Professional Services** | Bill Hours | Bill Rate | Charge |
|---|---|---|---|

**20 - Shallow Well Mitigation Program: Outreach & Impacts Evaluation**

| **Professional Services** | Bill Hours | Bill Rate | Charge |
|---|---|---|---|
| Principal | 4.00 | $237.00 | $948.00 |
| Supervisor I | 2.50 | $206.00 | $515.00 |
| Assistant I | 16.75 | $98.00 | $1,641.50 |
| | *Professional Services Subtotal:* | | *$3,104.50* |
| | *Shallow Well Mitigation Program: Outreach & Impacts Evaluation Subtotal:* | | *$3,104.50* |

**21 - General Engineering**

| **Professional Services** | Bill Hours | Bill Rate | Charge |
|---|---|---|---|
| Principal | 3.00 | $237.00 | $711.00 |
| Supervisor I | 1.25 | $206.00 | $257.50 |
| | *Professional Services Subtotal:* | | *$968.50* |
| | *General Engineering Subtotal:* | | *$968.50* |

**27 - Litigation Support**

| **Professional Services** | Bill Hours | Bill Rate | Charge |
|---|---|---|---|
| Principal | 8.00 | $237.00 | $1,896.00 |
| Supervisor I | 4.25 | $206.00 | $875.50 |
| | *Professional Services Subtotal:* | | *$2,771.50* |
| | *Litigation Support Subtotal:* | | *$2,771.50* |
| | ***Water Resources Management 2022 Subtotal:*** | | ***$194,950.07*** |

***** Invoice Total ***** **$194,950.07**

STETSON ENGINEERS INC.
2171 E. Francisco Blvd., Suite K • San Rafael, California 94901
Phone: (415) 457-0701 • FAX: (415) 457-1638 • Website: www.stetsonengineers.com
Northern California • Southern California • Arizona • Colorado • Oregon

# REIMBURSABLE SUMMARY

City of Ridgecrest
Attn: Alan Christensen
100 W. California Ave.
Ridgecrest, CA 93555

**Invoice Number:** **2652-65**
**Invoice Date:** **02/03/23**

Project #: 2652 **Indian Wells Valley Groundwater Authority**
Manager: Stephen Johnson

Professional Services through 12/31/2022

**01 - Meetings & Prep**

**Reimbursables**

| Description | Date | Units | Unit Rate | Charge | Notes |
|---|---|---|---|---|---|
| Lodging | 12/13/2022 | 1.00 | $100.00 | $100.00 | |
| Mileage | 12/14/2022 | 265.00 | $0.63 | $165.63 | |
| Mileage | 12/14/2022 | 156.00 | $0.63 | $97.50 | |
| Reproduction | 12/27/2022 | 16.00 | $0.15 | $2.40 | |
| Reproduction (Color) | 12/27/2022 | 64.00 | $0.89 | $56.96 | |
| | | | Meetings & Prep Sub-Total: | $422.49 | |

**06 - Model Transfer & Upgrade**

**Sub-Contractors**

| Description | Date | Units | Unit Rate | Charge | Notes |
|---|---|---|---|---|---|
| Board of Regents | 12/31/2022 | 1.00 | $11,788.33 | $11,788.33 | |
| | | | Model Transfer & Upgrade Sub-Total: | $11,788.33 | |

**07 - Imported Water: Engineering & Analysis**

**Reimbursables**

| Description | Date | Units | Unit Rate | Charge | Notes |
|---|---|---|---|---|---|
| Data | 12/19/2022 | 1.00 | $625.00 | $625.00 | |
| Data | 12/19/2022 | 1.00 | $625.00 | $625.00 | |
| Data | 12/19/2022 | 1.00 | $625.00 | $625.00 | |
| | | | Imported Water: Engineering & Analysis Sub-Total: | $1,875.00 | |

**09 - Recycled Water**

**Sub-Contractors**

| Description | Date | Units | Unit Rate | Charge | Notes |
|---|---|---|---|---|---|
| Trussell Technologies, Inc | 12/31/2022 | 1.00 | $81,300.00 | $81,300.00 | |
| | | | Recycled Water Sub-Total: | $81,300.00 | |

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REGIONAL GOVERNMENT SERVICES
SERVING PUBLIC AGENCIES SINCE 2002

PO Box 1350
Carmel Valley, CA 93924

# Invoice

| Date | Invoice # |
|---|---|
| 12/31/2022 | 14519 |

**Bill To:**

Indian Wells Valley Groundwater Authority
100 W California Ave
Ridgecrest, CA 93555

| P.O. No. | Due Date | Inv Sent |
|---|---|---|
| | 2/15/2023 | 1/31/2023 |

| Date | Description | Amount |
|---|---|---|
| 12/31/2022 | Reimbursable Expenses for December - City of Ridegecrest<br>Monthly Rent - please see attached | 300.00 |

| | | |
|---|---|---|
| | **Total** | **$300.00** |

# AGREEMENT FOR LEASE OF
# 100 W. CALIFORNIA AVENUE, RIDGECREST, CA

## by and between

## THE CITY OF RIDGECREST AND
## REGIONAL GOVERNMENT SERVICES

**AGREEMENT:**

**Premises:** For and in consideration of the terms, covenants, and conditions contained in this Agreement, City leases to RGS, and RGS leases from City, an approximate 210 square foot office space located along with the monthly use of the City's conference room located at 100 W. California Avenue., Ridgecrest, County of Kern, State of California, depicted on the floor plan attached as **Exhibit "A"** ("**Premises**").

**Term:** The initial term of this Agreement ("**Term**") shall commence on the Execution Date and terminate one year (12 months) thereafter, unless sooner terminated or extended as provided in this Agreement.

**Option to Extend Term:** Provided RGS is not in default of any of the terms, covenants, or conditions of this Agreement, RGS shall have one option to request an extension of the initial Term for a two-year period ("**Option Term**"). RGS may exercise the option by giving the City's City Manager ("**CM**") written notice of RGS's desire to extend, not less than 60 days prior to expiration of the initial Term. The CM, at the CM's sole discretion, may accept or reject the request to extend.

**4. Right to Terminate:** Either Party may terminate this Agreement for any reason by providing a 60-day prior written notice to the other Party.

**5. Hold Over:** If RGS holds over after the expiration of the Term, with the express or implied consent of City, such holding over shall be a tenancy only from month to month and shall be governed by the terms, covenants, and conditions contained in this Agreement.

**6. Rental Consideration:**

**a. In General**: As consideration for the lease of the Premises during the Term, RGS shall pay to City in lawful money of the United States, to CM at 100 W. CALIFORNIA AVENUE, RIDGECREST, CA, or to such persons and at such places as may be designated from time to time by City. The first rental payment shall be paid within 30 days of the Execution Date, and thereafter for the balance of the Term, shall be paid on or before the first of each month. In the event RGS occupies the Premises for a partial month at any time, RGS shall only be responsible for a prorated portion of the Rent.

**b. Fair Market Rental Value:** The fair market rental rate of the facility is determined to be $300 per month ($1.43 per square foot).

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REGIONAL GOVERNMENT SERVICES
SERVING PUBLIC AGENCIES SINCE 2002

PO Box 1350
Carmel Valley, CA 93924

# Invoice

| Date | Invoice # |
|---|---|
| 12/31/2022 | 14438 |

**Bill To:**

Indian Wells Valley Groundwater Authority
100 W California Ave
Ridgecrest, CA 93555

| P.O. No. | Due Date | Inv Sent |
|---|---|---|
| | 1/30/2023 | 1/20/2023 |

| Date | Description | Amount |
|---|---|---|
| 12/31/2022 | Contract Services for December - please see attached | 26,219.75 |

| | | |
|---|---|---|
| | **Total** | **$26,219.75** |

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**Capitol Core Group, Inc.**
205 Cartwheel Bend (Operations Dept.)
Austin, TX 78738 US
512.568.3084
operations@capitolcore.com
www.capitolcore.com

**BILL TO**
Indian Wells Valley Groundwater Authority
500 West Ridgecrest Blvd.
Ridgecrest, California 93555
USA

# INVOICE 2023-006

**DATE** 02/01/2023 **TERMS** Net 45

**DUE DATE** 03/18/2023

**VENDOR ID**
195953

**INVOICE PERIOD**
January 2023

| DATE | ACCOUNT SUMMARY | AMOUNT |
|---|---|---|
| 01/06/2023 | Balance Forward | 25,112.50 |
| | Other payments and credits after 01/06/2023 through 01/31/2023 | -25,112.50 |
| 02/01/2023 | Other invoices from this date | 0.00 |
| | New charges (details below) | 13,731.25 |
| | Total Amount Due | 13,731.25 |

| ACTIVITY | HOURS | RATE | AMOUNT |
|---|---|---|---|
| **Charges** | | | |
| Task 1: Securing Imported Water | | | |
| **Government Relations:Intergovernmental Affairs** Subtask A: Dudley Ridge LOI/ROFR {Tatum} | 3.50 | 275.00 | 962.50 |
| **Government Relations:Intergovernmental Affairs** Subtask A: Public Agency Seller-I discussions {Tatum} | 0.50 | 275.00 | 137.50 |
| **Government Relations:Intergovernmental Affairs** Subtask A: Jackson Ranch LOI, ROFR and Negotiations {Simonetti} | 3 | 250.00 | 750.00 |
| **Government Relations:Intergovernmental Affairs** Subtask B: Imported Water Infrastructure Call {Simonetti} | 1.50 | 250.00 | 375.00 |
| **Government Relations:Intergovernmental Affairs** Subtask C: Alignment study calls {Simonetti} | 1 | 250.00 | 250.00 |
| **Government Relations:Intergovernmental Affairs** Subtask C: Interconnection Alignment Meeting {McKinney} | 0.75 | 275.00 | 206.25 |
| **Government Relations:Intergovernmental Affairs** Subtask D: 2023 Water Supplies (calls to various agencies) and internal meetings/client meetings{Tatum} | 8.50 | 275.00 | 2,337.50 |
| **Government Relations:Intergovernmental Affairs** Subtask D: 2023 Water Supply Calls {Simonetti} | 2.50 | 250.00 | 625.00 |
| Invoice Total Task 1: $5,643.75 (21.25 hours) | | | |
| Task 2: Interconnection Pipeline Project | | | |

| ACTIVITY | HOURS | RATE | AMOUNT |
|---|---|---|---|
| **Government Relations:California**<br>Agency: DWR materials prep and meetings concerning USACE activities on the Interconnection Project {McKinney} | 1.50 | 275.00 | 412.50 |
| **Government Relations:California**<br>Agency: DWR SGMA-IP (R1) Funding and Research {McKinney} | 1.50 | 275.00 | 412.50 |
| **Government Relations:Federal**<br>Agency: USACE: Planning Assistance to States Program -- Letter of Interest {McKinney} | 3.75 | 275.00 | 1,031.25 |
| **Government Relations:California**<br>Agency: SGMA-IP Strategy Session {McKinney} | 1 | 275.00 | 275.00 |
| **Government Relations:Federal**<br>Agency: Interconnection -- USACE PAS Program LOI Review {Simonetti} | 1 | 250.00 | 250.00 |
| **Government Relations:California**<br>Agency: DWR SGMA-IP R-1 Call {Simonetti} | 0.75 | 250.00 | 187.50 |
| Invoice Total Task 2: $2,568.75 (9.5 hours) | | | |
| Task 3: Water Recycling Plant Project | | | |
| **Government Relations:California**<br>Legislative: Cal-DCIP Legislative Proposal {McKinney} | 1 | 275.00 | 275.00 |
| **Government Relations:California**<br>Legislative: WRP/WWTP -- Cal-DCIP Program: Stakeholder meetings and Senator Roth meeting | 1.50 | 250.00 | 375.00 |
| Invoice Total Task 3: $650.00 (2.5 hours) | | | |
| Task 4: Wastewater Treatment Plant Project | | | |
| **Government Relations:Federal**<br>Congressional: WWTP -- Community Project Funding Request Development {McKinney} | 4 | 275.00 | 1,100.00 |
| **Government Relations:Federal**<br>Congressional: WWTP SRF -- CPFR Packet Review {Simonetti} | 1 | 250.00 | 250.00 |
| Invoice Total Task 4: $1,350.00 (5 hours) | | | |
| Task 5: Other Projects Supporting the GSP | | | |
| **Government Relations:California**<br>Subtask B: Agency: Land Fallowing Program Review {Simonetti} | 1.25 | 250.00 | 312.50 |
| **Government Relations:California**<br>Subtask D: Agency: Review of Multi-benefit and Drought Relief Round 2 Implementation Guidelines {Simonetti} | 1 | 250.00 | 250.00 |
| Invoice Total Task 5: $562.50 (2.25 hours) | | | |
| Task 6: Project Administration | | | |
| **Administrative**<br>Ad Hoc Reporting: 2023 Work Plan Revisions {McKinney} | 1 | 275.00 | 275.00 |
| **Administrative**<br>January Board Meeting {McKinney} | 1 | 275.00 | 275.00 |
| **Administrative**<br>Special Board Meeting January {McKinney} | 0.75 | 275.00 | 206.25 |
| **Administrative**<br>February Board Meeting Preparation {McKinney} | 1 | 275.00 | 275.00 |
| **Administrative**<br>Board Meeting: January {Tatum} | 1 | 275.00 | 275.00 |

| ACTIVITY | HOURS | RATE | AMOUNT |
|---|---|---|---|
| **Administrative**<br>Monthly Materials Preparation {Tatum} | 1 | 275.00 | 275.00 |
| **Administrative**<br>Board: Monthly Packet and Closed Session Items {Simonetti} | 1.50 | 250.00 | 375.00 |
| **Administrative**<br>Board: January Board Meeting {Simonetti} | 3 | 250.00 | 750.00 |
| **Administrative**<br>Board: Special Meeting Closed Session {Simonetti} | 1 | 250.00 | 250.00 |
| Invoice Total Task 6: $2,956.25 (11.25 hours) | | | |
| ********** | | | |
| Compliance Reporting Notes for Invoice: | | | |
| IWVGA Federal Reporting: $1,281.25 | | | |
| City of Ridgecrest Federal Reporting: $1,350.00 | | | |
| IWVGA State Reporting: $2,500.00 | | | |
| City of Ridgecrest State Reporting: $0.00 | | | |
| ********** | | | |

Thank you for your business. Please make checks payable to Capitol Core Group, Inc.

| | |
|---|---|
| TOTAL OF NEW CHARGES | 13,731.25 |
| TOTAL DUE | **$13,731.25** |

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455 W. Fir Avenue
Clovis, CA 93611
(559) 449-2700
Fax (559) 449-2715

EST. 1968 PROVOST& PRITCHARD CONSULTING GROUP
An Employee Owned Company

April Keigwin
Indian Wells Valley Groundwater Authority
100 West California Avenue
Ridgecrest, CA 93555

December 19, 2022
Project: No: 04101-22-001
Invoice No: 97085

**Project Name:** **Indian Wells Valley Groundwater Authority-Imported Water Pipeline Alignment Study**

**Client Project #:**

Developed three alignments; presented to November board meeting. Began process of screening three down to a final preferred alignment. Continued field visits to review rights of way and biological issues. Developed hydraulic model to locate and size pump stations.

**Professional Services from November 1, 2022 to November 30, 2022**

Phase: T01 Capacity at Pipeline Inlet Determination

**Labor**

| | Hours | Rate | Amount | |
|---|---|---|---|---|
| Senior Engineer | 51.90 | 184.00 | 9,549.60 | |
| Principal Engineer | 3.00 | 195.00 | 585.00 | |
| Project Administrator | .40 | 85.00 | 34.00 | |
| Project Administrator | 1.40 | 98.00 | 137.20 | |
| Totals | 56.70 | | 10,305.80 | |
| **Total Labor** | | | | **10,305.80** |
| | | **Total this Phase:** | | **$10,305.80** |

Phase: T02 Imported Water Demands Determination

**Labor**

| | Hours | Rate | Amount | |
|---|---|---|---|---|
| Senior Engineer | 3.20 | 184.00 | 588.80 | |
| Principal Engineer | 1.50 | 195.00 | 292.50 | |
| Principal Engineer | 4.30 | 225.00 | 967.50 | |
| Project Administrator | 1.10 | 98.00 | 107.80 | |
| Project Administrator | .20 | 105.00 | 21.00 | |
| Totals | 10.30 | | 1,977.60 | |
| **Total Labor** | | | | **1,977.60** |
| | | **Total this Phase:** | | **$1,977.60** |

Phase: T03 Delivery & Connection Points Evaluation

**Labor**

| | Hours | Rate | Amount | |
|---|---|---|---|---|
| Senior Engineer | 26.00 | 184.00 | 4,784.00 | |
| Associate Engineer | 20.00 | 130.00 | 2,600.00 | |
| Associate Engineer | 10.00 | 147.00 | 1,470.00 | |
| Principal Engineer | 4.00 | 195.00 | 780.00 | |
| Principal Engineer | 1.50 | 225.00 | 337.50 | |
| Project Administrator | 1.80 | 98.00 | 176.40 | |
| Totals | 63.30 | | 10,147.90 | |
| **Total Labor** | | | | **10,147.90** |

*** Please make checks payable to Provost & Pritchard Consulting Group ***
For billing inquiries, please email BillingInquiries@ppeng.com.

**Total this Phase: $10,147.90**

Phase: T04 Preliminary Alignment Option Development

**Labor**

| | Hours | Rate | Amount | |
|---|---|---|---|---|
| Senior Engineer | 52.50 | 167.00 | 8,767.50 | |
| Senior Engineer | 20.00 | 153.00 | 3,060.00 | |
| Senior Engineer | 63.50 | 184.00 | 11,684.00 | |
| Senior Technician | 5.00 | 136.00 | 680.00 | |
| Assistant Engineer | 4.50 | 118.00 | 531.00 | |
| Project Administrator | 9.40 | 91.00 | 855.40 | |
| Project Administrator | 9.00 | 98.00 | 882.00 | |
| Senior GIS Specialist | 3.00 | 160.00 | 480.00 | |
| Assistant GIS Specialist | 2.30 | 93.00 | 213.90 | |
| Travel Time | 7.10 | 80.00 | 568.00 | |
| Totals | 176.30 | | 27,721.80 | |
| **Total Labor** | | | | **27,721.80** |

**Consultants**

| | | | |
|---|---|---|---|
| Consultants | | 41,555.25 | |
| **Total Consultants** | | **41,555.25** | **41,555.25** |

**Reimbursable Expenses**

| | | |
|---|---|---|
| Travel & Mileage | 207.72 | |
| Other Direct Reimb Expenses | 23.00 | |
| **Total Reimbursables** | **230.72** | **230.72** |

**Total this Phase: $69,507.77**

Phase: T05 Alignment Comparison Methodology

**Labor**

| | Hours | Rate | Amount | |
|---|---|---|---|---|
| Senior Engineer | 14.90 | 184.00 | 2,741.60 | |
| Project Administrator | .50 | 105.00 | 52.50 | |
| Totals | 15.40 | | 2,794.10 | |
| **Total Labor** | | | | **2,794.10** |

**Total this Phase: $2,794.10**

Phase: T06 Pipeline Alignment Options Analysis

**Labor**

| | Hours | Rate | Amount | |
|---|---|---|---|---|
| Assistant Engineer | 47.10 | 104.00 | 4,898.40 | |
| Principal Engineer | 3.50 | 195.00 | 682.50 | |
| Totals | 50.60 | | 5,580.90 | |
| **Total Labor** | | | | **5,580.90** |

**Total this Phase: $5,580.90**

Phase: T07 Pipeline Alignment Options Comparison

**Labor**

| | Hours | Rate | Amount | |
|---|---|---|---|---|
| Associate GIS Specialist | 7.80 | 106.00 | 826.80 | |
| Totals | 7.80 | | 826.80 | |
| **Total Labor** | | | | **826.80** |

**Total this Phase: $826.80**

Phase: T08 Alternative Alignment Technical Memo

**Labor**

| | Hours | Rate | Amount | |
|---|---|---|---|---|
| Project Administrator | .20 | 91.00 | 18.20 | |
| Senior GIS Specialist | 19.30 | 142.00 | 2,740.60 | |
| Associate GIS Specialist | 10.20 | 106.00 | 1,081.20 | |
| Associate Biologist | 1.20 | 101.00 | 121.20 | |
| Associate Biologist | 22.60 | 115.00 | 2,599.00 | |
| Assistant Biologist | 2.30 | 85.00 | 195.50 | |
| Totals | 55.80 | | 6,755.70 | |
| **Total Labor** | | | | **6,755.70** |

**Reimbursable Expenses**

| | | | | |
|---|---|---|---|---|
| Travel & Mileage | | | 232.88 | |
| **Total Reimbursables** | | | **232.88** | **232.88** |

**Total this Phase: $6,988.58**

Phase: T09 Project Management

**Labor**

| | Hours | Rate | Amount | |
|---|---|---|---|---|
| Senior Engineer | 17.90 | 184.00 | 3,293.60 | |
| Principal Engineer | 3.60 | 195.00 | 702.00 | |
| Principal Engineer | 49.90 | 225.00 | 11,227.50 | |
| Project Administrator | .20 | 91.00 | 18.20 | |
| Senior GIS Specialist | 23.00 | 142.00 | 3,266.00 | |
| Assistant Envir. Spec. | 9.70 | 105.00 | 1,018.50 | |
| Principal Planner | 17.20 | 182.00 | 3,130.40 | |
| Assistant GIS Specialist | .10 | 93.00 | 9.30 | |
| Totals | 121.60 | | 22,665.50 | |
| **Total Labor** | | | | **22,665.50** |

**Reimbursable Expenses**

| | | | | |
|---|---|---|---|---|
| Travel & Mileage | | | 394.60 | |
| Other Direct Reimb Expenses | | | 28.73 | |
| **Total Reimbursables** | | | **423.33** | **423.33** |

**Total this Phase: $23,088.83**

| **Billing Limits** | **Current** | **Prior** | **To-Date** | |
|---|---|---|---|---|
| Total Billings | 131,218.28 | 117,367.20 | 248,585.48 | |
| Budget | | | 449,100.00 | |
| Budget Remaining | | | 200,514.52 | |

**Total this Invoice $131,218.28**

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455 W. Fir Avenue
Clovis, CA 93611
(559) 449-2700
Fax (559) 449-2715

EST. 1968 PROVOST& PRITCHARD CONSULTING GROUP
An Employee Owned Company

April Keigwin
Indian Wells Valley Groundwater Authority
100 West California Avenue
Ridgecrest, CA 93555

January 17, 2023
Project: No: 04101-22-001
Invoice No: 97740

**Project Name:** **Indian Wells Valley Groundwater Authority-Imported Water Pipeline Alignment Study**

**Client Project #:**

Prepared and made presentations to TAC and to Board. Finalized screening process to select preferred alignment. Completed mapbooks for all three alignments. Submitted draft tech memo for Task 4, selection of three preferred alternatives. Began final technical memo summarizing the project.

**Professional Services from December 1, 2022 to December 31, 2022**

Phase: T04 Preliminary Alignment Option Development

**Labor**

| | Hours | Rate | Amount | |
|---|---|---|---|---|
| Senior Engineer | 40.50 | 167.00 | 6,763.50 | |
| Senior Engineer | 8.00 | 153.00 | 1,224.00 | |
| Senior Engineer | 28.50 | 184.00 | 5,244.00 | |
| Senior Technician | 2.50 | 136.00 | 340.00 | |
| Assistant Engineer | 15.00 | 118.00 | 1,770.00 | |
| Project Administrator | 11.30 | 91.00 | 1,028.30 | |
| Project Administrator | 3.00 | 98.00 | 294.00 | |
| Senior Technician | 2.40 | 150.00 | 360.00 | |
| Senior GIS Specialist | .50 | 160.00 | 80.00 | |
| Totals | 111.70 | | 17,103.80 | |
| **Total Labor** | | | | **17,103.80** |

**Consultants**

| | | | |
|---|---|---|---|
| Consultants | | 14,702.75 | |
| **Total Consultants** | | **14,702.75** | **14,702.75** |

**Reimbursable Expenses**

| | | |
|---|---|---|
| Travel & Mileage | 99.19 | |
| **Total Reimbursables** | **99.19** | **99.19** |
| | **Total this Phase:** | **$31,905.74** |

Phase: T05 Alignment Comparison Methodology

**Labor**

| | Hours | Rate | Amount | |
|---|---|---|---|---|
| Senior Engineer | 10.80 | 184.00 | 1,987.20 | |
| Totals | 10.80 | | 1,987.20 | |
| **Total Labor** | | | | **1,987.20** |
| | | **Total this Phase:** | | **$1,987.20** |

Phase: T06 Pipeline Alignment Options Analysis

*** Please make checks payable to Provost & Pritchard Consulting Group ***
For billing inquiries, please email BillingInquiries@ppeng.com.

**Labor**

| | Hours | Rate | Amount | |
|---|---|---|---|---|
| Senior Engineer | 6.60 | 184.00 | 1,214.40 | |
| Assistant Engineer | 7.10 | 104.00 | 738.40 | |
| Assistant Engineer | 3.50 | 118.00 | 413.00 | |
| Associate Engineer | 1.20 | 147.00 | 176.40 | |
| Principal Engineer | 18.00 | 195.00 | 3,510.00 | |
| Licensed Surveyor | 1.00 | 175.00 | 175.00 | |
| Totals | 37.40 | | 6,227.20 | |
| **Total Labor** | | | | **6,227.20** |

**Total this Phase: $6,227.20**

---

Phase: T07 Pipeline Alignment Options Comparison

**Labor**

| | Hours | Rate | Amount | |
|---|---|---|---|---|
| Senior Engineer | 62.50 | 184.00 | 11,500.00 | |
| Project Administrator | 2.20 | 98.00 | 215.60 | |
| Associate GIS Specialist | 34.60 | 106.00 | 3,667.60 | |
| Totals | 99.30 | | 15,383.20 | |
| **Total Labor** | | | | **15,383.20** |

**Total this Phase: $15,383.20**

---

Phase: T08 Alternative Alignment Technical Memo

**Labor**

| | Hours | Rate | Amount | |
|---|---|---|---|---|
| Senior Engineer | 6.20 | 184.00 | 1,140.80 | |
| Principal Engineer | 23.40 | 225.00 | 5,265.00 | |
| Senior GIS Specialist | 68.90 | 142.00 | 9,783.80 | |
| Senior GIS Specialist | 4.90 | 160.00 | 784.00 | |
| Associate Biologist | 15.10 | 101.00 | 1,525.10 | |
| Associate Biologist | 17.70 | 115.00 | 2,035.50 | |
| Assistant GIS Specialist | 4.00 | 93.00 | 372.00 | |
| Assistant Biologist | 7.30 | 85.00 | 620.50 | |
| Travel Time | 10.50 | 80.00 | 840.00 | |
| Totals | 158.00 | | 22,366.70 | |
| **Total Labor** | | | | **22,366.70** |

**Reimbursable Expenses**

| | | | | |
|---|---|---|---|---|
| Travel & Mileage | | | 594.56 | |
| **Total Reimbursables** | | | **594.56** | **594.56** |

**Total this Phase: $22,961.26**

---

Phase: T09 Project Management

**Labor**

| | Hours | Rate | Amount |
|---|---|---|---|
| Senior Engineer | 6.80 | 184.00 | 1,251.20 |
| Principal Engineer | 2.50 | 195.00 | 487.50 |
| Principal Engineer | 25.10 | 225.00 | 5,647.50 |
| Project Administrator | .30 | 98.00 | 29.40 |
| Project Administrator | .30 | 105.00 | 31.50 |
| Assistant Envir. Spec. | 14.70 | 105.00 | 1,543.50 |
| Principal Planner | 6.50 | 182.00 | 1,183.00 |

| | | | | |
|---|---|---|---|---|
| Principal Const. Manager | .50 | 210.00 | 105.00 | |
| Totals | 56.70 | | 10,278.60 | |
| **Total Labor** | | | | **10,278.60** |

**Total this Phase:** **$10,278.60**

| **Billing Limits** | **Current** | **Prior** | **To-Date** |
|---|---|---|---|
| Total Billings | 88,743.20 | 248,585.48 | 337,328.68 |
| Budget | | | 449,100.00 |
| Budget Remaining | | | 111,771.32 |

**Total this Invoice** **$88,743.20**

# 2022 Standard Fee Schedule

This schedule supersedes previously published fee schedules as of the effective date of January 1, 2022.
*Multi-year contracts are subject to any subsequent changes in these rates.*

| Staff Type | Fee Range |
|---|---|
| **Engineering Staff** | |
| Assistant Engineer | $97.00 – $125.00 |
| Associate Engineer | $115.00 – $147.00 |
| Senior Engineer | $153.00 – $184.00 |
| Principal Engineer | $195.00 – $235.00 |
| Associate Structural Engineer | $120.00 – $146.00 |
| Senior Structural Engineer | $150.00 – $170.00 |
| Principal Structural Engineer | $180.00 – $230.00 |
| **Specialists** | |
| Associate Biologist | $95.00 – $115.00 |
| Assistant Environmental Specialist | $90.00 – $120.00 |
| Associate Environmental Specialist | $126.00 – $155.00 |
| Senior Environmental Specialist | $155.00 – $185.00 |
| Principal Environmental Specialist | $195.00 – $235.00 |
| Assistant GIS Specialist | $75.00 – $93.00 |
| Associate GIS Specialist | $100.00 – $127.00 |
| Senior GIS Specialist | $135.00 – $170.00 |
| Assistant Geologist/Hydrogeologist | $95.00 – $113.00 |
| Associate Geologist/Hydrogeologist | $120.00 – $150.00 |
| Senior Geologist/Hydrogeologist | $150.00 – $180.00 |
| Principal Geologist/Hydrogeologist | $195.00 – $235.00 |
| Associate Water Resources Specialist | $105.00 – $130.00 |
| Senior Water Resources Specialist | $135.00 – $160.00 |
| Environmental & Roof Specialist | $120.00 – $200.00 |
| External Affairs Specialist | $98.00 – $128.00 |
| Principal Tunneling Consultant | $235.00 – $255.00 |
| **Planning Staff** | |
| Assistant Planner/CEQA-NEPA Specialist | $85.00 – $105.00 |
| Associate Planner/CEQA-NEPA Specialist | $110.00 – $133.00 |
| Senior Planner/CEQA-NEPA Specialist | $140.00 – $168.00 |
| Principal Planner/CEQA-NEPA Specialist | $173.00 – $196.00 |
| **Technical Staff** | |
| Assistant Technician | $75.00 – $97.00 |
| Associate Technician | $102.00 – $125.00 |
| Senior Technician | $130.00 – $150.00 |
| **Construction Services Staff** | |
| Associate Construction Manager | $120.00 – $140.00 |
| Senior Construction Manager | $145.00 – $167.00 |
| Principal Construction Manager | $180.00 – $210.00 |
| Construction Inspector (1) | $152.00 – $177.00 |
| Construction Inspector (2) | $187.00 – $218.00 |
| **Support Staff** | |
| Administrative Assistant | $70.00 – $90.00 |
| Project Administrator | $80.00 – $105.00 |
| Senior Project Administrator | $115.00 – $200.00 |
| Intern | $65.00 – $80.00 |
| **Surveying Services Staff** | |
| Assistant Surveyor | $95.00 – $115.00 |
| Licensed Surveyor | $145.00 – $175.00 |
| 1-Man Survey Crew | $175.00/$200.00(1) |
| 2-Man Survey Crew | $245.00/$285.00(1) |
| 2-Man Survey Crew including LS | $280.00/$295.00(1) |
| UAV (Drone) Services | $210.00 |

(Field work not including survey equipment billed at individual standard rate plus vehicle as appropriate.)

(1) Prevailing wage rates shown for San Joaquin, Stanislaus, Merced, Madera, Fresno, Tulare, Kings, and Kern counties; other counties as quoted.

(2) Overtime for Construction Services prevailing wage will be calculated at 125% of the standard prevailing wage rate.

## Additional Fees

Expert Witness / GIS Training: As quoted.
Travel Time (for greater than one (1) hour from employee's base office): $80/hour (unless the individual's rate is less)

## Project Costs

Mileage: IRS value + 15%
Outside Consultants: Cost + 15%
Direct Costs: Cost + 15%

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**WellIntel Inc.**
906 E. Hamilton St.
Milwaukee, WI 53202 US
844-935-5426
accounting@wellntel.com

# INVOICE

BILL TO
April Keigwin
Indian Wells Valley Groundwater Authority
500 W. Ridgecrest Blvd.
Ridgecrest, CA 93555 USA

SHIP TO
April Keigwin
Indian Wells Valley Groundwater Authority
500 W RIDGECREST BLVD
RIDGECREST, CA 93555-4017 US

| | |
|---|---|
| INVOICE | 2634 |
| DATE | 01/23/2023 |
| TERMS | Net 30 |
| DUE DATE | 02/22/2023 |

| ITEM | DESCRIPTION | QTY | RATE | AMOUNT |
|---|---|---|---|---|
| 2DSNN12 - Annual | Analytics Dashboard Data Services (annual) | 6 | 240.00 | 1,440.00T |
| Sales Tax | Sales Tax calculated by AvaTax on Mon 23 Jan 22:46:27 UTC 2023 | 1 | 118.80 | 118.80 |

| | |
|---|---|
| SUBTOTAL | 1,558.80 |
| TAX (0) | 0.00 |
| TOTAL | 1,558.80 |
| BALANCE DUE | **$1,558.80** |

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# IWVGA ADMINISTRATIVE OFFICE

***MEMORANDUM***

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**DATE: February 3, 2023**

**TO:** IWVGA Board Members

**FROM:** Carol Thomas-Keefer
IWVGA General Manager

**SUBJECT:** **Letter of Interest to U.S. Army Corps of Engineers; Planning Assistance to States Program**

**BACKGROUND**

The Water Resources Development Act of 1974 (WRDA), Section 22, gives authority to the U.S. Army Corps of Engineers (USACE) to provide local agencies assistance in the preparation of comprehensive plans for the development, utilization, and conservation of water and related land-resources. Typical studies are only planning level of detail and do not include funding for construction-related activities. The program encompasses many types of studies including water supply and demand.

Technical assistance provided through the program includes support of specific planning efforts related to the management of water resources, including the provision and integration of hydrologic, economic, and environmental data/analysis. The technical assistance activities are cost-shared (50%) with the local agency.

In November 2022, Authority staff met with USACE Los Angeles Division personnel regarding the then-pending requirements contained in the WRDA 2022 Act. During that meeting, Division personnel suggested IWVGA consideration of Planning Assistance to States (PAS) program for continued activities related to the implementation of the Groundwater Sustainability Plan.

The process requires the local agency to submit a Letter of Interest to the Commanding Officer of the Division of USACE to determine eligibility, available funding for assistance, and scope of work.

**DISCUSSION**

USACE is a construction and services agency; it does not provide direct funding to the local agency to carry out planning activities. This is not an application for grant or award funding. Technical assistance is carried out based upon USACE full staff and consultant costs needed to carry out the agreed-upon scope of work.

The Letter of Interest prepared for the Board's consideration includes a request for planning assistance through the program, primarily for any remaining eligible activities for the Interconnection Pipeline Project and initial eligible activities for the Water Recycling Plant. Both projects are included in the GSP and generally eligible for the program.

The Letter of Interest details that IWVGA cost-sharing requirements would be matched through the California Department of Water Resources SGMA-IP Round 1 Grant award. The $10 million funding plan required by the SGMA-IP Round 1 Grant program included both the Interconnection Pipeline and Water Recycling Project. An agreement between IWVGA and USACE for the PAS program would be contingent upon acceptance of the SGMA-IP grant award as the matching funds. Initial discussions with USACE indicated that would be acceptable.

Typical award levels are approximately $1 million in staff/contractor and work product, although additional funding was provided through the *Infrastructure Investment and Jobs Act* which may allow for increased work product. PAS assistance value will likely not exceed $2 million.

**RECOMMENDATION**

Staff recommends that the Board approve the proposed Letter of Interest and direct staff to submit it to the U.S. Army Corps of Engineers, Los Angeles Division, for consideration.

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**BOARD OF DIRECTORS**
**Scott Hayman, Chair**
**Phillip Peters, Vice-Chair**
**Chuck Griffin**
**Matt Kingsley**
**Paul Cook**
**Thomas Bickauskas**
**CDR Benjamin Turner, DoD Liaison**

**Carol Thomas-Keefer**
*General Manager*
**Keith Lemieux**
*Legal Counsel*

February 8, 2023

Colonel Julie A. Balten
Commander and District Engineer
U.S. Army Corps of Engineers
Los Angeles District
915 Wilshire Boulevard
Los Angeles, California 90017

RE: Planning Assistance to States Program
Indian Wells Valley Groundwater Authority

Dear Colonel Balten:

This is in reference to the Corps of Engineers' Planning Assistance to States Program. We understand the provisions of Section 22 of the Water Resources Development Act of 1974, as amended, provides authority for the Corps to assist in the preparation of comprehensive plans for the development, utilization, and conservation of water and related land resources, and for technical assistance.

The Indian Wells Valley Groundwater Authority ("Authority"), a groundwater sustainability agency of the State of California, requests planning assistance for sustainability projects protecting water resources in the region.

**About the Authority**

The Indian Wells Valley Groundwater Authority is a political subdivision of the State of California and joint-powers authority consisting of the City of Ridgecrest, the County of Kern, the County of San Bernardino, the County of Inyo, and the Indian Wells Valley Water District. The U.S. Bureau of Land Management and U.S. Naval Air Weapons Station China Lake are ex-officio non-voting members of the Authority.

Formed under the requirements of California's Sustainable Groundwater Management Act (SGMA), the Authority is charged with bringing the Indian Wells Valley Groundwater Basin into sustainability by 2040. The Indian Wells Valley Groundwater Basin is located in the northwestern part of the Mojave Desert in Southern California and underlies approximately 382,000 acres or approximately 600 square miles of land area in portions of the Counties of Kern, Inyo, and San Bernardino. It is bordered on the west by the Sierra Nevada Mountain Range, on the north by the Coso Range, on the east by the Argus Range and the south by the El Paso

Mountains. Surface water flow from the surrounding mountain ranges drains to China Lake, a large dry lake, or playa, located in the central north-east part of the basin.

In 2021, the California Department of Water Resources approved the Authority's Groundwater Sustainability Plan (GSP) which included two key infrastructure projects to achieve sustainability. These infrastructure projects are the focus for our request under the Planning Assistance to States Program.

The Indian Wells Valley Groundwater Basin is currently in overdraft by approximately 13,500 acre-feet per year. The State of California, under SGMA, designated the groundwater basin as a high priority in critical overdraft and required the Authority complete the Groundwater Sustainability Plan (GSP).

After efficiency measures (both civilian and military), implementation of water savings, curtailment of certain civilian water uses, and construction of a 2,000 acre-feet per year water recycling plant, the Authority estimates the basin will remain in overdraft of between 3,000- and 7,000-acre feet per year. To achieve sustainability and ensure water resiliency in the area, including NAWSCL, the Indian Wells Valley Groundwater Authority must seek to import water from other regions of California. This requires development of an interconnection described below.

**Interconnection Project**

Providing a minimum of 3,000-to-7,000 acre-feet per year of imported water supplies to the Indian Wells Valley, the interconnection pipeline will link the Indian Wells Valley Water District to the Antelope Valley East Kern Water Agency (AVEK) through a roughly 50-mile pipeline. The project is in preliminary planning/design, environmental permitting, and funding stages. The Authority has approved the AVEK interconnection point and designated a preferred pipeline route alternative which minimizes environmental and construction impacts. Discussions with AVEK to effectuate an agreement between the two agencies for the wheeling of water and the physical structures are also in progress. The State of California has already signified its approval of this project through the adoption of the Authority's Groundwater Sustainability Plan which is predicated on the success of this import project and the State followed up that approval with an award of $7.6 million for final design completion of the import project.




**Water Recycling Plant**

The water recycling plant is designed to provide 2,000 acre-feet per year for reinjection into the groundwater basin. Utilizing secondary treated effluent from the City of Ridgecrest wastewater treatment facility, the proposed plant would provide tertiary treatment and utilize a combination of MF/RO, UV/H2O2 providing advanced treated water which meets State Water Resources Control Board, Cal-EPA, and USEPA standards for injection into the groundwater basin. The plant will also include ancillary brine concentration and evaporation facilities. A total of 10.5 miles of 16" diameter pipeline, six monitoring wells, 2 injection wells, and a one-million-gallon equalizing tank are required for the project. The project is in very preliminary planning/design phases. Estimated costs for the plant are between $74 million and $102 million.

**Cost Sharing**

The Authority understands that once a project cost-sharing agreement is completed, the non-Federal sponsor would be required to pay 50 percent of the cost for the project and that the non-Federal share can be in the form of in-kind work provided toward our required contribution of study costs for comprehensive water resource planning, or by funds only (not in-kind contributions) for technical assistance. Voluntarily contributed funds in excess of the cost share may be provided by the non-Federal partner. In 2021, the Authority received a $7.6 million grant for planning activities associated with these sustainability projects under its "Sustainable Groundwater Management Act Implementation Program (SGMA-IP)." These funds shall remain available to the Authority through May of 2025. The SGMA-IP funding shall serve as the non-federal share a match to any funding provided under this Planning Assistance to States Program.

We look forward to discussing these projects further with you. Please contact Carol Thomas-Keefer, General Manager Indian Wells Valley Groundwater Authority at 626.590.8355 or cthomaskeefer@rgs.cagov to arrange a further discussion of this inquiry.

Sincerely,

Scott Hayman,
Chairman Indian Wells Valley Groundwater Authority
Council Member, City of Ridgecrest

cc: Members of the Board of Directors
Carol Thomas-Keefer, General Manager
Michael W. McKinney, Capitol Core Group
Steve Johnson, Stetson Engineers

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# IWVGA ADMINISTRATIVE OFFICE

***STAFF REPORT***

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**TO:** IWVGA Board Members **DATE: February 8, 2023**

**FROM:** IWVGA Staff

**SUBJECT: Agenda Item 10 Heritage Village Shallow Well Impact Mitigation Evaluation**

## DISCUSSION

The Indian Wells Valley Groundwater Basin (Basin) has been in overdraft for several decades resulting in a significant lowering of groundwater elevations and reduction in the amount of useable water in groundwater storage. Most impacted wells have been shallow wells.

The Groundwater Sustainability Plan (GSP) for the (Basin), approved by the California Department of Water Resources (DWR), acknowledges that there will be continued lowering of groundwater levels until the projects and management actions in the GSP are fully implemented. The GSP includes a program to help mitigate impacts of declining groundwater levels to shallow wells (GSP Project No. 4).

The Shallow Well Mitigation Program (Program) was approved by the Indian Wells Valley Groundwater Authority (IWVGA) Board of Directors at the Board's February 10, 2021 meeting. The Primary Program is implemented and managed by the IWVGA staff, under the direction of the IWVGA Board, on a "case-by-case" basis. The Program is essentially an "evaluation and potential mitigation reimbursement" process. The Program is dependent upon well owners voluntarily submitting information on their impacted wells for Authority consideration. Additionally, the Program includes provisions for emergency assistance for impacted shallow well owners to request fast-track assistance through the IWVGA's General Manager, referred to as the Emergency Program.

The Heritage Village Master Community Association (HVMCA) submitted an application for mitigation reimbursement for a HVMCA well used to irrigate parks that stopped producing water in the Spring of 2022.

Attached are a draft Staff Report with Staff's evaluation regarding HVMCA's well with a draft Recommended Action regarding assistance to HWMCA through the Primary Mitigation Program and a second draft Staff Report with Staff's evaluation of HVMCA's well with a draft Recommended Action regarding assistance to HWMCA through the Emergency Program.

As provided in the Program approved by the Board, the attached draft Staff Reports have been provided to HVMCA for review and comment. HVMCA had provided comments at the time this Staff Report was prepared.

Staff will provide an update at the Board meeting, if comments are received from HVMCA.

## ACTION(S) REQUIRED BY THE BOARD

Staff recommends the Board consider taking action on Heritage Village Master Community Association's request for Shallow Well Mitigation assistance.

J:\2652 IWVGA\01 - Prep & Attend Board, PAC, & TAC meetings\Board\2023\2 - February 2023\0 - FINAL PACKAGE FOR APRIL\Agenda_Item 10- Staff Report -Heritage Village Shallow Well Impact Mitigation Evaluation.docx

**TO: Sue Henderson**

**Heritage Village Master Community Association**

**FROM: Carol Thomas-Keefer, General Manager**

**Indian Wells Valley Groundwater Authority**

**SUBJECT: Emergency Assistance through Shallow Wells Impact Identification, Evaluation and Mitigation Program – Heritage Valley Master Community Association**

## DISCUSSION

The Indian Wells Valley (IWV) groundwater basin (Basin) has been in overdraft for several decades, resulting in a significant lowering of groundwater elevation and reduction in the amount of useable water in groundwater storage. Most impacted wells have been shallow (domestic and rural) wells.

Under the Sustainable Groundwater Management Act (SGMA), sustainability must be achieved by 2040. The IWVGA Groundwater Sustainability Plan (GSP) approved by the State Department of Water Resources (DWR) acknowledges that there will be continued lower of groundwater levels until the projects and management actions in the GSP are fully implemented, so the GSP also includes a program to help mitigate impacts to shallow wells as Project # 4.

The Shallow Well Mitigation Program was approved by IWVGA Board at its February 10, 2021 meeting. The Program is implemented and managed by the Authority staff, under the direction of the Authority Board, on a "case-by-case" basis. The Program is essentially an "evaluation and potential mitigation reimbursement" process. The Program is dependent upon well owners voluntarily submitting their Shallow Well impacts information for Authority consideration. Additionally, the Program includes provisions for impacted shallow well owners to request fast-track emergency assistance through the IWVGA General Manager. This report addresses the application for emergency assistance through the Shallow Well Impact Identification, Evaluation, and Mitigation Program.

Heritage Village Master Community Association (HVMCA) submitted an Emergency Assistance Report Form to IWVGA on August 25, 2022. It was reported that, in Spring of 2022, HVMCA experience loss of production from their non-potable well supplying the HVMCA's irrigation system. A new pump was installed further down the well to resolve the issue but failed a week later and started to pull up sand and other debris clogging up the sprinkler system watering both parks. HVMCA purchased water from the Indian Wells Valley Water District to irrigate the parks until a new, deeper well was drilled. HVMCA is requesting $114,482.59 in emergency funds for the new well that was drilled to maintain the parks in the Heritage Village Community.

## RECOMMENDED ACTION

Staff does not recommend the application by HVMCA for emergency assistance be approved for funding due to ineligibility. As stated in the Emergency Assistance in the Shallow Well Impact Identification,

Evaluation and Mitigation Program Policy, the Emergency Assistance Program is to assist Shallow Well Owners experiencing an “emergency water supply” situation for potable water usage. In this case, HVMCA’S well is an irrigation well and does not provide potable water.

# STAFF REPORT

## DRAFT

**TO: Sue Henderson**

**Heritage Village Master Community Association**

**FROM: Water Resources Manager**

**Indian Wells Valley Groundwater Authority**

**SUBJECT: Primary Assistance through Shallow Wells Impact Identification, Evaluation and Mitigation Program – Heritage Valley Master Community Association**

## BACKGROUND

The Indian Wells Valley Groundwater Basin (Basin) has been in overdraft for several decades resulting in a significant lowering of groundwater elevations and reduction in the amount of useable water in groundwater storage. Most impacted wells have been shallow (domestic and rural) wells.

The Sustainable Groundwater Management Act (SGMA) requires the Basin reach sustainability by 2040. The Groundwater Sustainability Plan (GSP) for the Basin, approved by the California Department of Water Resources (DWR), acknowledges that there will be continued lowering of groundwater levels until the projects and management actions in the GSP are fully implemented. The GSP includes a program to help mitigate impacts of declining groundwater levels to shallow wells (GSP Project No. 4).

The Shallow Well Mitigation Program (Program) was approved by the Indian Wells Valley Groundwater Authority (IWVGA) Board of Directors at the Board's February 10, 2021 meeting. The Primary Program is implemented and managed by the IWVGA staff, under the direction of the IWVGA Board, on a "case-by-case" basis. The Program is essentially an "evaluation and potential mitigation reimbursement" process. The Program is dependent upon well owners voluntarily submitting information on their impacted wells for Authority consideration. Additionally, the Program includes provisions for emergency assistance for impacted shallow well owners to request fast-track assistance through the IWVGA's General Manager, referred to as the Emergency Program. This Report is addressing Heritage Village Master Community Association's (HVMCA's) application for the Primary Shallow Well Impact Identification, Evaluation, and Mitigation Program.

## DISCUSSION

HVMCA submitted an application for the Primary Shallow Well Mitigation Program which was determined to be complete on November 4, 2022 (application attached). HVMCA reported the loss of water production from the non-potable well supplying the irrigation system for the parks at HVMCA in the Spring of 2022. A new pump was installed lower in the well to resolve the issue, but the pump broke suction (the groundwater level was too low to supply adequate water to the pump intake and the air

entered the pump intake) and failed a week later and started to pull up sand and other debris clogging up the sprinkler system watering both parks. HVMCA purchased water from the Indian Wells Valley Water District (IWVWD) to irrigate the parks until a new, deeper well was drilled. HVMCA is requesting reimbursement of $114,482.59 for the non-potable replacement well that was drilled to maintain the parks in the Heritage Village Community.

HVMWCA's application indicates the well pump was located at 252 feet below ground surface (bgs) when the well first lost production. A new well pump was installed at 289 feet bgs, 37 feet lower than the prior pump, to attempt to get the well to produce water. The wells driller's report (also attached) states HVMCA's well had a static water depth of 150 feet bgs when the new pump was installed but the groundwater level in the well when the pump was running was close to 300 feet bgs causing the pump to break suction and stop producing water. The well driller's report states that similar static water level and drawdown (the difference between the static water level and the pumping water level) during pumping occurs at a well located in Leroy Jackson Park, which is located approximately ¾ miles from HVMCA's well. The well driller's report states a deeper replacement well was drilled for HVMCA's well. The replacement well has a static water level of around 150 bgs and the drawdown when pumping is two feet. The well driller's conclusion regarding HVMCA's well that stopped producing water is "… that the body volume of water is no longer available at these shallow well depths."

The DWR Well Completion Report for the HVMCA irrigation well that lost production indicates the static water level was 132 feet below ground surface (bgs) when the well was drilled in 1993. As discussed above, the well driller's report, attached, provided with HVMCA's application stated that when the well was replaced, the static water level was around 150 feet bgs. Based on this information, it appears the groundwater level at the well has declined 18 feet since the well was constructed (132 feet bgs – 150 feet bgs = -18 feet). The attached hydrograph indicates groundwater levels have declined approximately 10 feet between 1993 and 2022 at the Ridgecrest Community Hospital Well, located approximately 1,500 feet east of HVMCA's well.

When the new well pump lost suction there was a static water column of approximately 140 feet above the pump (Well pump setting of 289 feet bgs – static groundwater level of 150 feet bgs = 139 feet). This would typically be sufficient for a well to operate, however, the drawdown (the difference between the static water level and the pumping water level) in the well may have increased significantly the well was drilled. An increase in drawdown is common as wells age and may be caused by physical plugging from the migration of sand or fine materials from the aquifer to the well filter pack, or from chemical or biological encrustation on the well screens.

A document titled "Heritage Village Irrigation Well Study", dated February 9, 1992, included with HVMCA's application, states the expected life of the then proposed well was 30 years.

It appears that declining groundwater levels and potentially an increase in the drawdown in the well, which had reached the end of its expected service life, caused the well to lose production.

MVMCA replaced the well without knowing if funding would be provided from the Program. If HVMCA had not drilled the replacement well, they would still be purchasing potable water from the IWVWD to irrigate the parks.

## RECOMMENDED ACTION

Staff recommends the application by HVMCA be approved for funding due to declining groundwater levels contributing to the failure of the shallow well.

*Heritage Village Master Community Association*

*425 W. Heritage Drive*
*Ridgecrest, CA 93555*
*Tel: 760-446-6237*
*Fax: 760-446-2475*

*Manager: Sue Henderson*
*Email: heritagevillage@verizon.net*
*Web Site: www.hvmca.org*

*Board of Directors:*
*James Nelepovitz, President*
*Robert Hintz, Vice President*
*Cheryl Chicky, Treasurer*
*John Markano, Secretary*
*Eric Burkhardt,, Director At-large*

## EMERGENCY ASSISTANCE REPORT FORM

### A) WELL OWNER, WELL AND WELL HARDWARE IDENTIFICATION AND DESCRIPTION

**Well Owner Identification**: Heritage Village Master Community Association (HVMCA)

**Well Location**: 400 W. Heritage Drive Ridgecrest, CA 93555 APN: 421-111-13-00-6
Mailing address: 425 W. Heritage Dr. Ridgecrest, CA 93555
**Well Pump Hardware:** see pages 4&5 of HVMCA Well Study Feb 9, 1992- see attached paperwork

**Well Pumping History:** 1993 the year well was drilled for landscape irrigation to save money for HVMCA Members so HVMCA would no longer water the 2 large parks using metered water from the Indian Wells Valley Water District.
The well was not metered to measure water usage until December 2019 when well was registered with the IWVGA.

Amount of water pumped each year measured by a meter:

**1993-2019:** no records found well not metered (see Table 1 page 3 HVMCA 1992 Well Study)
**1993-2005:** 29.76 AFY (average based on 6 years of prior water usage from metered municipal water)
Evidence of the amount of water pumped on an annual basis for each year from 1993 to 2005 could be estimated from Table 1 page 3 of the HVMCA Feb 9 1992 Irrigation Well Study which lists the annual water usage and bills for Heritage Park irrigation for the following years: 1986, 1987, 1988, 1989, 1990, 1991 which was via water district metered water (water meter 270-030-96) prior to the drilling of the well. Converting the water usage to AFY each year from1986 through 1991 (listed in Table 1) are the following:
(Annual water usage (in 100 cubic feet) /43.6= 10th of acre-feet divided by 10=_____AFY)

1986: 13288/43.6= 304.77/10= 30.47 AFY
1987: 12017/43.6=275.6/10= 27.56 AFY
1988: 13068/43.6=299.72/10=29.27 AFY
1989: 13576/43.6=311.37/10=31.13 AFY

1990: 13410/43.6=307.57/10=30.76 AFY
1991: 12801/43.6=293.60/10=29.36AFY

Looking at the AFY used to irrigate the 2 parks from 1986 to 1991 was roughly around 30 AFY. Compare that to current usage of 2020 and 2021 is roughly about 8 to 9 AFY less. This decrease in usage can be explained by the fact that the HVMCA Board from around 2005 to present has directed the Landscape Director to convert large swaths of land on the sides of the main grass turf parks to xeriscape and this has led to less water usage.

**2005-2019:** 29-20 AFY (decreasing usage to current pumping history from xeriscaping conversion)
**2020:** 22.72 AFY (see attachment: Current Pumping History)
**2021:** 17.6 AFY (see attachment: Current Pumping History)
**2022:** 0.202 AFY (pump failed in May) (see attachment: Current Pumping History)

**Well Depth as Drilled:** 301 ft. (See attached Well Completion Report)

**Casing Length:** 300 ft. 8.25 inch diameter blank casing (see Well Completion Report)

**Screen Length:** 50 ft. 8.25 inch diameter screen casing (see Well Completion Report)

**Depth of the pump intake as last installed:** 289 ft. (new pump installed May 5, 2022)
Depth of the pump at installation of well 1993 was 252 ft. (There is a handwritten note 1992 HVMCA Well Study that 60 feet of 3 inch galvanized pipe was added to the conductor pipe, which would result in a later pump setting of 312 feet below ground surface, this would not be possible unless the well was deepened first.) To the knowledge of the HVMCA Board Members who have lived here since the well was originally drilled they have no knowledge that the well was ever deepened.

Garrison Brothers Well Drilling verified the depth of the well was 300 ft. when they did the repair on the well.

**Depth to top of screen installation:** 250 ft.? (See Well Completion Report)

**Driller's Log (any unusual formation materials):** Well Completion Report (Geologic Log)?

**Is this well declared de minimis?** NO

**Well Registration with the IWVGA:** YES (registered November 2019
collection of extraction fees started January 2020

**B) NATURE OF SUBJECT WELL FAILURE**

1) **What is the nature of the well failure? 2) Is the well failure a pumping failure or of a water quality nature? 3) Indicate if without potable water supply? 4) Explain when and how this occurred?**

It is both a well failure and a water quality nature problem. The water quality started degrading about 2 years ago when the HVMCA parks started getting a significant amount of areas where grass used to grow abundantly green when watered and then started dying off creating mud holes all over the field of grass where repeated attempts at replanting grass failed and nothing would grow at all. The water appeared to be killing off the grass permanently in certain areas of the parks. Fast forward to this

spring when the well started failing by not having enough suction to pull up water to operate the sprinkler systems watering the 2 parks. A well driller was called in and they did a repair which lasted about 1 week before the well failed again and started pulling up sand and other debris clogging up the whole sprinkler system watering both parks.

The well does not provide potable water. It is an irrigation well for landscape. The water has been killing off some of the grass over the past 2 years and then the well completely failed by May 2022.

**C) EMERGENCY ASSISTANCE**
**Describe the Emergency Assistance you are requesting, including for "how long" and the "estimated costs".**

Requesting funding to drill a new well to maintain the parks in HVMCA. Three reasons for requesting assistance. The first reason is 1) to keep the HVMCA homeowners each from having to pay an unexpected special assessment. Please note there is at least 35% or more of homeowners in the HVMCA that are senior citizens on fixed incomes and the burden of special assessments to come is a financial hardship for them. The second reason is 2) to prevent the HVMCA from having to remove reserve funding used for road maintenance and repair to pay for the rest of the well. Please note the HVMCA must pay for all their own roads, sidewalks, curbs, gutters and street lights. The City of Ridgecrest does not maintain, repair or replace roads or street lights within the HVMCA. With the cost of road replacement at approximately $1.0 to $1.5 million per mile this is a savings to the City of Ridgecrest. The third reason is 3) to maintain the quality of life in HVMCA which helps in attracting quality work forces to the Indian Wells Valley for the Navy Base, the school district, health care facilities, community college district, businesses and services.

Please see attached billing paperwork. The HVMCA is requesting reimbursement for the 1) repair to the well made in April of this year (see repair bill) for $ 20,943.89 and 2) for the cost of drilling the new well (see estimate only not final bill) $ 93,538.70 Final bill pending upon completion of the well.

Total emergency funding asked for at this time: $114,482.59
(Repair $ 20,943.89 + new well 93,538.70 = $114,482.59)

**D) SHALLOW WELL OWNER IMPACT MITIGATION**
**Describe the work you have done to mitigate your well failure and to "restore" potable water supply.**
In this case you could say HVMCA is trying to "restore" an irrigatable water supply.

A repair to the well was done April 2022 which replaced the pump to the well and installed the new pump further down into the well at 289 ft.

See attached repairs (billing statement) that were done.

**E) SHALLOW WELL IMPACTS MITIGATION**
**Describe your plan to mitigate your shallow well failure. Indicate whether you intend to submit a Report Form under the primary Shallow Well Impact, Identification and Mitigation Policy.**

After replacing the pump to the original well and inserting the new pump to a deeper level of 289 ft. from the original pump depth of 252 ft. which resulted in failure of the well after about 1 week due to the pulling up of sand and debris which clogged up the whole sprinkler system irrigating the two parks used for community use. It was decided by the HVMCA Board to drill a replacement well after seeking advice from Garrison Brothers Well Drilling who did the replacement of the pump.

The HVMCA will submit a Report Form under the primary Shallow Well Impact, Identification and Mitigation Policy.

**LIST OF ATTACHED DOCUMENTS REFERRED TO IN EMERGENCY ASSISTANCE REPORT**

1) pages 4& 5 of HVMCA Well Study Feb 9, 1992 (well hardware equipment list)
2) Current Pumping History (2020- 2022 pumping records in 10 ths of acre-feet)
3) page 3 of HVMCA Well Study Feb 9, 1992 (water district meter records of park watering from 1986 through 1991)
4) Well Completion Report by Kirschenman Well Drilling 1993
5) Well Diagram HVMCA Well Study Feb 9 1992 (penciled in notes on 60' additional pipe)
6) Well repair bill from April-May 2022 (Garrison Brothers Well Drilling)
7) Estimated cost to drill a new well (Garrison Brothers Well Drilling)
8) HVMCA Well Study Feb 9, 1992 (complete report 12 pages)

## Heritage Village Irrigation Well Study
## 9 February 1992

**How long would it take to drill a well ?**

It takes about a week to 10 days to set up a drill rig, drill the well and haul the mud away and tear down the drill rig.

**Where would a well be placed ?**

The best place to drill the well would be close to the booster pump where there is power and plumbing into the irrigation system. The drilling site would be ~30ft x ~30ft. The current booster pump and connection to the city water meter would remain so there would always be a backup if there was a problem with the proposed well.

**What would a well look like ?**

The well, pump and pressure tank would look like the setup in the Northeast part of Pearson Park.

At the Coso site when they drill a well they have to satisfy the environmentalists by;
- putting plastic down so they don't disturb the "old" dirt and catch any oil drips from the equipment,
- making sure the drilling site has minimum environmental impact,
- Figure 4 shows the concept of the cross section of a well.
- Figure 5 shows what the pressure tank and well head would look like.

**How long will a well last ?**

The life expectancy of a water well in this area is over 30 years. The well casing would not rust out because we would use PVC casing.

**How much would such a project cost ?**

An estimate of the cost to drill a well similar to the Pearson Park well today is ~$38,000.

The following are specific cost estimates for ;
- cost to drill the well,
- cost for pressure tanks and plumbing.

Estimates for the following may vary from the given estimates;
- cost to haul the drilling mud away (you can't put the drilling mud into the sewer),
- cost to prepare the drilling site,
- cost to have 230 volt 3 phase 50 amp power put to the well site
- cost for 6 foot fence around pressure tank and well.

A firm estimate for the cost of the project would vary depending on when the project was started since estimates are valid for only 10 days.

| Quantity | Description | Price | Amount |
|---|---|---|---|
| | The following is an estimate for drilling a 300 foot well which would be drilled to all state & county codes. The well would consist of;<br>17.5" bore hole Cased with SDR-21 F480 PVC casing<br>100 feet 0.040" x 2.5" screen 3/8" gravel pack<br>50 foot sanitary seal with sanitary slab Development with air | | |
| 300 Feet | 8" SDR 21 PVC Well | 32.50 | 9750.00 |
| 1 Each | Drilling Permit | 335.00 | 335.00 |
| 1 Each | Flood Evaluation (if required) | 150.00 | 150.00 |
| | **Total for known costs to drill well** | | **10235.00** |
| | | | |
| | The following is an estimate for the parts that make up the well, that is, pump, motor, pressure tank, pipe, wire, etc. ... | | |
| 1 Each | Pump, submersible liquid end 150H15-6 | 1630.00 | 1630.00 |
| 1 Each | Pump, submersible motor 15 HP 230V 3 Phase | 1446.00 | 1446.00 |
| 1 Each | Pump, submersible motor lead 6", #8 | 66.00 | 66.00 |
| 1 Each | Pump Panel 15 HP 230V 3 Phase | 741.40 | 741.40 |
| 2 Each | Torque Arrestor | 10.13 | 20.26 |

**Heritage Village Irrigation Well Study**
**9 February 1992**

| | | | |
|---|---|---|---|
| 252 Feet | Galvinized pipe 3.0" | 4.87 | 1227.24 |
| 275 Feet | Wire submersible for pump 6/3 | 2.56 | 704.00 |
| 1 Each | Check valve 4.0" diameter (~20 feet above pump down in well) | 172.80 | 172.80 |
| 1 Each | Well Seal 8" | 66.88 | 66.88 |
| 1 Each | Well Air vent | 6.11 | 6.11 |
| 1 Each | Sample Tap & Fittings | 27.95 | 27.95 |
| 1 Each | Check Valve 6.0" untapped | 300.00 | 300.00 |
| 1 Each | Pressure tank 1500 gallons, N/CD (not for drinking water) | 4395.80 | 4395.80 |
| 1 Each | Air-Rite air compressor 610 230 volt | 891.00 | 891.00 |
| 1 Each | Pressure switch, FSG-2 | 14.58 | 14.58 |
| 2 Each | Pressure Relief 2.0" | 120.00 | 240.00 |
| 1 Each | Water Meter 3.0" flanged | 1504.00 | 1504.00 |
| 1 Each | Meter Skt. Common 200A 3 Phase | 1089.36 | 1089.36 |
| 1 Each | Sub Panel 125A 1 Phase | 76.45 | 76.45 |
| 1 Each | Breaker Sq. "D" 15A 2 Phase | 22.32 | 22.32 |
| 1 Each | Transformer (if needed) | 250.00 | 250.00 |
| 1 Each | Electrical panel board | 200.00 | 200.00 |
| 1 Each | Misc. plumbing | 450.00 | 450.00 |
| 1 Each | Misc. electrical | 350.00 | 350.00 |
| 1 Each | Installation | 550.00 | 550.00 |
| 1 Each | Electrical permit | 43.00 | 43.00 |
| 2 Each | Sand Screens | 200.00 | 400.00 |
| | Sub Total | | 16885.15 |
| | Amount Taxable | | 16292.15 |
| | Tax @ 6% | | 977.53 |
| | **Total for pressure tank, pump, pump motor, plumbing, etc. ...** | | **17862.68** |
| | | | |
| | **The following are estimates for items which will vary in cost** | | |
| 8 loads | Vacuum truck required to remove heavy drilling mud | ~125.00 | ~1000.00 |
| 4 loads | Vacuum truck required to remove well development water | ~125.00 | ~500.00 |
| | Concrete footings for pressure tank, haul dirt away for well site | | ~1000.00 |
| | 230 volt 3 phase 50 amp power to well site | | ~1500.00 |
| | 6 foot fence around pressure tank and well head | | ~1500.00 |
| | City and County Fees | | ~1500.00 |
| | **Total for variable estimates** | | **~7000.00** |
| | **Total for Fixed estimates + variable estimates** | | **35097.68** |

**Note:** The figures in the above table were from estimates in January 1991. If we add a 8% inflation or uncertainty factor to the $35,097.68, **the total cost of the well should be less than $38,000.00.**

**How much would it cost to run the well ?**

The following are estimates for the cost of power to run such a well.

1) To run a 15 H.P. motor would cost ~$1.50/hr @$0.10/hp/hr for the cost of power,
2) To estimate how long the pump would run over a year we assume the following.
   - During the 3 coldest winter months assume the pump runs
     2 hr/day * 3 days/week * 3 months/year * 4 weeks/month * $1.50/hr
     ~ $108.00 for 3 months.
   - During the 5 moderate spring and fall months assume the pump runs
     5 hr/day * 5 months/year * 30 days/month * $1.50/hr
     ~ $1125.00 for 5 months/year.

# CURRENT PUMPING HISTORY JAN 2020 THROUGH JULY 2022

10th of acre feet

| | | |
|---|---|---|
| January 2020 - | 2.61 | 10th of acre feet |
| February 2020- | 4.130 | 10th of acre feet |
| March 2020 - | 5.74 | 10th of acre feet |
| April 2020 - | 15.30 | 10th of acre feet |
| May 2020 - | 27.03 | 10th of acre feet |
| June 2020 - | 30.55 | 10th of acre feet |
| July 2020 - | 37.68 | 10th of are feet |
| August 2020 | 32.00 | 10th of acre feet |
| September 2020 | 22.03 | 10th of acre feet |
| October 2020 | 13.45 | 10th of acre feet |
| November 2020 | 34.58 | 10th of acre feet |
| December 2020 | 2.61 | 10th of acre feet |
| **TOTAL 2020** | **227.21 10TH ACRE FEET** | |

| | |
|---|---|
| January 2021 - | 2.70 10th of acre feet |
| February 2021 | 3.43 10th of acre feet |
| March 2021 | 8.244 10th of acre feet |
| April 2021 | 22.14 10th of acre feet |
| May 2021 | 28.56 10th of acre feet |
| June 2021 | 38.72 10th of acre feet |
| July 2021 | 31.25 10th of acre feet |
| August 2021 | 36.68 10th of acre feet |
| September 2021 | 22.30 10th of acre feet |
| October 2021 | 7.17 10th of acre feet |
| November 2021 | 6.50 10th of acre feet |
| December 2021 | 5.67 10th of acre feet |
| **TOTAL 2021** | **176.684 10th of acre feet** |

| | |
|---|---|
| January 2022 | 2.214 10th of acre feet |
| February 2022 | 5.760 10th of acre feet |
| March 2022 | 7.00 10th of acre feet |
| April 2022 | 2.00 10th of acre feet |
| May 2022 | 3.25 10th of acre feet |
| June 2022 | WELL WENT DOWN |
| July 2022 | WELL WENT DOWN |
| **TOTAL 2022** | **20.224 10th of acre feet** |

Ramon watering schedule

November through February once per week

March through May 4 times a week

June through July 5 times a week

September through October 4 times a week

| | | |
|---|---|---|
| 6. Now ready to drill well. | Well Driller | ~$38.000.00 |
| 7. Inspections are required while drilling the well. | City ? | ??? |

The total cost of the fees identified above is ~$1,200.00. It might be a good idea to budget ~$1,500.00 for City and County fees.

**How much does it cost to irrigate the park ?**

Table 1 Lists the water usage and bills for Heritage Park irrigation for January 1986 thru January 1992 for water meter # 270-030-96.

| | | Water Usage | (100 cubic feet) | | | |
|---|---|---|---|---|---|---|
| Months | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 |
| Jan - Mar | 459 | 355 | 535 | 1082 | 683 | 444 |
| Mar - May | 2439 | 2567 | 2279 | 3021 | 2243 | 1848 |
| May - Jul | 3859 | 3332 | 4089 | 3021 | 4521 | 4003 |
| Jul - Sep | 4120 | 3561 | 3613 | 4136 | 3733 | 3966 |
| Sep - Nov | 1999 | 1898 | 2242 | 1799 | 1931 | 2240 |
| Nov -Jan | 412 | 303 | 310 | 517 | 299 | 300 |
| **Total** | **13288** | **12017** | **13068** | **13576** | **13410** | **12801** |
| | | Water Bills ($) | | | | |
| Jan - Mar | $316.75 | $246.55 | $362.00 | $1,168.40 | $740.30 | $477.40 |
| Mar - May | $1,683.05 | $1,668.75 | $1,495.85 | $3,301.80 | $2,456.00 | $2,021.80 |
| May - Jul | $2,522.85 | $2,166.00 | $2,672.35 | $4,485.40 | $4,962.10 | $4,392.30 |
| Jul - Sep | $2,692.50 | $2,329.15 | $3,953.00 | $4,528.30 | $4,095.30 | $4,946.50 |
| Sep - Nov | $1,313.85 | $1,248.20 | $2,444.90 | $1,957.60 | $2,113.10 | $2,789.00 |
| Nov -Jan | $282.30 | $211.45 | $319.70 | $547.60 | $317.90 | $364.00 |
| **Total** | **$8,811.30** | **$7,870.10** | **$11,247.80** | **$15,989.10** | **$14,684.70** | **$14,991.00** |

Table 1. Water Usage and Bills for Heritage Park Irrigation for January 1986 thru January 1992 for water meter # 270-030-96.

Figure 2 is a plot of water usage (100 cubic feet) versus billing periods from 1986 thru January 1992. Figure 3 is a plot of water bills versus billing periods from 1986 thru January 1992.

**Who could drill a well ?**

Arron Kirschehman's well drilling company has drilled over 90% of the water wells in Indian Wells Valley and would be one of the first to be considered. They have drilled sisemic wells at the Coso Power Plants and have put in the wells and water systems at;

- Pearson Park
- City Hall
- Playing fields next to Kern Regional Park
- ten 10" water wells for Wilber Stark's Ridgecrest Heights Water Company.

Additional consultation could be obtained from Bakersfield Irrigation concerning drilling a well and putting in a pump system for the well since they recommended the current booster pump.

**Who would use the water from the well ?**

The water from the well would only be used to irrigate the large Heritage Village Park.

**When would we drill a well ?**

If the Heritage Village property owners, city, and county approved, the best time to drill the well would be during the winter months.

PLICATE
Owner's Copy

Page 1 of 1
Owner's Well No. 1
Date Work Began 3/1/93, Ended 3/8/93
Local Permit Agency City of RIDGECREST
Permit No. None Required Permit Date

STATE OF CALIFORNIA
# WELL COMPLETION REPORT
*Refer to Instruction Pamphlet*

No. 486644

DWR USE ONLY — DO NOT FILL IN
STATE WELL NO./STATION NO.
LATITUDE LONGITUDE
APN/TRS/OTHER

## GEOLOGIC LOG

ORIENTATION (✓) X VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)
DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

| DEPTH FROM SURFACE Ft. | to Ft. | DESCRIPTION *Describe material, grain size, color, etc.* |
|---|---|---|
| 0 | 120 | SAND, BROWN CLAY |
| 120 | 200 | BROWN CLAY, GREEN CLAY, SAND |
| 200 | 305 | GREEN CLAY, SAND |

TOTAL DEPTH OF BORING 305 (Feet)
TOTAL DEPTH OF COMPLETED WELL 301 (Feet)

## WELL OWNER

Name Heritage Village Master Community Assoc
Mailing Address 425 W. Heritage Dr.
City RIDGECREST State CA ZIP 93555

## WELL LOCATION

Address
City
County KERN
APN Book 421 Page 111 Parcel 13-80-6
or
Township 26-S Range 41E Section 25
or
Latitude ___ DEG. ___ MIN. ___ SEC. NORTH Longitude ___ DEG. ___ MIN. ___ SEC. WEST

## LOCATION SKETCH

NORTH
WEST
EAST
SOUTH

SEE ATTACHED

*Illustrate or Describe Distance of Well from Landmarks such as Roads, Buildings, Fences, Rivers, etc.*
*PLEASE BE ACCURATE & COMPLETE.*

## ACTIVITY (✓)

X NEW WELL
MODIFICATION/REPAIR
___ Deepen
___ Other (Specify)
___ DESTROY *(Describe Procedures and Materials Under "GEOLOGIC LOG")*

PLANNED USE(S) (✓)
___ MONITORING
WATER SUPPLY
___ Domestic
___ Public
X Irrigation
___ Industrial
___ "TEST WELL"
___ CATHODIC PROTECTION
___ OTHER (Specify)

DRILLING METHOD Rotary FLUID Bentonite

## WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH OF STATIC WATER LEVEL 132 (Ft.) & DATE MEASURED 3/8/93
ESTIMATED YIELD* 200+ (GPM) & TEST TYPE Air Lift
TEST LENGTH 6 (Hrs.) TOTAL DRAWDOWN N/A (Ft.)
* *May not be representative of a well's long-term yield.*

## CASING(S)

| DEPTH FROM SURFACE Ft. | to Ft. | BORE-HOLE DIA. (Inches) | TYPE (✓) BLANK | SCREEN | CONDUCTOR | FILL PIPE | MATERIAL/GRADE | INTERNAL DIAMETER (Inches) | GAUGE OR WALL THICKNESS | SLOT SIZE IF ANY (Inches) |
|---|---|---|---|---|---|---|---|---|---|---|
| +1 | 300 | 17.5 | X | | | | A53B | 16.25 | .188 | |
| 250 | 300 | | | X | | | 303 | 16.25 | .188 | .060 |

## ANNULAR MATERIAL

| DEPTH FROM SURFACE Ft. | to Ft. | TYPE CEMENT (✓) | BENTONITE (✓) | FILL (✓) | FILTER PACK (TYPE/SIZE) |
|---|---|---|---|---|---|
| +1 | 50 | X | | | |
| 50 | 305 | | | | 4/12 |

## ATTACHMENTS (✓)

___ Geologic Log
___ Well Construction Diagram
___ Geophysical Log(s)
___ Soil/Water Chemical Analyses
___ Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

## CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME Kessler Water Well Drilling
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

ADDRESS P.O. Box 119 CITY Inyokern STATE CA ZIP 93527

Signed ___ (WELL DRILLER/AUTHORIZED REPRESENTATIVE) DATE SIGNED 3/15/93

C-57 LICENSE NUMBER 340277

DWR 188 REV. 7-90

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

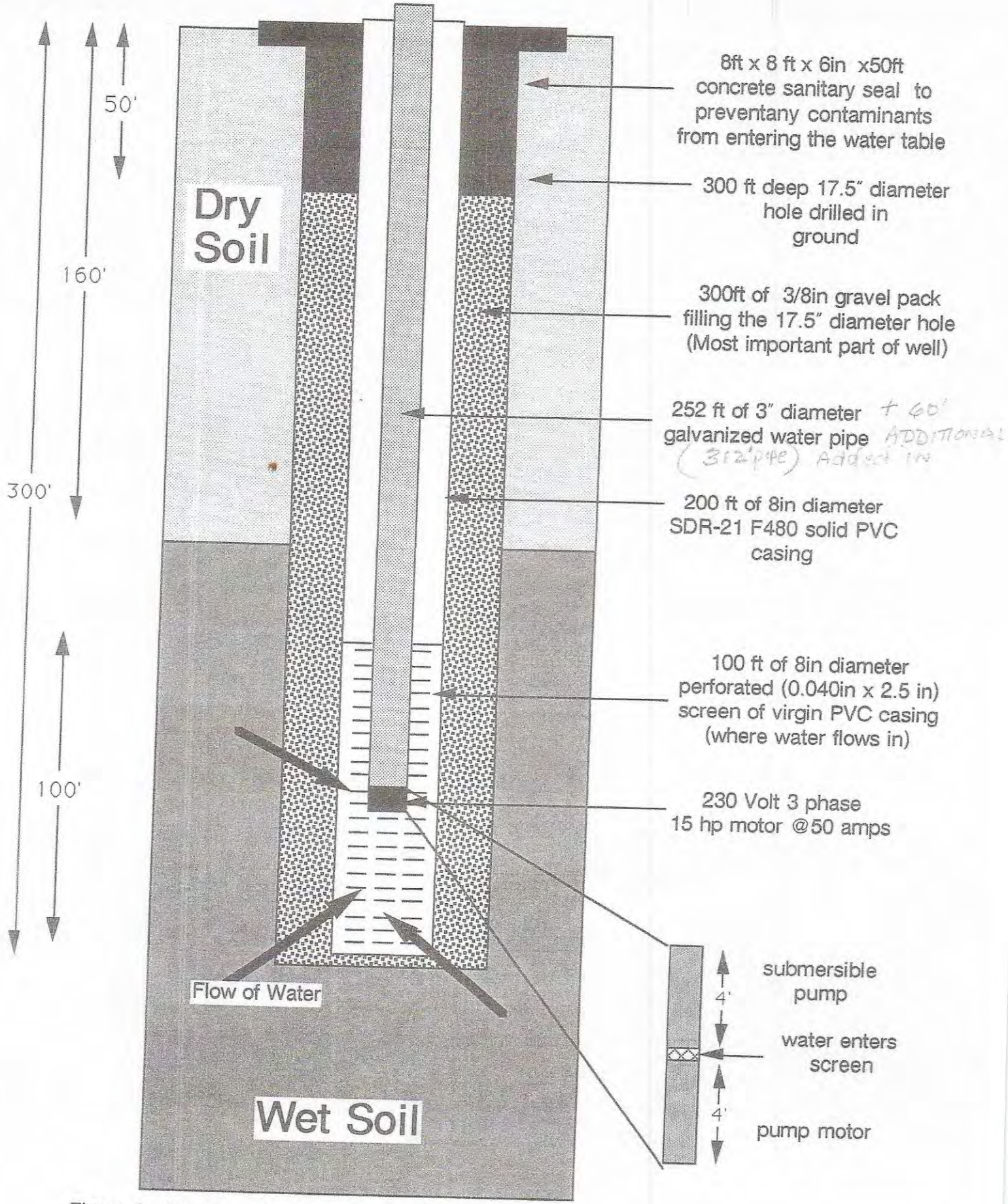



Figure 2. Cross section of a well (not to scale) showing flow of water into well.

Garrison Brothers Well Service
1621 N Jacobs Dr
Ridgecrest, CA 93555 US
garrison35@hotmail.com

# Invoice

RECEIVED
MAY 25 2022

GARRISON
BROTHERS WELL DRILLING & SERVICES

**BILL TO**
Sue Henderson
Heritage Village Community
Associates Inc
425 N Heritage Dr
Ridgecrest, CA 93555
United States

**SHIP TO**
Sue Henderson
Heritage Village Community
Associates Inc
425 N Heritage Dr
Ridgecrest, CA 93555
United States

| INVOICE # | DATE | TOTAL DUE | DUE DATE | TERMS | ENCLOSED |
|---|---|---|---|---|---|
| 923 | 05/23/2022 | $20,943.89 | 06/22/2022 | Net 30 | |

| DATE | ACTIVITY | DESCRIPTION | QTY | RATE | AMOUNT |
|---|---|---|---|---|---|
| 05/05/2022 | Labor | Pulled pump, mucked out well, recovered 3'. Found no suspected pipe wrap in well but a small amount. Lowered new pump further into well for a new pump setting of 289'. | | | 4,000.00 |
| 05/05/2022 | Materials-1 | 3" galvanized drop pipe | 147 | 27.50 | 4,042.50T |
| 05/05/2022 | Materials-1 | #4 jacketed submersible cable with ground | 300 | 7.77 | 2,331.00T |
| 05/05/2022 | Materials-1 | 10-HP Hatachi sub motor, 240 V, single phase | 1 | 3,000.00 | 3,000.00T |
| 05/05/2022 | Materials-1 | 10-HP Grundfos 150S10 pump end | 1 | 3,600.00 | 3,600.00T |
| 05/05/2022 | Materials-1 | 10-HP control panel, 240V, single phase | 1 | 1,500.00 | 1,500.00T |
| 05/05/2022 | Materials-1 | #6 and #4 splice kits | 1 | 85.00 | 85.00T |
| 05/05/2022 | Materials-1 | 3" ductal iron check valve | 1 | 440.00 | 440.00T |
| 05/05/2022 | Materials-1 | Delivery pump, pipe, cable etc. | 1 | 500.00 | 500.00T |
| 05/05/2022 | Materials-1 | Cutting charge #4 cable | 1 | 300.00 | 300.00T |

Thank you for your business! We take credit cards, bank transfers, and checks can be sent to 1621 N Jacobs Dr. Ridgecrest, Ca 93555
Static level 147'
pump setting 289'
well depth of 300'

| | |
|---|---|
| SUBTOTAL | 19,798.50 |
| TAX | 1,145.39 |
| TOTAL | 20,943.89 |
| BALANCE DUE | **$20,943.89** |

Garrison Brothers Well Service
1621 N Jacobs Dr
Ridgecrest, CA 93555 US
garrison35@hotmail.com

# Receipt

**Received From**
Sue Henderson
Heritage Village Community
Associates Inc
425 N Heritage Dr
Ridgecrest, CA 93555
United States

**Date:** 06/09/2022
**Payment Method:**
**Reference No:** 1317

| Invoice Number | Invoice Date | Due Date | Original Amount | Balance | Payment |
|---|---|---|---|---|---|
| 923 | 05/23/2022 | 06/22/2022 | 20943.89 | 20943.89 | 20943.89 |

Memo:

| | |
|---|---|
| Amount Credited: | $0.00 |
| Total: | $20,943.89 |

Garrison Brothers Well Service
1621 N Jacobs Dr
Ridgecrest, CA 93555 US
garrison35@hotmail.com

# Estimate

ADDRESS
Sue Henderson
Heritage Village Community
Associates Inc
425 N Heritage Dr
Ridgecrest, CA 93555
United States

SHIP TO
Sue Henderson
Heritage Village Community
Associates Inc
425 N Heritage Dr
Ridgecrest, CA 93555
United States

| ESTIMATE # | DATE | EXPIRATION DATE |
|---|---|---|
| 1173 | 06/27/2022 | 07/15/2022 |

SALES REP
Ron Garrison

| DATE | ACTIVITY | DESCRIPTION | QTY | RATE | AMOUNT |
|---|---|---|---|---|---|
| 06/27/2022 | Drilling | Drill a bore hole of 12.25 inch diameter to a depth of 450 feet | 450 | 80.00 | 36,000.00 |
| 06/27/2022 | Parts | 6.9 inch PVC Water well casing, SDR-17 heavy wall, spline lok blanks | 300 | 42.00 | 12,600.00T |
| 06/27/2022 | Parts | 6.9 inch PVC Water well casing, SDR-17, Well screen .032 | 160 | 47.00 | 7,520.00T |
| 06/27/2022 | Parts | Pumped Sanitary Well seal to a depth of 50 feet with a 6' X 6' above ground slab | 1 | 3,500.00 | 3,500.00T |
| 06/27/2022 | Parts | Well Packing Materials | 1 | 3,000.00 | 3,000.00T |
| 06/27/2022 | Well Abandonment | Labor & Materials to abandon old well to Kern County requirements | 1 | 7,500.00 | 7,500.00 |
| 06/27/2022 | Permit | Well drilling permit: Kern County | 1 | 1,190.00 | 1,190.00 |
| 06/27/2022 | Permit | Well abandonment permit: Kern County | 1 | 1,190.00 | 1,190.00 |
| 06/27/2022 | Water Testing | Water testing: Kern County required | 1 | 1,500.00 | 1,500.00T |
| 06/27/2022 | Labor | Air develop & flow testing of new well | 1 | 2,500.00 | 2,500.00 |
| 06/27/2022 | Labor | Remove new pump from existing well and place into the newly drilled well, run a new water line to connect with the existing water line & run a new electric line from existing power supply to the newly drilled well | 1 | 15,000.00 | 15,000.00 |

| | |
|---|---|
| SUBTOTAL | 91,500.00 |
| TAX | 2,038.70 |
| TOTAL | **$93,538.70** |

Accepted By

Accepted Date 7/28/22

# Garrison Brothers Well Service

1621 N. Jacobs Dr. Ridgecrest, Ca 93555
Phone: (760) 377-3500
Email: Garrison35@Gmail.com

**Water Well Drilling Contract**
**Rotary Method**

This AGREEMENT, made and entered into at Ridgecrest, California on this 27th day of June, 20 22 by and between Heritage Village Community Associates at 425 Heritage Drive, Ridgecrest CA 93555, State Of California, hereinafter called the "owner", and GARRISON BROTHERS WELL SERVICE of Ridgecrest, California, hereinafter called the contractor.

**Witnesseth:**

1. The owner hereby engages and employs the contractor, who agrees, subject to all the terms, provisions and conditions hereinafter set forth, to drill A 450 Foot water well(s) on that certain land owned by or under the control of the owner and situated in the county of Kern state of California, and more particularly described as follows:
   Well location: 400 West Heritage, Parcel Number 421-111-13
2. That said well(s) shall be located at the point(s) designated by the owner.
3. That said well(s) will be drilled to the depth not to exceed 450 feet; when any well has been drilled to the depth of 450 feet then the owner may at any time before its completion stop further work thereon by notice in writing to the contractor. The hole will be reamed to a diameter not less than 12.25 inches, wherein the contractor will see the casing specified in section 4 below. The contractor shall Provide gravel pack the well up to 50 feet of surface.
4. It is estimated that the following starters, shoes, casing and materials will be needed in order that the contractor may carry out and fulfill his part of the contract. To wit:
   450 Feet of 6.9 inch well casing, concrete, gravel packing material, equipment to perform task
5. As compensation the owner shall pay the contractor for performing his part of this contract the following schedule of prices:
   Upon signing of contract a check in the amount of $40,000, materials will be purchased and stored at contractors yard until needed.
   Once bore hole is completed & casing & seal are set a payment in the amount of $30,000 will be due. Upon completion of the well.
   Balance on total due on completion of pump & well being operational With a minimum amount
   Estimated total $93,538.70, two payments of $70,000, balance of $23,538.70

Interest at the rate of 18% per annum will be charged on the overdue accounts.
In the event that the contractor needs to place this contract with an attorney for collections, the owner shall pay the contractor a reasonable amount for attorney's fees.

The owner agrees to supply the contractor free of charge, at the well location, with such amounts of water as the contractor may require from time to time for use in connection with his said drilling operation. In the event that the owner does not do so, and the contractor furnishes the drilling well, the owner shall pay the contractor for such water on a time and material basis in addition to the prices outlined above.

6. It is understood by both parties that neither can tell just what will be found underneath of the earth and that the work the contractor here under is subject to those conditions which he may find underneath the surface, therefore:
   (A) The contractor does not agree to find or develop water, nor does he represent or warrant the quantity, quality or kind of water, if any, which may be discovered.
   (B) The contractor shall not be liable for any damage arising out of any delay or failure due to the hazards of drilling, but in the event of unreasonable delay or failure, this contract may be terminated by the owner, upon payment to the contractor for drilling done and materials furnished.
   (C) the contractor shall not be liable for any collapse in any well or deterioration after completion.
7. It is understood and agreed no-good purpose would result from drilling rock formation in place and the contractor will not be required to drill rock formation in places deeper then necessary to determine its

character. It is also understood and agreed this contract does not include installation of a test pump for the purpose of the developing or testing well(s).

**8. THE OWNERS:**

(A) hereby warrants that he has full right and authority to enter into this contract and to authorize the contractor to drill said well upon the above described land.

(B) Does hereby grant the contractor, his office, agents and employees, full right of ingress and egress to and from said above described land for the purpose of performing this contract and doing such acts incidental there to as may reasonably be necessary.

(c) Will provide, at no charge to the contractor, such space at the well site and its proximity, as the contractor may desire for pits, dump, machinery and the storage of materials and other equipment which may be required under this contract.

(D) Will provide any permit that are required for drilling this (these) well(s).

**9. THE CONTRACTOR:**

(A) Will furnish all labor, tools and machinery, necessary to carry out his part of the contract, and will persecute work under this contract diligence and in a good and workman like a manner.

(B) Agrees to carry employer's liability insurance, and does hereby promise to save harmless the owner from any employer's liability and from any and liens for material or labor supplied by the contractor.

(c) Agrees to keep record of the strata passed through while drilling, of casing used and perforations made: and to furnish the owner with a copy of same upon completion.

(D) shall be permitted to dump all sand, rock, earth, mud, water and debris taken out of the well during the progress of the work, around and about the well at such place, and in such a manner as he may choose and he will not be called upon to remove the same.

(E) Shall wash the slurry surrounding the perforations from any well drilled here under, and sand pump as well.

(F) Agrees that the well when completed will sufficiently straight so that a standard turbine pump having bowls 4" inches in diameter may be installed and practically operated therein, with the bowls having a setting of _____ feet. All expenses incidental to the installation and operation of the turbine pump will be paid by the owner.

**10.** It is expressly agreed that the starting date herein above set forth in paragraph 9 is an approximate date only, it being agreed that if the rig and equipment necessary for drilling the well or wells herein contemplated, are, without fault of any nature accessioned by any delay in commencing performance hereunder. In the event the commencement of the performance hereunder by the contractor is delayed for a period in excess of _____ days, the owner may, at his option, to be exercised by notice in writing given to the contractor on the day next succeeding the last day of the above said period, terminate this contract and neither party will in such event be liable to the other for any damages of any nature whatsoever.

**11.** If the performance of any of the contractor's obligations hereunder is materially hampered, interrupted, delayed or interfered with by reason of fire, casualty, lockout, strike, labor conditions, unavoidable accident, riot, war (whether undeclared), act of god, or by the enactment of any municipal, state or federal, or by any other legally constituted public authority, or by any other cause beyond the reasonable control of the contractor, then during the continuance of any such event, the contractor, at his sole option, will be relieved of the performance of his obligation hereunder.

**12.** The contractor and owner agree the this agreement will insure to the benefit of and be binding upon the heirs, legal representatives and successors of the parties respectively.

**13.** It is agreed that this instrument contains the entire agreement between the parties hereto and that no warranty; expressed or implied, representation, promise, statement or inducement made by either party hereto or by any agent or employee of either party which is not contained in this written agreement will be binding or valid.

IN WITNESS WHEREOF the parties here to have executed this agreement in duplicate the day and year above.

_____ OWNER

Ron Garrison
_____ CONTRACTOR


**Garrison Brothers Well Service**

1621 N. Jacobs Dr. Ridgecrest, Ca 93555

Phone: (760) 377-3500

Email: Garrison35@Gmail.com

# Heritage Village Irrigation Well Study
## 9 February 1992

**Introduction**

One of the attractive features of Heritage Village is the turf, trees and shrubs in Heritage Village Park. This paper outlines what the Association has been doing to conserve water and it looks at the feasibility of drilling a well to irrigate Heritage Park. It will show how we can cut down on the amount of drinking water being used to irrigate the park and save money at the same time.

The following topics are discussed;

- Why do we need to irrigate ?
- What have we been doing to conserve water ?
- Why consider drilling our own well ?
- How would we get approval to proceed with such a project ?
- What is required from the city and county to proceed with such a project ?
- How much does it cost to irrigate the park ?
- Who could drill a well ?
- Who would use the water from the well ?
- When would we drill a well ?
- How long would it take to drill a well ?
- Where would a well be placed ?
- What would a well look like ?
- How long will a well last ?
- How much would such a project cost ?
- How much would it cost to run the well ?
- How long would it take for a well to pay for itself ?
- How could such a project be financed ?
- What was the owner response for the well study ?

**Why do we need to irrigate ?**

This may seem like a foolish question, but in the heat of the desert summer without water all of the turf, shrubs and trees in the park would turn brown and die even though they are drought tolerant.

**What have we been doing to conserve water ?**

In order to make the irrigation system more efficient we installed a booster pump to increase the pressure at the sprinkler heads from ~38-40 pounds/square inch to ~55 pounds/square inch which is in the middle of the designed operating pressure range of the large RainBird sprinkler heads. Before we increased the pressure, the heads in circuits farthest from the water source would not always oscillate. This resulted in too much water in one area (about a 20 degree arc) and none in the rest of the sprinkler coverage (about a 340 degree arc). The increased pressure also resulted in more uniform coverage around the heads and eliminated the brown donuts.

We installed an electronic timer which allows the circuits to be programmed to run twice during the irrigation cycle for shorter periods. There were two reasons for this;

- one was that there might be less wind during one of the two irrigation cycles, either during the early evening or early morning,
- the other was that by watering for a shorter time, more water can soak in and reduce runoff.

During the hot summer months we have been recycling the grey water in the Heritage creek back into the park. Fabian's maintenance crew pumps about 2800 to 3000 gallons of "free grey water" back into the park each working day. Where does all of the water in the creek come from ? Over 95% of the water comes from water runoff from the irrigation around SavOn, the two Heritage Motels, and the landscaping around the Heritage Engineering Park and Shops. If you don't believe that this much water comes from outside the park, then during the hot summer months look at how much water is in the creek early Thursday morning. All of the sprinklers in the park are turned off Wednesday evening so it will be dry to mow on Thursday. We have video tapes to document this.

**Why consider drilling our own well ?**

To irrigate the turf, trees and shrubs in Heritage Village Park, we use a lot of drinking water from Indian Wells Valley Water District. The key words in this sentence are lot and drinking water.

## Heritage Village Irrigation Well Study
## 9 February 1992

Heritage Village Park and the city of Ridgecrest are sitting on top of about 2000 feet of non-drinkable water. The City of Ridgecrest is using this non-drinkable water to irrigate the turf, shrubs and trees in other parks in Ridgecrest. Figure 1 shows the concept of the cross section of the valley floor.

The water bills for irrigating the park are very large and will continue to increase as water rates increase. Why will rates increase ? The Indian Wells Valley Water District drinking water wells are moving towards the West side of the Valley where the water quality is better. Water costs more because of the increased distance from the wells to the customers.

A well for Heritage Park would be a way to cut down on the amount of drinking water being used to irrigate the park and save money at the same time.

**How would we get approval to proceed with such a project ?**

Approval to proceed with drilling our own well would consist of the following;

- first, the majority of the property owners in Heritage Village would have to approve the project since it would cost more than 5% of the annual operating budget.
- second, the city and county would have to approve.

The city has already informally approved drilling a well. Why ? They have drilled their own wells for;

- Pearson Park,
- City Hall,
- Playing fields by Kern Regional Park.

The approval process in Heritage Village would consist of;

- informing the property owners of the feasibility of drilling a well,
- holding general meeting(s) to address additional questions or concerns and come up with a firm proposal and cost estimate,
- having a formal ballot of the Heritage Village property owners
- From the Declaration of Covenants, Conditions and Restrictions for Heritage Village, Section 4. Capital Improvement Assessments page -20- "In addition to the Regular Assessments authorized above, the Master Association may levy, in any assessment year, a Capital Improvement Assessment applicable to that year only for the purpose of defraying, in whole or in part, the cost of any construction, ... within the Common Area, ... which in the aggregate exceed five percent (5%) of the budgeted gross expenses of the Master Association for that fiscal year shall be approved by the vote or written assent of a **majority** of the voting power of the master Association, ...".

**What is required from the city and county to proceed with such a project ? (Lisa ~~Bonner~~ STENGER-Smith)**

| What | Who | $ |
|---|---|---|
| 1. Conditional Use Permit/Site Plan which requires the following information<br>a) Current Heritage Well Study<br>b) Environmental Impact Questionnaire<br>The hydrologist could provide inputs to this.<br>c) Hydrologist Report (~$200.00 from Pierre Saint-Amand)<br>- Effect of drawing down the water<br>- Quality of Water<br>- Depth of Well<br>d) Seismic Study for Heritage Village<br>e) Air and Noise Impact | Submitted to Sherry Neuman at the Community Development Agency in City Hall; | ~$315.00 |
| Hydrologist Report | Pierre Saint-Amand | ~$200.00 |
| 2. If the City issues a Conditional Use Permit, then public hearings are scheduled. This takes at least 6 weeks. | | |
| 3. Negative Declaration. If Conditional Use Permit is issued. | City Hall | ~$325.00 |
| 4. Department of Fish & Game permit. | Department of Fish & Game | ~$25.00 |
| 5. Kern County Department of Health Permit. (Sherry Neuman said once Conditional Use Permit is issued, this is easy to obtain.) | | ~$335.00 |

| | | |
|---|---|---|
| 6. Now ready to drill well. | Well Driller | ~$38.000.00 |
| 7. Inspections are required while drilling the well. | City ? | ??? |

The total cost of the fees identified above is ~$1,200.00. It might be a good idea to budget ~$1,500.00 for City and County fees.

**How much does it cost to irrigate the park ?**

Table 1 Lists the water usage and bills for Heritage Park irrigation for January 1986 thru January 1992 for water meter # 270-030-96.

| | | Water Usage | (100 cubic feet) | | | |
|---|---|---|---|---|---|---|
| Months | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 |
| Jan - Mar | 459 | 355 | 535 | 1082 | 683 | 444 |
| Mar - May | 2439 | 2567 | 2279 | 3021 | 2243 | 1848 |
| May - Jul | 3859 | 3332 | 4089 | 3021 | 4521 | 4003 |
| Jul - Sep | 4120 | 3561 | 3613 | 4136 | 3733 | 3966 |
| Sep - Nov | 1999 | 1898 | 2242 | 1799 | 1931 | 2240 |
| Nov -Jan | 412 | 303 | 310 | 517 | 299 | 300 |
| **Total** | **13288** | **12017** | **13068** | **13576** | **13410** | **12801** |
| | | Water Bills ($) | | | | |
| Jan - Mar | $316.75 | $246.55 | $362.00 | $1,168.40 | $740.30 | $477.40 |
| Mar - May | $1,683.05 | $1,668.75 | $1,495.85 | $3,301.80 | $2,456.00 | $2,021.80 |
| May - Jul | $2,522.85 | $2,166.00 | $2,672.35 | $4,485.40 | $4,962.10 | $4,392.30 |
| Jul - Sep | $2,692.50 | $2,329.15 | $3,953.00 | $4,528.30 | $4,095.30 | $4,946.50 |
| Sep - Nov | $1,313.85 | $1,248.20 | $2,444.90 | $1,957.60 | $2,113.10 | $2,789.00 |
| Nov -Jan | $282.30 | $211.45 | $319.70 | $547.60 | $317.90 | $364.00 |
| **Total** | **$8,811.30** | **$7,870.10** | **$11,247.80** | **$15,989.10** | **$14,684.70** | **$14,991.00** |

Table 1. Water Usage and Bills for Heritage Park Irrigation for January 1986 thru January 1992 for water meter # 270-030-96.

Figure 2 is a plot of water usage (100 cubic feet) versus billing periods from 1986 thru January 1992. Figure 3 is a plot of water bills versus billing periods from 1986 thru January 1992.

**Who could drill a well ?**

Arron Kirschehman's well drilling company has drilled over 90% of the water wells in Indian Wells Valley and would be one of the first to be considered. They have drilled sisemic wells at the Coso Power Plants and have put in the wells and water systems at;

- Pearson Park
- City Hall
- Playing fields next to Kern Regional Park
- ten 10" water wells for Wilber Stark's Ridgecrest Heights Water Company.

Additional consultation could be obtained from Bakersfield Irrigation concerning drilling a well and putting in a pump system for the well since they recommended the current booster pump.

**Who would use the water from the well ?**

The water from the well would only be used to irrigate the large Heritage Village Park.

**When would we drill a well ?**

If the Heritage Village property owners, city, and county approved, the best time to drill the well would be during the winter months.

## Heritage Village Irrigation Well Study
## 9 February 1992

**How long would it take to drill a well ?**

It takes about a week to 10 days to set up a drill rig, drill the well and haul the mud away and tear down the drill rig.

**Where would a well be placed ?**

The best place to drill the well would be close to the booster pump where there is power and plumbing into the irrigation system. The drilling site would be ~30ft x ~30ft. The current booster pump and connection to the city water meter would remain so there would always be a backup if there was a problem with the proposed well.

**What would a well look like ?**

The well, pump and pressure tank would look like the setup in the Northeast part of Pearson Park.

At the Coso site when they drill a well they have to satisfy the environmentalists by;

- putting plastic down so they don't disturb the "old" dirt and catch any oil drips from the equipment,
- making sure the drilling site has minimum environmental impact,
- Figure 4 shows the concept of the cross section of a well.
- Figure 5 shows what the pressure tank and well head would look like.

**How long will a well last ?**

The life expectancy of a water well in this area is over 30 years. The well casing would not rust out because we would use PVC casing.

**How much would such a project cost ?**

An estimate of the cost to drill a well similar to the Pearson Park well today is ~$38,000.

The following are specific cost estimates for ;

- cost to drill the well,
- cost for pressure tanks and plumbing.

Estimates for the following may vary from the given estimates;

- cost to haul the drilling mud away (you can't put the drilling mud into the sewer),
- cost to prepare the drilling site,
- cost to have 230 volt 3 phase 50 amp power put to the well site
- cost for 6 foot fence around pressure tank and well.

A firm estimate for the cost of the project would vary depending on when the project was started since estimates are valid for only 10 days.

| Quantity | Description | Price | Amount |
|---|---|---|---|
| | The following is an estimate for drilling a 300 foot well which would be drilled to all state & county codes. The well would consist of;<br>17.5" bore hole Cased with SDR-21 F480 PVC casing<br>100 feet 0.040" x 2.5" screen 3/8" gravel pack<br>50 foot sanitary seal with sanitary slab Development with air | | |
| 300 Feet | 8" SDR 21 PVC Well | 32.50 | 9750.00 |
| 1 Each | Drilling Permit | 335.00 | 335.00 |
| 1 Each | Flood Evaluation (if required) | 150.00 | 150.00 |
| | **Total for known costs to drill well** | | **10235.00** |
| | | | |
| | The following is an estimate for the parts that make up the well, that is, pump, motor, pressure tank, pipe, wire, etc. ... | | |
| 1 Each | Pump, submersible liquid end 150H15-6 | 1630.00 | 1630.00 |
| 1 Each | Pump, submersible motor 15 HP 230V 3 Phase | 1446.00 | 1446.00 |
| 1 Each | Pump, submersible motor lead 6", #8 | 66.00 | 66.00 |
| 1 Each | Pump Panel 15 HP 230V 3 Phase | 741.40 | 741.40 |
| 2 Each | Torque Arrestor | 10.13 | 20.26 |

| | | | |
|---|---|---|---|
| 252 Feet | Galvinized pipe 3.0" | 4.87 | 1227.24 |
| 275 Feet | Wire submersible for pump 6/3 | 2.56 | 704.00 |
| 1 Each | Check valve 4.0" diameter (~20 feet above pump down in well) | 172.80 | 172.80 |
| 1 Each | Well Seal 8" | 66.88 | 66.88 |
| 1 Each | Well Air vent | 6.11 | 6.11 |
| 1 Each | Sample Tap & Fittings | 27.95 | 27.95 |
| 1 Each | Check Valve 6.0" untapped | 300.00 | 300.00 |
| 1 Each | Pressure tank 1500 gallons, N/CD (not for drinking water) | 4395.80 | 4395.80 |
| 1 Each | Air-Rite air compressor 610 230 volt | 891.00 | 891.00 |
| 1 Each | Pressure switch, FSG-2 | 14.58 | 14.58 |
| 2 Each | Pressure Relief 2.0" | 120.00 | 240.00 |
| 1 Each | Water Meter 3.0" flanged | 1504.00 | 1504.00 |
| 1 Each | Meter Skt. Common 200A 3 Phase | 1089.36 | 1089.36 |
| 1 Each | Sub Panel 125A 1 Phase | 76.45 | 76.45 |
| 1 Each | Breaker Sq. "D" 15A 2 Phase | 22.32 | 22.32 |
| 1 Each | Transformer (if needed) | 250.00 | 250.00 |
| 1 Each | Electrical panel board | 200.00 | 200.00 |
| 1 Each | Misc. plumbing | 450.00 | 450.00 |
| 1 Each | Misc. electrical | 350.00 | 350.00 |
| 1 Each | Installation | 550.00 | 550.00 |
| 1 Each | Electrical permit | 43.00 | 43.00 |
| 2 Each | Sand Screens | 200.00 | 400.00 |
| | Sub Total | | 16885.15 |
| | Amount Taxable | | 16292.15 |
| | Tax @ 6% | | 977.53 |
| | **Total for pressure tank, pump, pump motor, plumbing, etc. ...** | | **17862.68** |
| | **The following are estimates for items which will vary in cost** | | |
| 8 loads | Vacuum truck required to remove heavy drilling mud | ~125.00 | ~1000.00 |
| 4 loads | Vacuum truck required to remove well development water | ~125.00 | ~500.00 |
| | Concrete footings for pressure tank, haul dirt away for well site | | ~1000.00 |
| | 230 volt 3 phase 50 amp power to well site | | ~1500.00 |
| | 6 foot fence around pressure tank and well head | | ~1500.00 |
| | City and County Fees | | ~1500.00 |
| | **Total for variable estimates** | | **~7000.00** |
| | **Total for Fixed estimates + variable estimates** | | **35097.68** |

Note: The figures in the above table were from estimates in January 1991. If we add a 8% inflation or uncertainty factor to the $35,097.68, **the total cost of the well should be less than $38,000.00.**

**How much would it cost to run the well ?**

The following are estimates for the cost of power to run such a well.

1) To run a 15 H.P. motor would cost ~$1.50/hr @$0.10/hp/hr for the cost of power,
2) To estimate how long the pump would run over a year we assume the following.
   - During the 3 coldest winter months assume the pump runs
     2 hr/day * 3 days/week * 3 months/year * 4 weeks/month * $1.50/hr
     ~ $108.00 for 3 months.
   - During the 5 moderate spring and fall months assume the pump runs
     5 hr/day * 5 months/year * 30 days/month * $1.50/hr
     ~ $1125.00 for 5 months/year.

- During the 4 hottest months of the year assume the pump runs
  10 hr/day * 4 months/year * 30 days/month * $1.50/hr
  ~$1800.00 for 4 months/year.
- The total cost of electricity to run the pump for a well would be
  ~$3,033.00/year.

3) The following are estimates for the pump maintenance.
   - Every 4 years pull the pump and/or motor @$450.00 = $115.00/year
   - Every 4 years change the pump, @$1800.00 = $450.00/year
   - Every 8 years change the motor, @$1800.00 = $225.00/year

   The estimate for pump maintenance/year is ~$800.00/year.

**How long would it take for a well to pay for itself ?**

From Table 1 the water bill for irrigating the park with the ~10% increase in water rates is ~$16,000.00/year. If you subtract ~$4,000.00/year for power and well maintenance for the well you have a net savings of ~$12,000/year or ~$1,000/month. Over the 30 year life expectancy of such a well this would amount over $360,000.00 savings.

If this is the case, it would take about 3 years and 3 months to pay for a $38,000.00 well. As the water rates go up, the savings will be greater.

**How could such a project be financed ?**

If the Heritage Village property owners and city of Ridgecrest approved drilling a well there are a couple of ways you might pay for it.

1) A one time assessment of
   $38,000/289 units = $131.49/unit.

2) Take out a share loan against the money the association has in the bank and pay it back with the water bill savings. This would be no cost to the home owners.

3) Use the money in the Master Association reserve account and pay back the account in savings from the lower water bills. This would be no cost to the home owners.

**What was the owner response for the well study in February 1991 ?**

The following table summarizes the responses from residents concerning the well study.

| Responses | For Well | Against Well |
|---|---|---|
| Written | 19 | 2 |
| Verbal | 12 | 1 |

Total responses = 34/289 for about 12% of total.
For Well 31/34 = 91%
Against Well 3/34 = 9%.

**Heritage Village Irrigation Well Study**
**9 February 1992**

**Results of the special election regarding drilling an irrigation water well for Heritage Village Park as of 1 February 1992.**

| | Drill Irrigation Well | Payment Option 1 | Payment Option 2 | Payment Option 3 |
|---|---|---|---|---|
| Approve | **172** /203 (85%) | **24** /172 (14%) | **8** /172 (5%) | **140** /172 (81%) |
| Disapprove | **31** /203 (15%) | | | |
| Total # of Ballots | **203** /289 ( 70%) | | | |

Payment Option 1: One time assessment of $132.00.
Payment Option 2: Three monthly installments of $44.00 each.
Payment Option 3: The money shall be taken from the Heritage Village Master Community Association Reserve account and paid back by the savings in the water bills (no cost to owners).

The HVMCA board has decided to start the government approval process. The following table outlines what needs to be done to satisfy the city and county before we could begin to drill a well.

Thank you.

Terry Moore
446-6271

Figure 2. Water Usage Heritage Park Meter # 270-030-96

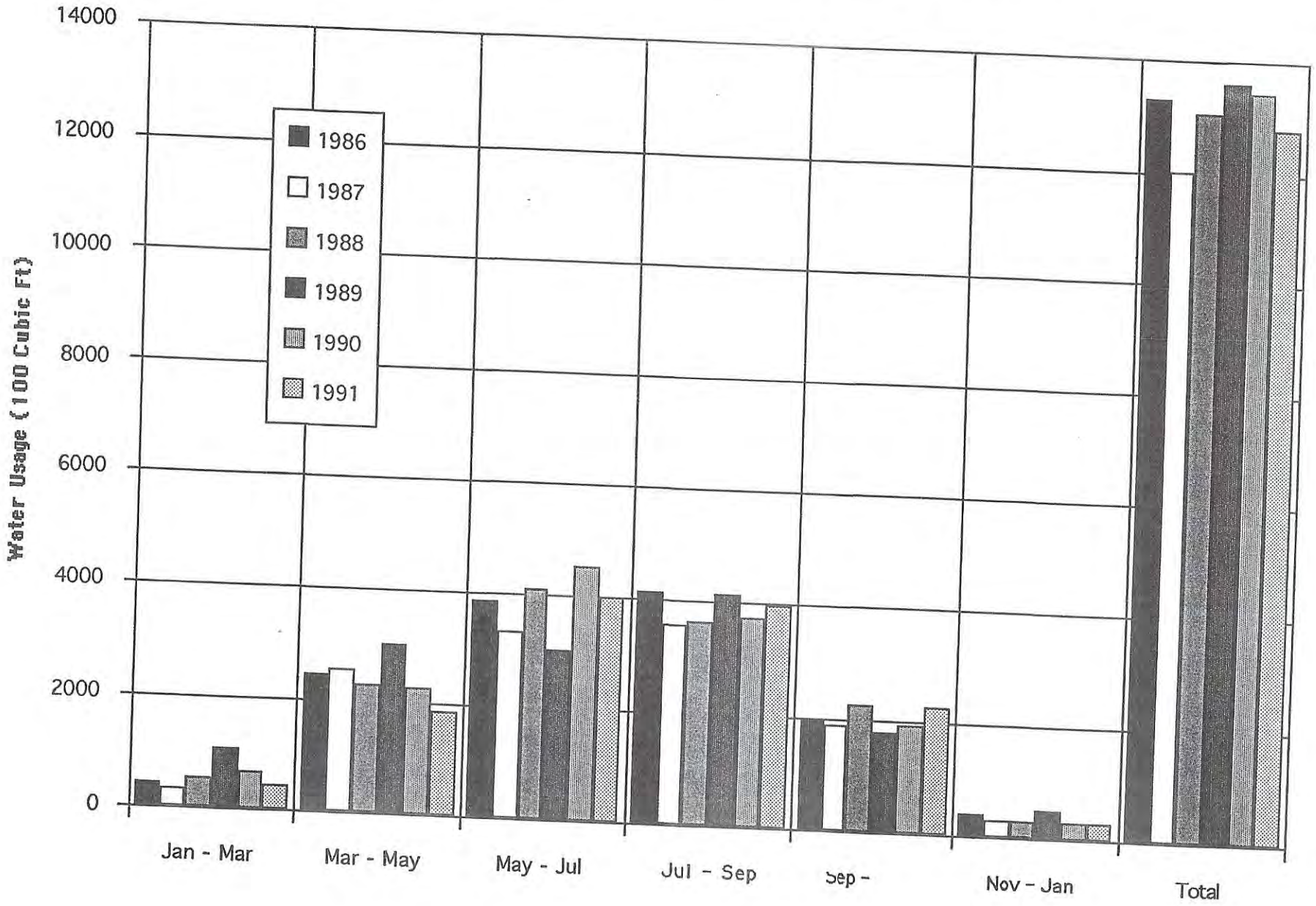


Figure 3. Water Cost Heritage Park Meter # 270-030-96

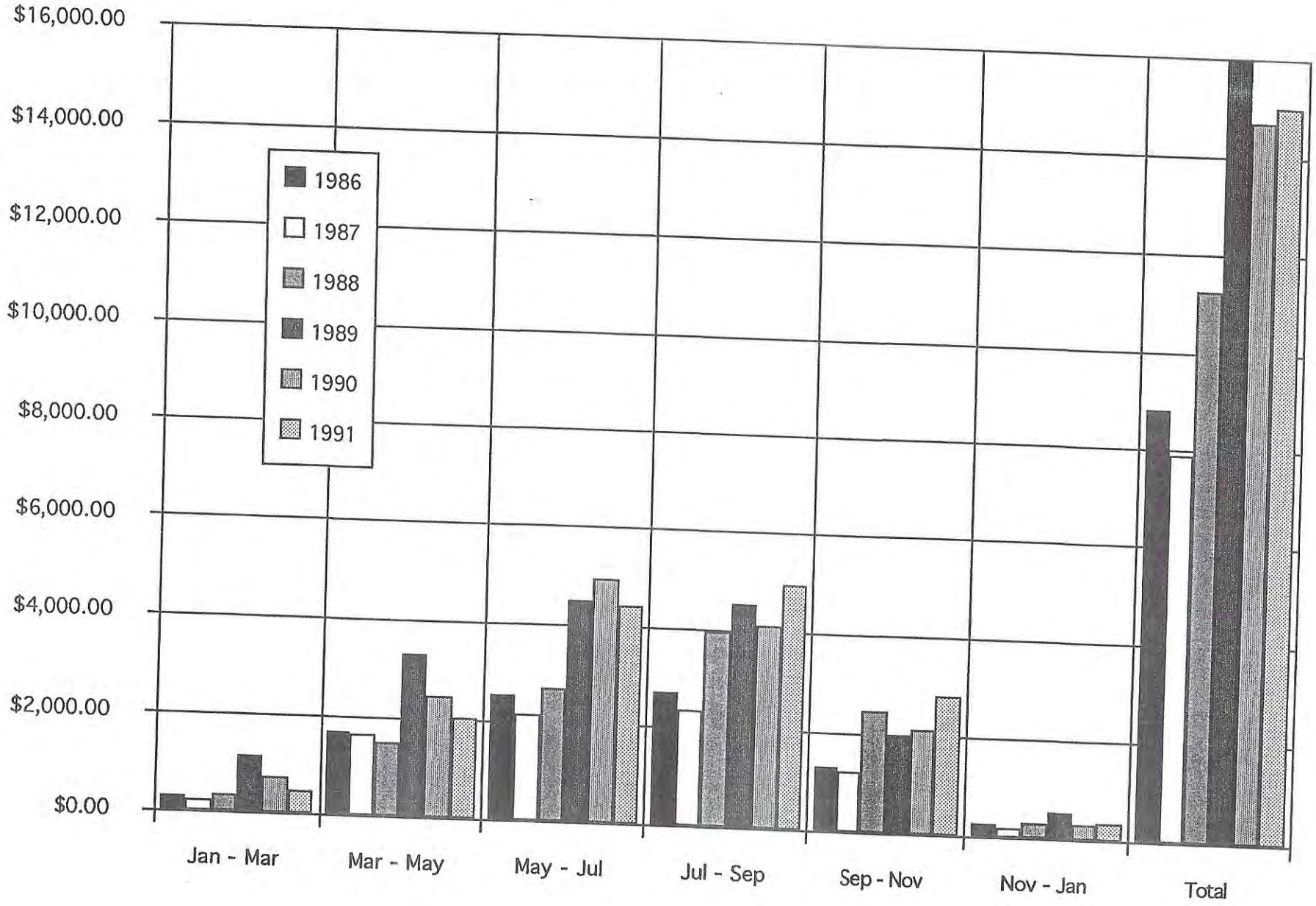





Figure 1. Concept of cross section of Valley floor showing a well and water level.

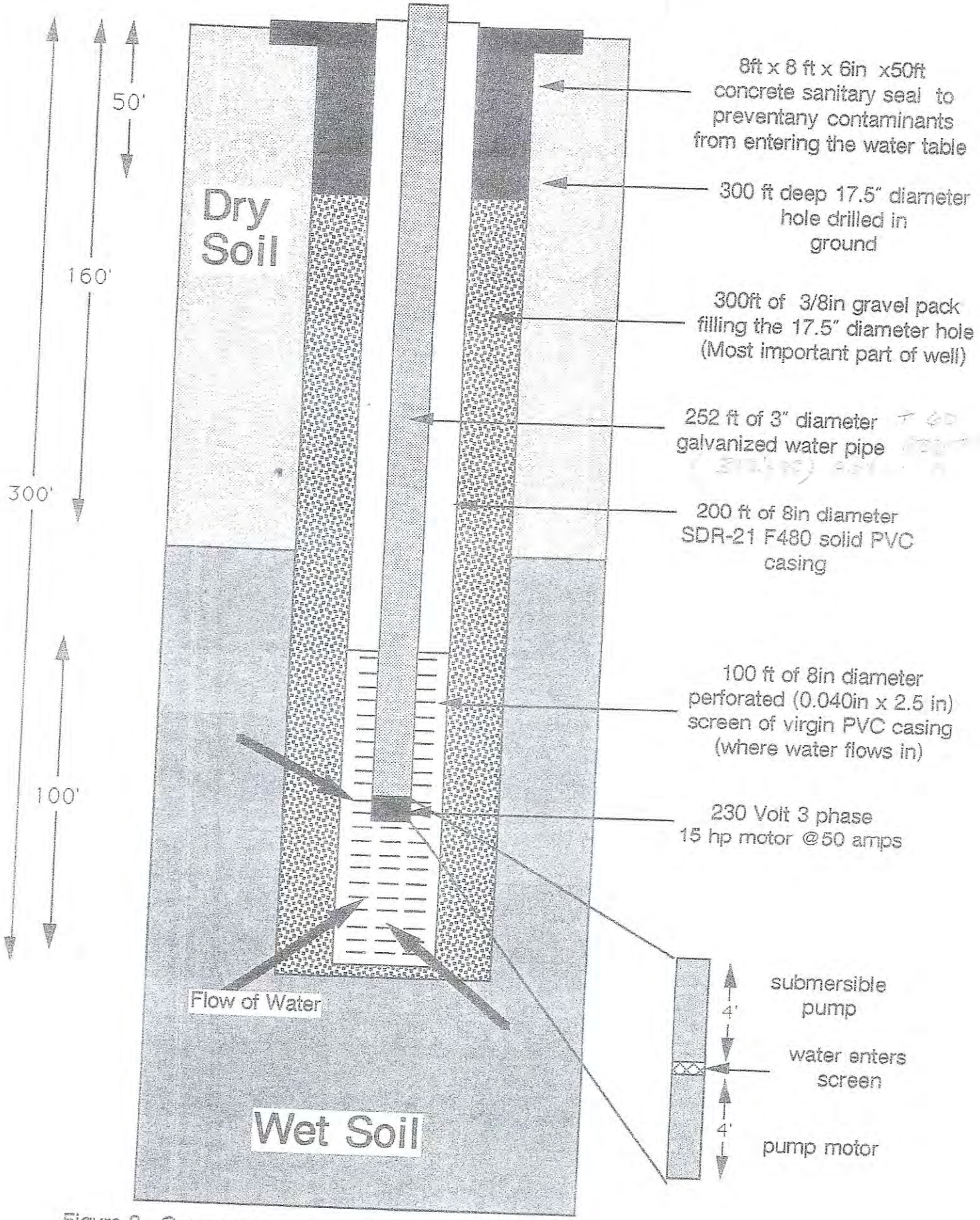
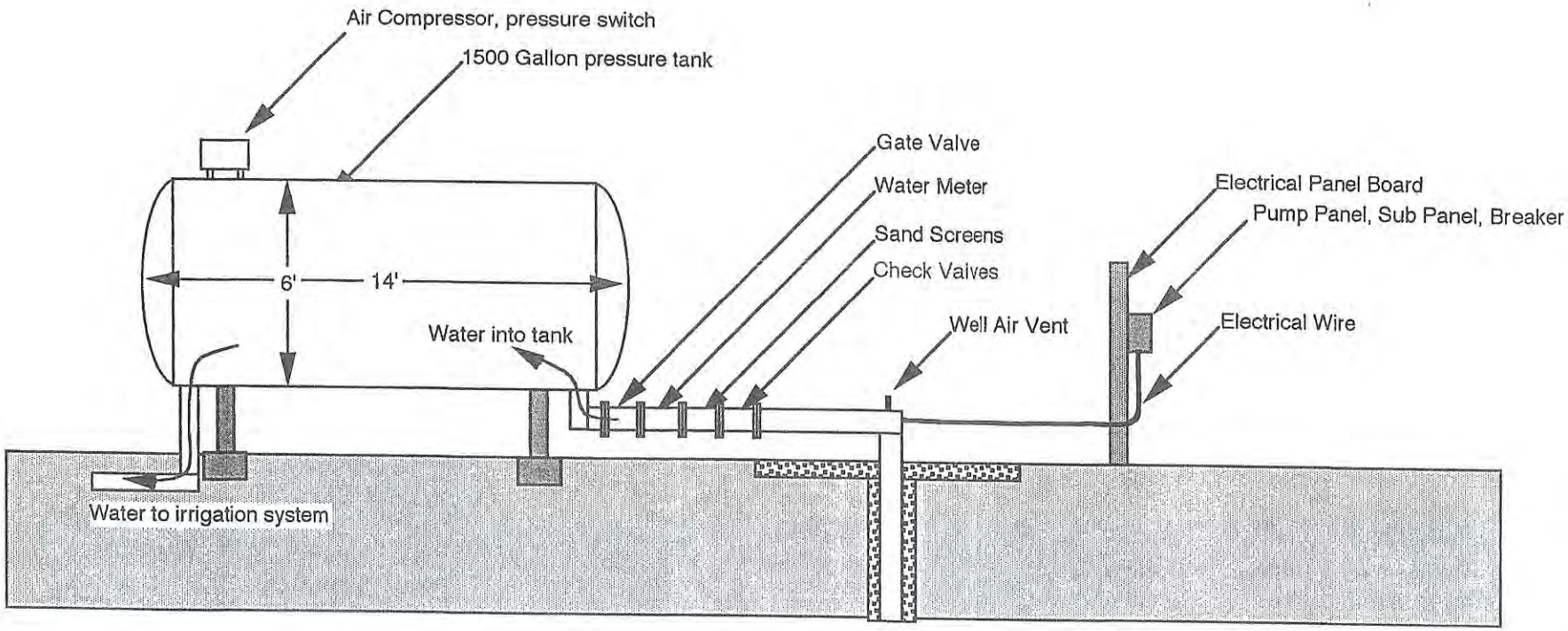
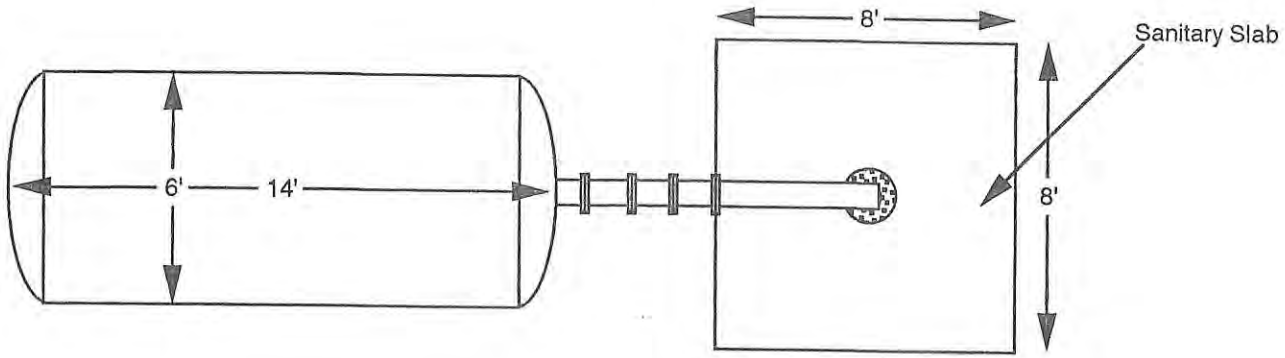



Figure 2. Cross section of a well (not to scale) showing flow of water into well.

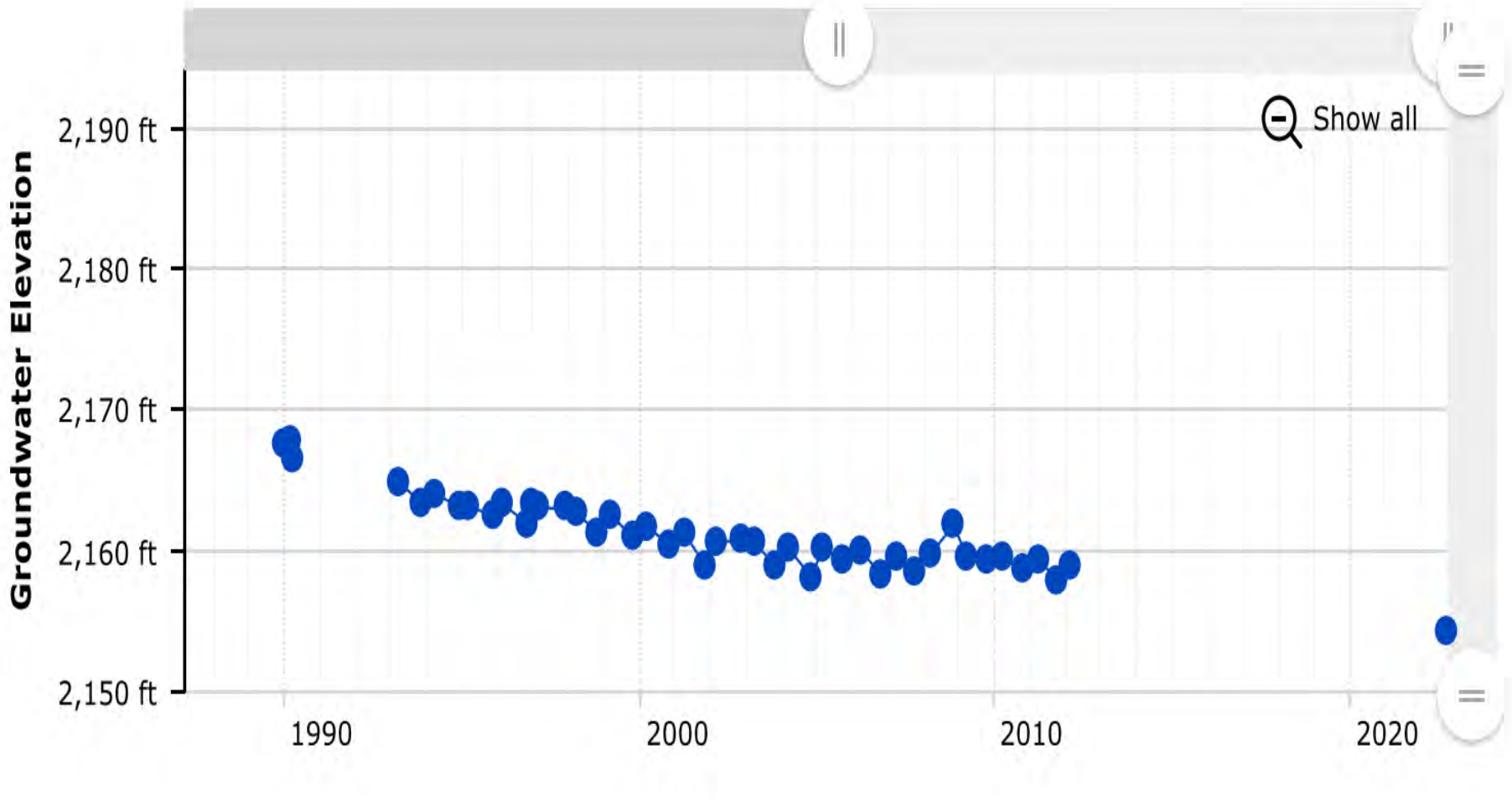



Side View of Pressure Tank and Well Head




Top View of Pressure Tank and Well Head

**Figure 5. Side and Top view of Pressure Tank and Well Head**




Land Surface Elevation = 2,288 feet above mean sea level.
Source: Indian Wells Valley Groundwater Authority Data Management System.

STETSON ENGINEERS INC.
Covina San Rafael Mesa, Arizona
WATER RESOURCE ENGINEERS

**HYDROGRAPH FOR THE RIDGECREST COMMUNITY HOSPITAL WELL**

**FIGURE X**

J:\2652 IWVGA\20 - Shallow Well Mititgation\2022\Figure X - Hydrograph for the Ridgecrest Hospital Well

Dear Heritage

This letter is in response to the GSA having questions regarding the loss of production of the former irrigation well that was used for their irrigation system. What we found on the initial evaluation was that the Well was no longer able to supply an adequate volume of water so as to keep the pump from breaking suction. We have two case studies to work from, one is the irrigation well located at the Leroy Jackson park in Ridgecrest. Both of these wells were having the same issues, the static water level is around 150 foot range, but both wells pump down to close to the 300 foot range. The Heritage well pumped down completely to the lowest point in the well,, the Leroy Jackson well pumps down to around the 270 foot depth.. These two wells indicate that the volume of water isn't there as it used to be?

The Heritage Village well was replaced by a new much deeper well and again we have a high static level of around the 150 feet level, but with the new deeper depth well, we are able to pump with a two foot drawdown.

Our conclusion is this, that the body volume of water is no longer available at these shallow well depths.

Sincerely

Ron Garrison
Garrison Brothers Well Services
(760) 265-7205

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# IWVGA ADMINISTRATIVE OFFICE

***STAFF REPORT***

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**TO:** IWVGA Board Members **DATE: February 8, 2023**

**FROM:** IWVGA Staff

**SUBJECT:** **Agenda Item 11 – Authorize the Water Resources Manager to Submit the 2022 Water Year Annual Report to the Department of Water Resources**

## BACKGROUND AND DISCUSSION

The Indian Wells Valley Groundwater Authority (IWVGA) has prepared the Water Year (WY) 2022 Annual Report for the Indian Wells Valley Groundwater Basin (IWVGB), Basin 6-054, to be submitted to the California Department of Water Resources (DWR) in compliance with the Sustainable Groundwater Management Act (SGMA). The Annual Report presents required data for WY 2022 (October 1, 2021-September 30, 2022) and includes an update on Basin conditions and Basin projects and management activities. A presentation on the draft of the WY 2022 Annual Report was given at the December 14, 2022 and the Report was provided for review. Comments that were received have been incorporated into the Final Draft. The WY 2022 Annual Report is required to be submitted to DWR by April 1, 2023. A presentation on the Final Draft WY 2022 Annual Report will be given at the Board meeting.

## ACTION(S) REQUIRED BY THE BOARD

Staff recommends the Board authorize the Water Resources Manager to submit the WY 2022 Annual Report to DWR by April 1, 2023.

INDIAN WELLS VALLEY GROUNDWATER BASIN

**FINAL DRAFT**

# GSP Annual Report

# Water Year 2022

## (October 1, 2021 to September 30, 2022)

**February 2023**

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# Chapter 1 Executive Summary

The Indian Wells Valley Groundwater Authority (IWVGA) has prepared this Annual Report for the Indian Wells Valley Groundwater Basin (IWVGB or Basin), Basin 6-054, to be submitted to the California Department of Water Resources (DWR) in compliance with the Sustainable Groundwater Management Act (SGMA). This Annual Report presents required data for Water Year (WY) 2022 (October 1, 2021-September 30, 2022).

DWR has designated the IWVGB as a basin in critical overdraft. Overdraft in the IWVGB has been shown through several undesirable results, primarily the chronic lowering of groundwater levels, the degradation of water quality, and the reduction of groundwater in storage in the IWVGB. Consequently, under SGMA, the IWVGA must implement projects and management actions to mitigate and avoid undesirable results and reach sustainability by 2040.

The Groundwater Sustainability Plan (GSP) for the IWVGB (Stetson, 2020) was adopted by the IWVGA Board of Directors on January 16, 2020 and submitted to DWR on January 31, 2020. DWR approved the IWV GSP in January 2022. The sustainable yield is estimated to be 7,650 acre-feet per year (AFY) based on measured groundwater levels and computer modeling, and the recommendation of the IWVGA Technical Advisory Committee (TAC). The GSP recommended projects and management actions to achieve Basin sustainability that are intended to culminate in managing the IWVGB within the sustainable yield without undesirable and unsustainable groundwater conditions in the IWVGB. Sustainable management criteria were established for determining undesirable results and measuring progress towards groundwater sustainability.

During WY 2022, the IWVGA continued developing projects and management actions proposed in the GSP and tracking sustainability using the sustainable management criteria. Significant achievements include the following:

- Major improvements in collecting observation data
- Letter of intent executed between IWVGA and a seller of water rights
- Initiation of an Imported Water Pipeline Alignment Study
- Progress on the Recycled Water Use Alternative Analysis
- Applications under review for the Shallow Well Mitigation Program

- Began work on revised groundwater flow model that will incorporate new data that has been obtained

These projects and management actions will ultimately reduce overdraft conditions in the Basin and reduce undesirable results.

During WY 2022, litigation continued along with adjudication actions. As a result, the current litigation has brought into question the accuracy of some self-reported groundwater production data due to inconsistencies with reported groundwater production and documented and stated water use.

During WY 2022, the Indian Wells Valley received approximately 1.9 inches of rain, classifying the year as Below Normal. In WY 2022, depth to groundwater (DTW) was measured at 109 wells in Fall 2021 and 154 wells in Spring 2022, a greater number of data points than collected in WY 2021. Hydrographs have been developed for all wells in the monitoring program and are posted on the Data Management System (DMS) website (www.iwvgsp.com). Groundwater levels have historically declined in many parts of the IWVGB and continued during the period from Spring 2019 through Spring 2022.

Groundwater production during WY 2022 is estimated to be 21,160 AF and recycled water use is estimated to be 1,340 AF. Therefore, total water use in the IWVGB in WY 2022 is estimated to be 22,500 AF.

This Annual Report provides an update on Basin conditions and Basin management activities organized into the following chapters:

- General information (including Basin location)
- Progress towards GSP implementation and sustainability
- Hydrologic conditions
- Groundwater elevation data (including contours and hydrographs)
- Groundwater storage data
- Water supply data (including groundwater extraction data)
- Other Data Collection and Basin Management Tasks

# Chapter 2 General Information

The IWVGB is located in the northwestern part of the Mojave Desert and underlies approximately 382,000 acres or approximately 600 square miles of land area in portions of the Counties of Kern, Inyo, and San Bernardino. The IWVGB is bordered on the west by the Sierra Nevada Mountain Range, on the north by the Coso Range, on the east by the Argus Range, and on the south by the El Paso Mountains. Intermittent surface water (following larger storm events) flows from the surrounding mountain ranges and drains to China Lake, a large normally dry lake, or playa, located in the central north-east part of the Basin.

The land overlying the IWVGB encompasses portions of Kern, Inyo, and San Bernardino Counties, with the majority (approximately 73%) being in Kern County. Approximately 79% of land overlying the IWVGB comprises of either the Naval Air Weapons Station China Lake (NAWS China Lake) or public lands managed by the United States Bureau of Land Management (BLM). The City of Ridgecrest (Ridgecrest or City) is the only incorporated community in the Indian Wells Valley and covers an area of approximately 20 square miles with a population of approximately 29,000 people. The Indian Wells Valley Water District (IWVWD) serves potable water to approximately 35,800 people in Ridgecrest and certain areas outside of Ridgecrest's jurisdiction. Unincorporated communities in the Indian Wells Valley include the communities of Inyokern in Kern County and Pearsonville in Inyo County, along with other smaller communities. Additionally, there are communities outside of the Indian Wells Valley that are served by groundwater produced in the Basin, including Trona.

Kern County, Inyo County, San Bernardino County, Ridgecrest, and the IWVWD entered into a joint exercise of powers agreement to form the IWVGA and serve as General Members on the IWVGA Board of Directors, which governs the IWVGA as a whole. The U.S. Navy and BLM serve as Associate Members (non-voting) on the IWVGA Board of Directors. Figure 2-1 provides the location of the IWVGB and the extents of the IWVGA boundaries.

In its 2016 Bulletin 118 interim update, DWR identified the IWVGB as a critically overdrafted basin of medium priority[1]. As such, in compliance with SGMA, the associated groundwater sustainability agency (GSA) was required to submit a GSP by January 31, 2020 to achieve local sustainable management of groundwater resources. The IWVGA Board of Directors adopted Resolution No. 02-16 on December 8,

[1] The IWVGB has since been identified as a critically overdrafted basin of **high** priority as of the *Sustainable Groundwater Management Act 2018 Basin Prioritization: Process and Results*, published by DWR in January 2019.

2016, to establish the IWVGA as the exclusive GSA for the entirety of the IWVGB. The GSP for the IWVGB (Stetson, 2020) was adopted by the IWVGA Board of Directors on January 16, 2020 and was submitted to DWR on January 31, 2020. DWR approved the IWV GSP on January 13, 2022 and provided recommended corrective actions that are strongly recommended to be addressed in the GSP 5-Year Update due to DWR in January 2025.

The IWVGB serves as the sole supply of potable water for the Indian Wells Valley. Residents of the Indian Wells Valley are served groundwater through private domestic wells, small cooperative groups sharing wells, small mutual water companies, the Inyokern Community Services District (Inyokern CSD), and the IWVWD. The U.S. Navy produces and distributes groundwater for on-station water uses at the NAWS China Lake. Searles Valley Minerals Inc. produces groundwater from the IWVGB for use in its minerals recovery and processing operations in Searles Valley (located east of the IWVGB) and for potable use in the small communities of Trona, Westend, Argus, and Pioneer Point in the Searles Valley. In addition, a number of farms located in the Indian Wells Valley rely on the IWVGB's water supplies for their agricultural operations. Overdraft conditions in the IWVGB have existed since at least the 1960s (Dutcher and Moyle, 1973). Results of overdraft have manifested themselves through various undesirable results, primarily the chronic lowering of groundwater levels, degradation of water quality, and reduction of groundwater storage within the IWVGB.

# Chapter 3 Progress Towards GSP Implementation and Sustainability

The IWVGB is characterized as a critically overdraft basin by DWR. The sustainable yield is estimated to be 7,650 AFY, while groundwater production has been and continues to be greater than the sustainable yield. This condition accounts for the occurrence of undesirable results for the following sustainability indicators:

- Chronic lowering of groundwater levels
- Reduction of groundwater in storage
- Degraded water quality
- Potential for land subsidence

After extensive public outreach and collaboration, the IWVGA Board of Directors adopted the IWVG GSP on January 16, 2020. In compliance with SGMA, the GSP provides Basin management strategies that are intended to culminate in managing the IWVGB within the sustainable yield and the absence of undesirable and unsustainable groundwater conditions in the IWVGB. The GSP recommends projects and management actions that are intended to achieve Basin sustainability while considering the unique geologic and hydrogeologic conditions of the IWVGB. Sustainable management criteria were established for measuring progress towards groundwater sustainability. Recommendations of the GSP are intended to provide for long-term sustainable groundwater management in the IWVGB within 20 years (WY 2040) of GSP implementation.

During WY 2022, the IWVGA continued developing projects and management actions proposed in the GSP and continued tracking sustainability using the proposed sustainable management criteria, discussed further in the subsections below. Significant progress was made toward securing imported water through the purchase of water rights, funded by replenishment fees that are currently being collected, and developing an imported water pipeline project, funded by replenishment fees and a grant from DWR. The Recycled Water Use Alternative Analysis concluded that deep injection of fully advanced treated recycled water is the most feasible use of recycled water in the IWVGB. Applications for mitigation and funding assistance through the Shallow Well Mitigation Program are currently in review. In addition, the IWVGA continued significant data collection efforts to fill data gaps. These data collection efforts are documented in Chapter 7.

## 3.1 Projects and Management Actions

The following subsections document progress made towards implementation of projects and management actions proposed in the GSP. Additional information regarding projects and management actions can be found in the GSP.

### 3.1.1 Management Action 1: Annual Pumping Allocation Plan, Transient Pool, and Fallowing Program

During WY 2021, the IWVGA continued to implement Management Action 1 with the intent to fund an imported water supply and to provide economic incentives to reduce groundwater pumping.

On July 16, 2020, the IWVGA Board of Directors adopted Resolution Number 06-20 to adopt a report documenting the estimated sustainable yield of the IWVGB as 7,650 AFY. In WY 2022, a preliminary allotment of the sustainable yield was prepared in accordance with the methodology used in the previous WY. The purpose of determining the sustainable yield allotment is to determine the estimated volume of the sustainable yield available for the pumpers to produce without incurring Replenishment Fees in calendar year 2022. The preliminary allotment was not finalized in WY 2022 due to a proposal to modify the methodology and will be finalized in WY 2023; however, IWVWD did continue to pay replenishment fees in WY 2022 based on the initial allotments presented in the 2020 report on the estimated sustainable yield of the Basin. Other producers subject to the replenishment fee, Mojave Pistachios and Searles Valley Minerals, did not pay the replenishment fee in WY 2022 and continue to not pay the fee. The nonpayment of fees by these major groundwater producers is one subject of current litigation. This litigation has impeded the implementation of the GSP and has called into the question of the accuracy of some self-reported groundwater production data.

The IWVGA has developed a Transient Pool Program to facilitate transitional reduced agricultural pumping to an interim acceptable and manageable level of basin overdraft until augmented supplies are available. In WY 2022, Transient Pool members produced groundwater within their allocations, and no allocation transfers were made.

Currently, there is no funding for the Fallowing Program, so it is not available at this time. The IWVGA is pursuing grant funding opportunities to fund fallowing projects.

### 3.1.2 Project 1: Develop Imported Water Supply

Due to overdraft conditions in the Indian Wells Valley and anticipated future water demands significantly in excess of the Basin sustainable yield, securing imported water supplies is a priority for the Basin. Conservation measures alone cannot bring the Basin into sustainability. The IWVGA has retained Capitol Core Group, Inc (Capitol Core) for the following general tasks:

- Identify and Procure Imported Water Supplies
- Develop and Secure Transfer Partners
- Identify and Secure Funding Sources

During WY 2022, Capitol Core identified potential permanent water supplies and actively pursued transfer deals with those water supply holders. In August 2022, the IWVGA executed a letter of intent between the IWVGA and a seller of water rights in the Dudley Ridge Water District. Proposals to finance the purchase of the water rights were received by the IWVGA in September 2022. Work continued on the permitting and transfer discussions with the relevant districts and regulatory authorities.

Capitol Core continued discussions with Antelope Valley East Kern Water Agency (AVEK) concerning transfer agreements associated with the interconnection pipeline. The IWVGA is considering the option of joining AVEK with annexation into the AVEK service area.

In WY 2021, the IWVGA pursued grant funding from the California Budget Act of 2021 Sustainable Groundwater Management Grant Program SGMA implementation Round 1 grant solicitation (SGMA-IP). In August 2022, the IWVGA and the California Department of Water Resources (DWR) entered into an agreement for the award of $7.6 million in grant funding. The grant funding will be used for the planning, design, environmental compliance, right-of-way acquisition, and other permitting and coordination with partnering agencies for the imported water interconnection project with AVEK.

In July 2022, the IWVGA Board of Directors authorized the award of a contract with Provost and Pritchard Consulting Group to prepare an Imported Water Pipeline Alignment Study to evaluate potential imported water pipeline routes and recommend a final alignment for design. Work began on the Alignment Study in WY 2022 and will continue into WY 2023. The scope of work includes the following:

- Determine Capacity at Pipeline Inlet
- Determine Water Demands for the Imported Water Pipeline

- Evaluate Potential Delivery and Connection Points
- Develop Preliminary Pipeline Alignments
- Analyze Alternative Pipeline Alignments
- Recommend a Preferred Pipeline Alignment

In WY 2021, the IWVGA Board of Directors authorized the development of a Phase 1 Surface Percolation Replenishment Study. The purpose of the Phase 1 Study is to identify locations for potential recharge basins for further investigation with the goal of ultimately assessing feasibility to develop a surface spreading project. During WY 2022, a draft technical memorandum was prepared documenting the investigation and results. Three site locations were investigated where recharge and recovery operations would be physically supported by available land, hydrogeology, and surface conditions. Comments were received on the draft technical memorandum. The IWVGA staff and TAC concluded that surface percolation would not be feasible in the IWVGB due to the hydrogeology and depth to water. Consequently, a treated imported water was determined to be the most feasible. The final technical memorandum will be prepared in WY 2023.

### 3.1.3 Project 2: Optimize Recycled Water

The IWVGA Board of Directors adopted Resolution Number 02-20 on November 19, 2020, formally creating the Recycled Water Program. The IWVGA Board of Directors also approved an option agreement for purchase of recycled water from the City of Ridgecrest at the November 2020 meeting.

In January 2021, the IWVGA Board of Directors authorized the development of a Recycled Water Use Alternative Analysis. The purpose of the analysis is to evaluate the potential uses of recycled water in the Basin and identify those uses that achieve the highest and most cost-effective benefits towards sustainable Basin management and reduction of imported water requirements. In WY 2022, progress continued on the analysis, and it was determined that deep injection of fully advanced treated recycled water as the best and most feasible alternative. The Recycled Water Use Alternative Analysis will be finalized in WY 2023.

On July 11, 2022, Capital Core conducted a preliminary scoping meeting with Bureau of Reclamation (BOR) staff regarding the BOR's Title XVI programs which provide funding for planning, design, and construction of water recycling and reuse projects. The preliminary scoping meeting determined that the IWVGA's recycled water project is eligible for funding under the Title XVI Reclaim and Reuse Program. In July 2022,

the IWVGA Board of Directors authorized Staff to prepare a Title XVI Feasibility Study and staff commenced with preliminary tasks. The Feasibility Study will be completed in WY 2023 and will consist of the following:

- Project Description and Study Area
- Statement of Problem and Need
- Water Recycling Opportunity
- Description of Alternatives
- Economic Analysis of the Project
- Justification of the Recycling Project
- Environmental Considerations and Effects (NEPA)
- Legal and Institutional Requirements
- Research Needs for the BOR

Trussell Technologies will be utilized to assist with advanced treatment details, cost estimates, and identification of research needs, as required for the Feasibility Study.

### 3.1.4 Project 3: Conservation Efforts

Through Proposition 1 funding, the IWVGA continued implementing a conservation program in WY 2022 targeting groundwater users located in severely disadvantaged communities (SDAC). The program consisted of a rebate program for installation of water conservation devices, water audits and leak detection surveys, and the preparation of drought management and water conservation plans.

Work continued during WY 2022 on the Water Audit, Leak Detection, and Leak Repair Program throughout SDAC communities in the Indian Wells Valley. The water audit and leak detection surveys were performed for the following SDAC communities:

- Eastern Inyokern Mutual Water Company
- China Lake Acres Mutual Water Company
- Searles Domestic Water Company
- South Desert Mutual Water Company & West Valley Mutual Water Company

The reporting for these surveys was finalized in WY 2023. The water audit and leak detection survey for Inyokern Community Services District was completed in WY 2021.

During WY 2022, work began on developing Water Shortage Contingency Plans the following SDAC Communities:

- China Lake Acres Mutual Water Company
- Eastern Inyokern Mutual Water Company
- Inyokern Community Services District
- West Valley Mutual Water Company

The purpose of these plans is to provide strategies to protect the water supply during various events including a water shortage that would require mandatory conservation measures. These plans were completed in WY 2023.

The above-mentioned surveys and plans can be found on the DMS at the following site: www.iwvgsp.com.

Indirectly, the IWVGA extraction fees encourage and incentivize individual water saving and conservation practices. Additionally, the IWVWD has continued its conservations efforts for its customers, independent of the IWVGA, as described in IWVWD's 2020 Urban Water Management Plan. The IWVGA intends to cooperatively work with the IWVWD in WY 2023 to develop new conservation projects.

### 3.1.5 Project 4: Shallow Well Mitigation Program

Continued impacts at shallow wells (declining water levels and degraded water quality) are anticipated while management actions and GSP projects are being implemented due to poor or degraded water quality and overdraft conditions. Predictive modeling results and hydrographs of measured data indicate declining water levels suggest some shallow wells are likely to be impacted before sustainability is reached. The IWVGA continued development of the Shallow Well Mitigation Program in WY 2022. Funding for shallow well mitigation is through the adopted mitigation fee (Ordinance 03-20).

In March 2022, the IWVGA Board of Directors expanded the Shallow Well Mitigation to include a report form for emergency assistance whereby well owners can apply for emergency funding from the IWVGA for potable water during a situation where the well failure has occurred, and no other potable water supply is available. This application is in addition to the general application for assistance with shallow wells that have gone dry due to declining groundwater levels. The Shallow Well Mitigation Program is structured such that the IWVGA Board of Directors, along with appropriate technical Staff, conduct

evaluations of submitted wells on a case-by-case basis to determine the appropriate mitigation measures and financial assistance.

In WY 2022, the Water Resources Manager (WRM) began evaluating two applications to the IWVGA for shallow well mitigation funding. These evaluations and analyses will continue in WY 2023 before recommendations will be made to the IWVGA Board of Directors for proposed mitigation. The Shallow Well Impact Report Form and Emergency Assistance Report Form can be found on the IWVGA website: https://iwvga.org/reports.

### 3.1.6 Project 5: Dust Control Mitigation Program

Implementation of the Fallowing Program and voluntary cessations of agricultural operations could potentially result in loss of vegetation and an increase in windblown dust and sand, due to the climate of the Indian Wells Valley which would require mitigation in order to eliminate undesirable results. Significant groundwater production reductions and cessation of agricultural operations have not yet occurred; consequently, no work on this project was completed in WY 2022.

### 3.1.7 Project 6: Pumping Optimization Project

Evaluation of modeling results generated during development of the GSP for the proposed groundwater management and project scenarios showed that some current groundwater pumping may need to be redistributed in the IWVGB to reduce concentrated pumping centers that would lead to continuing localized declining groundwater levels and corresponding continuing impacts to shallow domestic wells.

Pumping throughout the Basin is influenced by the implementation of the other projects and management actions. This project will need to be evaluated after other projects and management actions are implemented and the basin impacts of said projects are evaluated. Consequently, no work on this project was completed in WY 2022.

## 3.2 Progress Towards Sustainable Management Criteria

As discussed previously, the IWVGA has identified four sustainability indicators with documented historical and/or current undesirable results in the IWVGB:

- Chronic lowering of groundwater levels
- Reduction of groundwater in storage

- Degraded water quality
- Potential for groundwater pumping related land subsidence

Quantifiable sustainable management criteria have been established for sustainability indicators with current or historical impacts to numerically define when undesirable results are occurring and to define achievable targets for reaching and maintaining sustainability. These sustainable management criteria include minimum thresholds, measurable objectives, and interim milestones. Development of these criteria relied upon information about the IWVGB developed in the hydrogeologic conceptual model, current and historical groundwater conditions, and the water budget. Additional information regarding the development of sustainable management criteria can be found in the GSP.

As an interim indicator of progress towards achieving sustainability, the applicable sustainability indicators are evaluated by the interim milestones at 5-year increments. The measurable objectives for the applicable sustainability indicators are desired benchmarks to be reached by year 2040, although it is acceptable for conditions to be managed in the range between the minimum threshold and measurable objective (operating range). If conditions fall below the minimum threshold after year 2040, undesirable results are occurring and sustainability has not been reached.

The IWVGA selected representative monitoring sites to be used to specifically measure and monitor groundwater conditions caused by the sustainability indicators, and to evaluate the efficacy of proposed projects and management actions achieving sustainability. These sites were selected based on evaluation of the best available data. As more data become available through monitoring and data collection, the representative sites will be reevaluated for effectiveness at representing basin-wide conditions. This reevaluation process will occur prior to the five-year GSP update.

In general, the IWVGA anticipates the continuation of groundwater level declines until projects and management actions are fully implemented and the basin has stabilized. Sustainability is not required to be reached until 2040. The first interim milestones will be evaluated in 2025.

Sustainable management criteria established for the IWVGB can be monitored on the public data DMS at the following site: www.iwvgsp.com. A summary of data is provided in the subsections below.

### 3.2.1 Chronic Lowering of Groundwater Levels

Currently, ten representative monitoring sites have been selected in the IWV GSP[2] to monitor the chronic lowering of groundwater levels throughout the IWVGB. These wells were selected to have good spatial distribution throughout the IWVGB and across the pumping centers and good predictive ability to monitor the effectiveness of projects and management actions that will be implemented to limit the decline of groundwater levels. The ten well locations are shown in Figure 3-1.

Among the ten representative monitoring wells, three of them do not have established sustainable management criteria at this point in time. Sustainable management criteria will be established during the reevaluation process of all representative monitoring sites which will occur as part of the five-year GSP update. Representative monitoring sites and their respective sustainable management criteria can be found on the IWV DMS (https://iwvgsp.com/GSP-Dashboard/map.php). At present, groundwater levels at five of the representative sites are above the measurable objectives, the target level in 2040 when sustainability is reached. Groundwater levels at two representative sites are within the operating range between the measurable objective and the minimum threshold.

***Table 3-1: Representative Monitoring Sites for Chronic Lowering of Groundwater Levels***

| Monitoring Site | Screen Interval | Spring 2022 Measurement (ft msl) [1] | Minimum Thresholds (ft msl) | Measurable Objective (ft msl) | Note |
|---|---|---|---|---|---|
| USBR-01 | 1,750-1,770 | 2,668 | 2,659 | 2,664 | Above measurable objective |
| USBR-03 | 1,850-1,870 | 2,165 | - | - | Criteria not determined yet |
| USBR-04 | 1,190-1,200 | 2,121 | 2,110 | 2,125 | Within operating range |
| USBR-05 | 850-870 | 2,160 | 2,151 | 2,156 | Above measurable objective |
| USBR-06 | 330-350 | 2,169 | 2,166 | 2,171 | Within operating range |
| MW 32 | 1,900-1,920 | 2,140 | 2,119 | 2,134 | Above measurable objective |
| Kerr McGee | 681-881 | 2,148 | 2,138 | 2,145 | Above measurable objective |
| Sandquist Spa | 135-191 | 2,171 | 2,162 | 2,167 | Above measurable objective |

[2] Section 4.4.2.6 (Representative Monitoring Sites) on the IWV GSP outlines how and why wells were selected as representative monitoring sites for the chronic lowering of groundwater levels.

| Monitoring Site | Screen Interval | Spring 2022 Measurement (ft msl) [1] | Minimum Thresholds (ft msl) | Measurable Objective (ft msl) | Note |
|---|---|---|---|---|---|
| Inyo | 457-477 | 2,147 | - | - | Criteria not determined yet |
| George Air Corridor | 320-380 | 2,159 | - | - | Criteria not determined yet |

[1] *ft msl = feet mean sea level*

Despite declining groundwater levels, the WY 2022 monitoring data indicate that the first interim milestones will be met in 2025 because groundwater level declines are anticipated to continue until projects and management actions are fully implemented. Groundwater elevation data are discussed more thoroughly in Chapter 5.

### 3.2.2 Reduction of Groundwater in Storage

Groundwater in storage will continue to be reduced until the IWVGB is operated within the sustainable yield. The 2025 interim milestone for change of groundwater in storage is a loss of approximately 82,000 AF since 2020. The average annual 3-year change of groundwater in storage within the measured study area of the IWB Basin from Spring 2019 to Spring 2022 is estimated to be a loss of 15,880 AF in the IWV main basin and a gain of 2,390 AF in the El Paso Subarea based on changes to groundwater levels at 77 wells (see Table 5-1). Estimated change in groundwater storage is discussed in Chapter 5.3.

### 3.2.3 Degraded Water Quality

Currently, ten representative monitoring sites have been designated to monitor water quality, as represented by total dissolved solids (TDS) concentrations. These representative monitoring sites are shown in Figure 3-2. Groundwater water quality data was limited at the time of developing the GSP and establishing sustainable management criteria. Since the GSP adoption, water quality data has been collected to establish baseline conditions. Sustainable management criteria will be established during the reevaluation process of all representative monitoring sites which will occur as part of the five-year GSP update. The status of TDS concentrations at the current representative monitoring sites are summarized in Table 3-2 below.

*Table 3-2: Representative Monitoring Sites for Degraded Water Quality*

| Well | Screen Interval | Most Recent Measurement (mg/l) [1] | Minimum Thresholds (mg/l) | Measurable Objective (mg/l) | Note |
|---|---|---|---|---|---|
| AB 303-5 | 905-1,005 | 200 | - | - | TDS criteria not yet determined |
| IWVWD Well 33 | TD=1,020 | 280 | 500 | 310 | TDS below measurable objective |
| Owens Peak South 01 | | 290 | 500 | 300 | TDS below measurable objective |
| IWVWD Well 30 | TD=1,200 | 200 | 500 | 240 | TDS below measurable objective |
| Hometown Water Well 01 | | 370 | 500 | 370 | TDS at measurable objective |
| IWVWD Well 11 | TD=620 | 580 | 600 | 530 | TDS above measurable objective |
| Sandquist Spa | 135-191 | 360 | - | - | TDS criteria not yet determined |
| West Valley Mutual 01 | | 500 | 600 | 500 | TDS at measurable objective |
| 26S/38E-01M05 | 299-359 | 570 | - | - | TDS criteria not yet determined |
| 26S/39E-06P01 | | 500 | - | - | TDS criteria not yet determined |

[1] *mg/l = milligram per liter. Measurement dates range from 2019 to 2021.*

TDS concentrations at five of the representative sites are at or below the Measurable Objectives. TDS concentrations at one representative site are within the operating range between the Minimum Threshold and Measurable Objective. Four representative monitoring well sites do not have established sustainable management criteria due to lack of data at the time of selection.

As discussed previously, the representative monitoring sites will be reevaluated for effectiveness at representing basin-wide conditions prior to the five-year GSP update. Sustainable management criteria will be established for the remaining representative wells during the reevaluation process which will address DWR's recommended corrective action.

See Section 7.1 for additional data on TDS concentrations.

### 3.2.4 Land Subsidence Related to Groundwater Pumping

Due to implementation of projects and management actions that will result in stabilization of groundwater levels, land subsidence is not anticipated to occur. Accordingly, the Measurable Objective and interim milestones are set at the long-term historical rate of subsidence. (See the GSP for additional

information.) No representative monitoring sites to measure land subsidence off of the NAWS China Lake have been selected at this time. The IWVGA intends to periodically monitor land subsidence conditions throughout the IWVGB as datasets become available and as necessary to ensure no undesirable groundwater conditions are occurring. Periodically and at least every five years, the IWVGA will request any available land subsidence data from the U.S. Navy at their Supersonic Naval Ordinance Research Track (SNORT) alignment. No land subsidence data was collected by the U.S. Navy during WY 2022.

The U.S. Geologic Survey (USGS) does not identify the IWVGB as a region which has experienced historical land subsidence due to groundwater production, peat loss, or oil production (USGS, 2021). Interferometric Synthetic Aperture Radar (InSAR) data measuring vertical displacement is available on the SGMA Data Viewer (DWR, 2021). The data indicate the IWVGB (including El Paso) experienced a displacement between -0.1 and 0.1 feet in WY 2022. Accordingly, no significant land subsidence has occurred during WY 2022. No additional land subsidence data has been published in WY 2022.

# Chapter 4 Hydrologic Conditions

The California Code of Regulations (CCR) requires that GSP Annual Reports contain information on current and historical water year types (23 CCR § 356.2). DWR issues water year classifications for some areas of the state, including the Sacramento River and San Joaquin River basins. In January 2021, DWR prepared historical water type datasets for other areas of the state, including in the watersheds that overlie the IWVGB (DWR, 2021). The DWR historical data set covers the period from WY 1931 to 2021; the classification for WY 2022 is still not yet available.

GSAs have the option to (1) develop their own water year types based on best available information (23 CCR Section 354.18d), or (2) use the data recently developed by DWR for the water budget. The suitability of the DWR water year type index will be assessed for future reports; at this time, a classification for the most recent water year is not yet available from DWR. A water year type index (Attachment A), based on local precipitation data in the IWVGB, was developed previously for the baseline groundwater model (GSP Appendix 3-H, Stetson 2020a) and the WY 2019 GSP Annual Report (Stetson, 2020b). Use of that index is continued in this annual report.

The IWVGB water year type index is based on historical precipitation data from 1945-2019 at the China Lake NAF station and has five hydrologic categories. The categories are illustrated in the annual precipitation exceedance curve in Figure 4-1. The five types are Wet, Above Normal, Normal, Below Normal, and Dry. Table 4-1 shows the thresholds for determining water year type. The thresholds correspond to the vertical lines dividing the categories in Figure 4-1. WY 2022 was a Below Normal year, with 1.87 inches of rain at the index station. Table 4-2 and Attachment A lists the water year type since 2015 and the historical classifications of water year type since WY 1945, respectively. The basin is currently experiencing an historic drought. For the recent 10-year period WY 2013-2022, six of the ten years (2013-14, 2016, 2018, and 2021-2022) are classified as “Below Normal” or “Dry with less than 2.3 inches of annual precipitation. The precipitation in WY2022 followed this latest drought trend, with 73% of years (1945-2022) having more precipitation than this Below Normal year that had only 54% of the average rainfall (3.47 inches).

*Table 4-1: Percent Exceedance Ranges and Dividing Thresholds for Five Water Year Types*

| Year Type | Percent Exceedance Range (%) | Threshold Between Year Type (in/yr) [1] | Number of Years in Historical Record (WY 1945-2022) |
|---|---|---|---|
| Wet | 0% - 10% | 6.0 | 7 |
| Above Normal | >10% - 33% | 4.0 | 19 |
| Normal | >33% - 67% | 2.3 | 25 |
| Below Normal | >67% - 90% | 1.3 | 18 |
| Dry | >90% - 100% | n/a | 9 |
| | | ***Total years*** | ***78*** |

1 Thresholds based on Percent Exceedance Ranges for 1945-2022 period.

*Table 4-2: Water Year Types based on Precipitation at China Lake NAF Station (No. 041733)*

| WY | Annual Precipitation (in/yr) | Percentage of Average | Percent Exceedance Rank | Water Year Type |
|---|---|---|---|---|
| 2015 | 3.67 | 106% | 45% | N |
| 2016 | 1.38 | 40% | 87% | BN |
| 2017 | 4.61 | 133% | 26% | AN |
| 2018 | 1.43 | 41% | 86% | BN |
| 2019 | 6.13 | 177% | 8% | W |
| 2020 | 5.57 | 160% | 15% | AN |
| 2021 | 0.58 | 17% | 96% | D |
| 2022 | 1.87 | 54% | 73% | BN |

Notes: W = Wet, AN = Above Normal; N = Normal; BN = Below Normal; D = Dry.
Percentage of average and percent exceedance range calculated based on the 1945-2022 period of record.

# Chapter 5 Groundwater Elevation Data

Since 1946, groundwater data have been collected in the IWVGB for studies conducted by the U.S. Navy, USGS, DWR, U.S. Bureau of Reclamation (USBR), and other agencies. In 1995, a groundwater monitoring program (GWMP) was established between Kern County Water Agency (KCWA) and the U.S. Navy collecting groundwater levels throughout the IWVGB during the wet (spring) and dry (fall) seasons from approximately 100 to 150 wells. Since 2020, the Indian Wells Valley Groundwater Authority (IWVGA) coordinates with KCWA and the Navy for the semi-annual monitoring collection of groundwater levels. During WY 2022, KCWA field staff were still observing COVID-19 restrictions[3] and changes in Navy field staff required the IWVGA's Water Resource Manager to supply most of the field staff needed to measure groundwater levels during spring 2022. This additional support for KCWA and the Navy allowed for major improvements in collecting observation data during WY 2022.

The GWMP included 182 monitoring sites during WY 2022 (See Attachment B for all wells in the GWMP). Depths to water (DTW) measurements were collected at 109 sites in Fall 2021 and 154 sites in spring 2022. Five wells were added to the GWMP in spring 2022 to fill data gaps and provide new groundwater levels[4] (Figure 5-2 shows these well locations). Attachment C contains measured DTW data, Land Surface Datum (LSD) and resulting groundwater elevations (feet, mean sea level) for WY 2022. These data were filed on DWR's SGMA portal and appended to the Data Management System (DMS) website (*iwvgsp.com)*. Groundwater elevation data were used to produce equipotential contour maps and hydrographs and are discussed below in this section of the annual report.

## 5.1 Groundwater Elevation Contour Maps

KCWA's Geologist[5] produced Fall 2021 and Spring 2022 groundwater elevation and depth to water contours for this WY 2022 Annual Report. Figures 5-1 and 5-2 show the Fall 2021 and Spring 2022 groundwater elevation contours, respectively. Both figures also include the location of measured groundwater level monitoring wells used in the analysis, the groundwater basin boundary, and the

[3] KCWA policy for field staff limited exposure to COVID-19 with no overnight stays and no domestic well owner contact. Due to the ongoing COVID-19 pandemic, there were limited groundwater levels measured by KCWA and the Navy. During this interrupted data collection (from Fall 2019 to Fall 2021), groundwater levels at approximately a quarter of well locations were unable to be measured.

[4] New wells in the GWMP: 25S/39E-29N01, 26S/38E-17C01, 26S/39E-25K01, 26S/39E-27C01, 26S/39E-35B

[5] Michelle Anderson, PG; Kern County Water Agency (KCWA) geologist.

watershed extents for Indian Wells Valley. Contours are dashed to show the uncertainty where there are limited data available.

The groundwater elevation contour maps show the general flow of groundwater from the surrounding mountains towards China Lake playa. Groundwater flows from Rose Valley in the northwest (about 2,250 feet, msl), the Sierra Mountain front fan deposits (about 2,190 feet, msl) along the west, the Argus Range Mountain front fan deposits from the east (about 2,180 feet, msl) and from the El Paso Subarea (2,800 feet, msl) in the southwest towards the playa at the center of the basin. Pumping centers form depressions near discharge areas in the northwest (about 2,170 feet, msl), southwest (about 2,150 feet, msl), and southeast (about 2,120 feet, msl). Groundwater mounding can also be observed near the wastewater treatment plant on the NAWS China Lake (2,190 feet, msl). There is a fault zone causing steep groundwater level contours from the El Paso Subarea towards the main IWVGB.

Figures 5-3 and 5-4 show contours of the depth to groundwater below land surface. These contours indicate the depth that would need to be drilled to intercept the groundwater table and produce water from a well. In general, depth to groundwater below land surface appears to be greatest in areas with the highest elevations along the Sierra Nevada and the El Paso Mountains. Depth to groundwater levels decrease at lower elevations at the playa and towards Salt Wells Valley.

## 5.2 Hydrographs

Hydrographs have been developed for all wells in the IWV Groundwater Monitoring Program (GWMP) and are posted on the DMS website (www.iwvgsp.com). Hydrographs for 14 selected well sites are provided in Attachment D (see also Figure 5-5), which include the designated representative monitoring wells for chronic lowering of groundwater specified in the GSP used to track Basin management. The selected wells include seven nested multi-level piezometers (note: data for nested multi-level piezometers appear on the same hydrograph), for a total of 30 groundwater level measurements. Groundwater level data collected by KCWA, the Navy, IWVWD and other agencies (Historical data collected in IWV from DWR, USGS, and USBR are also included on the hydrographs) were used to produce these hydrographs. Groundwater level data for the majority of the hydrographs begin in the late 1980s and early 1990s when the wells were installed, with the exception of the Inyo Well. The Inyo Well (27S/39E-07R01), located in the southwest of the IWV main basin has the longest period of record for groundwater level data in the basin dating back to 1946.

The hydrographs in Attachment D show historical changes of groundwater levels throughout the IWVGB. The most recent changes of groundwater levels at the 14 selected well locations shown on Figure 5-5 are summarized below.

- USBR-10 nested piezometers (Attachment D, page 1, upper graph)
  These nested wells are located in the northwest near Ninemile Canyon Road (mountain front recharge) and south of Little Lake (Rose Valley Subflow). Historically there were four piezometers at USBR-10, but now only 3 of the piezometers are able to be measured[6]. Rising groundwater levels were observed at the three measured piezometers from Spring 2021 to Spring 2022. Groundwater levels in the shallow, shallow-mid and deep piezometers rose 1.84, 2.1, and 1.29 feet, respectively.

- USBR-6 nested piezometers (Attachment D, page 1, lower graph)
  These nested wells are located on the Navy Base just inside the Navy fence line in the northwest adjacent to alfalfa fields, and near fan deposits from Sand Canyon. All three piezometers saw a groundwater level decline from Spring 2021 to Spring 2022, where a water level drop of 0.46, 0.97 and 1.68 ft was observed in the shallow, mid and deep piezometers, respectively.

- USBR-5 nested piezometers (Attachment D, page 2, upper graph)
  These wells are located in the northwest at the base of Indian Wells Canyon (mountain front recharge) and approximately 0.5 mile from the agricultural pumping center. There was a water level decline in all three piezometers from Spring 2021 to Spring 2022 at 1.02 feet (shallow), 2.02 feet (mid) and 2.23 feet (deep).

- NR-2 nested piezometers (Attachment D, page 2, lower graph)
  These wells are located in the northwest about one mile east of USBR-5 and near the agricultural pumping center. Two of the three piezometers (shallow and deep) were measured during the Fall 2021 and Spring 2022 measuring events. While the shallow piezometer saw a water level decline of 0.6 foot, the deep piezometer saw an increase of 2 feet from Spring 2021 to Spring 2022.

- Sandquist Spa Well (Attachment D, page 3, upper graph)
  This well is located on the Navy Base between the agricultural pumping centers and the playa (discharge area). The observed groundwater level decline was 0.57 foot from Spring 2021 to Spring 2022.

- Kerr McGee 17 (Attachment D, page 3, lower graph)
  This well is located on the Navy Base east of Highway 395 about 3 miles southeast of NR-2 just inside the Navy fence line. From Spring 2021 to Spring 2022, groundwater level in this well declined 6.16 feet.

[6] Since Fall 2005 the mid-deep piezometer at USBR-10 has not been able to be measured (well collapsed, these data are posted for historical reference only).

- MW-32 nested wells (Attachment D, page 4, upper graph)
  These wells are located along Business Highway 395 to the east of Inyokern, in the vicinity of IWVWD pumping wells. Spring 2021 groundwater levels were unable to be measured at MW-32 shallow-mid due to COVID-19 restrictions, but groundwater data was able to be taken from the telemetry equipment installed in the well. From Spring 2019 to Spring 2022, water level declined 12.77 feet at the MW-32 shallow-mid well. Though water level fluctuates seasonally, groundwater levels were the same during spring 2021 and spring 2022 at MW-32 deep well, while the mid well observed groundwater level decline of 2.85 feet between the two spring measurements.

- USBR-4 well (Attachment D, page 4, lower graph)
  This well is also located along Business Highway 395, about 2 miles east of MW-32. Groundwater was not measured at this well in Fall 2021. Groundwater levels at this well change seasonally. A groundwater level decline of 8.87 feet was observed at this well from Spring 2021 to Spring 2022.

- 26S/39E-32L1 (Attachment D, page 5, upper graph)
  This well is located about 2 miles south of the junction of U.S. Highway 395 and California State Route 178. Groundwater levels have shown a steady decline since monitoring began in 2007. Groundwater levels dropped 3.51 feet during the 3-year period from Spring 2019 to Spring 2022 at this well.

- George Air Corridor Well (Attachment D, page 5, lower graph)
  This well is located on the Navy Base in the southeast area on the basin. Groundwater levels have shown a steady decline since monitoring began in 1989. Groundwater level had declined 1.20 feet at this well during the 3-year period from March 2019 to March 2022.

- USBR-3 nested piezometers (Attachment D, page 6, upper graph)
  This nested well is located to the west of Ridgecrest near the new IWVWD production wells. From Spring 2021 to Spring 2022, groundwater level declined 7.78 feet and 1.12 feet at the shallow and deep piezometers, respectively. At the mid piezometer, a water level rise of 5.28 feet was observed during that same one-year period.

- Inyo well (Attachment D, page 6, lower graph)
  This well has the longest period of monitoring data, since 1946, and is located in the southwest area of the IWVWD new production wells. This well was deepened once and was dry during spring 2020 groundwater level measurements (425 feet depth). Groundwater levels have shown a steady decline since the early 1950s. From Spring 2021 to Spring 2022, groundwater level at this well declined 0.7 foot. This well is in poor condition and may be dry. Funding is being investigated for well replacement.

- AB303-05 well (Attachment D, page 7, upper graph)
  This well is located in the El Paso subarea to the southwest of the main IWVGB where there isn't any significant pumping. Stable groundwater levels have been observed at this well since 2007, with a slight rise in recent years. Groundwater level rose 1.9 feet from Spring 2021 to Spring 2022 at this well.

- USBR-1 nested piezometers (Attachment D, page 7, lower graph)
  This nested well is also located in the El Paso subarea of the IWVGB where there isn't any significant pumping, southwest of a fault that separates this subarea from the main IWV groundwater basin. Steady groundwater levels have been observed at all four piezometers since about 1995, with a slight rise in recent years. There was no water level measurement at the deep piezometer after May 2020. From Spring 2021 to Spring 2022, water level at the shallow and shallow-mid piezometers increased 3.35 feet and 0.15 foot, respectively.

## 5.3 Estimated Change in Groundwater Storage

Groundwater levels have declined in many parts of the IWVGB during the last three years from Spring 2019 through Spring 2022. There are some areas that show little change, or even an increase in groundwater levels, primarily in the El Paso subarea, where there is little or no groundwater production. Two different methods were used to evaluate the changes in groundwater levels from Spring 2019 through Spring 2022: (1) map color coded comparison of measured groundwater level change, and (2) modified Thiessen polygon method using 77 monitoring wells distributed throughout the basin to estimate storage changes.

### 5.3.1 Groundwater Level Change from Spring 2019 to Spring 2022

Groundwater levels were measured at 112 wells during both Spring 2019 and Spring 2022 (limited data were collected during 2020 and 2021 due to COVID-19 restrictions). These measurements were compared to evaluate the average annual groundwater level change across the basin. Figure 5-6 shows the average annual groundwater elevation change during these 3 years (Attachment C, Table 2) displayed as gradational colors on a map for each of these monitoring wells. This visual method of representing the available data on a map shows the distribution of lowered groundwater levels and where no change or an increase in groundwater levels occurred during the last three years. Orange dots at 22 wells represent observations with a 1-foot to 4.8-foot drop in groundwater levels; and green dots at 50 wells display groundwater levels dropping up to 1 foot. The highest levels of groundwater elevation change observed (orange dots) appear to correlate with pumping and discharge areas. The largest decline in groundwater levels was observed at Baker 4-NE, located near the northwest pumping center.

An increase or no change in groundwater levels (no loss of groundwater storage) are observed in the wells shown as blue dots in Figure 5-6. This condition occurs mostly in El Paso Subarea where there is very limited pumping; and in the southeast near Ridgecrest where pumping was reduced when IWVWD moved its production further to the west.

### 5.3.2 Estimating Storage Change

Changes to groundwater in storage are estimated each year for the Annual Report and to be used for managing IWV's water resources. In this Section, changes to groundwater in storage for WY 2022 have been calculated for a portion of the aquifer where groundwater levels are measured for the GWMP. The distribution of measured data from GWMP monitoring wells are shown on the groundwater elevation and groundwater depth contour maps (Figures 5-1 through 5-4) and listed in Attachment C. This area (188,971 acres), where available groundwater level data exists and the major pumping occurs, represents about half of the total GSA Basin (381,746 acres). Groundwater modeling would be required to calculate how basin overdraft and the decline of groundwater in storage extends beyond this area to the edges of the GSA basin. Supplemental modeling using a partially updated GSP model is underway, but not complete for this Annual Report. Modeling methods will be reviewed for the 5-year GSP Report.

Spring 2022 groundwater level measurements were compared with Spring 2019 measurements using a modified Thiessen Polygon Method. A continuing decline in groundwater levels was observed within the IWV basin during these three years. The average annual change of groundwater in storage within the measured study area of the IWB Basin from Spring 2019 to Spring 2022 is estimated to be a loss of 15,880 AFY in the IWV main basin and a gain of 2,390 AFY in the El Paso Subarea based on changes to groundwater levels at 77 wells. The additional amount of in storage change due to decreases and increases in lowered groundwater levels extending beyond the measured data has not been estimated for this Annual Report.

#### *5.3.2.1 Thiessen Polygon Method*

The Thiessen polygon method is a standard approach (Thiessen, 1911; Dunne et al., 1978) of averaging point rainfall values according to an areal distribution. Though initially developed for estimating the volume of rainfall, it has been applied to other datasets, i.e., changes in groundwater levels, to estimate volumetric changes. This method distributes data collected at discrete points to the basin area. Lines are drawn joining each gauge station with those immediately surrounding it. A perpendicular line is constructed at the midpoint of each of these joining lines forming "perpendicular bisectors". These connected "perpendicular bisectors" form a series of polygons, with each polygon containing one station with measured data.

Applying this method to a groundwater aquifer assumes that the groundwater level data at the monitoring well represents the average groundwater level throughout the area represented by that particular

polygon. The volume of groundwater change within each polygon is the product of (1) area, (2) specific yield (Sy[7]), and (3) measured water level change during a given period of time. This calculation for each polygon is then summed up to calculate the total volume of groundwater change within the specified study area of the basin.

#### *5.3.2.2 Modified Thiessen Polygon Method*

Modifications were made to the Thiessen Polygon Method based on comments received from the TAC to earlier annual reports (WY 2019 and WY 2020) using this method. This analysis is constrained to where there are groundwater level measurements to interpret changes in storage.

These modifications provide an estimate of changes to groundwater in storage within a subarea of the full basin with limitations. This estimate does not consider the changes in storage outside of the study area of the modified Thiessen Polygon Method where there aren't measurements, but it does give us an indication of whether the basin is gaining or losing groundwater in storage. It would require numerical modeling to estimate how the basin overdraft extends to the edges of the basin[8]. This method has the following limitations that affect the volume of groundwater change in storage calculation:

- Not having an even distribution of monitoring wells within the basin. The polygons are a range of sizes introducing an unintended weighting factor with the available data.
- Estimating the aquifer parameter values for Specific Yield. Specific Yield is directly related to how much water is in the pore space of a unit volume of aquifer sediments. This is a data gap[9] requiring more aquifer testing.
- Different areal extents used in estimating the changes to groundwater in storage will result in different answers. Modeling estimates used for the GSP extend the analysis to the edges of the basin beyond where the modified Thiessen polygon method can be reasonably applied.

The following modifications were made to the Thiessen Polygon Method to estimate the change in storage for WY 2022 based on comments received from the TAC to earlier annual reports (WY 2019 and WY 2020) using this method.

[7] Specific yield is the amount of groundwater that a unit volume of aquifer will yield when drained by gravity. This is related to the pore space where water occurs between the gravel/sand/silt/clay grains within the aquifer.
[8] These modeling analyses will be considered for the 5-year report.
[9] Specific capacity tests and aquifer tests are primarily collected at production wells perforated at coarser grained sediments that have a potential to build in a bias to larger values.

- The basin was first separated into two areas[10] - El Paso Subarea and the IWV main basin using groundwater hydrographs in the vicinity of the steep groundwater gradient on the KCWA water level contour map and the unnamed Freeman Fault[11].
- The next modification was constraining the analysis to where there are groundwater measurements to interpret changes in storage. In most areas this was determined by the KCWA groundwater level contour extent.
- The third modification was to increase the number of monitoring wells in the analysis from 21 wells (used in previous annual reports) to 77 wells.
- The fourth modification incorporates major faults that dissect the groundwater basin.

The above changes resulted in a different distribution of Thiessen Polygons from that applied in previous Annual Reports.

#### *5.3.2.3 Constructing and Modifying Thiessen Polygons*

The outer boundary of the study area for applying the modified Thiessen Polygon Method generally follows the extents of groundwater level contour maps developed by KCWA. Figure 5-7 shows the full extents of the GSA boundary and the study area where groundwater measurements exist. The study area was first discretized into Thiessen polygons using perpendicular bisectors and GIS. These polygons were then modified using recently updated Angster et al. (2020) surface rupture and fault maps. The resulting polygons and surface faults are shown on Figure 5-7. Attachment E summarizes the resulting areas for each of the 77 polygons developed for this analysis.

#### *5.3.2.4 Monitoring Wells used for the modified Thiessen Polygon Method*

Monitoring wells used for this analysis were considered using the following criteria: (1) long and continuous spring water level record; (2) monitoring well's condition and access assuring that the groundwater level measurement will continue for the foreseeable future; (3) spatial distribution throughout the basin; (4) selecting the shallowest piezometer for nested monitoring wells. Based on these criteria, a total of 77 monitoring wells were selected for the Thiessen polygon discretization. These monitoring wells are shown on Figure 5-7 and labeled with name and database ID[12] in parentheses.

[10] The boundary between the El Paso Subarea and the main IWV Basin is a zone, not a line. This location and nature of this zone will be further investigated and delineated by the TMG as the model is updated and recalibrated

[11] The unnamed Freeman fault is shown on Figure 5-7. Though earlier reports named this unnamed fault "El Paso", it was pointed out by the TAC that the Garlock Fault System to the south includes a fault trace called "El Paso". The Technical Model Group reviewed faulting in the IWV and has proposed calling out this fault as the unnamed Freeman Fault for clarification.

[12] The well database ID can be used to browse the IWV DMS website to view available groundwater data and reports (iwvgsp.com).

Groundwater level data collection during Spring 2020, Fall 2020, Spring 2021, and Fall 2021 by KCWA was interrupted due to the ongoing COVID-19 pandemic resulting in limited measured data to estimate changes to groundwater in storage. Because the groundwater level change varies from well to well and fluctuates from period to period, the water level measurements in Spring 2020 and 2021 are not able to be used for estimating the storage change. The more comprehensive measurements from Spring 2019 and Spring 2022 water level measurements were used to estimate the 3-year cumulative change to groundwater in storage between Spring 2019 and Spring 2022. Attachment E summarizes the groundwater measurements and change in groundwater storage calculated for each polygon associated with that well.

#### *5.3.2.5 Estimated Changes to Groundwater in Storage: Spring 2019 to Spring 2022*

Changes to groundwater in storage are estimated each year for the Annual Report and to be used for managing IWV's water resources. These changes over time are most notable in the areas of the basin where declining groundwater levels are being observed. Though measuring of groundwater levels had been interrupted for a couple of years, Spring 2022's comprehensive measurements showed a continuing decline in groundwater levels in the IWV basin and in groundwater in storage (Table 5-1). These changes in groundwater levels represent about half of the overall delineated GSA Boundary where there are available groundwater level data and the major pumping occurs.

***Table 5-1: Estimated 3-Year Change to Groundwater in Storage, Spring 2019 to Spring 2022***

| | Polygon Area (acres) | Spring 2019 to Spring 2022 (3 years, AF) | Average Annual Storage Change (AF) |
|---|---|---|---|
| IWV Main Basin | 154,960 | -47,650 | -15,880 |
| El Paso Subarea | 34,010 | 7,170 | 2,390 |
| Total Study Area | 188,971 | -40,480 | -13,490 |
| Total GSA Basin | 381,746 | *n/a* | *n/a* |
| *% of GSA Basin* | *49.5%* | *not estimated* | *not estimated* |

The average annual 3-year change of groundwater in storage within the measured study area of the IWB Basin from Spring 2019 to Spring 2022 is estimated to be a loss of 15,880 AF in the IWV main basin and a

gain of 2,390 AF in the El Paso Subarea based on changes to groundwater levels at 77 wells. The change in storage estimate will be expanded to account for the whole IWV Basin as data gaps are addressed and the model is updated for the 5-Year GSP Report.

# Chapter 6 Water Supply Data

## 6.1 Groundwater Extraction Data

Groundwater from the IWVGB is the sole source of potable water in the Indian Wells Valley. Groundwater is produced from approximately 930 wells. Figure 6-1 provides the location of the production wells in the IWVGB[13]. Since 2018, the IWVGA has been actively engaged in efforts to determine annual groundwater production in the IWVGB and improve the accuracy of production estimates. These efforts are summarized below.

- Baseline Pumping Conditions (2018-2019): The most recent available pumping data (at the time) were compiled from known and cooperative individual groundwater producers in order to develop the numerical flow model. Through stakeholder outreach efforts, major pumpers provided estimates to use for future conditions that reflected their projected water demands. Prior studies were used to estimate pumping for groundwater producers where little data were available nor provided by stakeholder outreach.

- Well Registration and Reporting (2018-Current): The IWVGA implemented well registration and well production reporting requirements for the purpose of collecting volumetric pumping fees. All groundwater producers, other than federal entities, are required to register their groundwater production wells and report monthly groundwater production.

- Sustainable Yield Allocation (2020-Current): The IWVGA requested historical pumping records from all non-*de minimis* pumpers (excluding federal entities) for the purpose of allocating the sustainable yield of the IWVGB.

- Flow Meter Requirements (2020): The IWVGA adopted Ordinance 01-20 requiring the installation and testing of IWVGA-approved flow and hour metering equipment on all non-de minimis and non-federal wells in the Basin, with the purpose of increasing accuracy of groundwater production records.

- Transient Pool (2020-Current): The IWVGA developed a Transient Pool program (see Section 3.1.1) which requires reporting of groundwater production to the IWVGA.

- Legal Action and Settlements (2020 through Current): The IWVGA has taken legal action against non-compliant pumpers and has entered into settlements regarding the payment of fees and reporting of groundwater production.

[13] There is insufficient data by well to display the volume of each production well on Figure 6-1; however, the figure shows the location of wells by well use category.

Despite these efforts, data gaps in groundwater production within the IWVGB still exist. These gaps are partially due to inaccuracies of self-reporting, non-compliant groundwater producers who do not report production data, groundwater producers who have not installed water meters on their wells, and groundwater producers present in the IWVGB that are not subject to reporting (i.e. de minimis extractors). Additionally, current litigation has brought into question the accuracy of some self-reported groundwater production data due to inconsistencies with reported groundwater production and documented and stated water use.

The methods that groundwater producers use to report their production include the following:

- Water meters
- Electrical meters
- Estimates based on land use
- Estimates based on population served by groundwater production well

The best engineering estimate of WY 2022 pumping is derived from the combination of all pumping records and sources available to the IWVGA and is presented in the final column in Table 6-1, below. Attachment F provides a more detailed breakdown of pumping categories and the data source for each value. The IWVGA is continually working to improve its estimate of groundwater production in the IWVGB because these data are critical components of the water budget and essential for managing sustainability.

***Table 6-1: IWVGB Groundwater Production Estimates***

| **Water Use Sector** | **Estimated No Action Projections WY 2022** (AF) | **WY 2022 Reported Pumping** (incomplete) [3] | **WY 2022 Total Estimated Pumping** (AF) [6, 7] |
|---|---|---|---|
| Urban | 7,010 | 6,050 | 6,060 |
| Industrial | 2,910 | 2,370 | 2,370 |
| Agriculture | 22,520[2] | 8,230 | 9,570 |
| Other – Federal [1] | 2,040 | 1,710[4] | 1,710 |
| Other – Domestic/ Mutuals/Co-Ops | 1,380 | 180 [5] | 1,450 |

| Water Use Sector | Estimated No Action Projections WY 2022 (AF) | WY 2022 Reported Pumping (incomplete) [3] | WY 2022 Total Estimated Pumping (AF) [6, 7] |
|---|---|---|---|
| **TOTAL** | **35,860** | (incomplete) | **21,160** |

1 Federal groundwater use is for NAWS China Lake and are provided by the U.S. Navy.

2 This value includes planned agricultural projections provided by pumpers and probably overestimates future agricultural groundwater production.

3 These values underestimate actual groundwater production in WY 2022 because not all non-de minimis groundwater producers submit data regularly to the IWVGA and because some groundwater producers were not required to report their groundwater production during WY 2022.

4 Federal entities are not required to report monthly production to the IWVGA for the purpose of the fee; however, though not required, the U.S Navy reported monthly production to the IWVGA for the Annual Report.

5 *De minimis* users (those that produce less than 2 acre-feet per year (AFY) or those that have four or fewer connections) are not required to report monthly production to the IWVGA for the purpose of the fee.

6 See Attachment F for a more detailed table.

7 Actual pumping may be higher than estimated.

Table 6-2 below shows annual groundwater production estimates. Groundwater production within the IWVGB has been estimated to decrease since WY 2019 (the first year an Annual Report was prepared). This is due to the implementation of projects and management actions. In WY 2022, the estimated total groundwater production was 2.8 times the estimated sustainable yield of 7,650 indicating overdraft conditions have continued in the IWV.

***Table 6-2: Total Estimated Pumping by Water Year***

| Water Year | Total Estimated Pumping (AF) |
|---|---|
| WY 2019 | 22,800 |
| WY 2020 | 21,990 |
| WY 2021 | 20,800 |
| WY 2022 | 21,160 |

## 6.2 Surface Water Supply

Natural surface waters are not used as a drinking water supply source in the IWVGB. Approximately 2,540 acre-feet of recycled water was produced at the City of Ridgecrest's wastewater treatment plant during WY 2022 and was used for the following:

- Landscape irrigation (golf course)
- Agricultural irrigation (alfalfa)
- Partial maintenance of the Mojave Tui Chub habitat (environmental water)
- Discharge to evaporation/percolation ponds

Table 6-3 below provides the estimated breakdown of beneficial recycled water use in WY 2021.

***Table 6-3: WY 2022 Recycled Water Use.***

| Recycled Water Use Sector | WY 2022 Estimated Use[1] (AF) |
|---|---|
| Urban[2] | 310 |
| Agriculture[3] | 230 |
| Other[4] | 800 |
| **TOTAL** | **1,340** |

1 Data provided in email by the City of Ridgecrest to Stetson Engineers Inc on October 19, 2022.

2 Used for irrigation of golf course on NAWS China Lake.

3 Used for irrigation of alfalfa fields for beneficial re-use.

4 Recycled water not used for urban and agricultural irrigation is disposed of in evaporation/percolation ponds. Approximately 2,000 AF was discharged to the ponds in WY 2022. It is estimated approximately 60 percent of the recycled water discharged to the ponds evaporates, with the remaining 800 AF percolating to the groundwater (Provost and Pritchard Consulting Group, 2015). In addition, these ponds partially support the Mojave Tui Chub habitat on NAWS China Lake.

## 6.3 Total Water Use

Total water use in the IWVGB during WY 2022 is comprised of groundwater supplies and recycled water supplies. See Chapters 6.1 and 6.2 above for additional detail on these supplies.

***Table 6-4: WY 2022 Estimated Total Water Use in the IWVGB.***

| Use Category | WY 2022 Estimated Total Water Use (AF) |
|---|---|
| Groundwater Production | 21,160 |
| Recycled Water | 1,340 |
| **TOTAL** | **22,500** |

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# Chapter 7 Other Data Collection and Basin Management Tasks

In WY 2021, the IWVGA has continued its data collection efforts and basin management tasks to improve Basin understanding and monitor groundwater sustainability, in addition to the regular groundwater level monitoring discussed in Chapter 5. These efforts help address the data gaps outline in the GSP and are listed below:

- Data gaps associated with groundwater monitoring in the El Paso subarea
- Data gaps associated with streamflow and mountain front recharge
- Data gaps associated with domestic wells data and associated water usage
- Data gaps associated with the subsurface flow from Rose Valley into WVGB
- Data gaps associated with the subsurface flow out of IWVGB to Salt Wells Valley
- Data gaps associated with groundwater dependent ecosystems (GDEs)
- Data gaps associated with aquifer properties

Summaries of key tasks are provided below.

## 7.1 Annual Groundwater Quality Sampling

Sixteen groundwater quality samples were collected and sent to a laboratory for analysis in October 2021 from 12 monitoring wells and 4 domestic wells within the IWVGB. The purpose of this annual sampling was to meet interim milestones for the sustainable management criteria, augment data in the existing water quality database, and address some data gaps for sustainable management of the IWVGB. Results from this sampling, provided in Attachment G, will be used to refine the existing IWVGB monitoring network (GSP § 354.34), validate the hydrogeologic conceptual model (HCM) (GSP § 354.14), and update the numerical groundwater model (GSP § 354.16) for the five-year GSP update in 2025.

### 7.1.1 TDS Results

Salinity, represented by total dissolved solids (TDS), is one of two main groundwater quality constituents of concern in the IWVGB. The lowest observed TDS concentration collected in Fall 2021 was 200 mg/L (952-955 feet depth) at monitoring well AB303-05 in the El Paso Subarea. The highest observed TDS concentration collected in Fall 2021 was 2,000 mg/L (197-200 feet depth) from the shallow screen interval of monitoring well 26S/39E-05L01 near the southwest fence line on the Navy Base.

The areal distribution of TDS concentrations from the October 2021 sampling event are displayed on Figure 7-1. Five of the 16 wells sampled had TDS concentrations equal to or greater than 1,000 mg/L: 26S/39E-05L01(S) and 26S/39E-05K01(D) near the southwestern Navy fence line, 26S/40E-22E1 and -22E2 near Navy administration buildings, and 27S/40E-01K02 (George Air Corridor) east of Ridgecrest. TDS concentrations above the Secondary Maximum Contaminant Level (SMCL) (500 mg/L) were also present in the northwest, while lower TDS concentrations (<500 mg/L) occurred in the El Paso subarea and along the Sierra Nevada mountainfront. Results from the October 2021 water quality samples are consistent with historical data presented in the January 2020 GSP.

Historical TDS trends are plotted in Figure 7-2 for 11 wells with three or more TDS measurements. TDS results at IWVGB monitoring wells are summarized below.

- Monitoring well 25S/38E-03B is located in the northwest of IWV basin near 395 by Pearsonville, and is screened from 300 to 360 ft. Four TDS samples have been collected from 2007 to 2021. The TDS concentration taken in Fall 2021 was 590 mg/L. This was an increase of 20 mg/L from Fall 2020 (570 mg/L).

- Domestic well 25S/38E-14A is located in the northwest of IWV basin, southeast of well 03B. Three TDS samples have been collected from 2019 to 2021. TDS concentrations at 25S/38E-14A ranged from 400 mg/L (2020) to 450 mg/L (2021), showing an increase of 50 mg/L from the last year's measurement.

- Domestic well 25S/38E-34A01 is also located in the northwest of IWV near 395 directly south of 03B. This well is screened from 418.5 to 478.5 ft. Four TDS samples have been collected from this well from 2006 to 2021 with TDS concentrations ranging from 260 mg/L (2006) to 530 mg/L (2019). TDS in 25S/38E-34A01 decreased 60 mg/L from 2020 (510 mg/L) to 2021 (450 mg/L).

- Navy monitoring well 25S/39E-03R01 (Baker Range) is located on the northern range of the Navy base, and is screened from 65 to 165 ft. Three TDS samples have been collected from this well from 2019 to 2021. TDS concentrations range from 660 mg/L (2019) to 590 mg/L (2021). The 2021 TDS concentration was measured at 590 mg/L and is consistent with the Fall 2020 TDS concentration (590 mg/L).

- Navy monitoring well 25S/39E-12R (Charley Tower) is located near the northern playa on NAWS China Lake. This well is screened from 60 to 140 ft. Twenty-five TDS samples have been collected from this well from 1953 to 2021. TDS concentrations range from 650 mg/L (July 1978) to 780 mg/L (October 1961). The 2021 TDS concentration of 720 mg/L showing a slight increase of 10 mg/L from the previous year.

- Domestic well 26S/38E-01M05 is located north of Inyokern. This well is screened from 299 to 359 ft. Water quality samples have been collected from this well during the last three annual sampling events ranging from 520 mg/L (November 2020) to 570 mg/L (October 2021). The current TDS concentration at 26S/38E-01M05 was measured at 570 mg/L showing an increase in concentration of 50 mg/L from the previous year.

- Monitoring well 27S/38E-13A02 (AB303-01) is located in the southwest area of IWV just south of Bowman Road and east of Red Rock Canyon Road. This well is screened from 232 to 272, 372 to 472, and 632 to 690. Two TDS samples have been collected from this well in 2007 to 2021. TDS concentrations range from 300 mg/L (August 2007) to 340 mg/L (October 2021). The 2021 TDS sample was collected from the mid-level screen with a concentration of 340 mg/L.

- Navy monitoring well 27S/40E-01K02 (George Air Corridor) is east of Ridgecrest on Navy property. This well is screened from 320 to 380 ft. Four TDS samples have been collected from this well from 1953 to 2021. TDS concentrations range from 1,100 mg/L (December 2020) to 1,510 mg/L (June 1972). The 2021 TDS concentration was measured at 1,200 mg/L showing an increase in concentration of 100 mg/L from November 2020 to October 2021.

El Paso Subarea Monitoring Wells

- Monitoring well 27S/38E-09C01 (AB303-04) is located in the El Paso subarea of IWV near Highway 14. This well is screened from 501 to 581 ft. Three TDS samples have been collected from this well from 2007 to 2021. TDS concentrations range from 290 mg/L (November 2020) to 460 mg/L (August 2007). The current TDS concentration was measured at 350 mg/L showing an increase in concentration of 60 mg/L from 2020 to 2021.

- Monitoring well 27S/38E-21L01 (AB303-05) is located in the El Paso subarea and screened from 905 to 1,005 feet. Four TDS samples have been collected from this well from 2007 to 2021. TDS concentrations range from 160 mg/L (November 2020) to 510 mg/L (August 2007). The 2021 TDS concentration was measured at 200 mg/L showing an increase in concentration of 40 mg/L from 2020 to 2021.

### 7.1.2 Arsenic Results

Arsenic is the other defined constituent of concern in IWV. Figure 7-3 shows the areal distribution of arsenic in groundwater concentrations from October 2021. The lowest observed arsenic concentrations collected during October 2021 were non-detect values observed in wells AB303- 04 (557-560 feet depth) and 27S/38E-13A01 (497-500 feet depth). The highest observed arsenic concentration was 340 µg/L (605 feet depth) at Navy monitoring well 26S/40E-22E02. These samples will provide a baseline for future arsenic samples collected.

## 7.2 Rose Valley Subflow Monitoring Wells

Permitting with Bureau of Land Management (BLM), California State Lands (CSL), and Inyo County was completed during WY 2022 for drilling two new monitoring wells and evaluating a capped former sawmill well south of Little Lake. A Cooperative Agreement with the Navy for funding this work is still being negotiated. Drilling and well evaluation is planned for WY 2023. Groundwater levels from these wells will be used to fill a data gap for estimating subflow from Rose Valley into Indian Wells Valley.

## 7.3 El Paso Monitoring Well

On January 26, 2021, the IWVGA entered into an agreement with DWR for Technical Support Services to drill and construct one triple-nested monitoring well (EP-01) in the El Paso Subbasin. The well was installed in February and March 2021 with the IWVGA installing monitoring and telemetry equipment in the three piezometers in April 2021. Subsequently, DWR supplied monitoring instrumentation for this well per the agreement. In December 2021 the IWVGA replaced the IWVGA monitoring equipment with the equipment supplied by DWR. Beginning in 2021 and through 2022, the IWVGA has monitored EP-01 and maintained the data records consistent with other groundwater monitoring program wells; reporting EP-01 groundwater levels to the DMS as well as uploading this data to the DWR SGMA data portal. The IWVGA has continued to work with DWR, for DWR to supply telemetry equipment for this well in 2023. This monitoring well is important for filling in water level data gaps in the El Paso Subbasin and defining hydrogeologic characteristics in the Basin.

## 7.4 Brackish Water Investigation

Brackish water groundwater resources in the IWV have been the subject of ongoing study by the IWVWD and funding partners for several years with the goal of determining feasibility of developing brackish resources as an alternative water supply.

In WY 2022, deep groundwater samples were collected and analyzed from existing monitoring wells in the northern agricultural area. Reverse Osmosis (RO) membrane performance modeling was performed using the groundwater quality data, and cost estimates for a pilot-scale RO treatment plant were developed. The hydrogeological conceptual framework has been updated. Cost estimates for a full-scale

RO treatment system are being developed, and the overall feasibility of the concepts are being evaluated for the report to be submitted to DWR next year. Additional evaluation is ongoing.

## 7.5 Numerical Model

A Configuration Management (CM) Plan for IWV GSP Groundwater Model (IWV-Model) was developed during 2021 and started being implemented early 2022. This Plan describes the CM processes for development, maintenance, upgrade, and use of the IWV-Model that was initially developed by Desert Research Institute (DRI) under contract with the Navy; and further developed by DRI under contract with the IWV Groundwater Authority (IWVGA) to support development of the Groundwater Sustainability Plan (GSP). The IWV-Model is one of the primary technical tools that the IWVGA uses to understand and quantify the available groundwater resources and to develop sound groundwater management policy for the IWV Basin. A key component of this plan is the establishment of a Technical Modeling Group (TMG) to review and evaluate new data since GSP development, make recommendations for model updates, and review any model revisions.

On March 17th, 2022, the Navy appointed a new technical representative to the GA's Technical Advisory Committee (TAC). On April 19th technical representatives from the Navy, Desert Research Institute (DRI), and the WRM had an initial planning meeting to start implementing the CM Plan. Additional meetings were held to lay out and prioritize the Configuration Items (new technical data, Attachment H) to be reviewed and evaluated by the TMG. The TMG was formed and started meeting in June 2022, and have had seven meetings and one field trip during WY 2022 reviewing and evaluating new data and reports for inclusion into the IWV Model. These meetings and field trips continue to be on-going.

This work is being done on a timeline with the IWV 5-Year GSP Report due January 2025. The TMG made recommendations to the WRM for model revisions and updates in December 2022. Upon authorization of the budget by the IWVGA Board, the model would be updated and re-calibrated with approved revisions during 2023. The guidelines laid out in the CM Plan will be used by the TMG to evaluate any changes to the model. This timeline will provide an updated model to develop modeling scenarios for the 5-Year GSP Report

## 7.6 Data Management System

The DMS was developed consistent with DWR regulations for the purpose of monitoring and reporting data to measure long-term sustainability of the IWVGB. The IWVGA's DMS is a publicly-accessible database developed to store and present specific supporting elements of the GSP, including monitoring, reporting, management criteria, a water budget, hydrogeologic conceptual model, and other supporting documentation. Server logs indicate the public is accessing and using the DMS. Continual annual maintenance of the DMS software and server is required to ensure DMS operation. Additional information on the DMS can be found in Attachment I.

During WY 2022, funding and time was spent in updating server systems and maintaining the software to keep and expand functionality. New groundwater and surface water monitoring data was added to the existing database, and new telemetry data was added, with improvements to data management and online access. In addition, data is manually uploaded to the DMS regularly to maintain updated data records that are not part of the telemetered network.

## 7.7 Precipitation Station and Stream Gage Data Collection

The IWVGA collects precipitation and stream flow data through precipitation stations and stream gages installed throughout the IWV. In 2020 IWVGA installed two precipitation stations and two stream gage stations to augment historical and current monitoring location data. Summary reports for these stations and gages operated directly by IWVGA Staff are provided in Attachment J. During WY 2022 the IWVGA continued to operate these stations and gages, utilizing telemetry to transmit provisional data to the DMS. Approved data records are posted to the DMS annually concurrent with this Report, and presented in the summary reports in Attachment J.

In WY 2022 the IWVGA conducted additional work to integrate the following data sets into the DMS:

- KCWA historical streamflow gage (2) data
- Historical BLM RAWS stations (9) precipitation data
- Current real-time BLM RAWS stations (8) precipitation data
- Current and Historical stream flow data (3 locations) for Little Lake, maintained by Inyo County

These datasets, along with the IWVGA station and gage data is publicly accessible through DMS web interface.

In total, these various data sets will be used to refine the existing IWV groundwater basin monitoring network (GSP § 354.34), validate the hydrogeologic conceptual model (HCM) (GSP § 354.14), and update the numerical groundwater model (GSP § 354.16) for the five-year GSP update in 2025.

## 7.8 Groundwater Dependent Ecosystems

Three[14] groundwater dependent ecosystem (GDE) sites were identified by a Navy biologist based on vegetation type during June/July 2022. The biologist established monitoring transects and conducted line-intercept vegetation monitoring along these transects. The Navy's August 15, 2022 Progress Report - GDE Vegetation Monitoring provides baseline GDE species identification and transect location information and is included as Attachment K. The Navy Progress Report proposes adding additional transects at each GDE location and preparing an annual report in late 2022.

On September 7, 2022, three nearby existing groundwater monitoring wells were selected at each of the GDE monitoring sites[15] and equipped with pressure transducers to record changes to groundwater level data. Table 7.8-1 provides depth to groundwater for both September 7th and October 3rd when these wells were measured. No increasing or decreasing groundwater level trends were apparent at GDE Site 1 or GDE Site 2, although GDE site 3 data indicated a slight decreasing water level trend over the month of September.

[14] Nine potential groundwater dependent ecosystem (GDE) sites were investigated during August 11, 2021 and June/July 2022 field visits.

[15] The initial investigation of Recon Areas 6, 8 and 9 are now referred to as GDE Areas 3, 1 and 2, respectively.

*Table 7-1: Initial Depths to Water (DTW) at GDE Sites, WY 2022*

| GDE Site | Monitoring Well (T/R-S) | 9/7/2022 DTW (feet) | 10/3/2022 DTW (feet) | Well Depth (Sounded, feet) |
|---|---|---|---|---|
| GDE-1 | 25S/41E-18R01 | 25.25 | 25.41 | 52 |
| GDE-2 | 24S/40E-21K02 | 52.60 | 52.58 | 300 |
| GDE-3 | 25S/40E-36A01 | 12.79 | 13.22 | 17 |

The GDE monitoring program will evolve through the next few years as data are collected and more vegetation surveys are completed. Planned activities in 2023:

- Measure depth to water and download datalogger data during semi-annual groundwater monitoring events in March and October.
- Determine and tabulate well construction details of all three GDE wells.
- Develop recommendations for additional monitoring wells at GDE sites.
- Establish additional transects at GDE Sites.
- Perform an initial annual vegetation survey at each transect during the plant growing season.
- Develop recommendations for additional wells at all three GDE locations to monitor for potential vertical gradients

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# ATTACHMENTS

# Attachment A

# Historical Water Year Types Based on Precipitation at China Lake NAF

# (No. 041733)

| WY | Annual Precipitation at China Lake NAF, No. 041733 (in/yr) | Water Year Type |
|---|---|---|
| 1945 | 4.90 | AN |
| 1946 | 2.77 | N |
| 1947 | 3.81 | N |
| 1948 | 1.97 | BN |
| 1949 | 1.21 | D |
| 1950 | 1.90 | BN |
| 1951 | 0.25 | D |
| 1952 | 4.89 | AN |
| 1953 | 1.75 | BN |
| 1954 | 2.80 | N |
| 1955 | 1.93 | BN |
| 1956 | 1.73 | BN |
| 1957 | 2.10 | BN |
| 1958 | 4.45 | AN |
| 1959 | 2.47 | N |
| 1960 | 3.13 | N |
| 1961 | 1.82 | BN |
| 1962 | 3.87 | N |
| 1963 | 4.03 | N |
| 1964 | 1.54 | BN |
| 1965 | 4.74 | AN |
| 1966 | 5.85 | AN |
| 1967 | 2.57 | N |
| 1968 | 4.65 | AN |
| 1969 | 5.29 | AN |
| 1970 | 3.68 | N |
| 1971 | 2.95 | N |
| 1972 | 1.55 | BN |
| 1973 | 3.76 | N |
| 1974 | 5.98 | AN |
| 1975 | 3.39 | N |
| 1976 | 3.64 | N |
| 1977 | 4.01 | N |
| 1978 | 10.96 | W |
| 1979 | 6.53 | W |
| 1980 | 5.66 | AN |
| 1981 | 3.23 | N |
| 1982 | 4.40 | AN |
| 1983 | 10.42 | W |
| 1984 | 4.05 | AN |
| 1985 | 2.79 | N |
| 1986 | 4.15 | AN |
| 1987 | 2.82 | N |
| 1988 | 5.40 | AN |
| 1989 | 1.37 | BN |
| 1990 | 1.43 | BN |
| 1991 | 3.84 | N |
| 1992 | 9.11 | W |
| 1993 | 7.12 | W |
| 1994 | 1.08 | D |
| 1995 | 5.23 | AN |
| 1996 | 1.91 | BN |
| 1997 | 2.71 | N |
| 1998 | 6.06 | W |
| 1999 | 1.53 | BN |
| 2000 | 1.76 | BN |
| 2001 | 4.36 | AN |
| 2002 | 0.54 | D |
| 2003 | 4.35 | AN |
| 2004 | 3.22 | N |
| 2005 | 5.88 | AN |
| 2006 | 2.61 | N |
| 2007 | 0.46 | D |
| 2008 | 3.18 | N |
| 2009 | 1.16 | D |
| 2010 | 3.36 | N |
| 2011 | 3.98 | N |
| 2012 | 1.32 | D |
| 2013 | 0.83 | D |
| 2014 | 1.44 | BN |
| 2015 | 3.67 | N |
| 2016 | 1.38 | BN |
| 2017 | 4.61 | AN |
| 2018 | 1.43 | BN |
| 2019 | 6.13 | W |
| 2020 | 5.57 | AN |
| 2021 | 0.58 | D |
| 2022 | 1.87 | BN |

# Attachment B

# Groundwater Monitoring Program Updates

STETSON ENGINEERS INC.

# TECHNICAL NOTE

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November 2022

## GROUNDWATER MONITORING PROGRAM UPDATES

Groundwater levels have been measured in IWV groundwater basin since the 1920's. Starting in 1989, the Kern County Water Agency (KCWA), the Naval Air Weapons Station (NAWS), and multiple other entities (USGS, BLM, USBR, and IWVWD) collected depth to water (DTW) measurements within the basin. In 1995, the IWV Cooperative Groundwater Management Group was formed to coordinate monitoring and management efforts of groundwater level data across IWV. Since the 2020 GSP, the management of this program is coordinated with KCWA and the Navy by the Indian Wells Valley Groundwater Authority (IWVGA).

In 2018, KCWA's monitoring well inventory consisted of171 single monitoring wells and 9 multi-level monitoring wells (27 piezometers)[1], resulting in 198 potential measurements. Typically, about 5 to 10% of the wells were not able to be monitored during each semi-annual data collection field work due to access or other issues. Wells monitored consists of private and public water production wells and monitoring wells. These data provide a strong foundation for understanding the trends and state of water resources within the Basin.

Since 2018, updates have been made to the monitoring program to assure that the GWMP is representative of current basin monitoring. Depth to water is measured at accessible monitoring wells during Spring (March) and Fall (October) to observe seasonal changes in groundwater levels. The existing WY 2022 program contains monitoring wells throughout the basin including 10 multi-level monitoring wells (30 piezometers), 51 domestic wells, and 62 wells on the Navy base. The wells in the existing WY 2022 GWMP have varying supporting data, with limited well log and construction data. Table 1 summarizes existing wells monitored for groundwater levels by different areas within the IWVGB.

The Water Resource Manager continues an ongoing effort to fill in data gaps and update the monitoring wells included in the GWMP. Tables 2 and 3 detail wells removed from the GWMP and wells added to the GWMP, respectively. Figure 1 shows the 178 wells in the current GWMP and changes made since the Water Year 2021 Indian Wells Valley GSP Annual Report.

[1] These wells are described in Section 3.6 of the Groundwater Sustainability Plan (GSP, 2020).

- *Removal of 3 Wells from the GWMP* – Three wells were removed from the GWMP during WY 2022 and are listed below.

    1. **NAVY 26S/40E-17J01** – Well 17J01 was a monitoring well located on NAWS China Lake. Construction was observed in this area in March 2021 during the Spring DTW measuring event. At this time, a DTW measurement was able to be taken by coordination with the construction company. In Fall 2021 and Spring 2022, Well 17J01 was unable to be located. It is believed that this well was destroyed during construction. The last DTW measurement at the well was taken in March 2021.

    2. **27S/39E-03B01** – 03B01 is a **domestic** well that was monitored by KCWA. DTW measurements were discontinued at this well at the request of the well owner. The last DTW measurement at this well was taken in March 2018.

    3. **25S/38E-36B01** – 36B01 is a monitoring well that was monitored by KCWA. DTW measurements were discontinued at this well due to access issues and at request of landowner.

- *Addition of 4 Wells to the GWMP* – Four total wells were added to the GWMP since WY 2021. Wells were added to fill data gaps and provide new groundwater levels. Wells added to the GWMP are detailed below.
    1. **NAVY 25S/39E-29N01** – Well 29N01 was added to the GWMP in Fall 2021. This well is an existing monitoring well added to fill groundwater level data gaps in the eastern Navy area. A Solinst levelogger has been installed in this well. Groundwater level data and DTW levels in this well will be collected biannually by Navy personnel.

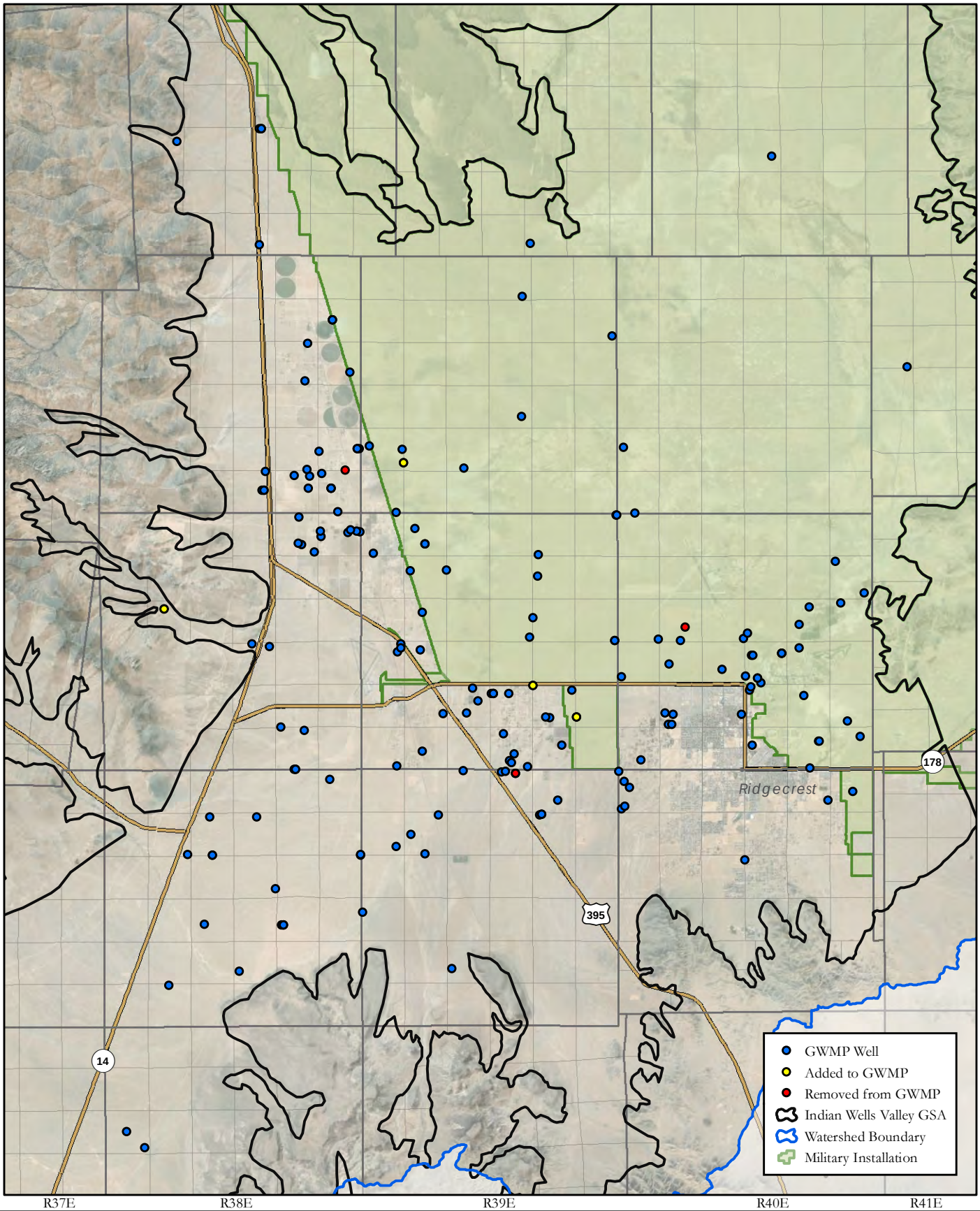
    2. **26S/38E-17C01 (Indian Wells Canyon Well)** – Indian Wells Canyon Well was an existing stock well added to the GWMP in Fall 2021. This well was added to monitor groundwater levels in the Indian Wells Canyon stream alluvium. A Solinst levelogger has been installed in this well. Groundwater level data and DTW levels in this well will be collected biannually by the IWVGA.

    3. **26S/39E-25K01** – 25K01 is an existing monitoring well located in the southeast section of the IWV Main Subarea. This well was added to the GWMP in Spring 2021. This well serves to fill groundwater level data gaps in the southeast area. DTW levels in this well will be collected semi-annually by the IWVGA.

    4. **26S/39E-27C02** – 27C02 is a new **domestic** well located in the southeast section of the IWV Main Subarea. This well was added to the GWMP in Spring 2022. This well serves to fill groundwater level data gaps in the southeast area. DTW levels in this well will be collected biannually by the IWVGA.

In WY 2022, 14 domestic wells and 7 monitoring, stock, cathode, or irrigation wells were unable to be accessed in both Fall 2021 and Spring 2022. The IWVGA, with assistance from KCWA, are investigating the possibility of re-establishing access to these wells. In Fall 2021 and Spring 2022, the IWVGA has 1)

been unable to contact the current well owners; or 2) property ownership has changed, and the IWVGA is attempting to make contact with new well owners. The IWVGA is working with KCWA to have current well owners sign "Right of Entry" forms (revised and provided by KCWA) to allow for Spring and Fall groundwater level measurements at domestic wells. Changes and updates to the GWMP will continue as new wells are added to or removed from the program.




**WY 2022**

**GROUNDWATER MONITORING PROGRAM UPDATES**

**INDIAN WELLS VALLEY, CA**

STETSON ENGINEERS INC.

N

0 1.5 3 Miles

Document Path: J:\jn2652\AnnualReport2022_GWMPWells.mxd

# Table 1: Indian Wells Valley Groundwater Monitoring Program (GWMP)

***Blue Text*** *indicates a column count*

| 178 | | | | | | 62 |
|---|---|---|---|---|---|---|
| DBID | State ID | Alternate Well Name | Latitude (NAD83) | Longitude (NAD83) | Well Type | NAVY |
| 246 | 23S/40E-31N | E. Airport Lake Well | 35.887 | -117.706 | MW | ✓ |
| 247 | 24S/38E-19H | Ninemile Well | 35.83719 | -117.90704 | MW | |
| 202 | 24S/38E-21A01 | USBR 10-S | 35.84143 | -117.87176 | MW | |
| 203 | 24S/38E-21A02 | USBR 10-SM | 35.84134 | -117.87258 | MW | |
| 205 | 24S/38E-21A04 | USBR 10-D | 35.84134 | -117.87258 | MW | |
| 237 | 24S/38E-33J02 | | 35.80190 | -117.87258 | MW | |
| 199 | 24S/39E-34D01 | Baker-North | 35.80213 | -117.75901 | MW | ✓ |
| 244 | 24S/40E-21K02 | TTIWV-MW15 | 35.83168 | -117.65779 | MW | ✓ |
| 191 | 25S/38E-12L01 | USBR 6-S | 35.77607 | -117.84203 | MW | ✓ |
| 192 | 25S/38E-12L02 | USBR 6-M | 35.77607 | -117.84203 | MW | ✓ |
| 193 | 25S/38E-12L03 | USBR 6-D | 35.77607 | -117.84203 | MW | ✓ |
| 184 | 25S/38E-13J01 | | 35.75829 | -117.83480 | Stock | ✓ |
| 248 | 25S/38E-14A01 | | 35.76809 | -117.85244 | Dom | |
| 183 | 25S/38E-14Q01 | | 35.75542 | -117.85372 | Dom | |
| 173 | 25S/38E-25J01 | NR 1-S | 35.73218 | -117.83175 | Stock | |
| 174 | 25S/38E-25J02 | NR 1-M | 35.73208 | -117.83087 | Stock | |
| 175 | 25S/38E-25J03 | NR 1-D | 35.73218 | -117.83175 | MW | |
| 208 | 25S/38E-25M | | 35.73135 | -117.84767 | Dom | |
| 168 | 25S/38E-34A01 | | 35.72453 | -117.87024 | Dom | |
| 157 | 25S/38E-34G01 | USBR 5-S | 35.71813 | -117.87090 | MW | |
| 158 | 25S/38E-34G02 | USBR 5-M | 35.71801 | -117.87175 | MW | |
| 159 | 25S/38E-34G03 | USBR 05-D | 35.71801 | -117.87175 | Mun | |
| 164 | 25S/38E-35A | | 35.72272 | -117.85156 | Dom | |
| 169 | 25S/38E-35B01 | | 35.72509 | -117.85286 | MW | |
| 165 | 25S/38E-35C | | 35.72307 | -117.85805 | Dom | |
| 160 | 25S/38E-35H | | 35.71860 | -117.85238 | Dom | |
| 166 | 25S/38E-36D | | 35.72366 | -117.84667 | Dom | |
| 161 | 25S/38E-36G01 | NR-2 (Shallow) | 35.71868 | -117.84271 | MW | |
| 162 | 25S/38E-36G02 | NR-2 (Middle) | 35.71868 | -117.84271 | MW | |
| 163 | 25S/38E-36G03 | NR-2 (Deep) | 35.71868 | -117.84271 | MW | |
| 156 | 25S/38E-36P | | 35.71076 | -117.83996 | Dom | |
| 195 | 25S/39E-03R01 | Baker Range | 35.78412 | -117.76257 | MW | ✓ |
| 187 | 25S/39E-12R01 | Charely Tower; Well 22 | 35.77039 | -117.72496 | Dom | ✓ |
| 238 | 25S/39E-22J01 | S. Baker Ranch | 35.74300 | -117.76290 | MW | ✓ |
| 171 | 25S/39E-28P01 | Baker 4-NE | 35.72551 | -117.78701 | Stock | ✓ |
| 172 | 25S/39E-29M01 | | 35.73190 | -117.81286 | Stock | ✓ |
| 254 | 25S/39E-29N01 | | 35.72744 | -117.81227 | MW | ✓ |
| 176 | 25S/39E-30E01 | | 35.73301 | -117.82675 | Stock | ✓ |
| 155 | 25S/39E-31R01 | | 35.71051 | -117.81536 | MW | ✓ |
| 210 | 25S/40E-30E01 | TTBK MW14 | 35.73254 | -117.72033 | MW | ✓ |
| 154 | 25S/40E-31P | | 35.70996 | -117.71563 | Stock | ✓ |
| 211 | 25S/41E-18R01 | TTBK MW12 | 35.75969 | -117.60148 | MW | ✓ |

| DBID | State ID | Alternate Well Name | Latitude (NAD83) | Longitude (NAD83) | Well Type | NAVY |
|---|---|---|---|---|---|---|
| 212 | 26S/38E-01E03 | | 35.70417 | -117.84716 | Dom | |
| 147 | 26S/38E-01G02 | | 35.70363 | -117.83580 | Dom | |
| 148 | 26S/38E-01H03 | | 35.70384 | -117.83079 | Dom | |
| 215 | 26S/38E-01H05 | | 35.70406 | -117.83200 | Dom | |
| 216 | 26S/38E-01H06 | | 35.70453 | -117.83447 | Dom | |
| 146 | 26S/38E-01M05 | | 35.70215 | -117.84707 | Dom | |
| 151 | 26S/38E-02B01 | | 35.70886 | -117.85615 | Dom | |
| 145 | 26S/38E-02Q01 | | 35.70000 | -117.85645 | Dom | |
| 144 | 26S/38E-02Q02 | | 35.69941 | -117.85503 | Dom | |
| 141 | 26S/38E-02R01 | | 35.69703 | -117.84962 | MW | |
| 305 | 26S/38E-1701 | Indian Wells Canyon | 35.67757 | -117.91260 | MW | |
| 218 | 26S/38E-22B | | 35.66466 | -117.86875 | Dom | |
| 114 | 26S/38E-22D | | 35.66566 | -117.87597 | MW | |
| 219 | 26S/38E-35B | | 35.63608 | -117.85408 | Dom | |
| 220 | 26S/38E-35D | | 35.63714 | -117.86398 | Unk | |
| 152 | 26S/39E-01A01 | | 35.70940 | -117.72341 | Stock | ✓ |
| 153 | 26S/39E-01A02 | | 35.70940 | -117.72313 | Stock | ✓ |
| 139 | 26S/39E-02N01 | | 35.69579 | -117.75591 | Stock | ✓ |
| 149 | 26S/39E-05F01 | Well 23 | 35.70496 | -117.80758 | Unk | ✓ |
| 250 | 26S/39E-05K01 | | 35.69973 | -117.80339 | MW | ✓ |
| 249 | 26S/39E-05L01 | | 35.69973 | -117.80355 | MW | ✓ |
| 140 | 26S/39E-06P01 | | 35.69639 | -117.82502 | Dom | |
| 136 | 26S/39E-08F | | 35.69051 | -117.80952 | Stock | ✓ |
| 137 | 26S/39E-09E | | 35.69079 | -117.79452 | Stock | ✓ |
| 134 | 26S/39E-11E02 | Sandquist Spa | 35.68857 | -117.75647 | MW | ✓ |
| 115 | 26S/39E-13R03 | USNS-01 | 35.66663 | -117.72424 | Stock | ✓ |
| 116 | 26S/39E-13R04 | | 35.66663 | -117.72424 | MW | ✓ |
| 124 | 26S/39E-14E01 | | 35.67440 | -117.75841 | Stock | ✓ |
| 119 | 26S/39E-15J | | 35.66774 | -117.75980 | Stock | ✓ |
| 126 | 26S/39E-17G02 | Kerr McGee | 35.67635 | -117.80452 | MW | ✓ |
| 109 | 26S/39E-20C02 | | 35.66337 | -117.80541 | Dom | |
| 94 | 26S/39E-20L | | 35.66560 | -117.81374 | Stock | |
| 108 | 26S/39E-20N01 | ICSD MW #2 | 35.66274 | -117.81508 | MW | |
| 112 | 26S/39E-20N02 | ICSD MW #3 | 35.66413 | -117.81369 | MW | |
| 307 | 26S/39E-25K01 | | 35.64043 | -117.74025 | MW | |
| 88 | 26S/39E-26A03 | USBR 4-SM | 35.64966 | -117.74213 | MW | |
| 75 | 26S/39E-26P01 | | 35.64024 | -117.75147 | Irr | |
| 76 | 26S/39E-26P02 | | 35.64052 | -117.75313 | Irr | |
| 223 | 26S/39E-27C01 | | 35.64849 | -117.76864 | Unk | |
| 306 | 26S/39E-27C02 | | | | Dom | |
| 84 | 26S/39E-27D02 | MW 32-SM | 35.64852 | -117.77493 | MW | |
| 85 | 26S/39E-27D03 | MW 32-DM | 35.64857 | -117.77591 | MW | |
| 86 | 26S/39E-27D04 | MW 32-D | 35.64857 | -117.77591 | MW | |
| 90 | 26S/39E-28B03 | | 35.65050 | -117.78352 | Dom | |
| 80 | 26S/39E-28G02 | | 35.64601 | -117.78135 | Dom | |
| 78 | 26S/39E-28L02 | | 35.64182 | -117.78619 | Dom | |
| 77 | 26S/39E-29J02 | | 35.64181 | -117.79611 | Dom | |

| DBID | State ID | Alternate Well Name | Latitude (NAD83) | Longitude (NAD83) | Well Type | NAVY |
|---|---|---|---|---|---|---|
| 59 | 26S/39E-31R03 | Donna Sue Water Co. | 35.62389 | -117.81543 | Dom | |
| 57 | 26S/39E-32L01 | | 35.62902 | -117.80461 | Dom | |
| 224 | 26S/39E-34C01 | | 35.63472 | -117.77080 | Dom | |
| 56 | 26S/39E-34K03 | | 35.62791 | -117.76635 | Dom | |
| 52 | 26S/39E-34P04 | | 35.62565 | -117.76819 | Dom | |
| 227 | 26S/39E-34Q01 | | 35.62502 | -117.76733 | Dom | |
| 51 | 26S/39E-34R02 | | 35.62351 | -117.76068 | Dom | |
| 58 | 26S/39E-35G01 | | 35.63079 | -117.74730 | Irr | |
| 138 | 26S/40E-12C | | 35.69329 | -117.63174 | Stock | ✓ |
| 131 | 26S/40E-12R01 | Chub Med | 35.68246 | -117.61980 | Stock | ✓ |
| 129 | 26S/40E-13C02 | | 35.67913 | -117.62952 | MW | ✓ |
| 127 | 26S/40E-14B01 | | 35.67774 | -117.64285 | Stock | ✓ |
| 122 | 26S/40E-14L01 | | 35.67190 | -117.64702 | Stock | ✓ |
| 118 | 26S/40E-15N01 | | 35.66718 | -117.67035 | Stock | ✓ |
| 120 | 26S/40E-15N02 | | 35.66885 | -117.66869 | Stock | ✓ |
| 117 | 26S/40E-17N01 | | 35.66690 | -117.70591 | Stock | ✓ |
| 241 | 26S/40E-17Q01 | S. Hangar 5; 96030-1 | 35.66638 | -117.69659 | MW | ✓ |
| 100 | 26S/40E-19N02 | | 35.65413 | -117.72147 | MW | ✓ |
| 104 | 26S/40E-20L01 | | 35.65857 | -117.70147 | Stock | ✓ |
| 103 | 26S/40E-21K03 | | 35.65663 | -117.67924 | Stock | ✓ |
| 251 | 26S/40E-22E01 | CB Camp Well #1 | 35.66135 | -117.66687 | MW | ✓ |
| 255 | 26S/40E-22E02 | CB Camp Well #2 | 35.66132 | -117.66633 | MW | ✓ |
| 105 | 26S/40E-22H01 | | 35.66190 | -117.65424 | Stock | ✓ |
| 106 | 26S/40E-22H02 | | 35.66190 | -117.65424 | Stock | ✓ |
| 107 | 26S/40E-22H03 | | 35.66190 | -117.65424 | Stock | ✓ |
| 101 | 26S/40E-22N01 | | 35.65423 | -117.66940 | Stock | ✓ |
| 95 | 26S/40E-22P02 | PW Substation 3 | 35.65191 | -117.66313 | Stock | ✓ |
| 97 | 26S/40E-22P03 | PW Substation 1 | 35.65357 | -117.66452 | MW | ✓ |
| 98 | 26S/40E-22P04 | PW Substation 2 | 35.65357 | -117.66452 | MW | ✓ |
| 113 | 26S/40E-23C01 | | 35.66385 | -117.64702 | Stock | ✓ |
| 245 | 26S/40E-25P | MK22-MW10 | 35.63875 | -117.62699 | MW | ✓ |
| 82 | 26S/40E-26F01 | | 35.64746 | -117.64508 | Stock | ✓ |
| 92 | 26S/40E-27D01 | | 35.65052 | -117.66730 | Stock | ✓ |
| 87 | 26S/40E-27D02 | | 35.64941 | -117.66785 | Stock | ✓ |
| 229 | 26S/40E-28J01 | Hospital | 35.64121 | -117.67128 | Mun | |
| 230 | 26S/40E-29M01 | | 35.64186 | -117.70314 | Dom | |
| 231 | 26S/40E-29M02 | | 35.64125 | -117.69973 | Dom | |
| 72 | 26S/40E-29N01 | | 35.63792 | -117.70175 | Dom | |
| 73 | 26S/40E-29P01 | | 35.63791 | -117.70032 | Dom | |
| 53 | 26S/40E-31K01 | | 35.62580 | -117.71330 | Dom | |
| 239 | 26S/40E-34F01 | City of Ridgecrest | 35.63070 | -117.66690 | Cath | |
| 63 | 26S/40E-35H01 | Satellite Lake 1 (west) | 35.63191 | -117.63896 | Stock | ✓ |
| 64 | 26S/40E-35H02 | Satellite Lake 2 (east) | 35.63191 | -117.63869 | Stock | ✓ |
| 50 | 26S/40E-35Q02 | S.E. Line | 35.62274 | -117.64257 | Stock | ✓ |
| 66 | 26S/40E-36A01 | | 35.63357 | -117.62174 | Stock | ✓ |
| 233 | 27S/38E-01C | | 35.61944 | -117.84342 | Dom | |
| 46 | 27S/38E-02C01 | USBR 2-S | 35.62280 | -117.85761 | Stock | |

| DBID | State ID | Alternate Well Name | Latitude (NAD83) | Longitude (NAD83) | Well Type | NAVY |
|---|---|---|---|---|---|---|
| 47 | 27S/38E-02C02 | USBR 2-M | 35.62274 | -117.85841 | Stock | |
| 48 | 27S/38E-02C03 | USBR 2-D | 35.62274 | -117.85841 | Stock | |
| 19 | 27S/38E-08R01 | | 35.59367 | -117.90300 | MW | |
| 25 | 27S/38E-09C01 | AB303-04 | 35.60665 | -117.89378 | MW | |
| 18 | 27S/38E-09P01 | Father Crowley | 35.59363 | -117.89246 | MW | |
| 17 | 27S/38E-09Q02 | AB303-02 | 35.59362 | -117.89262 | MW | |
| 24 | 27S/38E-10B02 | AB303-03 | 35.60662 | -117.87407 | MW | |
| 16 | 27S/38E-13A01 | Sea Bee Well | 35.59345 | -117.83060 | MW | |
| 20 | 27S/38E-13A02 | AB303-01 | 35.59369 | -117.83070 | MW | |
| 13 | 27S/38E-15R01 | AB303-06 | 35.58195 | -117.86617 | MW | |
| 11 | 27S/38E-21L01 | AB303-05 | 35.56985 | -117.89592 | MW | |
| 7 | 27S/38E-23F01 | USBR 1-S | 35.56959 | -117.86289 | MW | |
| 8 | 27S/38E-23F02 | USBR 1-SM | 35.56968 | -117.86369 | MW | |
| 10 | 27S/38E-23F04 | USBR 1-D | 35.56968 | -117.86369 | MW | |
| 5 | 27S/38E-27M01 | USNS-03 | 35.55387 | -117.88132 | MW | |
| 301 | 27S/38E-32C01 | EP-01 S | 35.54904 | -117.91071 | MW | |
| 302 | 27S/38E-32C02 | EP-01 M | 35.54904 | -117.91071 | MW | |
| 303 | 27S/38E-32C03 | EP-01 D | 35.54904 | -117.91071 | MW | |
| 234 | 27S/39E-02K | Asphalt Construction Co. | 35.61218 | -117.74813 | Ind/DC | |
| 41 | 27S/39E-03B01 | | 35.62127 | -117.76580 | Dom | |
| 43 | 27S/39E-03C01 | | 35.62174 | -117.77157 | Dom | |
| 45 | 27S/39E-03C02 | | 35.62206 | -117.76995 | Dom | |
| 44 | 27S/39E-04C01 | | 35.62224 | -117.78752 | Dom | |
| 22 | 27S/39E-07R01 | Inyo | 35.59634 | -117.81589 | MW | |
| 235 | 27S/39E-08A01 | | 35.60721 | -117.79818 | MW | |
| 23 | 27S/39E-08M02 | IWV MW #1 | 35.60045 | -117.80947 | MW | |
| 21 | 27S/39E-08P02 | IWV MW # 2 | 35.59393 | -117.80371 | MW | |
| 26 | 27S/39E-11D01 | USBR 3-S | 35.60731 | -117.75485 | MW | |
| 27 | 27S/39E-11D02 | USBR 3-M | 35.60718 | -117.75563 | MW | |
| 28 | 27S/39E-11D03 | USBR 3-D | 35.60718 | -117.75563 | MW | |
| 12 | 27S/39E-19E01 | IWV MW #3 | 35.57400 | -117.82969 | Stock | |
| 6 | 27S/39E-28L01 | Rock Quarry | 35.55472 | -117.79253 | Dom | |
| 36 | 27S/40E-01K02 | George Air Corridor | 35.61470 | -117.62469 | MW | |
| 240 | 27S/40E-02J01 | DMP Cemetery | 35.61176 | -117.63510 | Irr | |
| 30 | 27S/40E-06D01 | Dist. Well 12 | 35.62198 | -117.72253 | MW | |
| 40 | 27S/40E-06E01 | | 35.61855 | -117.72040 | Dom | |
| 37 | 27S/40E-06F01 | | 35.61629 | -117.71810 | Dom | |
| 32 | 27S/40E-06N01 | | 35.60996 | -117.72005 | Dom | |
| 31 | 27S/40E-06N02 | | 35.60898 | -117.72155 | Dom | |

**Table 2: Wells Removed from Indian Wells Valley GWMP**

*Measurments discontinued & removed from GWMP in WY 2022*

***Blue Text*** *indicates a column count*

3

| DBID | State ID | Alternative Well Name | Latitude (NAD83) | Longitude (NAD83) | Well Type | Date First Measured | Date Last Measured | # of DTW Measurements | Notes |
|---|---|---|---|---|---|---|---|---|---|
| 41 | 27S/39E-03B01 | | 35.62127 | -117.76580 | Dom | 11/10/2007 | 3/6/2018 | 17 | Discontinued @ request of owner |
| 121 | 26S/40E-17J01 | | 35.67107 | -117.69480 | MW | 3/7/1996 | 3/22/2021 | 49 | Well destroyed during construction |
| 170 | 25S/38E-36B01 | WELL 27 | 35.72496 | -117.83675 | MW | 3/14/1991 | 3/9/2021 | 25 | Discontinued due to access issues and @ request of owner |

**Table 3: Wells Added to Indian Wells Valley GWMP**

*Well additions that occurred from Fall 2021 to Spring 2022*

***Blue Text*** *indicates a column count*

4

| DBID | State ID | Alternative Well Name | Latitude (NAD83) | Longitude (NAD83) | Well Type | Notes |
|---|---|---|---|---|---|---|
| 254 | 25S/39E-29N01 | | 35.72744 | -117.81227 | MW | Added to fill data gaps in the main subarea |
| 305 | 26S/38E-17C01 | Indian Wells Cyn | 35.67757 | -117.91260 | Stock | Added to monitor recharge at Indian Wells Cyn |
| 307 | 26S/39E-25K01 | | 35.64043 | -117.74025 | MW | Added to fill data gaps in the main subarea |
| 306 | 26S/39E-27C02 | | 35.65120 | -117.78538 | Dom | Added to fill data gaps in the main subarea |

# Attachment C

# WY 2022 Groundwater Level Data

**Table 1 WY 2022 - Fall 2021 & Spring 2022 Groundwater Level Data**

Bold blue text indicates a count of the data in that column

| 182 | | | | | 109 | | | 154 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Fall 2021 | | | Spring 2022 | | |
| *DBID* | *State ID* | *Other Name* | *Latitude (NAD83)* | *Longitude (NAD83)* | *Date* | *DTW (ft, bgs)* | *GW Elev. (ft, amsl)* | *Date* | *DTW (ft, bgs)* | *GW Elev. (ft, amsl)* |
| 1 | 28S/38E-18R | Black Hills Well | 35.49364 | -117.92094 | 10/19/2021 | 196.80 | 2820.20 | 3/14/2022 | 193.80 | 2819.90 |
| 2 | 28S/38E-18F01 | | 35.49928 | -117.92844 | 10/19/2021 | 211.52 | 2815.25 | 3/14/2022 | 214.30 | 2815.35 |
| 5 | 27S/38E-27M01 | USNS-03 | 35.55387 | -117.88132 | 10/19/2021 | 194.40 | 2678.79 | 3/14/2022 | 196.50 | 2680.39 |
| 6 | 27S/39E-28L01 | Rock Quarry | 35.55472 | -117.79253 | 10/19/2021 | 287.60 | 2532.40 | 3/14/2022 | 288.50 | 2531.50 |
| 7 | 27S/38E-23F01 | USBR 1-S | 35.56959 | -117.86289 | 10/19/2021 | 182.24 | 2668.26 | 3/11/2022 | 185.81 | 2668.15 |
| 8 | 27S/38E-23F02 | USBR 1-SM | 35.56968 | -117.86369 | 10/19/2021 | 179.72 | 2670.78 | 3/11/2022 | 183.24 | 2670.64 |
| 10 | 27S/38E-23F04 | USBR 1-D | 35.56968 | -117.86369 | | | | | | |
| 11 | 27S/38E-21L01 | AB303-05 | 35.56985 | -117.89592 | 10/19/2021 | 358.20 | 2667.67 | 3/14/2022 | 358.10 | 2667.77 |
| 12 | 27S/39E-19E01 | IWV MW #3 | 35.57400 | -117.82969 | 10/19/2021 | 204.10 | 2435.39 | 3/14/2022 | 207.50 | 2434.99 |
| 13 | 27S/38E-15R01 | AB303-06 | 35.58195 | -117.86617 | 10/19/2021 | 272.40 | 2659.59 | 3/14/2022 | 276.50 | 2659.09 |
| 15 | 27S/40E-15D01 | Bucket Well | 35.59143 | -117.67011 | | | | 3/12/2022 | DRY | |
| 16 | 27S/38E-13A01 | Sea Bee Well | 35.59345 | -117.83060 | | | | 3/11/2022 | 227.58 | 2428.86 |
| 17 | 27S/38E-09Q02 | AB303-02 | 35.59362 | -117.89262 | 10/19/2021 | 417.80 | 2687.20 | 3/14/2022 | 420.60 | 2688.00 |
| 18 | 27S/38E-09P01 | Father Crowley | 35.59363 | -117.89246 | 10/19/2021 | 415.70 | 2696.42 | 3/14/2022 | 418.60 | 2696.52 |
| 19 | 27S/38E-08R01 | | 35.59367 | -117.90300 | 10/19/2021 | 503.30 | 2700.04 | 3/14/2022 | 505.60 | 2700.74 |
| 20 | 27S/38E-13A02 | AB303-01 | 35.59369 | -117.83070 | 10/19/2021 | 223.30 | 2426.70 | 3/11/2022 | 226.16 | 2426.34 |
| 21 | 27S/39E-08P02 | IWV MW # 2 | 35.59393 | -117.80371 | 10/19/2021 | 437.10 | 2143.86 | 3/14/2022 | 439.00 | 2144.96 |
| 22 | 27S/39E-07R01 | Inyo | 35.59634 | -117.81589 | 10/19/2021 | 415.90 | 2148.20 | 3/14/2022 | 419.90 | 2146.70 |
| 23 | 27S/39E-08M02 | IWV MW #1 | 35.60045 | -117.80947 | 10/19/2021 | 403.90 | 2149.53 | 3/14/2022 | 414.00 | 2140.43 |
| 24 | 27S/38E-10B02 | AB303-03 | 35.60662 | -117.87407 | | | | 3/14/2022 | 425.90 | 2472.70 |
| 25 | 27S/38E-09C01 | AB303-04 | 35.60665 | -117.89378 | 10/19/2021 | 379.30 | 2690.70 | 3/14/2022 | 382.90 | 2690.90 |
| 26 | 27S/39E-11D01 | USBR 3-S | 35.60731 | -117.75485 | 10/19/2021 | 360.14 | 2150.26 | 3/11/2022 | 372.58 | 2140.78 |
| 27 | 27S/39E-11D02 | USBR 3-M | 35.60718 | -117.75563 | 10/19/2021 | 366.98 | 2143.42 | 3/11/2022 | 364.82 | 2148.50 |
| 28 | 27S/39E-11D03 | USBR 3-D | 35.60718 | -117.75563 | 10/19/2021 | 343.19 | 2167.21 | 3/11/2022 | 348.12 | 2164.99 |
| 30 | 27S/40E-06D01 | Dist. Well 12 | 35.62198 | -117.72253 | | | | 3/24/2022 | 284.12 | 2124.73 |
| 31 | 27S/40E-06N02 | | 35.60898 | -117.72155 | | | | 3/11/2022 | 350.56 | 2123.17 |
| 32 | 27S/40E-06N01 | | 35.60996 | -117.72005 | | | | 3/14/2022 | 350.00 | 2121.59 |
| 36 | 27S/40E-01K02 | George Air Corr. | 35.61470 | -117.62469 | 10/19/2021 | 164.53 | 2159.61 | 3/24/2022 | 164.80 | 2159.34 |
| 37 | 27S/40E-06F01 | | 35.61629 | -117.71810 | 10/22/2021 | 319.93 | 2120.63 | 3/12/2022 | 319.40 | 2121.16 |
| 40 | 27S/40E-06E01 | | 35.61855 | -117.72040 | | | | 3/12/2022 | 313.43 | 2119.46 |
| 41 | 27S/39E-03B01 | | 35.62127 | -117.76580 | | | | | | |
| 43 | 27S/39E-03C01 | | 35.62174 | -117.77157 | | | | | | |
| 44 | 27S/39E-04C01 | | 35.62224 | -117.78752 | | | | 3/11/2022 | 351.18 | 2149.92 |
| 45 | 27S/39E-03C02 | | 35.62206 | -117.76995 | | | | | | |
| 46 | 27S/38E-02C01 | USBR 2-S | 35.62280 | -117.85761 | 10/19/2021 | 280.96 | 2373.99 | 3/14/2022 | 284.30 | 2373.19 |
| 47 | 27S/38E-02C02 | USBR 2-M | 35.62274 | -117.85841 | 10/19/2021 | 272.32 | 2382.63 | 3/14/2022 | 274.90 | 2382.43 |
| 48 | 27S/38E-02C03 | USBR 2-D | 35.62274 | -117.85841 | 10/19/2021 | 280.17 | 2374.78 | 3/14/2022 | 283.90 | 2373.38 |
| 50 | 26S/40E-35Q02 | S.E. Line | 35.62274 | -117.64257 | 10/20/2021 | 97.69 | 2157.84 | 3/15/2022 | 97.90 | 2158.43 |
| 51 | 26S/39E-34R02 | | 35.62351 | -117.76068 | | | | 3/24/2022 | 323.81 | 2127.90 |
| 52 | 26S/39E-34P04 | | 35.62565 | -117.76819 | | | | | | |
| 53 | 26S/40E-31K01 | | 35.62580 | -117.71330 | | | | 3/12/2022 | 272.79 | 2119.16 |
| 56 | 26S/39E-34K03 | | 35.62791 | -117.76635 | | | | | | |
| 57 | 26S/39E-32L01 | | 35.62902 | -117.80461 | | | | 3/13/2022 | 345.21 | 2147.83 |
| 58 | 26S/39E-35G01 | | 35.63089 | -117.74645 | | | | 3/13/2022 | 282.12 | 2140.05 |
| 59 | 26S/39E-31R03 | | 35.62389 | -117.81543 | | | | | | |
| 63 | 26S/40E-35H01 | Satellite Lake1(w) | 35.63191 | -117.63896 | 10/20/2021 | 91.47 | 2162.08 | 3/15/2022 | 91.64 | 2161.91 |
| 64 | 26S/40E-35H02 | Satellite Lake2(e) | 35.63191 | -117.63869 | 10/20/2021 | 100.79 | 2153.24 | 3/15/2022 | 100.48 | 2153.95 |
| 66 | 26S/40E-36A01 | | 35.63357 | -117.62174 | 10/18/2021 | DRY | | | | |
| 72 | 26S/40E-29N01 | | 35.63792 | -117.70175 | | | | | | |

| DBID | State ID | Other Name | Latitude (NAD83) | Longitude (NAD83) | Fall 2021 Date | Fall 2021 DTW (ft, bgs) | Fall 2021 GW Elev. (ft, amsl) | Spring 2022 Date | Spring 2022 DTW (ft, bgs) | Spring 2022 GW Elev. (ft, amsl) |
|---|---|---|---|---|---|---|---|---|---|---|
| 73 | 26S/40E-29P01 | | 35.63791 | -117.70032 | | | | 3/12/2022 | 199.02 | 2132.67 |
| 75 | 26S/39E-26P01 | | 35.64024 | -117.75147 | | | | 3/13/2022 | 263.82 | 2140.51 |
| 76 | 26S/39E-26P02 | | 35.64052 | -117.75313 | | | | 3/13/2022 | 267.07 | 2140.19 |
| 77 | 26S/39E-29J02 | | 35.64181 | -117.79611 | | | | 3/13/2022 | 303.19 | 2125.81 |
| 78 | 26S/39E-28L02 | | 35.64182 | -117.78619 | | | | | | |
| 80 | 26S/39E-28G02 | | 35.64601 | -117.78135 | | | | | | |
| 82 | 26S/40E-26F01 | | 35.64746 | -117.64508 | 10/20/2021 | 62.15 | 2173.65 | 3/15/2022 | 62.24 | 2173.56 |
| 84 | 26S/39E-27D02 | MW 32-SM | 35.64852 | -117.77493 | | | | 3/12/2022 | 298.87 | 2122.70 |
| 85 | 26S/39E-27D03 | MW 32-DM | 35.64857 | -117.77591 | 10/19/2021 | 283.66 | 2134.87 | 3/12/2022 | 287.65 | 2133.92 |
| 86 | 26S/39E-27D04 | MW 32-D | 35.64857 | -117.77591 | 10/19/2021 | 280.85 | 2137.68 | 3/12/2022 | 281.10 | 2140.08 |
| 87 | 26S/40E-27D02 | | 35.64941 | -117.66785 | 10/20/2021 | 46.62 | 2221.03 | 3/15/2022 | 46.59 | 2221.06 |
| 88 | 26S/39E-26A03 | USBR 4 | 35.64966 | -117.74213 | | | | 3/14/2022 | 258.20 | 2120.74 |
| 90 | 26S/39E-28B03 | | 35.65050 | -117.78352 | | | | 3/11/2022 | 280.76 | 2146.89 |
| 92 | 26S/40E-27D01 | | 35.65052 | -117.66730 | 10/20/2021 | 70.79 | 2198.25 | 3/15/2022 | 70.98 | 2196.06 |
| 94 | 26S/39E-20L | | 35.66560 | -117.81374 | | | | | | |
| 95 | 26S/40E-22P02 | PW Substation 3 | 35.65191 | -117.66313 | 10/20/2021 | 69.47 | 2201.45 | 3/15/2022 | 69.44 | 2201.48 |
| 97 | 26S/40E-22P03 | PW Substation 1 | 35.65357 | -117.66452 | 10/20/2021 | 115.31 | 2144.57 | 3/15/2022 | 113.45 | 2146.43 |
| 98 | 26S/40E-22P04 | PW Substation 2 | 35.65357 | -117.66452 | 10/20/2021 | 54.94 | 2204.81 | 3/15/2022 | 53.79 | 2205.96 |
| 100 | 26S/40E-19N02 | | 35.65413 | -117.72147 | 10/19/2021 | 207.40 | 2131.03 | 3/15/2022 | 209.72 | 2128.71 |
| 101 | 26S/40E-22N01 | | 35.65423 | -117.66940 | 10/20/2021 | 91.61 | 2172.75 | 3/15/2022 | 92.38 | 2171.98 |
| 103 | 26S/40E-21K03 | | 35.65663 | -117.67924 | 10/20/2021 | 103.96 | 2165.63 | 3/15/2022 | 102.69 | 2166.90 |
| 104 | 26S/40E-20L01 | | 35.65857 | -117.70147 | 10/19/2021 | 149.58 | 2150.87 | 3/15/2022 | 149.77 | 2150.68 |
| 105 | 26S/40E-22H01 | | 35.66190 | -117.65424 | 10/20/2021 | 36.38 | 2194.67 | 3/14/2022 | 35.71 | 2195.34 |
| 106 | 26S/40E-22H02 | | 35.66190 | -117.65424 | 10/20/2021 | 36.67 | 2195.01 | 3/14/2022 | 36.41 | 2195.27 |
| 107 | 26S/40E-22H03 | | 35.66190 | -117.65424 | 10/20/2021 | 36.46 | 2194.28 | 3/14/2022 | 35.91 | 2194.83 |
| 108 | 26S/39E-20N01 | ICSD MW #2 | 35.66274 | -117.81508 | | | | | | |
| 109 | 26S/39E-20C02 | | 35.66337 | -117.80541 | | | | 3/12/2022 | 241.60 | 2150.26 |
| 112 | 26S/39E-20N02 | ICSD MW #3 | 35.66413 | -117.81369 | | | | | | |
| 113 | 26S/40E-23C01 | | 35.66385 | -117.64702 | | | | 3/15/2022 | DRY | |
| 114 | 26S/38E-22D | | 35.66566 | -117.87597 | 10/19/2021 | 58.50 | 2789.75 | 3/14/2022 | 59.20 | 2790.05 |
| 115 | 26S/39E-13R03 | USNS-01 | 35.66663 | -117.72424 | 10/19/2021 | 153.59 | 2167.06 | 3/15/2022 | 153.95 | 2166.70 |
| 116 | 26S/39E-13R04 | | 35.66663 | -117.72424 | 10/19/2021 | 198.91 | 2122.40 | 3/15/2022 | 196.59 | 2124.72 |
| 117 | 26S/40E-17N01 | | 35.66690 | -117.70591 | 10/20/2021 | 144.57 | 2152.31 | 3/15/2022 | 144.66 | 2152.22 |
| 118 | 26S/40E-15N01 | | 35.66718 | -117.67035 | 10/19/2021 | 60.69 | 2186.69 | 3/15/2022 | 60.72 | 2186.66 |
| 119 | 26S/39E-15J | | 35.66774 | -117.75980 | 10/19/2021 | 211.17 | 2143.62 | 3/15/2022 | 210.61 | 2144.18 |
| 120 | 26S/40E-15N02 | | 35.66885 | -117.66869 | 10/18/2021 | 54.37 | 2185.20 | 3/15/2022 | 54.32 | 2185.25 |
| 121 | 26S/40E-17J01 | | 35.67107 | -117.69480 | | | | | | |
| 122 | 26S/40E-14L01 | | 35.67190 | -117.64702 | 10/20/2021 | 23.21 | 2185.36 | 3/14/2022 | 22.84 | 2185.73 |
| 124 | 26S/39E-14E01 | | 35.67440 | -117.75841 | 10/19/2021 | 170.83 | 2165.50 | 3/15/2022 | 171.19 | 2165.14 |
| 126 | 26S/39E-17G02 | Kerr McGee | 35.67635 | -117.80452 | 10/21/2021 | 210.37 | 2147.67 | 3/15/2022 | 209.66 | 2148.38 |
| 127 | 26S/40E-14B01 | | 35.67774 | -117.64285 | 10/20/2021 | 11.55 | 2181.50 | 3/14/2022 | 10.49 | 2182.56 |
| 129 | 26S/40E-13C02 | | 35.67913 | -117.62952 | 10/20/2021 | 11.09 | 2178.27 | 3/14/2022 | 10.28 | 2179.08 |
| 131 | 26S/40E-12R01 | Chub Med | 35.68246 | -117.61980 | 10/20/2021 | 4.96 | 2182.27 | 3/14/2022 | 4.99 | 2182.24 |
| 134 | 26S/39E-11E02 | Sandquist Spa | 35.68857 | -117.75647 | 10/18/2021 | 137.02 | 2171.28 | 3/15/2022 | 137.34 | 2170.96 |
| 136 | 26S/39E-08F | | 35.69051 | -117.80952 | 10/19/2021 | 168.62 | 2151.70 | 3/15/2022 | 168.29 | 2152.03 |
| 137 | 26S/39E-09E | | 35.69079 | -117.79452 | 10/19/2021 | 174.38 | 2140.63 | 3/15/2022 | 172.80 | 2142.21 |
| 138 | 26S/40E-12C | | 35.69329 | -117.63174 | 10/20/2021 | 7.68 | 2159.95 | 3/14/2022 | 7.30 | 2160.33 |
| 139 | 26S/39E-02N01 | | 35.69579 | -117.75591 | 10/18/2021 | 113.12 | 2174.51 | 3/15/2022 | 115.12 | 2172.51 |
| 140 | 26S/39E-06P01 | | 35.69639 | -117.82502 | | | | 3/11/2022 | 161.02 | 2160.38 |
| 141 | 26S/38E-02R01 | | 35.69703 | -117.84962 | | | | | | |
| 144 | 26S/38E-02Q02 | | 35.69941 | -117.85503 | | | | 3/11/2022 | 252.34 | 2159.26 |
| 145 | 26S/38E-02Q01 | | 35.70000 | -117.85645 | | | | | | |

| DBID | State ID | Other Name | Latitude (NAD83) | Longitude (NAD83) | Fall 2021 Date | Fall 2021 DTW (ft, bgs) | Fall 2021 GW Elev. (ft, amsl) | Spring 2022 Date | Spring 2022 DTW (ft, bgs) | Spring 2022 GW Elev. (ft, amsl) |
|---|---|---|---|---|---|---|---|---|---|---|
| 146 | 26S/38E-01M05 | | 35.70215 | -117.84707 | 10/21/2021 | 215.42 | 2159.01 | 3/12/2022 | 213.93 | 2160.50 |
| 147 | 26S/38E-01G02 | | 35.70363 | -117.83580 | | | | 3/11/2022 | 184.17 | 2155.34 |
| 148 | 26S/38E-01H03 | | 35.70384 | -117.83079 | | | | 3/11/2022 | 158.77 | 2161.05 |
| 149 | 26S/39E-05F01 | | 35.70496 | -117.80758 | | | | 3/15/2022 | 112.64 | 2164.96 |
| 151 | 26S/38E-02B01 | | 35.70886 | -117.85615 | 10/22/2021 | 215.21 | 2158.85 | 3/12/2022 | 216.86 | 2157.20 |
| 152 | 26S/39E-01A01 | | 35.70940 | -117.72341 | 10/18/2021 | 43.50 | 2176.93 | 3/15/2022 | 43.63 | 2175.61 |
| 153 | 26S/39E-01A02 | | 35.70940 | -117.72313 | 10/18/2021 | 45.52 | 2173.72 | 3/15/2022 | 45.56 | 2174.87 |
| 154 | 25S/40E-31P | | 35.70996 | -117.71563 | 10/18/2021 | 21.32 | 2172.72 | 3/15/2022 | 21.22 | 2172.82 |
| 155 | 25S/39E-31R01 | | 35.71051 | -117.81536 | 10/19/2021 | 94.17 | 2170.18 | 3/15/2022 | 95.22 | 2169.13 |
| 156 | 25S/38E-36P | | 35.71076 | -117.83996 | | | | 3/11/2022 | 169.23 | 2160.97 |
| 157 | 25S/38E-34G01 | USBR 5-S | 35.71813 | -117.87090 | | | | 3/11/2022 | 363.19 | 2159.81 |
| 158 | 25S/38E-34G02 | USBR 5-M | 35.71801 | -117.87175 | 10/19/2021 | 365.92 | 2154.50 | 3/11/2022 | 370.52 | 2152.28 |
| 159 | 25S/38E-34G03 | USBR 05-D | 35.71801 | -117.87175 | 10/19/2021 | 367.57 | 2152.85 | 3/11/2022 | 371.73 | 2150.82 |
| 160 | 25S/38E-35H | | 35.71860 | -117.85238 | | | | | | |
| 161 | 25S/38E-36G01 | NR-2 (Shallow) | 35.71868 | -117.84271 | 10/19/2021 | 157.16 | 2157.54 | 3/14/2022 | 158.30 | 2158.94 |
| 162 | 25S/38E-36G02 | NR-2 (Middle) | 35.71868 | -117.84271 | | | | | | |
| 163 | 25S/38E-36G03 | NR-2 (Deep) | 35.71868 | -117.84271 | 10/19/2021 | 161.56 | 2153.14 | 3/14/2022 | 173.30 | 2143.44 |
| 164 | 25S/38E-35A | | 35.72272 | -117.85156 | | | | | | |
| 165 | 25S/38E-35C | | 35.72307 | -117.85805 | | | | 3/11/2022 | 264.55 | 2159.97 |
| 166 | 25S/38E-36D | | 35.72366 | -117.84667 | | | | | | |
| 168 | 25S/38E-34A01 | | 35.72453 | -117.87024 | 10/22/2021 | 364.38 | 2165.40 | 3/12/2022 | 364.07 | 2165.71 |
| 169 | 25S/38E-35B01 | | 35.72509 | -117.85286 | 10/19/2021 | 238.24 | 2158.00 | 3/12/2022 | 238.91 | 2159.19 |
| 170 | 25S/38E-36B01 | WELL 27 | 35.72496 | -117.83675 | | | | | | |
| 171 | 25S/39E-28P01 | Baker 4-NE | 35.72551 | -117.78701 | 10/18/2021 | 54.42 | 2175.62 | 3/14/2022 | 54.71 | 2175.33 |
| 172 | 25S/39E-29M01 | | 35.73190 | -117.81286 | 10/18/2021 | 59.89 | 2173.41 | 3/14/2022 | 60.24 | 2173.06 |
| 173 | 25S/38E-25J01 | NR 1-S | 35.73218 | -117.83175 | 10/19/2021 | 113.60 | 2163.35 | 3/14/2022 | 116.70 | 2163.05 |
| 174 | 25S/38E-25J02 | NR 1-M | 35.73208 | -117.83087 | 10/19/2021 | 114.70 | 2161.00 | 3/14/2022 | 117.30 | 2161.20 |
| 175 | 25S/38E-25J03 | NR 1-D | 35.73218 | -117.83175 | 10/19/2021 | 127.70 | 2148.00 | 3/14/2022 | 135.60 | 2142.90 |
| 176 | 25S/39E-30E01 | | 35.73301 | -117.82675 | 10/19/2021 | 55.18 | 2195.63 | 3/14/2022 | 55.70 | 2195.11 |
| 183 | 25S/38E-14Q01 | | 35.75542 | -117.85372 | | | | 3/11/2022 | 229.97 | 2162.53 |
| 184 | 25S/38E-13J01 | | 35.75829 | -117.83480 | 10/19/2021 | 130.51 | 2165.26 | 3/14/2022 | 129.80 | 2165.97 |
| 187 | 25S/39E-12R01 | Charely Tower | 35.77039 | -117.72496 | 10/18/2021 | 25.82 | 2176.55 | 3/14/2022 | 25.93 | 2177.44 |
| 191 | 25S/38E-12L01 | USBR 6-S | 35.77607 | -117.84203 | 10/19/2021 | 186.64 | 2168.06 | 3/14/2022 | 185.53 | 2169.18 |
| 192 | 25S/38E-12L02 | USBR 6-M | 35.77607 | -117.84203 | 10/19/2021 | 191.62 | 2162.76 | 3/14/2022 | 191.38 | 2163.00 |
| 193 | 25S/38E-12L03 | USBR 6-D | 35.77607 | -117.84203 | 10/19/2021 | 167.07 | 2186.93 | 3/14/2022 | 167.36 | 2186.64 |
| 195 | 25S/39E-03R01 | Baker Range | 35.78412 | -117.76257 | 10/18/2021 | 52.14 | 2175.13 | 3/14/2022 | 52.32 | 2174.95 |
| 199 | 24S/39E-34D01 | Baker-North | 35.80213 | -117.75901 | 10/19/2021 | 48.88 | 2179.75 | 3/14/2022 | 48.99 | 2179.64 |
| 202 | 24S/38E-21A01 | USBR 10-S | 35.84143 | -117.87176 | 10/19/2021 | 316.58 | 2242.81 | 3/14/2022 | 322.80 | 2241.51 |
| 203 | 24S/38E-21A02 | USBR 10-SM | 35.84134 | -117.87258 | 10/19/2021 | 318.19 | 2241.20 | 3/14/2022 | 322.70 | 2241.50 |
| 205 | 24S/38E-21A04 | USBR 10-D | 35.84134 | -117.87258 | 10/19/2021 | 318.45 | 2240.94 | 3/14/2022 | 321.50 | 2242.43 |
| 207 | 25S/38E-03B | | 35.79546 | -117.87382 | 10/19/2021 | 292.81 | 2165.14 | 3/14/2022 | 292.20 | 2165.75 |
| 208 | 25S/38E-25M | | 35.73135 | -117.84767 | | | | 3/11/2022 | 207.55 | 2166.25 |
| 210 | 25S/40E-30E01 | TTBK MW14 | 35.73254 | -117.72033 | 10/18/2021 | 17.97 | 2176.28 | 3/14/2022 | 18.07 | 2176.18 |
| 211 | 25S/41E-18R01 | TTBK MW12 | 35.75969 | -117.60148 | 10/19/2021 | 25.20 | 1981.27 | 3/14/2022 | 25.15 | 1981.32 |
| 212 | 26S/38E-01E03 | | 35.70417 | -117.84716 | | | | | | |
| 215 | 26S/38E-01H05 | | 35.70406 | -117.83200 | | | | | | |
| 216 | 26S/38E-01H06 | | 35.70453 | -117.83447 | | | | 3/11/2022 | DRY | |
| 218 | 26S/38E-22B | Ostrich Ranch | 35.66466 | -117.86875 | | | | 3/12/2022 | 430.19 | 2237.09 |
| 219 | 26S/38E-35B | | 35.63608 | -117.85408 | | | | 3/12/2022 | 342.68 | 2231.87 |
| 220 | 26S/38E-35D | | 35.63714 | -117.86398 | 10/19/2021 | 447.10 | 2238.13 | 3/14/2022 | 447.50 | 2239.13 |
| 223 | 26S/39E-27C01 | | 35.64849 | -117.76864 | | | | 3/14/2022 | 258.20 | 2156.80 |
| 224 | 26S/39E-34C01 | | 35.63472 | -117.77080 | | | | 3/13/2022 | 301.48 | 2141.61 |

| | | | | | Fall 2021 | | | Spring 2022 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **DBID** | **State ID** | **Other Name** | ***Latitude*** *(NAD83)* | ***Longitude*** *(NAD83)* | ***Date*** | ***DTW*** *(ft, bgs)* | ***GW Elev.*** *(ft, amsl)* | ***Date*** | ***DTW*** *(ft, bgs)* | ***GW Elev.*** *(ft, amsl)* |
| 227 | 26S/39E-34Q01 | | 35.62502 | -117.76733 | | | | 3/12/2022 | 337.90 | 2135.19 |
| 229 | 26S/40E-28J01 | Hospital | 35.64121 | -117.67128 | | | | 3/14/2022 | 135.30 | 2156.62 |
| 230 | 26S/40E-29M01 | | 35.64186 | -117.70314 | | | | 3/12/2022 | 207.86 | 2123.78 |
| 231 | 26S/40E-29M02 | | 35.64125 | -117.69973 | | | | 3/12/2022 | 197.31 | 2128.33 |
| 233 | 27S/38E-01C | | 35.61944 | -117.84342 | | | | 3/12/2022 | 377.80 | 2195.60 |
| 234 | 27S/39E-02K | Asphalt Constr Co. | 35.61218 | -117.74813 | | | | | | |
| 235 | 27S/39E-08A01 | | 35.60721 | -117.79818 | 10/19/2021 | 392.30 | 2141.89 | 3/11/2022 | 396.19 | 2139.30 |
| 237 | 24S/38E-33J02 | | 35.80190 | -117.87258 | | | | | | |
| 238 | 25S/39E-22J01 | S. Baker Ranch | 35.74300 | -117.76290 | 10/18/2021 | 43.26 | 2176.51 | 3/14/2022 | 43.41 | 2176.36 |
| 239 | 26S/40E-34F01 | City of Ridgecrest | 35.63070 | -117.66690 | | | | | | |
| 240 | 27S/40E-02J01 | DMP Cemetery | 35.61176 | -117.63510 | | | | | | |
| 241 | 26S/40E-17Q01 | S. Hangar 5 | 35.66638 | -117.69659 | 10/19/2021 | 144.94 | 2133.06 | 3/15/2022 | 143.99 | 2134.01 |
| 244 | 24S/40E-21K02 | TTIWV-MW15 | 35.83168 | -117.65779 | 10/19/2021 | 52.54 | 2192.46 | 3/14/2022 | 52.61 | 2192.39 |
| 245 | 26S/40E-25P | MK22-MW10 | 35.63875 | -117.62699 | 10/20/2021 | 88.85 | 2156.15 | 3/15/2022 | 89.03 | 2155.97 |
| 246 | 23S/40E-31N | E. Airport Lake | 35.88700 | -117.70600 | 10/19/2021 | 109.13 | 2192.30 | 3/14/2022 | 109.31 | 2192.12 |
| 247 | 24S/38E-19H | Ninemile Well | 35.83719 | -117.90704 | 10/20/2021 | 13.10 | 2958.17 | 3/11/2022 | 8.48 | 2962.79 |
| 248 | 25S/38E-14A01 | | 35.76809 | -117.85244 | 10/18/2021 | 233.37 | 2160.73 | 3/11/2022 | 232.20 | 2161.90 |
| 249 | 26S/39E-05L01 | | 35.69973 | -117.80355 | 10/18/2021 | 132.46 | 2163.26 | 3/15/2022 | 132.36 | 2163.36 |
| 250 | 26S/39E-05K01 | | 35.69973 | -117.80339 | 10/18/2021 | 130.79 | 2164.71 | 3/15/2022 | 130.47 | 2165.03 |
| 251 | 26S/40E-22E01 | CB Camp Well #1 | 35.66135 | -117.66687 | 10/18/2021 | 103.16 | 2143.29 | 3/15/2022 | 101.24 | 2145.22 |
| 254 | 25S/39E-29N01 | | 35.72740 | -117.81212 | 10/18/2021 | 65.88 | 2180.58 | 3/14/2022 | 66.03 | 2180.43 |
| 255 | 26S/40E-22E02 | CB Camp Well #2 | 35.66132 | -117.66633 | 10/18/2021 | 93.15 | 2153.50 | 3/15/2022 | 96.32 | 2150.33 |
| 301 | 27S/38E-32C01 | EP-01 S | 35.54904 | -117.91071 | | | | 3/11/2022 | 275.49 | 2689.63 |
| 302 | 27S/38E-32C02 | EP-01 M | 35.54904 | -117.91071 | | | | 3/11/2022 | 281.78 | 2683.24 |
| 303 | 27S/38E-32C03 | EP-01 D | 35.54904 | -117.91071 | | | | 3/11/2022 | 276.06 | 2688.81 |
| 304 | 26S/39E-35B01 | | 35.63444 | -117.74635 | | | | 3/13/2022 | 268.60 | |
| 305 | 26S/38E-17C01 | Indian Wells Cyn | 35.67749 | -117.91262 | 10/21/2021 | 78.91 | | 3/12/2022 | 80.62 | |
| 306 | 26S/39E-27C01 | | 35.65120 | -117.78538 | | | | 3/11/2022 | 277.70 | |
| 307 | 26S/39E-25K01 | | 35.64041 | -117.74023 | 10/22/2021 | 271.61 | | 3/12/2022 | 266.09 | |

**Table 2 Average Annual Groundwater Level Change, March 2019 to March 2022**

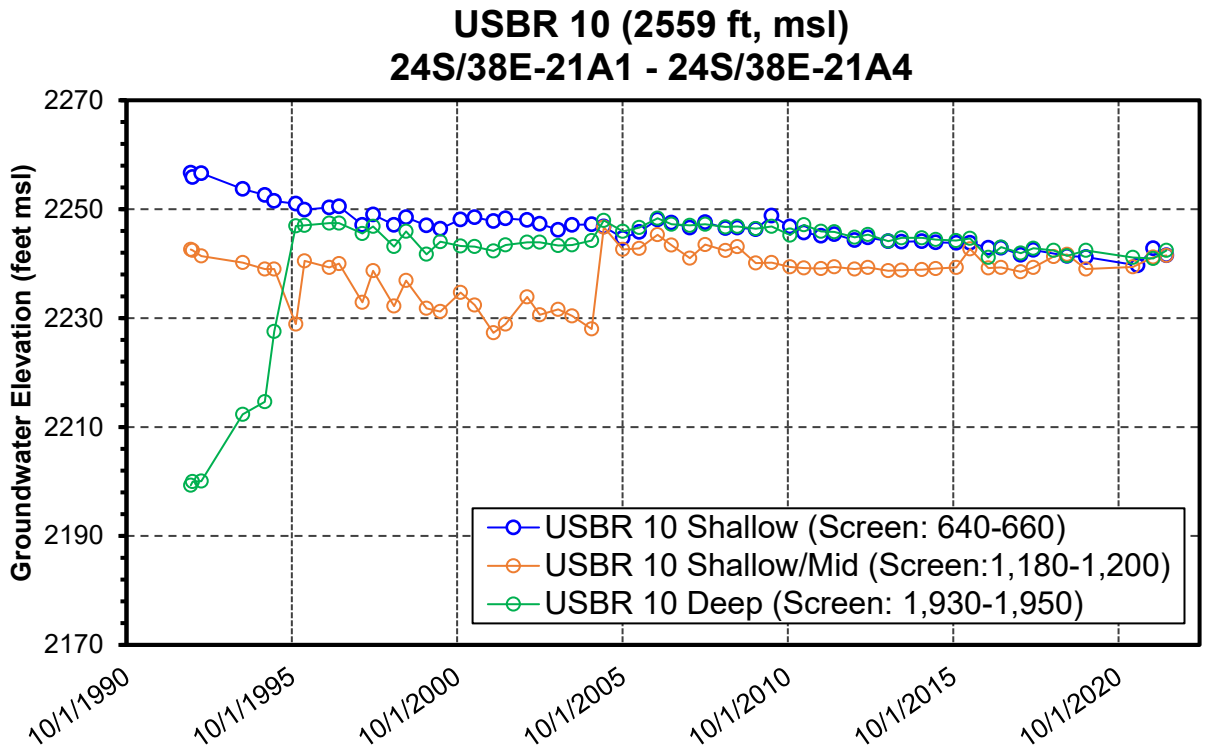
Bold blue text indicates a count of the data in that column

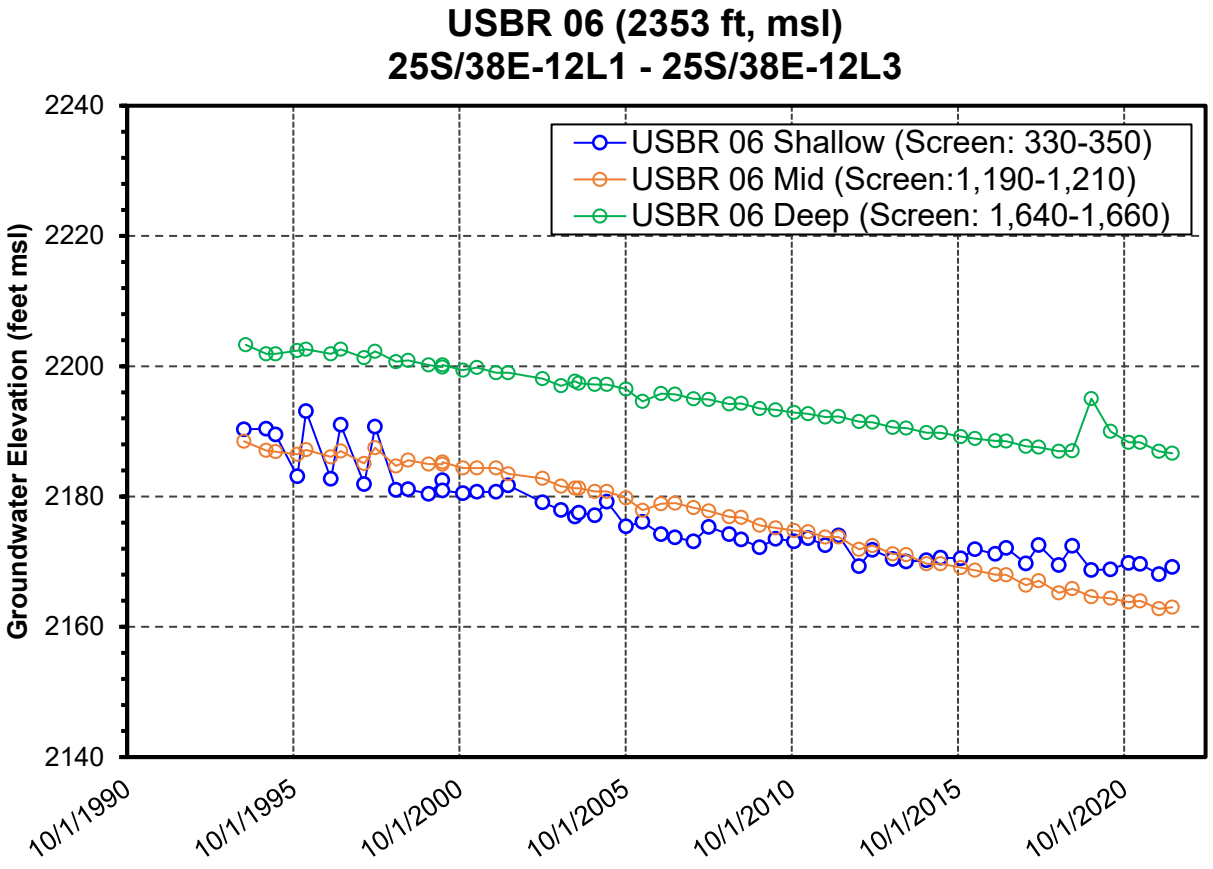
| 112 | | | | | | | 112 | |
|---|---|---|---|---|---|---|---|---|
| DBID | State ID | Other Name | Latitude (NAD83) | Longitude (NAD83) | Mar 2019 (ft, bgs) | Mar 2022 (ft, amsl) | 3-yr Change (feet) | Avg Annual Change (ft, amsl) |
| 202 | 24S/38E-21A01 | USBR 10-S | 35.84143 | -117.87176 | 2,241.41 | 2,241.51 | 0.10 | 0.03 |
| 199 | 24S/39E-34D01 | Baker-North | 35.80213 | -117.75901 | 2,180.18 | 2,179.64 | -0.54 | -0.18 |
| 207 | 25S/38E-03B | | 35.79546 | -117.87382 | 2,168.25 | 2,165.75 | -2.50 | -0.83 |
| 191 | 25S/38E-12L01 | USBR 6-S | 35.77607 | -117.84203 | 2,172.43 | 2,169.18 | -3.25 | -1.08 |
| 184 | 25S/38E-13J01 | | 35.75829 | -117.83480 | 2,169.09 | 2,165.97 | -3.12 | -1.04 |
| 183 | 25S/38E-14Q01 | | 35.75542 | -117.85372 | 2,165.00 | 2,162.53 | -2.47 | -0.82 |
| 173 | 25S/38E-25J01 | NR 1-S | 35.73218 | -117.83175 | 2,161.55 | 2,163.05 | 1.50 | 0.50 |
| 208 | 25S/38E-25M | | 35.73135 | -117.84767 | 2,169.00 | 2,166.25 | -2.75 | -0.92 |
| 168 | 25S/38E-34A01 | | 35.72453 | -117.87024 | 2,169.38 | 2,165.71 | -3.67 | -1.22 |
| 157 | 25S/38E-34G01 | USBR 5-S | 35.71813 | -117.87090 | 2,163.10 | 2,159.81 | -3.29 | -1.10 |
| 169 | 25S/38E-35B01 | | 35.72509 | -117.85286 | 2,161.70 | 2,159.19 | -2.51 | -0.84 |
| 165 | 25S/38E-35C | | 35.72307 | -117.85805 | 2,162.92 | 2,159.97 | -2.95 | -0.98 |
| 161 | 25S/38E-36G01 | NR-2 (Shallow) | 35.71868 | -117.84271 | 2,161.44 | 2,158.94 | -2.50 | -0.83 |
| 195 | 25S/39E-03R01 | Baker Range | 35.78412 | -117.76257 | 2,175.96 | 2,174.95 | -1.01 | -0.34 |
| 187 | 25S/39E-12R01 | Charely Tower; Well 22 | 35.77039 | -117.72496 | 2,178.19 | 2,177.44 | -0.75 | -0.25 |
| 238 | 25S/39E-22J01 | S. Baker Ranch | 35.74300 | -117.76290 | 2,177.42 | 2,176.36 | -1.06 | -0.35 |
| 171 | 25S/39E-28P01 | Baker 4-NE | 35.72551 | -117.78701 | 2,189.67 | 2,175.33 | -14.34 | -4.78 |
| 172 | 25S/39E-29M01 | | 35.73190 | -117.81286 | 2,174.89 | 2,173.06 | -1.83 | -0.61 |
| 176 | 25S/39E-30E01 | | 35.73301 | -117.82675 | 2,195.07 | 2,195.11 | 0.04 | 0.01 |
| 155 | 25S/39E-31R01 | | 35.71051 | -117.81536 | 2,172.80 | 2,169.13 | -3.67 | -1.22 |
| 210 | 25S/40E-30E01 | TTBK MW14 | 35.73254 | -117.72033 | 2,176.85 | 2,176.18 | -0.67 | -0.22 |
| 154 | 25S/40E-31P | | 35.70996 | -117.71563 | 2,171.26 | 2,172.82 | 1.56 | 0.52 |
| 211 | 25S/41E-18R01 | TTBK MW12 | 35.75969 | -117.60148 | 1,981.12 | 1,981.32 | 0.20 | 0.07 |
| 147 | 26S/38E-01G02 | | 35.70363 | -117.83580 | 2,163.21 | 2,155.34 | -7.87 | -2.62 |
| 148 | 26S/38E-01H03 | | 35.70384 | -117.83079 | 2,163.82 | 2,161.05 | -2.77 | -0.92 |
| 146 | 26S/38E-01M05 | | 35.70215 | -117.84707 | 2,163.03 | 2,160.50 | -2.53 | -0.84 |
| 151 | 26S/38E-02B01 | | 35.70886 | -117.85615 | 2,161.76 | 2,157.20 | -4.56 | -1.52 |
| 144 | 26S/38E-02Q02 | | 35.69941 | -117.85503 | 2,162.60 | 2,159.26 | -3.34 | -1.11 |
| 218 | 26S/38E-22B | Ostrich Ranch | 35.66466 | -117.86875 | 2,239.68 | 2,237.09 | -2.59 | -0.86 |
| 114 | 26S/38E-22D | | 35.66566 | -117.87597 | 2,787.65 | 2,790.05 | 2.40 | 0.80 |
| 219 | 26S/38E-35B | | 35.63608 | -117.85408 | 2,232.15 | 2,231.87 | -0.28 | -0.09 |
| 220 | 26S/38E-35D | | 35.63714 | -117.86398 | 2,237.43 | 2,239.13 | 1.70 | 0.57 |
| 152 | 26S/39E-01A01 | | 35.70940 | -117.72341 | 2,169.48 | 2,175.61 | 6.13 | 2.04 |
| 153 | 26S/39E-01A02 | | 35.70940 | -117.72313 | 2,176.82 | 2,174.87 | -1.95 | -0.65 |
| 139 | 26S/39E-02N01 | | 35.69579 | -117.75591 | 2,173.26 | 2,172.51 | -0.75 | -0.25 |
| 136 | 26S/39E-08F | | 35.69051 | -117.80952 | 2,154.78 | 2,152.03 | -2.75 | -0.92 |
| 137 | 26S/39E-09E | | 35.69079 | -117.79452 | 2,142.85 | 2,142.21 | -0.64 | -0.21 |
| 134 | 26S/39E-11E02 | Sandquist Spa | 35.68857 | -117.75647 | 2,172.95 | 2,170.96 | -1.99 | -0.66 |
| 115 | 26S/39E-13R03 | USNS-01 | 35.66663 | -117.72424 | 2,168.18 | 2,166.70 | -1.48 | -0.49 |
| 116 | 26S/39E-13R04 | | 35.66663 | -117.72424 | 2,129.80 | 2,124.72 | -5.08 | -1.69 |
| 124 | 26S/39E-14E01 | | 35.67440 | -117.75841 | 2,167.05 | 2,165.14 | -1.91 | -0.64 |
| 119 | 26S/39E-15J | | 35.66774 | -117.75980 | 2,144.94 | 2,144.18 | -0.76 | -0.25 |

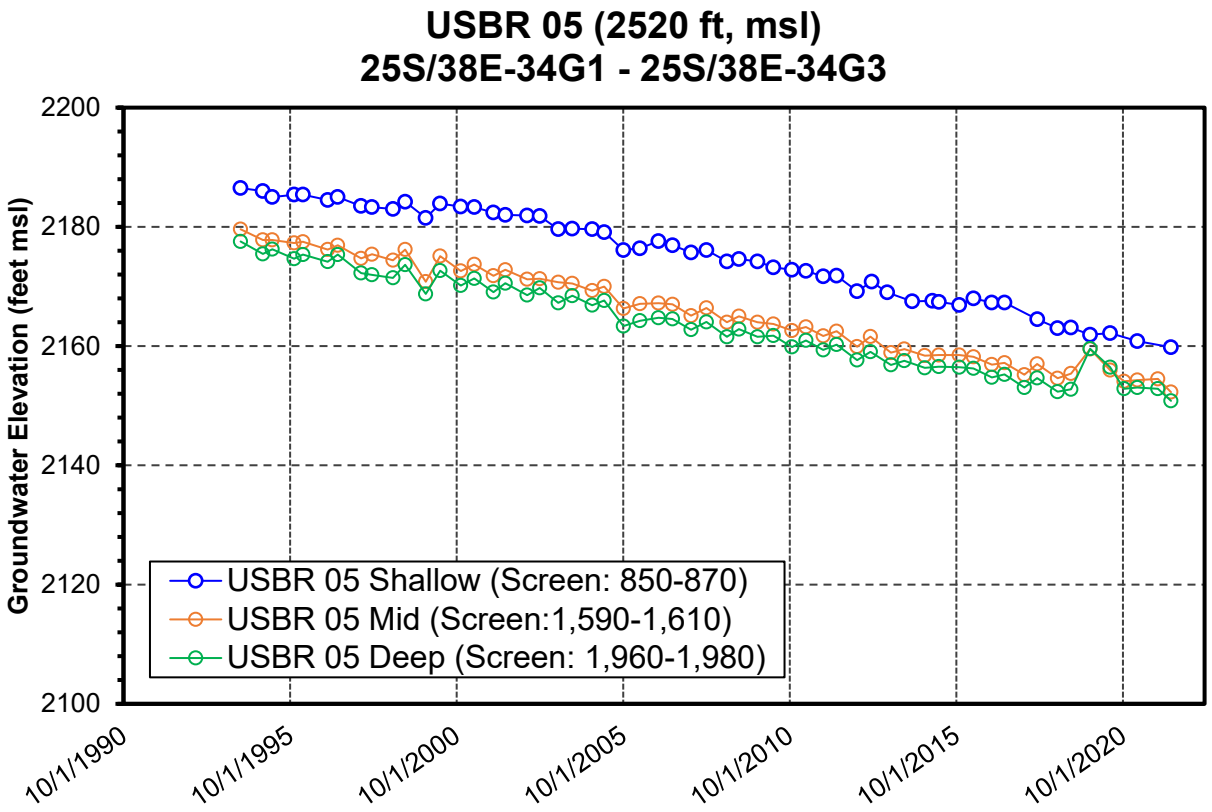
| DBID | State ID | Other Name | Latitude (NAD83) | Longitude (NAD83) | Mar 2019 (ft, bgs) | Mar 2022 (ft, amsl) | 3-yr Change (feet) | Avg Annual Change (ft, amsl) |
|---|---|---|---|---|---|---|---|---|
| 126 | 26S/39E-17G02 | Kerr McGee | 35.67635 | -117.80452 | 2,150.29 | 2,148.38 | -1.91 | -0.64 |
| 109 | 26S/39E-20C02 | | 35.66337 | -117.80541 | 2,153.46 | 2,150.26 | -3.20 | -1.07 |
| 88 | 26S/39E-26A03 | USBR 4 | 35.64966 | -117.74213 | 2,124.74 | 2,120.74 | -4.00 | -1.33 |
| 75 | 26S/39E-26P01 | | 35.64024 | -117.75147 | 2,142.43 | 2,140.51 | -1.92 | -0.64 |
| 76 | 26S/39E-26P02 | | 35.64052 | -117.75313 | 2,142.86 | 2,140.19 | -2.67 | -0.89 |
| 223 | 26S/39E-27C01 | | 35.64849 | -117.76864 | 2,147.60 | 2,156.80 | 9.20 | 3.07 |
| 84 | 26S/39E-27D02 | MW 32-SM | 35.64852 | -117.77493 | 2,135.47 | 2,122.70 | -12.77 | -4.26 |
| 77 | 26S/39E-29J02 | | 35.64181 | -117.79611 | 2,129.00 | 2,125.81 | -3.19 | -1.06 |
| 57 | 26S/39E-32L01 | | 35.62902 | -117.80461 | 2,151.34 | 2,147.83 | -3.51 | -1.17 |
| 51 | 26S/39E-34R02 | | 35.62351 | -117.76068 | 2,131.61 | 2,127.90 | -3.71 | -1.24 |
| 58 | 26S/39E-35G01 | | 35.63089 | -117.74645 | 2,142.07 | 2,140.05 | -2.02 | -0.67 |
| 138 | 26S/40E-12C | | 35.69329 | -117.63174 | 2,161.85 | 2,160.33 | -1.52 | -0.51 |
| 131 | 26S/40E-12R01 | Chub Med | 35.68246 | -117.61980 | 2,181.15 | 2,182.24 | 1.09 | 0.36 |
| 129 | 26S/40E-13C02 | | 35.67913 | -117.62952 | 2,178.53 | 2,179.08 | 0.55 | 0.18 |
| 127 | 26S/40E-14B01 | | 35.67774 | -117.64285 | 2,183.66 | 2,182.56 | -1.10 | -0.37 |
| 122 | 26S/40E-14L01 | | 35.67190 | -117.64702 | 2,185.65 | 2,185.73 | 0.08 | 0.03 |
| 118 | 26S/40E-15N01 | | 35.66718 | -117.67035 | 2,186.83 | 2,186.66 | -0.17 | -0.06 |
| 120 | 26S/40E-15N02 | | 35.66885 | -117.66869 | 2,185.64 | 2,185.25 | -0.39 | -0.13 |
| 117 | 26S/40E-17N01 | | 35.66690 | -117.70591 | 2,152.16 | 2,152.22 | 0.06 | 0.02 |
| 241 | 26S/40E-17Q01 | S. Hangar 5; 96030-1 | 35.66638 | -117.69659 | 2,132.01 | 2,134.01 | 2.00 | 0.67 |
| 100 | 26S/40E-19N02 | | 35.65413 | -117.72147 | 2,131.54 | 2,128.71 | -2.83 | -0.94 |
| 104 | 26S/40E-20L01 | | 35.65857 | -117.70147 | 2,150.89 | 2,150.68 | -0.21 | -0.07 |
| 103 | 26S/40E-21K03 | | 35.65663 | -117.67924 | 2,164.91 | 2,166.90 | 1.99 | 0.66 |
| 105 | 26S/40E-22H01 | | 35.66190 | -117.65424 | 2,194.96 | 2,195.34 | 0.38 | 0.13 |
| 106 | 26S/40E-22H02 | | 35.66190 | -117.65424 | 2,195.38 | 2,195.27 | -0.11 | -0.04 |
| 107 | 26S/40E-22H03 | | 35.66190 | -117.65424 | 2,194.53 | 2,194.83 | 0.30 | 0.10 |
| 101 | 26S/40E-22N01 | | 35.65423 | -117.66940 | 2,167.16 | 2,171.98 | 4.82 | 1.61 |
| 95 | 26S/40E-22P02 | PW Substation 3 | 35.65191 | -117.66313 | 2,200.82 | 2,201.48 | 0.66 | 0.22 |
| 97 | 26S/40E-22P03 | PW Substation 1 | 35.65357 | -117.66452 | 2,144.18 | 2,146.43 | 2.25 | 0.75 |
| 98 | 26S/40E-22P04 | PW Substation 2 | 35.65357 | -117.66452 | 2,192.65 | 2,205.96 | 13.31 | 4.44 |
| 82 | 26S/40E-26F01 | | 35.64746 | -117.64508 | 2,174.80 | 2,173.56 | -1.24 | -0.41 |
| 92 | 26S/40E-27D01 | | 35.65052 | -117.66730 | 2,195.34 | 2,196.06 | 0.72 | 0.24 |
| 87 | 26S/40E-27D02 | | 35.64941 | -117.66785 | 2,221.15 | 2,221.06 | -0.09 | -0.03 |
| 229 | 26S/40E-28J01 | Hospital | 35.64121 | -117.67128 | 2,155.62 | 2,156.62 | 1.00 | 0.33 |
| 230 | 26S/40E-29M01 | | 35.64186 | -117.70314 | 2,131.44 | 2,123.78 | -7.66 | -2.55 |
| 231 | 26S/40E-29M02 | | 35.64125 | -117.69973 | 2,124.44 | 2,128.33 | 3.89 | 1.30 |
| 73 | 26S/40E-29P01 | | 35.63791 | -117.70032 | 2,127.39 | 2,132.67 | 5.28 | 1.76 |
| 53 | 26S/40E-31K01 | | 35.62580 | -117.71330 | 2,117.75 | 2,119.16 | 1.41 | 0.47 |
| 63 | 26S/40E-35H01 | Satellite Lake 1 (west) | 35.63191 | -117.63896 | 2,163.05 | 2,161.91 | -1.14 | -0.38 |
| 64 | 26S/40E-35H02 | Satellite Lake 2 (east) | 35.63191 | -117.63869 | 2,153.13 | 2,153.95 | 0.82 | 0.27 |
| 50 | 26S/40E-35Q02 | S.E. Line | 35.62274 | -117.64257 | 2,159.43 | 2,158.43 | -1.00 | -0.33 |
| 233 | 27S/38E-01C | | 35.61944 | -117.84342 | 2,198.50 | 2,195.60 | -2.90 | -0.97 |
| 46 | 27S/38E-02C01 | USBR 2-S | 35.62280 | -117.85761 | 2,372.09 | 2,373.19 | 1.10 | 0.37 |
| 19 | 27S/38E-08R01 | | 35.59367 | -117.90300 | 2,696.44 | 2,700.74 | 4.30 | 1.43 |
| 25 | 27S/38E-09C01 | AB303-04 | 35.60665 | -117.89378 | 2,688.90 | 2,690.90 | 2.00 | 0.67 |

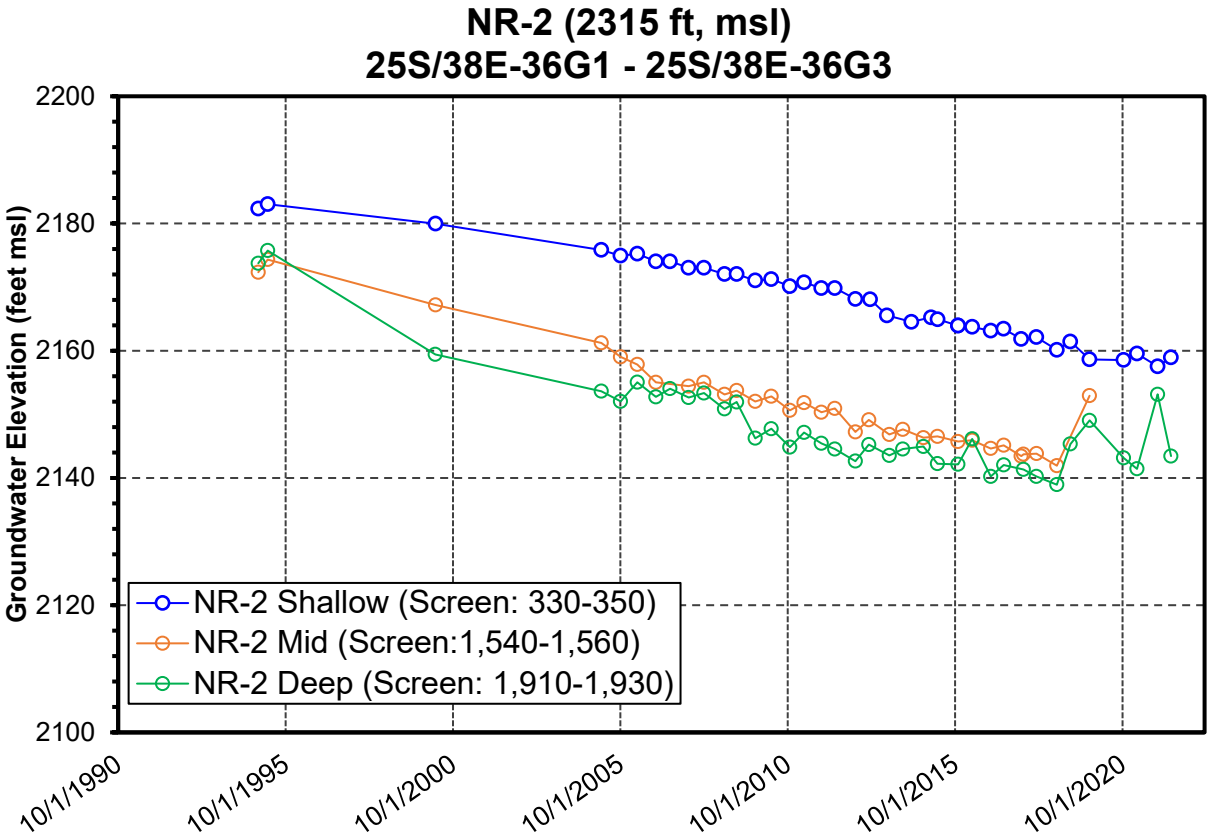
| DBID | State ID | Other Name | Latitude (NAD83) | Longitude (NAD83) | Mar 2019 (ft, bgs) | Mar 2022 (ft, amsl) | 3-yr Change (feet) | Avg Annual Change (ft, amsl) |
|---|---|---|---|---|---|---|---|---|
| 18 | 27S/38E-09P01 | Father Crowley | 35.59363 | -117.89246 | 2,694.02 | 2,696.52 | 2.50 | 0.83 |
| 17 | 27S/38E-09Q02 | AB303-02 | 35.59362 | -117.89262 | 2,685.00 | 2,688.00 | 3.00 | 1.00 |
| 24 | 27S/38E-10B02 | AB303-03 | 35.60662 | -117.87407 | 2,469.30 | 2,472.70 | 3.40 | 1.13 |
| 16 | 27S/38E-13A01 | Sea Bee Well | 35.59345 | -117.83060 | 2,429.74 | 2,428.86 | -0.88 | -0.29 |
| 20 | 27S/38E-13A02 | AB303-01 | 35.59369 | -117.83070 | 2,427.80 | 2,426.34 | -1.46 | -0.49 |
| 13 | 27S/38E-15R01 | AB303-06 | 35.58195 | -117.86617 | 2,659.29 | 2,659.09 | -0.20 | -0.07 |
| 11 | 27S/38E-21L01 | AB303-05 | 35.56985 | -117.89592 | 2,665.77 | 2,667.77 | 2.00 | 0.67 |
| 7 | 27S/38E-23F01 | USBR 1-S | 35.56959 | -117.86289 | 2,667.66 | 2,668.15 | 0.49 | 0.16 |
| 5 | 27S/38E-27M01 | USNS-03 | 35.55387 | -117.88132 | 2,679.79 | 2,680.39 | 0.60 | 0.20 |
| 44 | 27S/39E-04C01 | | 35.62224 | -117.78752 | 2,154.20 | 2,149.92 | -4.28 | -1.43 |
| 22 | 27S/39E-07R01 | Inyo | 35.59634 | -117.81589 | 2,146.90 | 2,146.70 | -0.20 | -0.07 |
| 235 | 27S/39E-08A01 | | 35.60721 | -117.79818 | 2,144.99 | 2,139.30 | -5.69 | -1.90 |
| 23 | 27S/39E-08M02 | IWV MW #1 | 35.60045 | -117.80947 | 2,143.83 | 2,140.43 | -3.40 | -1.13 |
| 21 | 27S/39E-08P02 | IWV MW # 2 | 35.59393 | -117.80371 | 2,146.16 | 2,144.96 | -1.20 | -0.40 |
| 26 | 27S/39E-11D01 | USBR 3-S | 35.60731 | -117.75485 | 2,145.62 | 2,140.78 | -4.84 | -1.61 |
| 12 | 27S/39E-19E01 | IWV MW #3 | 35.57400 | -117.82969 | 2,435.39 | 2,434.99 | -0.40 | -0.13 |
| 6 | 27S/39E-28L01 | Rock Quarry | 35.55472 | -117.79253 | 2,531.80 | 2,531.50 | -0.30 | -0.10 |
| 36 | 27S/40E-01K02 | George Air Corridor | 35.61470 | -117.62469 | 2,160.54 | 2,159.34 | -1.20 | -0.40 |
| 30 | 27S/40E-06D01 | Dist. Well 12 | 35.62198 | -117.72253 | 2,132.05 | 2,124.73 | -7.32 | -2.44 |
| 40 | 27S/40E-06E01 | | 35.61855 | -117.72040 | 2,115.89 | 2,119.46 | 3.57 | 1.19 |
| 37 | 27S/40E-06F01 | | 35.61629 | -117.71810 | 2,117.46 | 2,121.16 | 3.70 | 1.23 |
| 32 | 27S/40E-06N01 | | 35.60996 | -117.72005 | 2,118.49 | 2,121.59 | 3.10 | 1.03 |
| 31 | 27S/40E-06N02 | | 35.60898 | -117.72155 | 2,120.53 | 2,123.17 | 2.64 | 0.88 |
| 2 | 28S/38E-18F01 | | 35.49928 | -117.92844 | 2,815.85 | 2,815.35 | -0.50 | -0.17 |
| 1 | 28S/38E-18R | Black Hills Well | 35.49364 | -117.92094 | 2,820.20 | 2,819.90 | -0.30 | -0.10 |

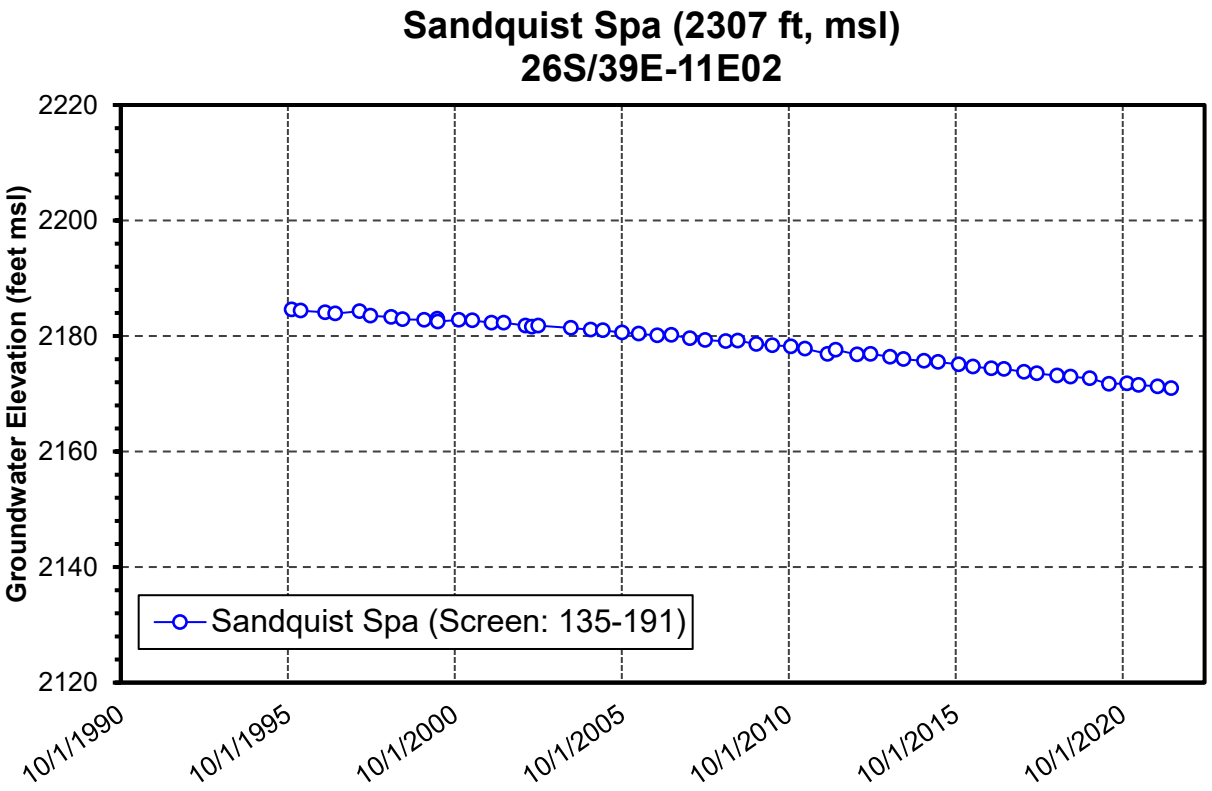
# Attachment D
# Hydrographs for Select Monitoring Wells

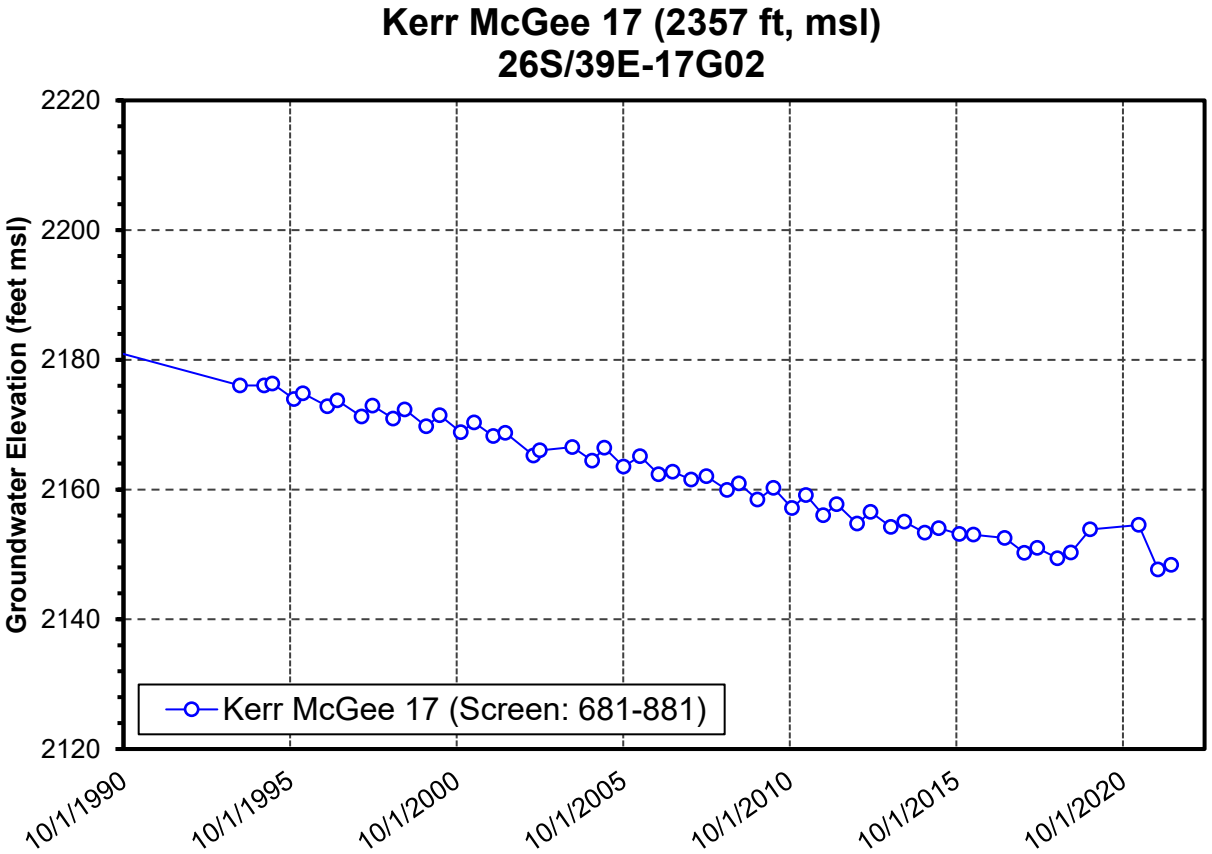

USBR 10 (2559 ft, msl)
24S/38E-21A1 - 24S/38E-21A4
Groundwater Elevation (feet msl)
2270
2250
2230
2210
2190
2170
10/1/1990
10/1/1995
10/1/2000
10/1/2005
10/1/2010
10/1/2015
10/1/2020
USBR 10 Shallow (Screen: 640-660)
USBR 10 Shallow/Mid (Screen:1,180-1,200)
USBR 10 Deep (Screen: 1,930-1,950)

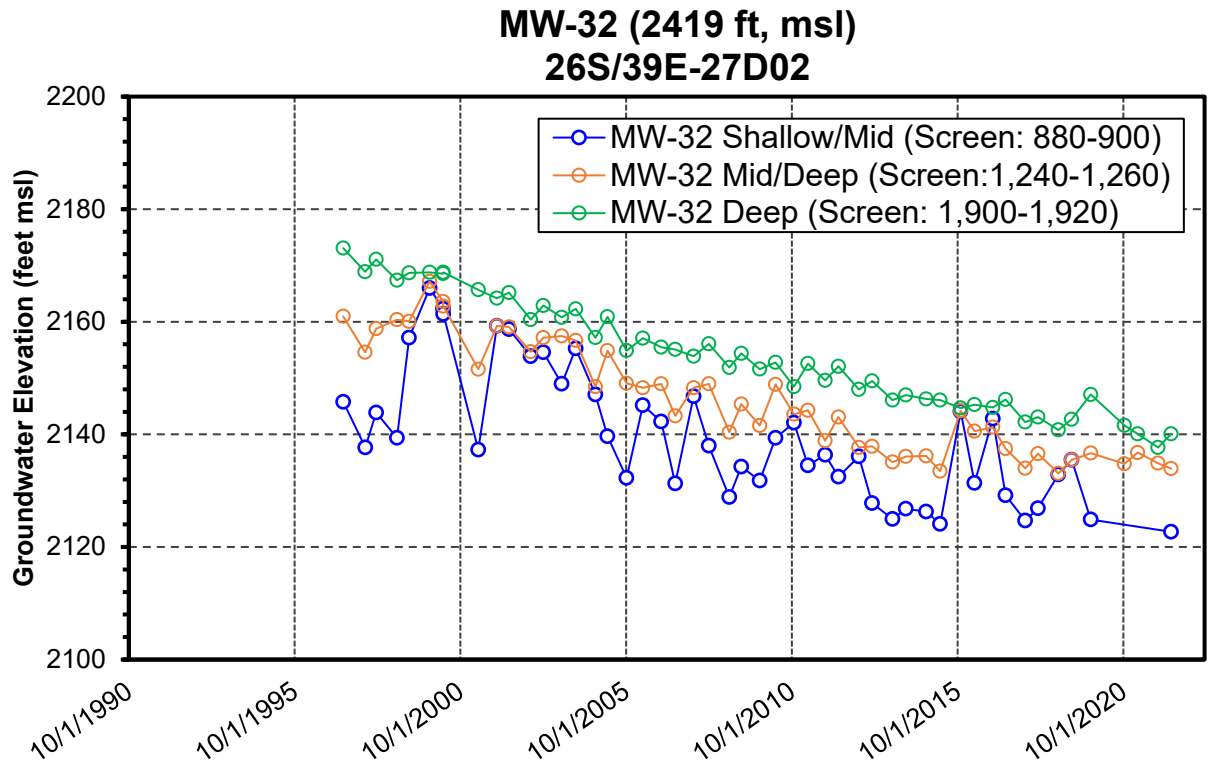

USBR 06 (2353 ft, msl)
25S/38E-12L1 - 25S/38E-12L3
Groundwater Elevation (feet msl)
2240
2220
2200
2180
2160
2140
10/1/1990
10/1/1995
10/1/2000
10/1/2005
10/1/2010
10/1/2015
10/1/2020
USBR 06 Shallow (Screen: 330-350)
USBR 06 Mid (Screen:1,190-1,210)
USBR 06 Deep (Screen: 1,640-1,660)

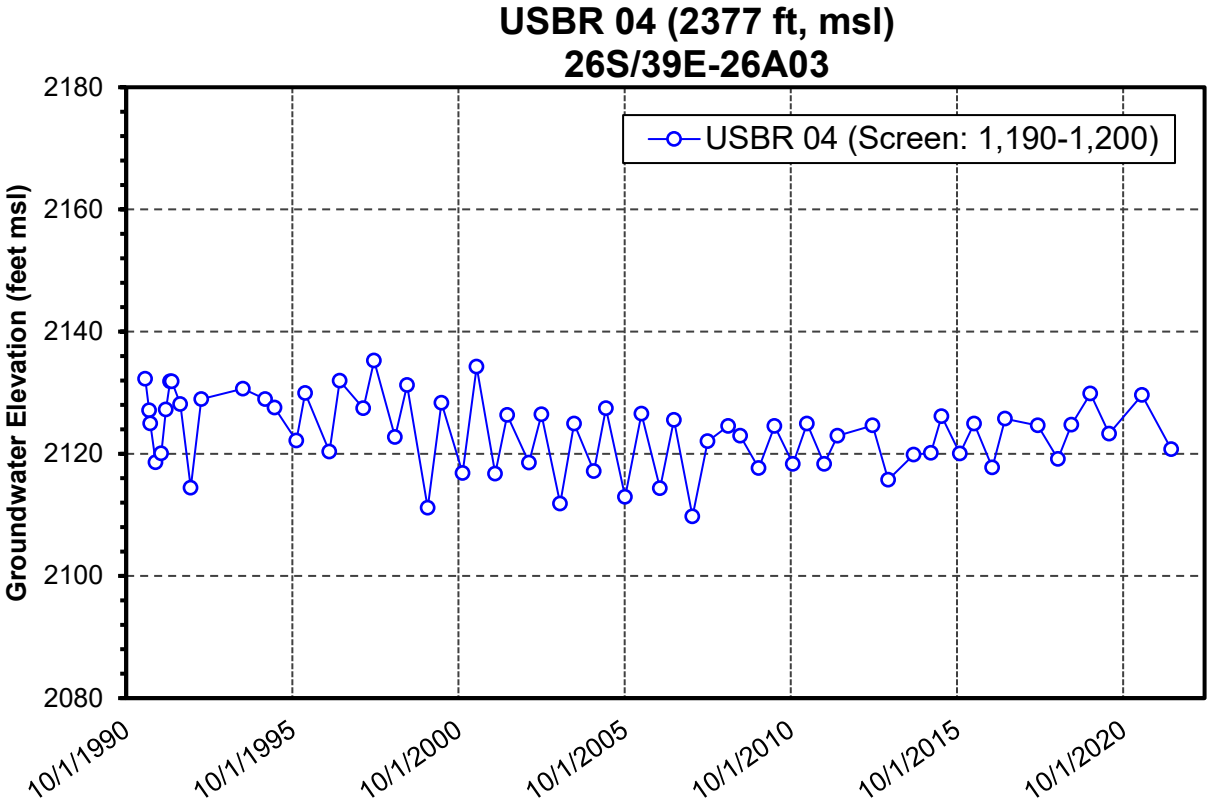

USBR 05 (2520 ft, msl)
25S/38E-34G1 - 25S/38E-34G3
Groundwater Elevation (feet msl)
2200
2180
2160
2140
2120
2100
10/1/1990
10/1/1995
10/1/2000
10/1/2005
10/1/2010
10/1/2015
10/1/2020
USBR 05 Shallow (Screen: 850-870)
USBR 05 Mid (Screen:1,590-1,610)
USBR 05 Deep (Screen: 1,960-1,980)

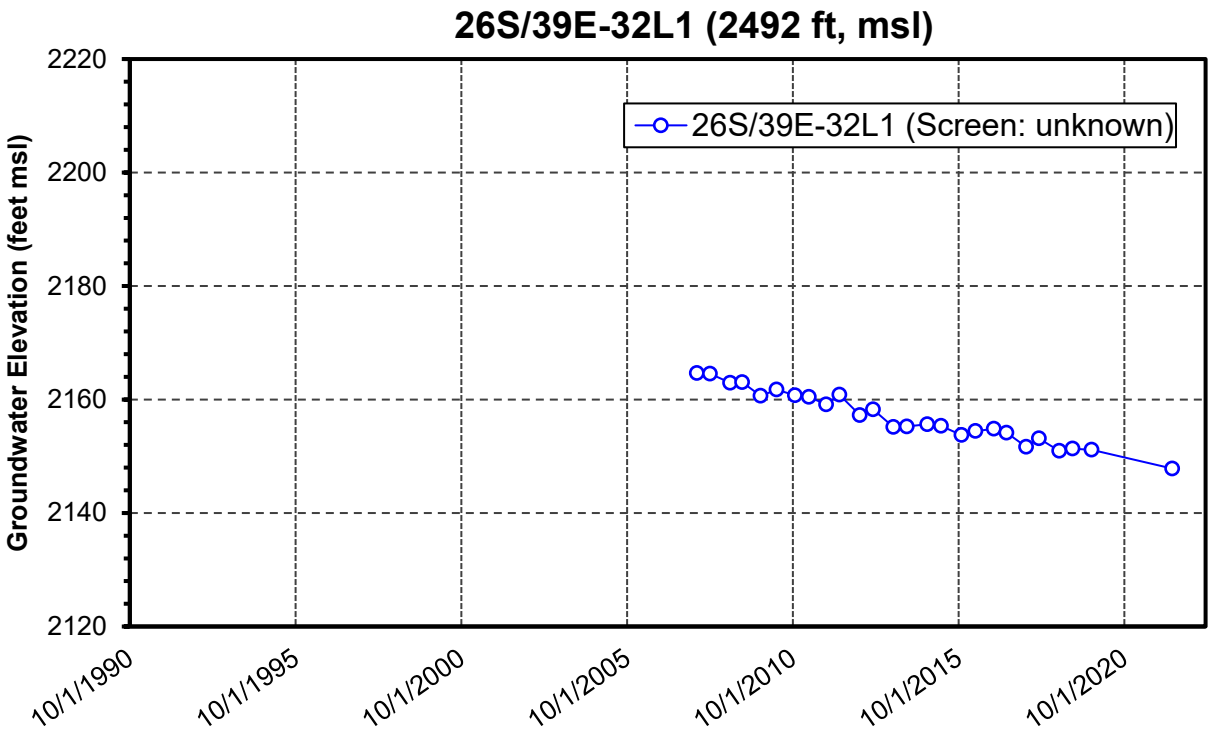

NR-2 (2315 ft, msl)
25S/38E-36G1 - 25S/38E-36G3
Groundwater Elevation (feet msl)
2200
2180
2160
2140
2120
2100
10/1/1990
10/1/1995
10/1/2000
10/1/2005
10/1/2010
10/1/2015
10/1/2020
NR-2 Shallow (Screen: 330-350)
NR-2 Mid (Screen:1,540-1,560)
NR-2 Deep (Screen: 1,910-1,930)

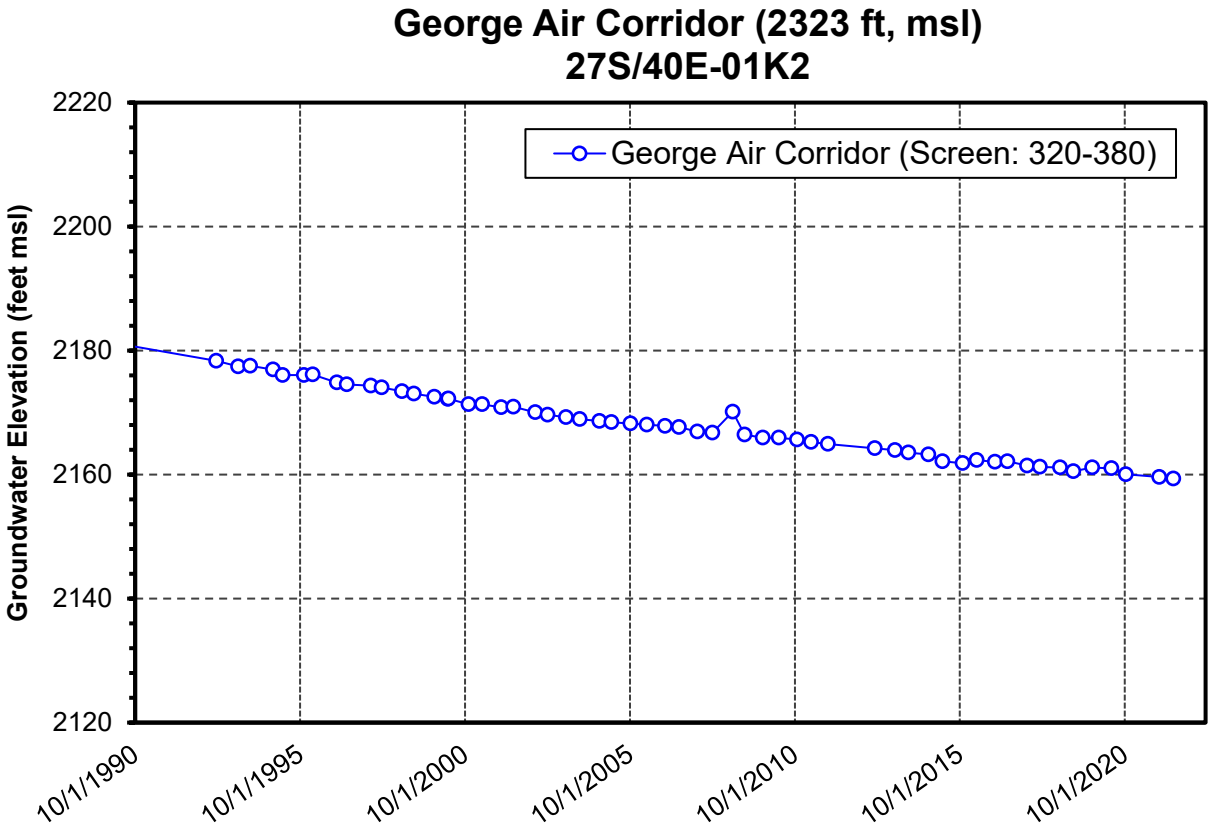

Sandquist Spa (2307 ft, msl)
26S/39E-11E02
Groundwater Elevation (feet msl)
2220
2200
2180
2160
2140
2120
Sandquist Spa (Screen: 135-191)
10/1/1990
10/1/1995
10/1/2000
10/1/2005
10/1/2010
10/1/2015
10/1/2020

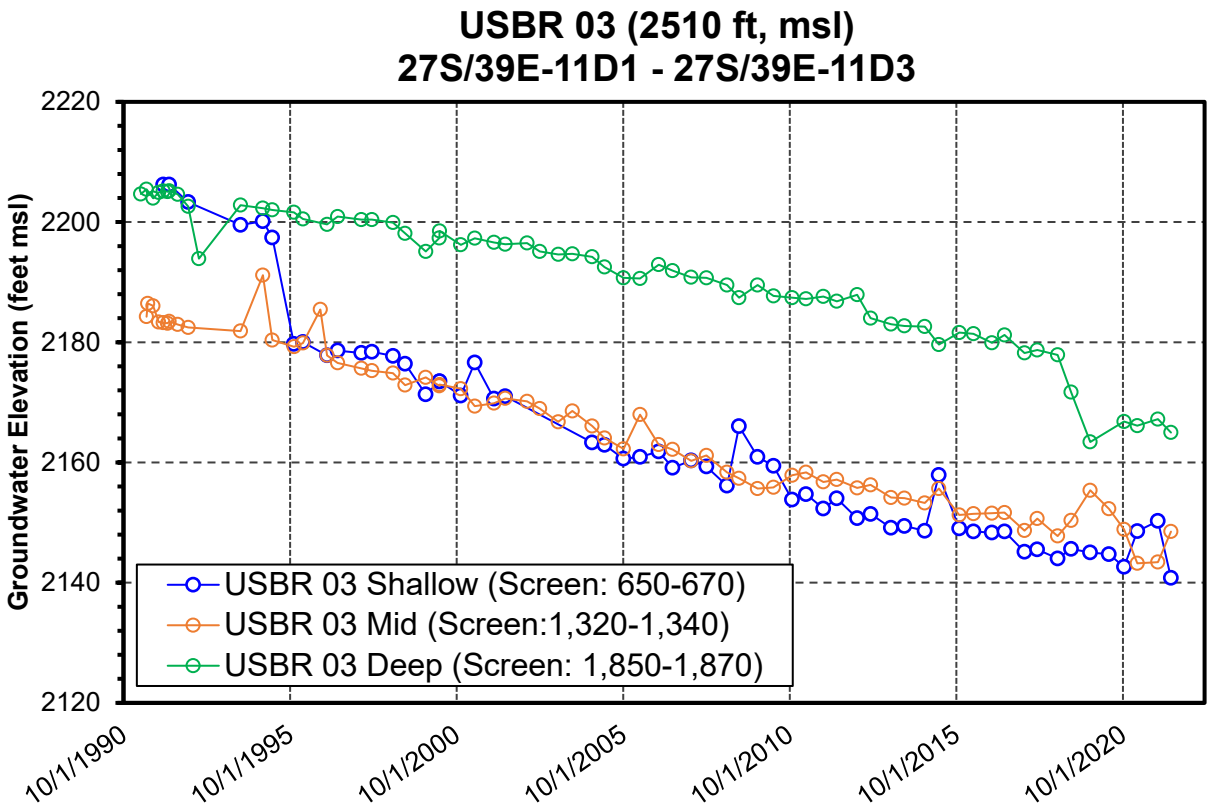

Kerr McGee 17 (2357 ft, msl)
26S/39E-17G02
Groundwater Elevation (feet msl)
2220
2200
2180
2160
2140
2120
Kerr McGee 17 (Screen: 681-881)
10/1/1990
10/1/1995
10/1/2000
10/1/2005
10/1/2010
10/1/2015
10/1/2020

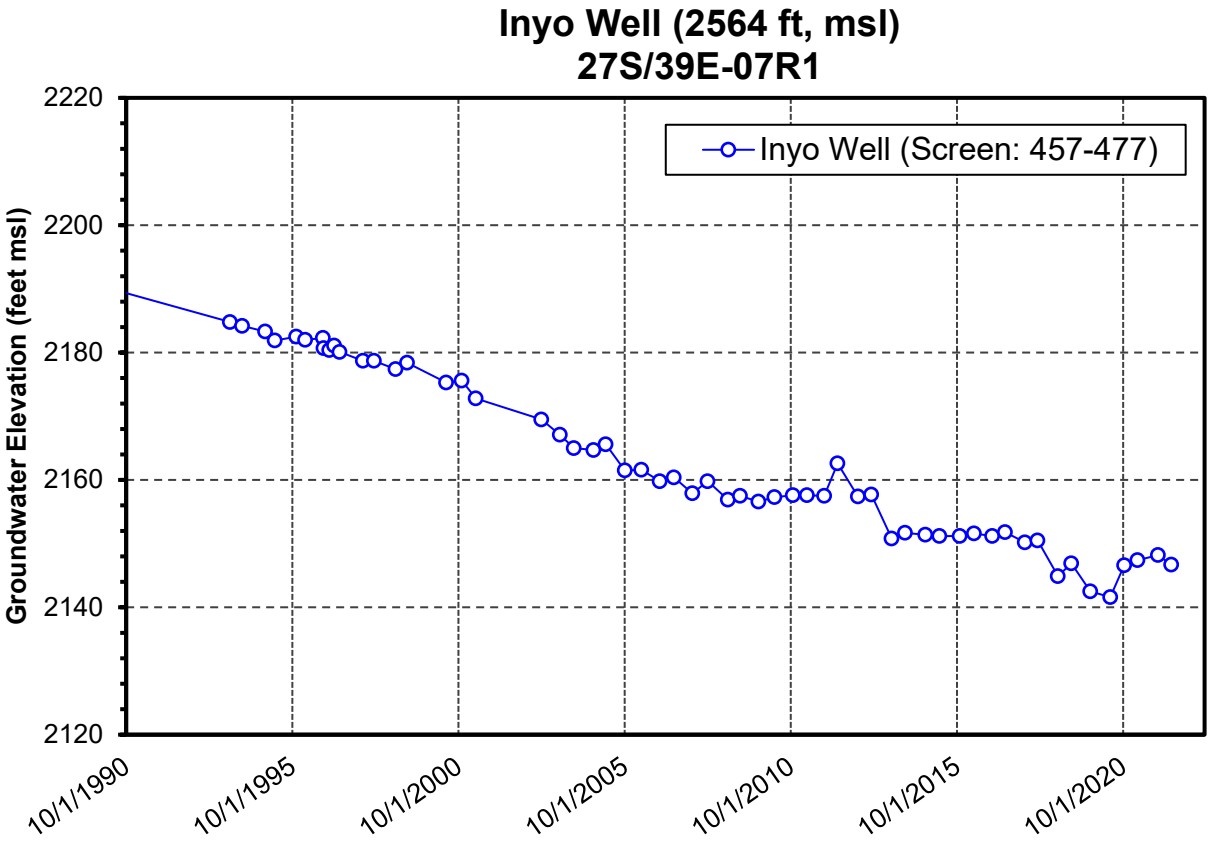

MW-32 (2419 ft, msl)
26S/39E-27D02
Groundwater Elevation (feet msl)
2200
2180
2160
2140
2120
2100
MW-32 Shallow/Mid (Screen: 880-900)
MW-32 Mid/Deep (Screen:1,240-1,260)
MW-32 Deep (Screen: 1,900-1,920)
10/1/1990
10/1/1995
10/1/2000
10/1/2005
10/1/2010
10/1/2015
10/1/2020

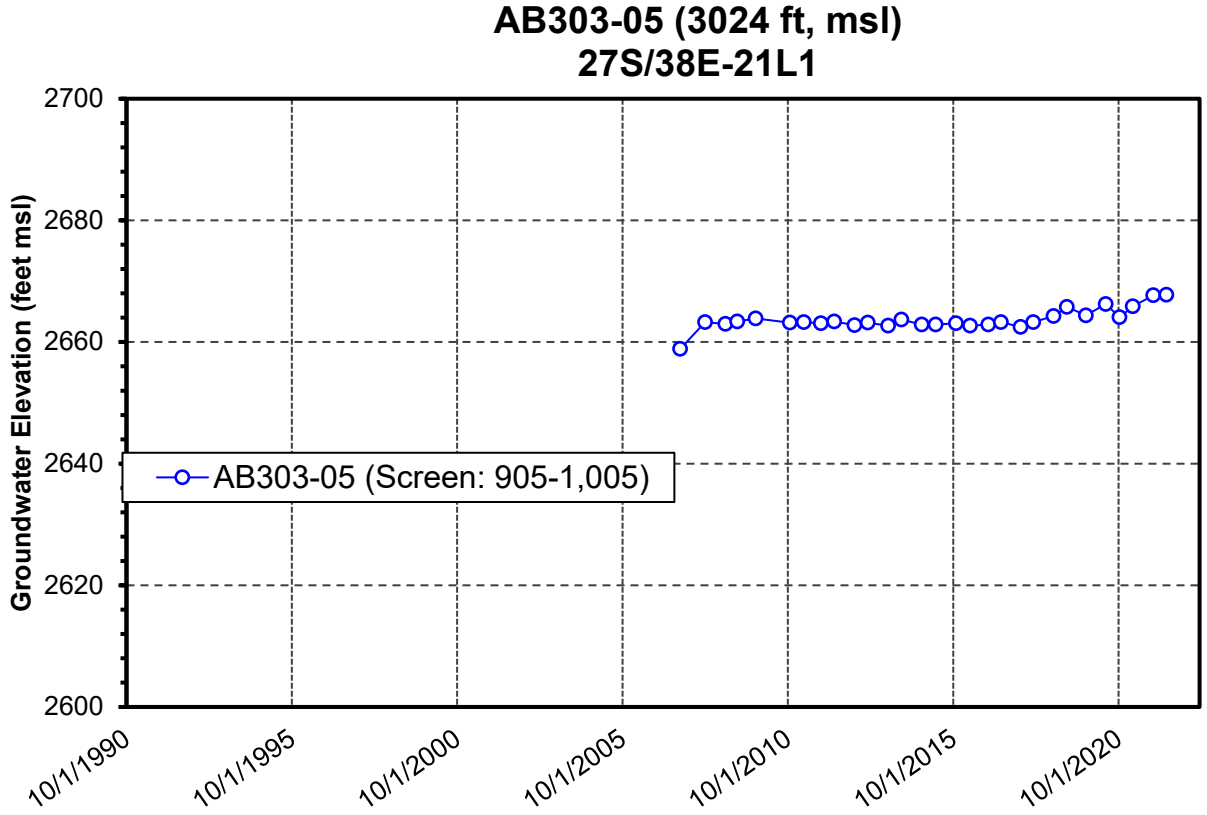

USBR 04 (2377 ft, msl)
26S/39E-26A03
Groundwater Elevation (feet msl)
2180
2160
2140
2120
2100
2080
USBR 04 (Screen: 1,190-1,200)
10/1/1990
10/1/1995
10/1/2000
10/1/2005
10/1/2010
10/1/2015
10/1/2020

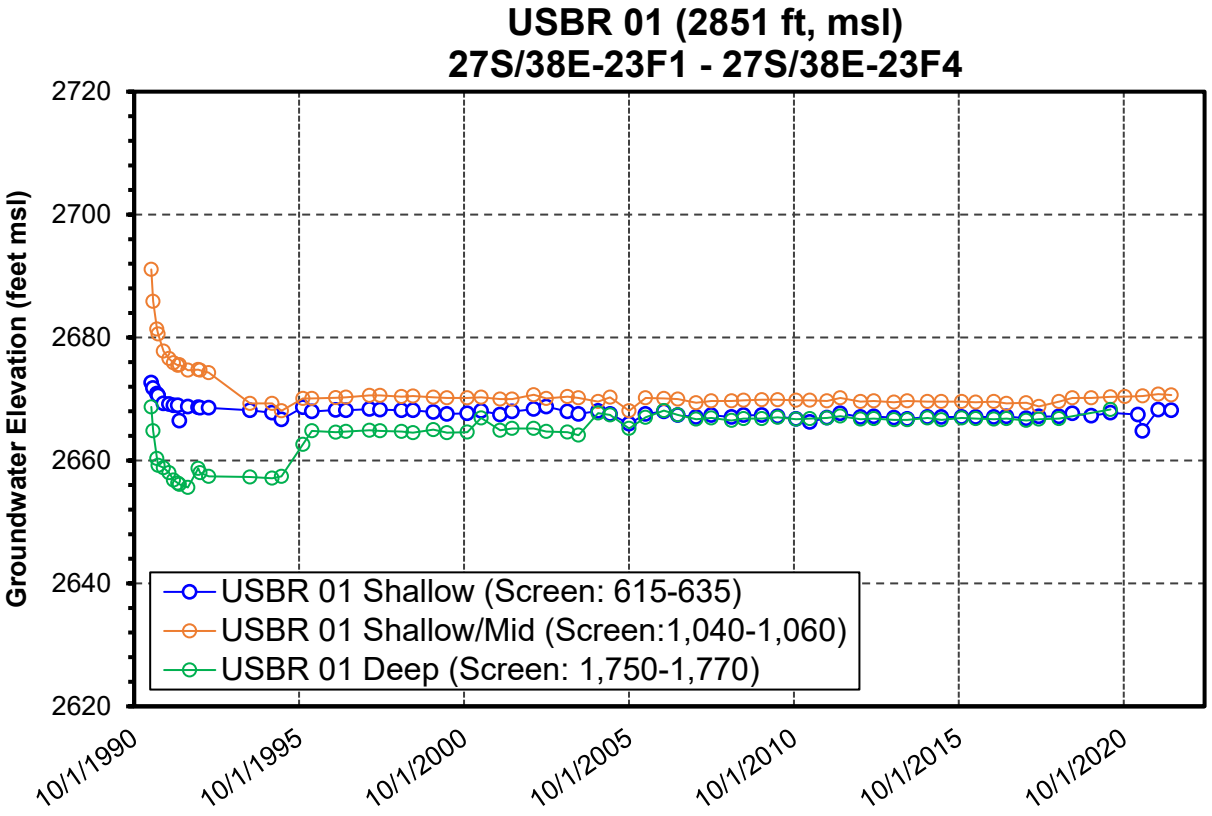

26S/39E-32L1 (2492 ft, msl)
26S/39E-32L1 (Screen: unknown)
Groundwater Elevation (feet msl)
2220
2200
2180
2160
2140
2120
10/1/1990
10/1/1995
10/1/2000
10/1/2005
10/1/2010
10/1/2015
10/1/2020


George Air Corridor (2323 ft, msl)
27S/40E-01K2
George Air Corridor (Screen: 320-380)
Groundwater Elevation (feet msl)
2220
2200
2180
2160
2140
2120
10/1/1990
10/1/1995
10/1/2000
10/1/2005
10/1/2010
10/1/2015
10/1/2020


USBR 03 (2510 ft, msl)
27S/39E-11D1 - 27S/39E-11D3
Groundwater Elevation (feet msl)
2220
2200
2180
2160
2140
2120
10/1/1990
10/1/1995
10/1/2000
10/1/2005
10/1/2010
10/1/2015
10/1/2020
USBR 03 Shallow (Screen: 650-670)
USBR 03 Mid (Screen:1,320-1,340)
USBR 03 Deep (Screen: 1,850-1,870)


Inyo Well (2564 ft, msl)
27S/39E-07R1
Groundwater Elevation (feet msl)
2220
2200
2180
2160
2140
2120
10/1/1990
10/1/1995
10/1/2000
10/1/2005
10/1/2010
10/1/2015
10/1/2020
Inyo Well (Screen: 457-477)


AB303-05 (3024 ft, msl)
27S/38E-21L1
Groundwater Elevation (feet msl)
2700
2680
2660
2640
2620
2600
AB303-05 (Screen: 905-1,005)
10/1/1990
10/1/1995
10/1/2000
10/1/2005
10/1/2010
10/1/2015
10/1/2020


USBR 01 (2851 ft, msl)
27S/38E-23F1 - 27S/38E-23F4
Groundwater Elevation (feet msl)
2720
2700
2680
2660
2640
2620
USBR 01 Shallow (Screen: 615-635)
USBR 01 Shallow/Mid (Screen:1,040-1,060)
USBR 01 Deep (Screen: 1,750-1,770)
10/1/1990
10/1/1995
10/1/2000
10/1/2005
10/1/2010
10/1/2015
10/1/2020

# Attachment E

# Storage Change Estimate Using Thiessen Polygon Method

*INDIAN WELLS VALLEY GROUNDWATER BASIN*

**ESTIMATED GROUNDWATER STORAGE CHANGE**

*Note: This Storage Change Calculation is for Measured Areas of the IWV Basin*

| Polygon | State ID T/R-S | Common Name | Basin Area | Specific Yield | Surface Area (acres) | Groundwater Level (Feet, msl) 2016 | 2017 | 2018 | 2019 | 2022 | Change (feet) 2016-2017 | 2017-2018 | 2018-2019 | 2019-2022 | *Storage Change (AF) for Measured Area of IWV Basin* WY 2017 | WY 2018 | WY 2019 | 2020 to 2022 3-year Avg Anl | 6-yr Cumm Change |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 28S/38E-18R | Black Hills Well | EP | 0.21 | 14,609 | 2,820 | 2,820 | 2,821 | 2,820 | 2,820 | 0.2 | 0.6 | -0.4 | -0.3 | 614 | 1,841 | -1,227 | -918 | -306 | 309 |
| 2 | 27S/38E-27M01 | USNS-03 | EP | 0.21 | 2,987 | 2,679 | 2,679 | 2,679 | 2,680 | 2,680 | 0.2 | -0.2 | 1.2 | 0.6 | 126 | -126 | 753 | 376 | 125 | 1,129 |
| 3 | 27S/38E-23F01 | USBR 1-S | EP | 0.08 | 1,967 | 2,667 | 2,667 | 2,667 | 2,668 | 2,668 | 0.1 | 0.0 | 0.5 | 0.5 | 16 | 0 | 79 | 77 | 26 | 172 |
| 4 | 27S/38E-21L01 | AB303-05 | EP | 0.21 | 5,344 | 2,663 | 2,663 | 2,663 | 2,666 | 2,668 | 0.6 | 0.0 | 2.5 | 2.0 | 673 | 0 | 2,806 | 2,245 | 748 | 5,724 |
| 5 | 27S/38E-15R01 | AB303-06 | EP | 0.21 | 1,497 | 2,658 | 2,658 | 2,659 | 2,659 | 2,659 | -0.1 | 0.6 | 0.6 | -0.2 | -31 | 189 | 189 | -63 | -21 | 283 |
| 6 | 27S/38E-09P01 | Father Crowley | EP | 0.21 | 849 | 2,694 | 2,695 | 2,695 | 2,694 | 2,697 | 0.2 | 0.1 | -0.7 | 2.5 | 36 | 18 | -125 | 446 | 149 | 375 |
| 7 | 27S/38E-08R01 | | EP | 0.21 | 3,525 | 2,697 | 2,697 | 2,697 | 2,696 | 2,701 | 0.0 | 0.0 | -1.0 | 4.3 | 0 | 0 | -740 | 3,183 | 1,061 | 2,443 |
| 8 | 27S/38E-10B02 | AB303-03 | EP | 0.21 | 1,588 | 2,470 | 2,470 | 2,469 | 2,469 | 2,473 | 0.6 | -1.0 | -0.1 | 3.4 | 200 | -333 | -33 | 1,134 | 378 | 967 |
| 9 | 27S/38E-09C01 | AB303-04 | EP | 0.21 | 1,645 | 2,689 | 2,689 | 2,689 | 2,689 | 2,691 | 0.1 | -0.6 | 0.2 | 2.0 | 35 | -207 | 69 | 691 | 230 | 587 |
| 10 | 27S/39E-19E01 | IWV MW #3 | IWV | 0.08 | 2,275 | 2,435 | 2,436 | 2,435 | 2,435 | 2,435 | 0.1 | -0.4 | 0.2 | -0.4 | 18 | -73 | 36 | -72 | -24 | -91 |
| 11 | 27S/38E-13A01 | Sea Bee Well | IWV | 0.08 | 1,517 | 2,430 | 2,430 | 2,430 | 2,430 | 2,429 | -0.2 | -0.2 | 0.2 | -0.9 | -24 | -24 | 24 | -107 | -36 | -131 |
| 12 | 27S/39E-08P02 | IWV MW # 2 | IWV | 0.21 | 3,341 | 2,149 | 2,149 | 2,147 | 2,146 | 2,145 | -0.2 | -1.5 | -1.0 | -1.2 | -140 | -1,053 | -702 | -845 | -282 | -2,739 |
| 13 | 27S/39E-07R01 | Inyo | IWV | 0.21 | 631 | 2,152 | 2,152 | 2,151 | 2,147 | 2,147 | 0.2 | -1.3 | -3.6 | -0.2 | 27 | -172 | -477 | -27 | -9 | -650 |
| 14 | 27S/39E-08M02 | IWV MW #1 | IWV | 0.21 | 468 | 2,147 | 2,146 | 2,146 | 2,144 | 2,140 | -0.7 | -0.7 | -1.9 | -3.4 | -69 | -69 | -187 | -334 | -111 | -659 |
| 15 | 27S/39E-11D01 | USBR 3-S | IWV | 0.08 | 5,027 | 2,149 | 2,149 | 2,146 | 2,146 | 2,141 | -0.2 | -2.5 | -7.0 | -4.8 | -80 | -1,005 | -2,815 | -1,947 | -649 | -5,847 |
| 16 | 27S/40E-06N02 | | IWV | 0.08 | 4,727 | 2,121 | 2,119 | 2,122 | 2,121 | 2,123 | -1.6 | 2.7 | -1.4 | 2.6 | -605 | 1,021 | -530 | 997 | 332 | 884 |
| 17 | 27S/40E-01K02 | George Air Corr. | IWV | 0.21 | 1,001 | 2,162 | 2,162 | 2,161 | 2,161 | 2,159 | -0.2 | -0.9 | -0.7 | -1.2 | -42 | -189 | -147 | -253 | -84 | -631 |
| 18 | 27S/40E-06E01 | | IWV | 0.08 | 975 | 2,116 | 2,115 | 2,115 | 2,116 | 2,119 | -1.1 | 0.9 | 0.4 | 3.6 | -86 | 70 | 31 | 279 | 93 | 294 |
| 19 | 27S/39E-04C01 | | IWV | 0.21 | 1,116 | 2,157 | 2,157 | 2,157 | 2,154 | 2,150 | -0.5 | -0.2 | -2.4 | -4.3 | -117 | -47 | -563 | -1,003 | -334 | -1,730 |
| 20 | 27S/38E-02C01 | USBR 2-S | IWV | 0.21 | 1,109 | 2,364 | 2,364 | 2,363 | 2,363 | 2,373 | 0.5 | -1.0 | 0.0 | 1.1 | 117 | -233 | 0 | 256 | 85 | 139 |
| 21 | 26S/39E-34R02 | | IWV | 0.21 | 1,379 | 2,135 | 2,134 | 2,133 | 2,132 | 2,128 | -1.1 | -1.1 | -1.1 | -3.7 | -319 | -319 | -319 | -1,074 | -358 | -2,030 |
| 22 | 26S/40E-31K01 | | IWV | 0.21 | 1,791 | 2,115 | 2,114 | 2,115 | 2,118 | 2,119 | -0.7 | 0.4 | 2.9 | 1.4 | -263 | 151 | 1,091 | 530 | 177 | 1,508 |
| 23 | 26S/39E-32L01 | | IWV | 0.21 | 3,171 | 2,154 | 2,154 | 2,153 | 2,151 | 2,148 | -0.3 | -1.0 | -1.8 | -3.5 | -200 | -666 | -1,199 | -2,338 | -779 | -4,402 |
| 24 | 26S/39E-31R03 | | IWV | 0.21 | 1,376 | 2,144 | 2,144 | 2,142 | 2,141 | na | -0.4 | -1.2 | -1.4 | -3.1 | -130 | -347 | -404 | -893 | -298 | -1,774 |
| 25 | 26S/40E-35H02 | Satellite Lake2(e) | IWV | 0.21 | 2,609 | 2,154 | 2,154 | 2,153 | 2,153 | 2,154 | -0.3 | -0.7 | -0.3 | 0.8 | -164 | -384 | -164 | 449 | 150 | -263 |
| 26 | 26S/39E-26P02 | | IWV | 0.18 | 1,070 | 2,146 | 2,145 | 2,144 | 2,143 | 2,140 | -0.6 | -0.9 | -1.4 | -2.7 | -116 | -173 | -270 | -514 | -171 | -1,073 |
| 27 | 26S/39E-27D04 | MW 32-D | IWV | 0.18 | 1,459 | 2,145 | 2,146 | 2,143 | 2,143 | 2,140 | 0.9 | -3.1 | -0.4 | -2.6 | 236 | -814 | -105 | -684 | -228 | -1,366 |
| 28 | 26S/39E-26A03 | USBR 4 | IWV | 0.18 | 1,694 | 2,125 | 2,126 | 2,125 | 2,125 | 2,121 | 0.8 | -1.1 | 0.1 | -4.0 | 244 | -336 | 31 | -1,219 | -406 | -1,280 |
| 29 | 26S/40E-22P04 | PW Substation 2 | IWV | 0.21 | 705 | 2,195 | 2,192 | 2,191 | 2,193 | 2,206 | -2.5 | -0.8 | 1.2 | 13.3 | -370 | -118 | 178 | 1,970 | 657 | 1,660 |
| 30 | 26S/40E-19N02 | | IWV | 0.21 | 448 | 2,129 | 2,129 | 2,130 | 2,132 | 2,129 | 0.2 | 1.4 | 1.4 | -2.8 | 19 | 132 | 132 | -266 | -89 | 17 |
| 31 | 26S/40E-21K03 | | IWV | 0.21 | 706 | 2,165 | 2,166 | 2,164 | 2,165 | 2,167 | 0.5 | -1.9 | 1.2 | 2.0 | 74 | -274 | 174 | 295 | 98 | 268 |
| 32 | 26S/40E-20L01 | | IWV | 0.21 | 812 | 2,150 | 2,151 | 2,151 | 2,151 | 2,151 | 0.4 | -0.1 | 0.1 | -0.2 | 68 | -14 | 21 | -36 | -12 | 40 |
| 33 | 26S/40E-22H03 | | IWV | 0.21 | 2,397 | 2,196 | 2,196 | 2,195 | 2,195 | 2,195 | -0.3 | -0.7 | -0.4 | 0.3 | -151 | -337 | -222 | 150 | 50 | -559 |
| 34 | 26S/39E-20C02 | | IWV | 0.18 | 1,025 | 2,156 | 2,156 | 2,154 | 2,153 | 2,150 | -0.5 | -1.5 | -1.0 | -3.2 | -92 | -277 | -185 | -591 | -197 | -1,145 |
| 35 | 26S/39E-13R04 | | IWV | 0.21 | 1,793 | 2,126 | 2,126 | 2,128 | 2,130 | 2,125 | 0.3 | 1.8 | 2.0 | -5.1 | 113 | 689 | 738 | -1,911 | -637 | -371 |
| 36 | 26S/40E-17N01 | | IWV | 0.21 | 1,039 | 2,151 | 2,152 | 2,152 | 2,152 | 2,152 | 0.4 | 0.1 | 0.2 | 0.1 | 87 | 31 | 52 | 13 | 4 | 183 |
| 37 | 26S/40E-15N01 | | IWV | 0.21 | 2,894 | 2,187 | 2,187 | 2,187 | 2,187 | 2,187 | 0.3 | -0.3 | 0.0 | -0.2 | 182 | -176 | 24 | -104 | -35 | -74 |
| 38 | 26S/39E-15J | | IWV | 0.18 | 1,688 | 2,146 | 2,147 | 2,145 | 2,145 | 2,144 | 0.5 | -1.2 | -0.4 | -0.8 | 152 | -365 | -137 | -231 | -77 | -580 |
| 39 | 26S/39E-14E01 | | IWV | 0.21 | 864 | 2,169 | 2,168 | 2,168 | 2,167 | 2,165 | -0.9 | -0.2 | -0.6 | -1.9 | -163 | -38 | -103 | -346 | -115 | -651 |
| 40 | 26S/39E-17G02 | Kerr McGee | IWV | 0.18 | 1,957 | 2,153 | 2,153 | 2,151 | 2,150 | 2,148 | -0.5 | -1.6 | -0.7 | -1.9 | -176 | -546 | -247 | -673 | -224 | -1,642 |
| 41 | 26S/39E-11E02 | Sandquist Spa | IWV | 0.21 | 987 | 2,175 | 2,174 | 2,174 | 2,173 | 2,171 | -0.4 | -0.8 | -0.6 | -2.0 | -83 | -158 | -122 | -413 | -138 | -775 |

*WY 2022*

*IWV Modified Thiessen Polygon Method*

*Note: This Storage Change Calculation is for Measured Areas of the IWV Basin*

| Polygon | State ID T/R-S | Common Name | Basin Area | Specific Yield | Surface Area (acres) | Groundwater Level (Feet, msl) 2016 | 2017 | 2018 | 2019 | 2022 | Change (feet) 2016-2017 | 2017-2018 | 2018-2019 | 2019-2022 | *Storage Change (AF) for Measured Area of IWV Basin* WY 2017 | WY 2018 | WY 2019 | 2020 to 2022 3-year Avg Anl | 6-yr Cumm Change |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 42 | 26S/39E-09E | | IWV | 0.21 | 1,733 | 2,145 | 2,145 | 2,143 | 2,143 | 2,142 | -0.4 | -1.4 | -0.4 | -0.6 | -146 | -521 | -157 | -234 | -78 | -1,056 |
| 43 | 26S/40E-12C | | IWV | 0.21 | 8,284 | 2,162 | 2,162 | 2,161 | 2,162 | 2,160 | 0.5 | -0.6 | 0.4 | -1.5 | 870 | -1,096 | 783 | -2,644 | -881 | -2,088 |
| 44 | 26S/39E-02N01 | | IWV | 0.21 | 2,103 | 2,175 | 2,175 | 2,174 | 2,173 | 2,173 | -0.6 | -0.6 | -0.7 | -0.8 | -265 | -269 | -292 | -333 | -111 | -1,159 |
| 45 | 26S/38E-02Q01 | | IWV | 0.21 | 1,509 | 2,164 | 2,163 | 2,162 | 2,160 | na | -1.1 | -0.9 | -2.0 | -3.6 | -349 | -285 | -634 | -1,141 | -380 | -2,409 |
| 46 | 26S/38E-01M05 | | IWV | 0.21 | 1,520 | 2,166 | 2,165 | 2,164 | 2,163 | 2,161 | -0.6 | -1.2 | -1.2 | -2.5 | -192 | -383 | -383 | -808 | -269 | -1,765 |
| 47 | 26S/39E-05F01 | | IWV | 0.21 | 1,247 | 2,170 | 2,169 | 2,168 | 2,166 | 2,165 | -0.5 | -0.9 | -1.7 | -1.5 | -131 | -236 | -439 | -384 | -128 | -1,190 |
| 48 | 26S/38E-02B01 | | IWV | 0.21 | 519 | 2,166 | 2,165 | 2,164 | 2,162 | 2,157 | -0.6 | -1.1 | -2.2 | -4.6 | -65 | -120 | -240 | -497 | -166 | -922 |
| 49 | 26S/39E-01A01 | | IWV | 0.21 | 2,482 | 2,170 | 2,170 | 2,170 | 2,169 | 2,176 | 0.0 | -0.4 | -0.1 | 6.1 | 0 | -203 | -37 | 3,196 | 1,065 | 2,956 |
| 50 | 25S/40E-31P | | IWV | 0.21 | 3,817 | 2,171 | 2,172 | 2,171 | 2,171 | 2,173 | 0.3 | -0.5 | 0.1 | 1.6 | 241 | -433 | 48 | 1,247 | 416 | 1,102 |
| 51 | 25S/39E-31R01 | | IWV | 0.21 | 1,139 | 2,178 | 2,176 | 2,174 | 2,173 | 2,169 | -2.2 | -2.2 | -0.9 | -3.7 | -532 | -532 | -215 | -878 | -293 | -2,157 |
| 52 | 25S/38E-34G03 | USBR 05-S | IWV | 0.21 | 983 | 2,156 | 2,155 | 2,155 | 2,153 | 2,151 | -0.7 | -2.8 | -1.4 | -3.3 | -145 | -578 | -289 | -679 | -226 | -1,691 |
| 53 | 25S/38E-36G03 | NR-2 (Deep) | IWV | 0.21 | 766 | 2,146 | 2,142 | 2,140 | 2,145 | 2,143 | -4.1 | -1.8 | 5.1 | -1.9 | -659 | -290 | 820 | -306 | -102 | -434 |
| 54 | 25S/38E-34A01 | | IWV | 0.21 | 1,973 | 2,173 | 2,172 | 2,171 | 2,169 | 2,166 | -0.7 | -0.6 | -2.1 | -3.7 | -290 | -249 | -870 | -1,521 | -507 | -2,929 |
| 55 | 25S/38E-35B01 | | IWV | 0.21 | 907 | 2,165 | 2,165 | 2,163 | 2,162 | 2,159 | -0.4 | -1.3 | -1.5 | -2.5 | -76 | -248 | -286 | -478 | -159 | -1,088 |
| 56 | 25S/39E-28P01 | Baker 4-NE | IWV | 0.21 | 2,504 | 2,187 | 2,189 | 2,188 | 2,190 | 2,175 | 1.9 | -0.2 | 1.3 | -14.3 | 1,015 | -89 | 673 | -7,537 | -2,512 | -5,939 |
| 57 | 25S/39E-29M01 | | IWV | 0.21 | 2,556 | 2,177 | 2,176 | 2,176 | 2,175 | 2,173 | -0.5 | -0.5 | -0.6 | -1.8 | -268 | -263 | -333 | -985 | -328 | -1,849 |
| 58 | 25S/38E-25J03 | NR 1-D | IWV | 0.21 | 1,475 | 2,158 | 2,157 | 2,156 | 2,155 | 2,143 | -0.7 | -1.4 | -0.8 | -11.9 | -217 | -434 | -248 | -3,687 | -1,229 | -4,586 |
| 59 | 25S/38E-14Q01 | | IWV | 0.21 | 3,621 | 2,168 | 2,167 | 2,166 | 2,165 | 2,163 | -0.9 | -0.9 | -0.9 | -2.5 | -684 | -684 | -684 | -1,878 | -626 | -3,931 |
| 60 | 25S/39E-12R01 | Charely Tower | IWV | 0.21 | 12,232 | 2,179 | 2,179 | 2,178 | 2,178 | 2,177 | -0.2 | -0.2 | -0.3 | -0.7 | -591 | -591 | -642 | -1,923 | -641 | -3,746 |
| 61 | 25S/38E-12L03 | USBR 6-D | IWV | 0.21 | 6,289 | 2,189 | 2,189 | 2,188 | 2,187 | 2,187 | -0.4 | -0.9 | -0.6 | -0.4 | -528 | -1,228 | -753 | -475 | -158 | -2,985 |
| 62 | 25S/39E-03R01 | Baker Range | IWV | 0.21 | 6,159 | 2,177 | 2,177 | 2,176 | 2,176 | 2,175 | -0.4 | -0.3 | -0.4 | -1.0 | -474 | -414 | -492 | -1,304 | -435 | -2,683 |
| 63 | 24S/38E-21A04 | USBR 10-D | IWV | 0.21 | 4,060 | 2,244 | 2,243 | 2,243 | 2,241 | 2,242 | -0.9 | -0.4 | -1.1 | 0.1 | -767 | -341 | -938 | 85 | 28 | -1,961 |
| 64 | 25S/38E-03B | | IWV | 0.21 | 2,291 | 2,171 | 2,170 | 2,170 | 2,168 | 2,166 | -0.6 | -0.4 | -1.4 | -2.5 | -289 | -193 | -674 | -1,202 | -401 | -2,357 |
| 65 | 25S/40E-30E01 | TTBK MW14 | IWV | 0.21 | 6,169 | 2,177 | 2,177 | 2,177 | 2,177 | 2,176 | -0.1 | -0.3 | -0.2 | -0.7 | -71 | -337 | -259 | -868 | -289 | -1,535 |
| 66 | 26S/38E-22B | Ostrich Ranch | IWV | 0.21 | 2,465 | 2,240 | 2,236 | 2,236 | 2,240 | 2,237 | -4.0 | -0.1 | 4.0 | -2.6 | -2,071 | -52 | 2,071 | -1,339 | -446 | -1,391 |
| 67 | 26S/38E-35B | | IWV | 0.21 | 1,714 | 2,231 | 2,232 | 2,233 | 2,232 | 2,232 | 1.5 | 0.7 | -1.0 | -0.3 | 540 | 252 | -360 | -101 | -34 | 331 |
| 68 | 26S/38E-35D | | IWV | 0.21 | 1,869 | 2,238 | 2,238 | 2,238 | 2,237 | 2,239 | 0.1 | -0.3 | -0.5 | 1.7 | 39 | -118 | -196 | 666 | 222 | 391 |
| 69 | 26S/40E-28J01 | Hospital | IWV | 0.21 | 569 | 2,157 | 2,156 | 2,156 | 2,156 | 2,157 | -0.7 | -0.1 | -0.6 | 1.0 | -84 | -12 | -72 | 120 | 40 | -48 |
| 70 | 26S/40E-29M01 | | IWV | 0.21 | 2,837 | 2,130 | 2,130 | 2,127 | 2,131 | 2,124 | 0.0 | -3.2 | 4.2 | -7.7 | 0 | -1,907 | 2,503 | -4,562 | -1,521 | -3,966 |
| 71 | 27S/38E-01C | | IWV | 0.08 | 1,268 | 2,199 | 2,199 | 2,199 | 2,199 | 2,196 | -0.3 | -0.3 | -0.3 | -2.9 | -30 | -30 | -30 | -294 | -98 | -385 |
| 72 | 27S/39E-02K | Asphalt Constr | IWV | 0.21 | 2,387 | 2,149 | 2,148 | 2,147 | 2,146 | na | -1.4 | -1.4 | -0.3 | -0.9 | -711 | -711 | -150 | -451 | -150 | -2,023 |
| 73 | 27S/39E-08A01 | | IWV | 0.21 | 1,190 | 2,148 | 2,147 | 2,147 | 2,145 | 2,139 | -1.1 | -0.5 | -1.8 | -5.7 | -275 | -125 | -450 | -1,423 | -474 | -2,273 |
| 74 | 24S/38E-33J02 | | IWV | 0.21 | 3,435 | 2,174 | 2,170 | 2,173 | 2,172 | na | -3.4 | 2.9 | -1.1 | -3.3 | -2,453 | 2,092 | -794 | -2,381 | -794 | -3,535 |
| 75 | 25S/39E-22J01 | S. Baker Ranch | IWV | 0.21 | 3,600 | 2,178 | 2,178 | 2,178 | 2,177 | 2,176 | -0.3 | -0.3 | -0.4 | -1.1 | -263 | -204 | -280 | -805 | -268 | -1,551 |
| 76 | 26S/40E-34F01 | City of Ridgecrest | IWV | 0.21 | 926 | 2,147 | 2,147 | 2,146 | 2,145 | na | -0.4 | -0.6 | -0.5 | -1.7 | -78 | -107 | -107 | -321 | -107 | -612 |
| 77 | 27S/40E-02J01 | DMP Cemetery | IWV | 0.21 | 2,308 | 2,162 | 2,162 | 2,161 | 2,161 | 2,159 | -0.2 | -0.9 | -0.7 | -1.2 | -97 | -436 | -339 | -584 | -195 | -1,456 |
| Specific Yield values from Appendix 3-H GSP Model Documentation | | | | | 188,971 | | | | | | | | | | -12,149 | -17,486 | -11,107 | -47,648 | -15,883 | -88,390 |
| red: field measurement not available, estimated from hydrograph | | | | | | | | | | | | | | | 1,667 | 1,381 | 1,770 | 7,171 | 2,390 | 11,988 |
| | | | | | | | | | | | | | | | -10,482 | -16,105 | -9,338 | -40,477 | -13,492 | -76,402 |
| | | | | | | | | | | | | | | | *AN* | *BN* | *W* | *AN__D__BN* | | |

# Attachment F

# Estimated WY 2022 Groundwater Production

## Attachment F: WY 2022 Groundwater Production Estimate

| Water Use Sector (DWR) | Water User | No Action Baseline WY 2022 note | No Action Baseline WY 2022 (AFY) | Reported Groundwater Pumping WY 2022 note | Reported Groundwater Pumping WY 2022 (AFY) | Estimated Groundwater Pumping WY 2022 note | Estimated Groundwater Pumping WY 2022 (AFY) |
|---|---|---|---|---|---|---|---|
| Urban | IWVWD | 2 | 6,588 | 1 | 5,872 | 1 | 5,872 |
| Urban | City/County | 2 | 425 | 3 | 177 | 5 | 186 |
| Industrial | Searles Valley Minerals | 2 | 2,907 | 1 | 2,369 | 1 | 2,369 |
| Other - Federal | U.S. Navy | 2 | 2,041 | 6 | 1,709 | 6 | 1,709 |
| Agriculture | Meadowbrook Farms | 2 | 12,303 | 1 | 4,864 | 1 | 4,864 |
| Agriculture | Mojave Pistachio | 2 | 6,891 | 3 | 2,355 | 5 | 3,592 |
| Agriculture | Simmons Farm | 2 | 931 | 1 | 0 | 1 | 0 |
| Agriculture | Sierra Shadows | 2 | 765 | 3 | 257 | 5 | 321 |
| Agriculture | Quist Farms | 2 | 685 | 1 | 506 | 1 | 506 |
| Agriculture | Other Small Ag | 2 | 942 | 1, 3, 4 | 247 | 5, 7 | 285 |
| Other - Co-Ops/Mutuals | Co-Ops/Mutual | 2 | 544 | 1, 3, 4 | 179 | 7 | 620 |
| Other - Domestic | Domestic | 2 | 832 | 1 | - | 2 | 832 |
| | | | 35,854 | | | | 21,156 |

Notes:

1 Production reported to IWVGA for volumetric production fees and/or transient pool records.

2 Estimated from GSP 'No Action' Baseline analysis.

3 Missing some monthly data. Partial year reported.

4 Missing data. Not all Co-Ops, Mutuals, and agricultural pumpers report.

5 Missing monthly data estimated using other reported data.

6 Data provided by Navy to the IWVGA via letter on October 26, 2022 .

7 Compiled from best available data source including reported data, baseline analysis, and other reported data.

# Attachment G

# WY 2022 Water Quality Data

**Attachment G**

**Table 1**

***Well Information, Sampling Methods, & Depth to Water Levels***

| State ID | Other Name | Latitude (NAD83) | Longitude (NAD83) | Well Type | Total Depth (ft, bgs) | Screen Interval (ft, bgs) | Sampling Method | Date | DTW | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| 25S/38E-03B | 25S/38E-03B | 35.79546 | -117.87382 | MW | 360 | 300-360 | Hydrasleeve | 10/19/2021 | 292.81 | Sampled on 10/20/21 |
| 25S/38E-14A | 25S/38E-14A | 35.76809 | -117.85244 | DOM | *unknown* | *unknown* | Owner Purged | 10/18/2021 | 233.37 | Sampled on 10/18/21 |
| 25S/38E-34A01 | 25S/38E-34A01 | 35.69703 | -117.84962 | DOM | 480 | 418.5-478.5 | Owner Purged | 10/22/2021 | 364.38 | Sampled on 10/22/21 |
| 25S/39E-03R01 | Baker Range | 35.78412 | -117.76257 | MW; C | 185 | 65-165 | Hydrasleeve | 10/18/2021 | 52.14 | Sampled on 10/21/21 |
| 25S/39E-12R | Charley Tower | 35.77039 | -117.72496 | MW | 150 | 60-140 | Hydrasleeve | 10/18/2021 | 25.82 | Sampled on 10/21/21 |
| 26S/38E-01M05 | 26S/38E-01M05 | 35.70215 | -117.84707 | DOM | 360 | 299-359 | Owner Purged | 10/21/2021 | 215.42 | Sampled on 10/21/21 |
| 26S/38E-02B01 | 26S/38E-02B01 | 35.70886 | -117.85615 | DOM | *unknown* | *unknown* | Owner Purged | 10/22/2021 | 215.21 | Sampled on 10/22/21 |
| 26S/39E-05K01 | 26S/39E-05K01 (Deep) | 35.69973 | -117.80339 | MW | 601 | 565-585 | Hydrasleeve | 10/18/2021 | 130.79 | Sampled on 10/21/21 |
| 26S/39E-05L01 | 26S/39E-05L01 (Shallow) | 35.69973 | -117.80355 | MW | 600 | 160-240 | Hydrasleeve | 10/18/2021 | 132.42 | Sampled on 10/21/21 |
| 26S/39E-11E02 | Sandquist Spa | 35.68857 | -117.75647 | MW; C | 191 | 135-191 | Hydrasleeve | 10/18/2021 | 137.02 | Sampled on 10/21/21 |
| 26S/40E-22E01 | 26S/40E-22E01 | 35.66135 | -117.66687 | MW | 651 | 531-631 | Hydrasleeve | 10/18/2021 | 103.16 | Sampled on 10/21/21 |
| 26S/40E-22E02 | 26S/40E-22E02 | 35.66132 | -117.66633 | MW | 650 | 570-630 | Hydrasleeve | 10/18/2021 | 93.15 | Sampled on 10/21/21 |
| 27S/38E-09C01 | AB303-04 | 35.60665 | -117.89378 | MW | 601 | 501-581 | Hydrasleeve | 10/19/2021 | 385.29 | Sampled on 10/20/21 |
| 27S/38E-13A02 | AB303-01 | 35.59369 | -117.83070 | MW | 690 | 372-472 | Hydrasleeve | 10/19/2021 | 225.99 | Sampled on 10/20/21 |
| 27S/38E-21L01 | AB303-05 | 35.56985 | -117.89592 | MW; C | 1,045 | 905-1,005 | Hydrasleeve | 10/19/2021 | 360.42 | Sampled on 10/20/21 |
| 27S/40E-01K02 | George Air Corridor | 35.61470 | -117.62469 | MW | 400 | 320-380 | Hydrasleeve | 10/19/2021 | 225.99 | Sampled on 10/20/21 |

**Well Type**

MW: Monitoring Well

C: CASGEM Well

DOM: Domestic

**Attachment G**
**Table 2**
***Water Quality Summary***

| Sample ID | State ID | Sample Date | Sample Depth (ft, bgs) | Specific Conductance (EC) (umhos/cm) | Total Filterable Residue/ TDS (mg/L) | Calculated TDS/EC (multiplier) | Total Hardness (As CaCO3) (mg/L) | Total Anions (meq/L) | Total Cations (meq/L) | % Difference | Odor Threshold (TON) | Turbidity (NTU) | Total Alkalinity (CaCO3) (mg/L) | Bicarbonate HCO3 (mg/L) | Carbonate CO3 (mg/L) | pH (Lab) (pH Units) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Maximum Contaminant Level (MCL)* | | | | *1,600* | *1,000* | *n/a* | *n/a* | *n/a* | *n/a* | *n/a* | *3* | *5* | *n/a* | *n/a* | *n/a* | *n/a* |
| 25S/38E-03B | 25S/38E-03B | 10/20/2021 | 347-350 | 940 | 590 | 0.63 | 380 | 10.6 | 10.6 | 0.083 | 1 | 2.3 | 360 | 440 | *ND* | 7.8 |
| 25S/38E-14A | 25S/38E-14A | 10/18/2021 | *unknown* | 730 | 450 | 0.62 | 260 | 7.58 | 8.33 | 9.4 | 1[HT] | 0.30 | 240 | 290 | *ND* | 8.0 |
| 25S/38E-34A01 | 25S/38E-34A01 | 10/22/2021 | 418.5-478.5 | 830 | 450 | 0.54 | 310 | 9.45 | 10.5 | 10 | 1 | *ND* | 380 | 470 | *ND* | 7.4 |
| Baker Range | 25S/39E-03R01 | 10/21/2021 | 97-100 | 950 | 590 | 0.62 | 290 | 10.1 | 11.3 | 11 | 1[HT] | *ND* | 310 | 370 | *ND* | 7.6 |
| Charley Tower | 25S/39E-12R | 10/21/2021 | 117-120 | 1,100 | 720 | 0.65 | 240 | 12 | 13.1 | 8.5 | 1[HT] | 0.24 | 310 | 380 | *ND* | 8.0 |
| 26S/38E-01M05 | 26S/38E-01M05 | 10/21/2021 | 299-359 | 870 | 570 | 0.66 | 220 | 8.78 | 9.3 | 5.8 | 1[HT] | 0.62 | 150 | 180 | *ND* | 7.7 |
| 26S/38E-02B01 | 26S/38E-02B01 | 10/22/2021 | *unknown* | 930 | 610 | 0.66 | 240 | 10.2 | 11 | 8.2 | 1 | 0.22 | 360 | 440 | *ND* | 8.0 |
| 26S/39E-05K01 (Deep) | 26S/39E-05K01 | 10/21/2021 | 567-570 | 1,600 | 1,000 | 0.63 | 78 | 17.3 | 15.6 | 11 | 1[HT] | 0.29 | 530 | 370 | 130 | 9.2 |
| 26S/39E-05L01 (Shallow) | 26S/39E-05L01 | 10/21/2021 | 197-200 | 3,400 | 2,000 | 0.59 | *ND* | 39.9 | 33.6 | 17 | 1[HT] | 0.33 | 1,400 | 760 | 490 | 9.5 |
| Sandquist Spa | 26S/39E-11E02 | 10/21/2021 | 157-160 | 600 | 360 | 0.60 | 200 | 5.69 | 6.25 | 9.4 | 1[HT] | 0.32 | 130 | 160 | *ND* | 7.7 |
| 26S/40E-22E01 | 26S/40E-22E01 | 10/21/2021 | 547-550 | 2,000 | 1,300 | 0.65 | *ND* | 21.6 | 17.7 | 20 | 2[HT] | 3.7 | 720 | 740 | 67 | 8.8 |
| 26S/40E-22E02 | 26S/40E-22E02 | 10/21/2021 | 597-600 | 1,800 | 1,300 | 0.72 | 410 | 21.1 | 21.5 | 2 | 3[HT] | 0.45 | 370 | 460 | *ND* | 7.6 |
| AB303-04 | 27S/38E-09C01 | 10/20/2021 | 557-560 | 500 | 350 | 0.70 | 60 | 4.78 | 5.04 | 5.3 | 1 | 5.2 | 97 | 120 | *ND* | 8.1 |
| AB303-01 | 27S/38E-13A02 | 10/19/2021 | 397-400 | 470 | 340 | 0.72 | 130 | 4.46 | 5.19 | 15 | 1 | 0.83 | 130 | 150 | *ND* | 7.6 |
| 27S/38E-21L01 | 27S/38E-21L01 | 10/20/2021 | 952-955 | 270 | 200 | 0.74 | *ND* | 2.75 | 2.8 | 1.9 | 1 | 5.0 | 120 | 120 | 12 | 8.9 |
| George Air Corridor | 27S/40E-01K02 | 10/20/2021 | 337-340 | 1,900 | 1,200 | 0.63 | 160 | 17.8 | 18.3 | 2.7 | 1 | 1.0 | 120 | 150 | *ND* | 8.0 |

*n/a* - Non applicable to dataset
*ND* - Analyte not detected at or above the reporting limit
HT - Sample received & analyzed outside of recommeded hold time
J - Detected below the Reporting Limit; reported concentration is estimated

**Attachment G**
**Table 2**
***Water Quality Summary***

| Sample ID | State ID | Sample Date | Sample Depth (ft, bgs) | Chloride (mg/L) | Fluoride (mg/L) | Hydroxide (mg/L) | MBAS (LAS Mole. Wt 340.0) (mg/L) | Nitrate as N (mg/L) | Sulfate (mg/L) | Arsenic (µg/L) | Boron (µg/L) | Calcium (mg/L) | Copper (µg/L) | Iron (µg/L) | Magnesium (mg/L) | Manganese (µg/L) | Potassium (mg/L) | Sodium (mg/L) | Zinc (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Maximum Contaminant Level (MCL)* | | | | *500* | *2* | *n/a* | *0.5* | *10* | *500* | *10* | *n/a* | *n/a* | *1,000* | *300* | *n/a* | *50* | *n/a* | *n/a* | *5,000* |
| 25S/38E-03B | 25S/38E-03B | 10/20/2021 | 347-350 | 24 | 0.85 | *ND* | 0.070[J] | 1.5 | 130 | 3.6 | 210 | 89 | *ND* | 120 | 38 | 5.1 | 7.2 | 66 | *ND* |
| 25S/38E-14A | 25S/38E-14A | 10/18/2021 | *unknown* | 30 | 0.84 | *ND* | 0.086[J] | 2.2 | 93 | 2.9 | 340 | 68 | 7.9[J] | *ND* | 23 | *ND* | 8.2 | 65 | *ND* |
| 25S/38E-34A01 | 25S/38E-34A01 | 10/22/2021 | 418.5-478.5 | 15 | 0.65 | *ND* | *ND*[HT] | 0.75[HT] | 62 | 6.1 | 620 | 77 | 11[J] | 14[J] | 29 | *ND* | 6.5 | 94 | 30[J] |
| Baker Range | 25S/39E-03R01 | 10/21/2021 | 97-100 | 47 | 0.77 | *ND* | *ND*[HT] | 1.2[HT] | 130 | 15 | 1,600 | 49 | *ND* | *ND* | 40 | 0.95[J] | 15 | 120 | *ND* |
| Charley Tower | 25S/39E-12R | 10/21/2021 | 117-120 | 100 | 0.86 | *ND* | *ND*[HT] | 0.55[HT] | 140 | 16 | 3,200 | 49 | *ND* | 33[J] | 29 | 12[J] | 16 | 180 | *ND* |
| 26S/38E-01M05 | 26S/38E-01M05 | 10/21/2021 | 299-359 | 80 | 0.65 | *ND* | *ND*[HT] | 0.62[HT] | 170 | 1.0[J] | 740 | 65 | 40[J] | 110 | 14 | 11[J] | 4.6 | 110 | 35[J] |
| 26S/38E-02B01 | 26S/38E-02B01 | 10/22/2021 | *unknown* | 32 | 1.5 | *ND* | *ND*[HT] | 2.5 | 95 | 2.2 | 840 | 69 | 10[J] | *ND* | 17 | *ND* | 3.9 | 140 | 18[J] |
| 26S/39E-05K01 (Deep) | 26S/39E-05K01 | 10/21/2021 | 567-570 | 180 | 1.2 | *ND* | 0.067[HT,J] | 0.27[J] | 87 | 3.2 | 12,000 | 16 | *ND* | *ND* | 9.2[J] | *ND* | 3.2[J] | 320 | *ND* |
| 26S/39E-05L01 (Shallow) | 26S/39E-05L01 | 10/21/2021 | 197-200 | 320 | 2.9 | *ND* | 0.090[HT,J] | 0.52[HT] | 91 | 3.4 | 33,000 | 10 | *ND* | *ND* | 9.4[J] | 9.5[J] | 4.1[J] | 740 | *ND* |
| Sandquist Spa | 26S/39E-11E02 | 10/21/2021 | 157-160 | 59 | 0.57 | *ND* | *ND*[HT] | 2.0[HT] | 66 | 1.1[J] | 310 | 64 | *ND* | 130 | 9.2 | 4.2[J] | 3.0 | 51 | *ND* |
| 26S/40E-22E01 | 26S/40E-22E01 | 10/21/2021 | 547-550 | 150 | 6.1 | *ND* | 0.061[HT,J] | 0.36[HT,J] | 130 | 6.1 | 8,200 | 6.5[J] | *ND* | *ND* | 8.1[J] | 6.2[J] | 6.8[J] | 380 | *ND* |
| 26S/40E-22E02 | 26S/40E-22E02 | 10/21/2021 | 597-600 | 16 | 3.4 | *ND* | 0.056[HT,J] | 0.16[HT,J] | 620 | 340 | 2,200 | 69 | 8.0[J] | 14[J] | 57 | 26 | 29 | 290 | *ND* |
| AB303-04 | 27S/38E-09C01 | 10/20/2021 | 557-560 | 18 | 0.30 | *ND* | *ND* | 1.8 | 110 | *ND* | 110 | 20 | *ND* | 62[J] | 2.4 | 3.6[J] | 2.3 | 87 | *ND* |
| AB303-01 | 27S/38E-13A02 | 10/19/2021 | 397-400 | 25 | 0.92 | *ND* | 0.052[J] | 2.3 | 60 | 1.6[J] | 280 | 42 | *ND* | *ND* | 6.3 | *ND* | 1.9 | 58 | *ND* |
| 27S/38E-21L01 | 27S/38E-21L01 | 10/20/2021 | 952-955 | 3.1 | 0.42 | *ND* | *ND* | *ND* | 13 | 4.0 | 120 | 1.8 | *ND* | 95[J] | *ND* | 31 | 0.48[J] | 62 | *ND* |
| George Air Corridor | 27S/40E-01K02 | 10/20/2021 | 337-340 | 500 | 1.9 | *ND* | *ND* | 0.33[J] | 57 | 37 | 2,900 | 56 | *ND* | 110 | 6.1 | 6.0[J] | 9.6 | 340 | *ND* |

*n/a* - Non applicable to dataset
*ND* - Analyte not detected at or above the reporting limit
HT - Sample received & analyzed outside of recommeded hold time
J - Detected below the Reporting Limit; reported concentration is estimated

# Attachment H

# IWV Model Configuration Item List

# IWV-Model Configuration Item (CI) List

| CI Request Number | CI Request Date | CI Summary | Importance Rank 1 (low) 5 (high) | Priority 1 (low) 5 (high) | Origin of CI (IWVGA, TAC, Navy, etc.) | Date Complete review order |
|---|---|---|---|---|---|---|
| 1 | 5/6/22 | SkyTEM Airborne Surveys, Dec 2017.<br>SkyTEM Survey: Indian Wells, California (42 pp) | 5 | 5 | IWVGA | TMG 8/18/22<br>Plan outside AEM review |
| 2 | 5/6/22 | Ramboll, June 2019.<br>Hydrogeologic Conceptual Framework; Indian Wells Valley, Final Report (113 pp) | 5 | 5 | IWVGA | TMG 8/18/22<br>Plan outside AEM review |
| 3 | 5/6/22 | Ramboll, June 2019.<br>Indian Wells Valley – Boreholes; A Description of Borehole Information (532 pp) | 4 | 3 | IWVGA | Plan outside review w AEM |
| 4 | 5/6/22 | Steve Bacon, August 2020.<br>DRI's Technical Review of Hydrogeologic Conceptual Framework, Indian Wells Valley, by P. Thorn, T. Parker, and M. Halhjaer, Ramboll | 5 | 5 | IWVGA | TMG 8/18/22 |
| 5 | 5/6/22 | Jenny B. Chapman, James M. Thomas, Chris Garner; Applied Geochemistry 2022.<br>Groundwater recharge timing based on $^{14}C$ and $^{2}H$ within Indian Wells Valley | 4 | 4 | IWVGA | |
| 6 | 5/6/22 | Aquifer Test Data/Reports:<br>a. DRI, December 2020. Indian Wells Valley Multi-well Aquifer Test Analysis: IWVWD Well 10 and Quist Ranch 21-hour and 48-hour Tests, Ridgecrest, CA<br>b. Aquilogic, 2020<br>c. Driller log capacity tests | 5 | 5 | IWVGA | |
| 7 | 5/6/22 | Navy/DRI Research Article (2021).<br>Tectonic, hydrogeologic, and climatic controls on Late Holocene dune formation, China Lake basin, Indian Wells Valley, California, USA | 4 | 3 | IWVGA | TMG 7/14/22<br>Field 10/20/22 |
| 8 | 5/6/22 | Review monitoring well EP-1 geologic, monitoring, and water quality data | 5 | 5 | IWVGA | TMG 10/27/22 & 11/3/22 |

| CI Request Number | CI Request Date | CI Summary | Importance Rank 1 (low) 5 (high) | Priority 1 (low) 5 (high) | Origin of CI (IWVGA, TAC, Navy, etc.) | Date Complete review order |
|---|---|---|---|---|---|---|
| 9 | 5/6/22 | Review groundwater level data since 2015<br>a. Fall and spring contours<br>b. Datalogger and telemetry data<br>c. Monitoring well hydrographs | 5 | 5 | IWVGA | TMG 6/16/22 & 6/23/22 |
| 10 | 5/6/22 | Review of annual water quality data collected since 2020 | 5 | 5 | IWVGA | TMG 9/1/22 |
| 11 | 5/6/22 | Review of surface water gaged flow and field observations | 4 | 3 | IWVGA | |
| 12 | 5/6/22 | Review large pumping well concentration and cones of depression | 5 | 5 | IWVGA | TMG 7/14/22 S. Bacon, DRI |
| 13 | 5/6/22 | Review IWV faulting:<br>a. Unnamed Fault separating El Paso Subarea and main IWV Basin<br>b. 2019 Ridgecrest Earthquake (new) fault structure | 5 | 5 | IWVGA | TMG 7/14/22 S. Bacon, DRI |
| 14 | 5/6/22 | Rose Valley Subflow<br>a. new monitoring wells Fall 2022<br>b. Faulting near Little Lake and Rose Valley Subflow Conceptual Model<br>c. Little Lake surface flow from Inyo County | 5 | 5 | IWVGA | 10/27/22 Ongoing w drilling program |
| 15 | 5/10/22 | USGS Basin Characterization Model (recharge) | | | T. Parker | Plan USGS discussion |
| 16 | 9/1/22 | Evaporation off of a wet playa | 5 | 5 | S. Bacon DRI | TMG 10/27/22 S. Bacon, Dri |
| 17 | | | | | | |
| 18 | | | | | | |
| 19 | | | | | | |
| 20 | | | | | | |

# Attachment I

# WY 2022 Data Management System Updates and Maintenance

# NOTE TO FILE

STETSON ENGINEERS INC.

**2171 E. Francisco Blvd., Suite K • San Rafael, California • 94901**

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| | | | |
|---|---|---|---|
| TO: | FILE | DATE: | November 11, 2022 |
| FROM: | Miles McCammon, PG | JOB NO: | 2652 |
| RE: | Indian Wells Valley Data Management System: Updates and Maintenance WY 2022 | | |

## Executive Summary

The Indian Wells Valley Data Management System (DMS) has been used by the Indian Wells Valley Groundwater Authority (IWVGA) to store communicate and share information about the status of the basin with stakeholders. Server logs indicate public is accessing and using the DMS. During the last year funding and time was spent in updating server systems and maintaining the software to keep and expand functionality. New groundwater and surface water monitoring data was added to the existing database, and new telemetry data was added.

## 1 Introduction

The IWVGA is the agency that carries out the Sustainable Groundwater Management Act (SGMA) for Indian Wells Valley.[1] In January 2020 IWVGA published the Groundwater Sustainability Plan (GSP)[2] for the basin. Since then the IWVGA has been working on meeting that plan and the requirements to produce annual reports documenting the state of the basin and progress towards sustainability. In compliance with SGMA the IWVGA developed a DMS to store and report information relevant to development and implementation of the plan. IWVGA has made the DMS available through the internet and a web portal located at https://iwvgsp.com/ . IWVGA also maintains an unrelated separate outreach and communications website located at https://iwvga.org/ which provides updates on meetings and governance issues.

During water year (WY) 2022 (October 1, 2021 through September 30, 2022), IWVGA effectively utilized the DMS to store, communicate and share information about the status of the basin with stakeholders This document summarizes updates and maintenance to the IWVGA DMS over WY 2022.

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[1] Indian Wells Valley is California Department of Water Resources groundwater basin 6-54.

[2] Groundwater Sustainability Plan. 6-054 INDIAN WELLS VALLEY. https://sgma.water.ca.gov/portal/gsp/preview/59 Accessed 2022-11-17.

# 2 Use Statistics

During WY 2022 the IWVGSP website logged 1,242 logins to https://iwvgsp.com/ . This captures most traffic so includes consultant and IWVGA access, but also indicates some active use by members of the public. Additionally, ten new user accounts were created during WY 2022, which was a result of additional folks needing access to preliminary datasets.

# 3 Data Management System Regulatory Requirements

SGMA requires the use of a DMS in development and implementation of the GSP. The California Code of Regulations (CCR) sections § 352.6 and § 354.40 identify the requirements for a DMS. These portions of the code are repeated below:

> **23 CCR § 352.6. Data Management System**
>
> Each Agency shall develop and maintain a data management system that is capable of storing and reporting information relevant to the development or implementation of the Plan and monitoring of the basin.
>
> **23 CCR § 354.40. Reporting Monitoring Data to the Department**
>
> Monitoring data shall be stored in the data management system developed pursuant to Section 352.6. A copy of the monitoring data shall be included in the Annual Report and submitted electronically on forms provided by the Department.

# 4 Software Updates

Many small updates and patches were made over the course of the water year. These included improvements such as new features, removal of unexpected or unwanted behavior, upgrades. Other less immediately visible changes included new features on the administration side as well as code refracturing to improve readability and allow for future updates.

## 4.1 Updating to PHP 8+

The DMS sever is periodically patched and updated to fix security issues as they are identified. During January 2022 the underlying server distribution (Fedora Linux) was updated to version 35. This distribution included a major update to PHP which is the programming language that much of the web interface for the DMS is built in. This PHP update version 8 had changes to several standard library functions operate from previous versions, so effort was required to remove legacy code that was incompatible with PHP 8 and replace it where appropriate.

## 4.2 New Data Upload Standard

During this year effort was made to streamline and improve the import of non-telemetry water data sets. Previously the DMS had a system set up to upload groundwater levels specifically for

particular wells, which only accepted data with the individual well reporting spreadsheets. However, this was limited only to the original specific purpose with a single file corresponding to water levels for a particular well.

A new format was developed that was more flexible. This new format allows for multiple wells or sites could be combined in a single file, and multiple types of parameters. The overall system needed to be smart in terms of identifying when files had changed, and appending data only when there were changes.

### 4.3 Automatic Reviews of Database Tables

Another update during WY2022 was the addition of more automated checks of the database tables to ensure that data is current. This uses the historical data that has been pushed to the database to estimate what data should be expected to exist in the database over a recent time period. By compares actual data in the database against the prediction, likely missing data is automatically flagged and the DMS administration team is notified through an email.

## 5 New and Updated Datasets

Numerous datasets were updated during WY 2022. Smaller updates to included adding new GIS layers such as new and updated fault coverages, groundwater level contours, and other static geospatial layers.

### 5.1 Monitoring Data Updates

Groundwater sounding data collected by the Kern County Water Agency (KCWA) and others for fall 2021 and spring 2022 was uploaded and made available through the DMS. These are primarily traditional well soundings where the depth to water is collected by measuring the length of a line dropped down the well casing from the measuring point on the well casing.

### 5.2 Wel Intel Data

A snapshot of Wel Intel data was made available through the DMS. Wel Intel data uses the return from sonic waves system to calculate the depth to water, and as such can be used on active groundwater production wells. These systems were installed at 16 wells across Indian Wells Valley, 12 of which were funding in part by the IWVGA, with the remainder funded in part by the Indian Wells Valley.

### 5.3 Telemetry Data Updates

During WY2022, live telemetry data was added in several wells within Indian Wells Valley. Programming was added in order to enable this data to be saved into the DMS databases, and displayed on the DMS website.

### 5.4 Preliminary MODFLOW data

Some of the preliminary results from MODFLOW runs were made available to selected users as part of the review and development of the MODFLOW model. This included some additional work in order to provide contextual comparison data.

## 5.5 Additional Reports Added

Additional relevant reports regarding surface water, groundwater, geology, and related topics were added to the Indian Wells Valley library.

# Attachment J

# WY 2022 Precipitation and Stream Gage Data

# DRAFT MEMORANDUM

**785 Grand Avenue, Suite 202 • Carlsbad, California • 94901**
TEL: (760) 730-0701 FAX: (415) 457-1638 e-mail: stever@stetsonengineers.com

| | | | |
|---|---|---|---|
| TO: | File | DATE: | November 15, 2022 |
| FROM: | Stetson Engineers Inc. | JOB NO: | 2652 |
| RE: | Chimney Peak Weather Station – Annual Report of Precipitation | | |

This memorandum serves as an annual summary of station operation and reporting of approved data records associated with the Chimney Peak Weather Station. IWVGA operation of this station is done under legal agreement with the Bureau of Land Management to occupy and operate the station inside of the BLM Chimney Peak Fire Station property boundary.

## CHIMNEY PEAK PRECIPITATION STATION OVERVIEW

Stetson Engineers (Stetson) as acting agent for IWVGA, established this weather station December 2020, with the purpose of collecting regional precipitation data in an area where precipitation data collection has been missing. On December 14th, 2020, Stetson completed the installation of the Chimney Peak Precipitation Station at the Chimney Peak Bureau of Land Management (BLM) Fire Station. The installation was approved and permitted by the BLM with Communications Lease Agreement CACA 058717 and Categorical Exclusion Documentation DOI-BLM-CA-C060-2020-0015-CX. The station was installed inside the Chimney Peak BLM Fire Station facility, in the proposed location, at coordinate position, 35.86902, -118.01185.

The installation is comprised of components to measure and record precipitation, air temperature, and relative humidity measurements, and transmit this data through the NOAA GOES Data Collection System (DCS). The monitoring and telemetry equipment consist of the following listed component parts:

**FTS Equipment List:**

| FTS Serial Number | Manufacture Serial Number | Model Number | Description |
|---|---|---|---|
| NA | NA | GPS-ANTENNA-WP | GPS Antenna |
| 080028 | 52015405 | 1032-018 | GOES Antenna EON2 Kit2, 401MHz, 6.0dBic |
| NA | NA | NA | EON2 Amiable Mount |
| NA | NA | 20180 | SMA Male to N Female Adapter |
| NA | NA | 20514 | Cable, N-Type Bulkhead to SMA M, 10” |
| 118428 | NA | LT1-GOES | LT1 Logger/Transceiver 1 GOES |
| 119783 | 870470.008 | 21032 | Lambrecht Temperature / Humidity Sensor |
| 118802 | NA | RG-T-FL | Rain Gage, Pedestal mount, 20 ft armored cable |
| 118884 | TS200528030 | WS20G6M | 20 Watt Solar Panel; SPS-20W-ASC |
| 118884 | NA | NA | ASC Battery Charge Regulator, Specialty Concepts, Inc. |
| NA | NA | 12841-3 | Charge Regulator to Battery Cable Assembly; MTL 2020-05-06 |
| 12220 | NA | IT45-12-H | Battery – 12 Volt / 45 Ah |
| NA | NA | CBL-UC-JB-PWR | Battery to Terminal Cable Assembly; MTL 2020-06-15 |
| 1197784 | NA | SDI-THPS-LB | Temperature/Humidity Sensor Radiation Shield |
| NA | NA | WP-ENCL-MINI | Weatherproof Equipment Enclosure, Mini Size |
| 20385 | CM106B | Tripod | 7-10 ft Tripod with Grounding Kit |

**Photograph of Installation:**



**FIGURE 1. CHIMNEY PEAK WEATHER STATION FACING SOUTH-WEST**



**FIGURE 2. CHIMNEY PEAK WEATHER STATION, FACING SOUTH-WEST**

**Measurement & Telemetry Programming:**

The datalogger / GOES transmitter (LT1) are programmed with the following NOAA DCS settings for data transmission through the NOAA GOES DCS.

| | |
|---|---|
| **Data Collection Platform:** | BE100E74 |
| **Measurement Interval:** | 15 minutes |
| **Transmission interval:** | One hour |
| **Transmission Offset:** | 34 minutes, 10 seconds |
| **Parameter Encoding:** | SHEF |
| **Measurement Parameters:** | VB – Battery Voltage; Volts |
| | PC – Accumulated Precipitation; Inches |
| | TA – Instantaneous Air Temperature, Celsius |
| | RH – Instantaneous Relative Humidity; Percent |
| | DP – Instantaneous Dew Point; Celsius |
| | BP – Instantaneous Barometric Pressure; Hectopascal |

Stetson has implemented a data retrieval program to collect all environmental monitoring data for the Indian Wells Valley regions, transmitted through NOAA GOES DCS, including this Chimney Peak Precipitation Station. This data is collected and hosted on Indian Wells Valley Groundwater Sustainability Plan website, IWVGSP.com.

## SUMMARY OF WEATHER STATION DATA

Since establishment in December 2020, the Chimney Peak Weather station has operated, measuring and transmitting data without fail. The following graph shows the accumulated precipitation for Water Year 2022.

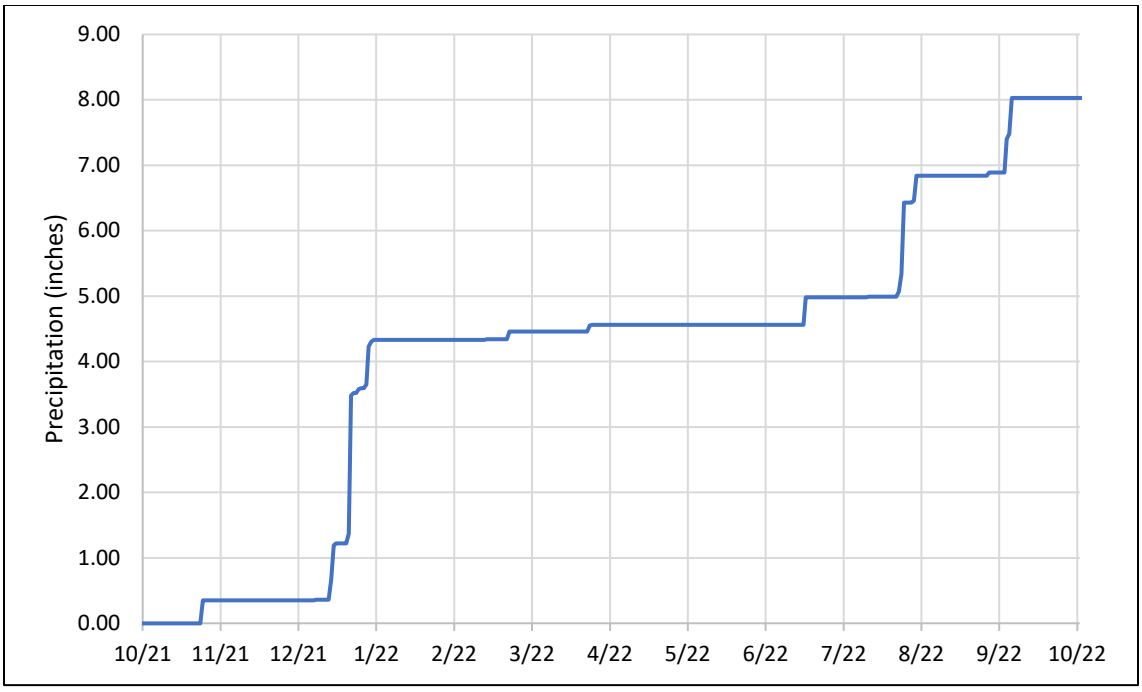



**FIGURE 3. CUMULATIVE PRECIPITATION AT CHIMNEY PEAK WEATHER STATION WATER YEAR 2022**

The following tables summarize the daily recorded precipitation totals, December 2020 through October 2022, by Water Year. Other parameter data is available on the IWVGSP.com website.

# Daily Precipitation Data
# Chimney Peak Fire Station, Water Year 2021

| | |
|---|---|
| Water year | 2021 |
| Station Name | Chimney Peak Fire Station |
| Operating Agency | IWVGA Agent - Stetson Engineers Inc. |
| Latitude | 35°52'08.5" N |
| Longitude | 118°00'42.6" W |

| | Daily Precipitation (inches) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2020 | | | 2021 | | | | | | | | |
| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | --- | --- | --- | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2 | --- | --- | --- | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3 | --- | --- | --- | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4 | --- | --- | --- | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5 | --- | --- | --- | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6 | --- | --- | --- | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7 | --- | --- | --- | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8 | --- | --- | --- | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 | --- | --- | --- | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10 | --- | --- | --- | 0 | 0 | 0.05 | 0 | 0 | 0 | 0 | 0 | 0.27 |
| 11 | --- | --- | --- | 0 | 0 | 0 | 0 | 0 | 0 | 0.25 | 0 | 0 |
| 12 | --- | --- | --- | 0 | 0.16 | 0.03 | 0 | 0 | 0 | 0.13 | 0 | 0 |
| 13 | --- | --- | --- | 0 | 0 | 0 | 0 | 0 | 0 | 0.01 | 0 | 0 |
| 14 | --- | --- | ***0.03*** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15 | --- | --- | 0 | 0 | 0 | 0.01 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16 | --- | --- | 0 | 0 | 0 | 0 | 0 | 0.01 | 0 | 0 | 0 | 0 |
| 17 | --- | --- | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18 | --- | --- | 0 | 0 | 0 | 0 | 0 | 0 | 0.02 | 0.01 | 0 | 0 |
| 19 | --- | --- | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.18 | 0 | 0 |
| 20 | --- | --- | 0 | 0 | 0 | 0.01 | 0 | 0 | 0 | 0 | 0 | 0 |
| 21 | --- | --- | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 22 | --- | --- | 0 | 0 | 0 | 0 | 0.08 | 0 | 0 | 0 | 0 | 0 |
| 23 | --- | --- | 0 | 0.12 | 0 | 0.01 | 0.01 | 0 | 0 | 0 | 0 | 0 |
| 24 | --- | --- | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25 | --- | --- | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 26 | --- | --- | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.19 | 0 | 0 |
| 27 | --- | --- | 0.14 | 0.01 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 28 | --- | --- | 0.24 | 0.22 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 29 | --- | --- | 0.03 | 0.26 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30 | --- | --- | 0 | 0.01 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 31 | --- | | 0 | 0 | | 0 | | 0 | | 0.06 | 0 | |
| Mean | --- | --- | ***0.02*** | 0.02 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.00 | 0.01 |
| Max | --- | --- | ***0.24*** | 0.26 | 0.16 | 0.05 | 0.08 | 0.01 | 0.02 | 0.25 | 0.00 | 0.27 |
| Min | --- | --- | ***0.00*** | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total | --- | --- | ***0.44*** | 0.62 | 0.16 | 0.11 | 0.09 | 0.01 | 0.02 | 0.83 | 0.00 | 0.27 |

Data Source: IWVGA, Stetson Engineers Inc. Data Management System; via NOAA DCS, DCP - BE100E74

***Bold-Italicized*** data values represent values based on incomplete data sets.

# Daily Precipitation Data
# Chimney Peak Fire Station, Water Year 2022

| | |
|---|---|
| Water year | 2022 |
| Station Name | Chimney Peak Fire Station |
| Operating Agency | IWVGA Agent - Stetson Engineers Inc. |
| Latitude | 35°52'08.5" N |
| Longitude | 118°00'42.6" W |

| | Daily Precipitation (inches) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2021 | | | 2022 | | | | | | | | |
| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 0 | 0 | 0 | 0.03 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.05 |
| 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.03 | 0 |
| 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.38 | 0 |
| 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 | 0 | 0 | 0.01 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.51 |
| 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.08 |
| 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.55 |
| 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15 | 0 | 0 | 0.31 | 0 | 0.01 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16 | 0 | 0 | 0.52 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17 | 0 | 0 | 0.03 | 0 | 0 | 0 | 0 | 0 | 0 | 0.01 | 0 | 0 |
| 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 21 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 22 | 0 | 0 | 0.15 | 0 | 0 | 0 | 0 | 0 | 0.42 | 0 | 0 | 0 |
| 23 | 0 | 0 | 2.11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 24 | 0 | 0 | 0.04 | 0 | 0.12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25 | 0.35 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 26 | 0 | 0 | 0.06 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 27 | 0 | 0 | 0.01 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 28 | 0 | 0 | 0 | 0 | 0 | 0.09 | 0 | 0 | 0 | 0 | 0 | 0 |
| 29 | 0 | 0 | 0.06 | 0 | | 0.01 | 0 | 0 | 0 | 0.08 | 0 | 0 |
| 30 | 0 | 0 | 0.58 | 0 | | 0 | 0 | 0 | 0 | 0.27 | 0 | 0 |
| 31 | 0 | | 0.07 | 0 | | 0 | | 0 | | 1.09 | 0 | |
| Mean | 0.01 | 0.00 | 0.13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.05 | 0.01 | 0.04 |
| Max | 0.35 | 0.00 | 2.11 | 0.03 | 0.12 | 0.09 | 0.00 | 0.00 | 0.42 | 1.09 | 0.38 | 0.55 |
| Min | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total | 0.35 | 0.00 | 3.95 | 0.03 | 0.13 | 0.10 | 0.00 | 0.00 | 0.42 | 1.45 | 0.41 | 1.19 |

Data Source: IWVGA, Stetson Engineers Inc. Data Management System; via NOAA DCS, DCP - BE100E74

***Bold-Italicized*** data values represent values based on incomplete data sets.

# DRAFT MEMORANDUM

**785 Grand Avenue, Suite 202 • Carlsbad, California • 94901**
TEL: (760) 730-0701 FAX: (415) 457-1638 e-mail: stever@stetsonengineers.com

| | | | |
|---|---|---|---|
| TO: | File | DATE: | November 15, 2022 |
| FROM: | Stetson Engineers Inc. | JOB NO: | 2652 |
| RE: | Walker Pass East Weather Station – Annual Report of Precipitation | | |

This memorandum serves as an annual summary of station operation and reporting of approved data records associated with the Walker Pass East Weather Station. IWVGA operation of this station is done under legal agreement with the Bureau of Land Management to occupy and operate the precipitation and telemetry equipment installed on the defunct Walker Pass East BLM RAWS weather station structure.

## WALKER PASS EAST PRECIPITATION STATION OVERVIEW

Stetson Engineers (Stetson) as acting agent for IWVGA, re-established precipitation monitoring at the defunct BLM Walker Pass East RAWS station. The existing RAWS weather station had become obsolete and is no longer operable when the NOAA DCP platform expired. The installation was approved and permitted by the BLM with Lease Agreement CACA 058727 and Categorical Exclusion Documentation DOI-BLM-CA-D050-2020-0008-CX. Stetson installed a new tipping bucket rain gage and data telemetry system retrofitted to the existing in place RAWS tripod structure, at coordinate position, 35.66261, -118.02548. The monitoring and telemetry equipment consist of the following listed component parts:

**Equipment List:**

| Part Number | Description |
|---|---|
| HSA: TB4/0.01/T | Tipping bucket rain gauge, 0.2 mm resolution, dual reed switch outputs, measurement range 0-700mm/hr |
| In Situ: ISR-0000000-VL | VuLink Cellular Telemetry, 4G LTE, Antenna, GPS, 1.5-3.6V Li-MnO2 Battery, built in barometric sensor; HTTPS, FTP, SFTP, SMS, CSV file format |

**Photograph of Installation:**



**FIGURE 1.TIPPING BUCKET RAIN GAUGE INSTALLATION AT WALKER PASS EAST RAWS**

**Measurement & Telemetry Programming:**

The datalogger and telemetry device is programmed to record observed rainfall in increments of 0.2 millimeters, with counting interval of 15 minutes. Using the software provided by In-Situ, the telemetry device was programmed to retrieve recorded water level readings from the Level TROLL 400 sensor every 15 minutes. The 15-minute time interval is based on the USGS stream gage standard. Additionally, the telemetry device was programmed to upload the 15-minute readings to In-Situ's FTP server every 24 hours, or 96 readings. The data is then collected from the In-Situ server and hosted on Indian Wells Valley Groundwater Sustainability Plan website, IWVGSP.com.

## SUMMARY OF WEATHER STATION DATA

Since establishment in August 2020, the Walker Pass East Precipitation Station has operated, measuring and transmitting data without fail. The following graph shows the accumulated precipitation for Water Year 2022.

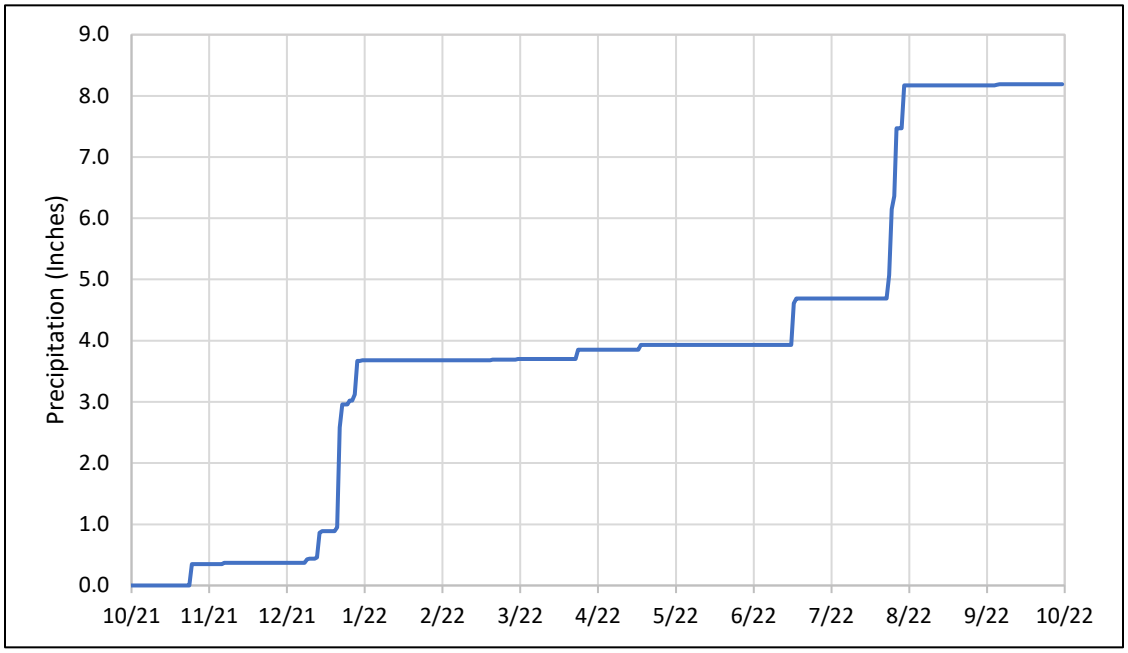



**FIGURE 2. CUMULATIVE PRECIPITATION AT WALKER PASS EAST PRECIPITATION STATION WATER YEAR 2022**

The following tables summarize the daily recorded precipitation totals, August 2020 through October 2022, by Water Year.

# Daily Precipitation Data
# Walker Pass East, Water Year 2020

| | |
|---|---|
| Water year | 2020 |
| Station Name | Walker Pass East |
| Operating Agency | IWVGA Agent - Stetson Engineers Inc. |
| Latitude | 35°39'45.4" N |
| Longitude | 118°01'31.7" W |

| | Daily Precipitation (inches) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2019 | | | 2020 | | | | | | | | |
| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0 |
| 2 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0 |
| 3 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0 |
| 4 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0 |
| 5 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0 |
| 6 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0 |
| 7 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0 |
| 8 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0 |
| 9 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0 |
| 10 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0 |
| 11 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0 |
| 12 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0 |
| 13 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0 |
| 14 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0 |
| 15 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0 |
| 16 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0 |
| 17 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0 |
| 18 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0 |
| 19 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0 |
| 20 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0 |
| 21 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0 |
| 22 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0 |
| 23 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0 |
| 24 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0 |
| 25 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0 |
| 26 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0 | 0 |
| 27 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0 | 0 |
| 28 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0 | 0 |
| 29 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0 | 0 |
| 30 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0 | 0 |
| 31 | --- | | --- | --- | | --- | | --- | | --- | 0 | |
| Mean | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| Max | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| Min | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| Total | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |

Data Source: IWVGA, Stetson Engineers Inc. Data Management System; via In-Situ HydroVu data platform

# Daily Precipitation Data
# Walker Pass East, Water Year 2021

| | |
|---|---|
| Water year | 2021 |
| Station Name | Walker Pass East |
| Operating Agency | IWVGA Agent - Stetson Engineers Inc. |
| Latitude | 35°39'45.4" N |
| Longitude | 118°01'31.7" W |

| | Daily Precipitation (inches) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2020 | | | 2021 | | | | | | | | |
| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7 | 0 | 0 | 0.12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8 | 0 | 0 | 0.06 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0.02 | 0 | 0 | 0 | 0 | 0 |
| 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0.04 | 0 | 0 | 0 | 0 | 0 |
| 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0.03 | 0 | 0 | 0 | 0 | 0 |
| 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0.01 | 0 | 0 | 0 | 0 | 0 |
| 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14 | 0 | 0 | 0 | 0 | 0 | 0.16 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16 | 0 | 0 | 0 | 0.06 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.06 | 0 |
| 18 | 0 | 0 | 0 | 0 | 0.01 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 19 | 0 | 0 | 0 | 0 | 0 | 0 | 0.04 | 0 | 0 | 0 | 0 | 0 |
| 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 21 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 22 | 0 | 0 | 0 | 0 | 0.12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 23 | 0 | 0 | 0 | 0 | 0.04 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.02 | 0 |
| 26 | 0 | 0 | 0 | 0.16 | 0.05 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 27 | 0 | 0 | 0 | 0.16 | 0.02 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 28 | 0 | 0 | 0 | 0 | 0.35 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 29 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0.06 | 0 |
| 30 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0.35 | 0 |
| 31 | 0 | | 0 | 0 | | 0 | | 0 | | 0 | 0 | |
| Mean | 0.00 | 0.00 | 0.01 | 0.01 | 0.02 | 0.01 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.00 |
| Max | 0.00 | 0.00 | 0.12 | 0.16 | 0.35 | 0.16 | 0.04 | 0.00 | 0.00 | 0.00 | 0.35 | 0.00 |
| Min | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total | 0.00 | 0.00 | 0.18 | 0.38 | 0.59 | 0.16 | 0.14 | 0.00 | 0.00 | 0.00 | 0.49 | 0.00 |

Data Source: IWVGA, Stetson Engineers Inc. Data Management System; via In-Situ HydroVu data platform

# Daily Precipitation Data
# Walker Pass East, Water Year 2022

| | |
|---|---|
| Water year | 2022 |
| Station Name | Walker Pass East |
| Operating Agency | IWVGA Agent - Stetson Engineers Inc. |
| Latitude | 35°39'45.4" N |
| Longitude | 118°01'31.7" W |

| | Daily Precipitation (inches) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2021 | | | 2022 | | | | | | | | |
| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 0 | 0 | 0 | 0.01 | 0 | 0 | 0 | 0 | 0 | 0 | 0.21 | 0 |
| 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1.11 | 0 |
| 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4 | 0 | 0 | 0 | 0 | 0 | 0.01 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.7 | 0 |
| 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7 | 0 | 0.02 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 10 | 0 | 0 | 0.06 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11 | 0 | 0 | 0.01 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.01 |
| 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.01 |
| 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14 | 0 | 0 | 0.02 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 15 | 0 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 16 | 0 | 0 | 0.03 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 21 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 22 | 0 | 0 | 0.06 | 0 | 0.01 | 0 | 0.08 | 0 | 0.68 | 0 | 0 | 0 |
| 23 | 0 | 0 | 1.63 | 0 | 0 | 0 | 0 | 0 | 0.08 | 0 | 0 | 0 |
| 24 | 0 | 0 | 0.38 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 25 | 0.35 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 27 | 0 | 0 | 0.06 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 28 | 0 | 0 | 0 | 0 | 0 | 0.15 | 0 | 0 | 0 | 0 | 0 | 0 |
| 29 | 0 | 0 | 0.1 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 30 | 0 | 0 | 0.55 | 0 | | 0 | 0 | 0 | 0 | 0.38 | 0 | 0 |
| 31 | 0 | | 0 | 0 | | 0 | | 0 | | 1.08 | 0 | |
| Mean | 0.01 | 0.00 | 0.11 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.03 | 0.05 | 0.07 | 0.00 |
| Max | 0.35 | 0.02 | 1.63 | 0.01 | 0.01 | 0.15 | 0.08 | 0.00 | 0.68 | 1.08 | 1.11 | 0.01 |
| Min | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total | 0.35 | 0.02 | 3.30 | 0.01 | 0.01 | 0.16 | 0.08 | 0.00 | 0.76 | 1.46 | 2.02 | 0.02 |

Data Source: IWVGA, Stetson Engineers Inc. Data Management System; via In-Situ HydroVu data platform

# DRAFT MEMORANDUM

**785 Grand Avenue, Suite 202 • Carlsbad, California • 94901**
TEL: (760) 730-0701 FAX: (415) 457-1638 e-mail: stever@stetsonengineers.com

| | | | |
|---|---|---|---|
| TO: | File | DATE: | November 16, 2022 |
| FROM: | Stetson Engineers Inc. | JOB NO: | 2652 |
| RE: | Grapevine Canyon Stream Gaging Station – Annual Report of Stream Flows | | |

This memorandum serves as an annual summary of station operation and reporting of approved data records associated with this monitoring station.

## GRAPEVINE CANYON STREAM GAGING STATION OVERVIEW

Stetson Engineers (Stetson) as acting agent for IWVGA, re-established monitoring activities at the Grapevine Canyon Stream Gaging Station, on August 26, 2020. Prior to this the Station had been in a defunct state following the cessation of Kern County Water Agency monitoring activities in 2019. Kern County Water Agency (KCWA) previously operated this gaging station with permission of the private property owner where the gage is located. Stetson established an operational agreement with the property owner on behalf of the IWVGA, in order to install and operate the stream gaging and telemetry equipment. To re-establish the monitoring station Stetson, rehabilitated the weir structure and installed new monitoring and satellite telemetry components inside the stilling well. This work planning and installation work is summarized as a Memorandum submitted to the State Department of Water Resources, dated August 28, 2020. The IWVGA's operation of this gaging station oon

The gaging facility consists of a channel spanning split flow weir. The weir is composed of a V-notched weir and a sharp crested rectangular weir. There was no automatic datalogging or telemetry equipment previously installed at this site. Measurement of upstream pool height is accomplished utilizing an existing staff gage and through a stilling well with a mounted steel box for housing gaging instrumentation. The monitoring and telemetry equipment consist of the following listed component parts:

**Equipment List:**

| Part Number | Description |
|---|---|
| Stevens Water Part No. 93876 | SatComm GOES Transmitter |
| Stevens Water Part No. 51108 | GPS Antenna |
| Stevens Water Part No. 70018 | V2TH Satellite Antenna |
| Stevens Water Part No. 93750-100 | DLight Datalogger |
| Stevens Water Part No. 70217-100 | SOLO Solar Charge Regulator |
| Stevens Water Part No. 93720-135 | SDX Pressure Sensor |
| Stevens Water Part No. 93030-001 | Desiccant Cartridge |
| Third Party Vendor | 25 Watt / 12 Volt Solar Panel |
| Third Party Vendor | 12 Volt / 20 Amp-hour Rechargeable Battery |

**Photographs of Installation:**



**FIGURE 1. STILLING WELL AND ENCLOSURE WITH MOUNTED SOLAR PANEL AND SATELLITE ANTENNA**



**FIGURE 2. REHABILITATED SHARP CRESTED WEIR ON THE LEFT CULVERT OPENING.**

**Data Resolution & Telemetry Programming:**

The Stevens datalogger is programmed to measure and record water level readings every 15 minutes. This 15-minute time interval is based on the USGS stream gage standard. From there the Stevens GOES transmitter is programmed with a NOAA assigned satellite transmission assignment (Data Collection Platform: BE1000A6) to transmit data on an hourly basis to the NOAA GOES Data Collection System (DCS). Utilizing DCS data collection scripts Stetson retrieves monitoring data from the DCS daily to integrate into the IWVGSP Data Management System.

**Staff Gauge vs. Weir Stage:**

During installation it was observed that the existing staff gauge is installed with 1.00 feet equaling the crest of the V-notch Weir. Staff gage readings reported here are reflective of this 1 foot difference, and calculations of weir discharge utilize stage values 1-foot less than the staff readings.

**Calculation of Discharge:**

Calculation of stream discharge utilizes corrected stage measurements, recorded with the stilling well monitoring equipment, and the following equations (Francis Equation) utilized by Kern County Water Agency. Adjustments have been made reflecting the stage height differences between activation of the two weirs, using elevation measurements obtained after the installation of the rehabilitated weir, Stetson established the stage-discharge relationship which can be seen in Figure 3.

**Discharge Equation(s) for Grapevine Canyon Weir Structure**

The discharge equation is the sum of the water passing through the v-notch and rectangular weirs as described by the following equations.

***90º V-Notch Weir Component Discharge*:** $Q = 2.49 \times H^{2.48}$

***Rectangular Weir Component Discharge*:** $Q = 3.33 \times (H - 0.35)^{3/2} \times (L - 0.02 \times H)$

*Where:*

Q = Discharge in cubic feet per second

L = Width of rectangular weir (24 inches)

H = water stage height weir crests (crest height difference of two weirs is 0.47 ft)

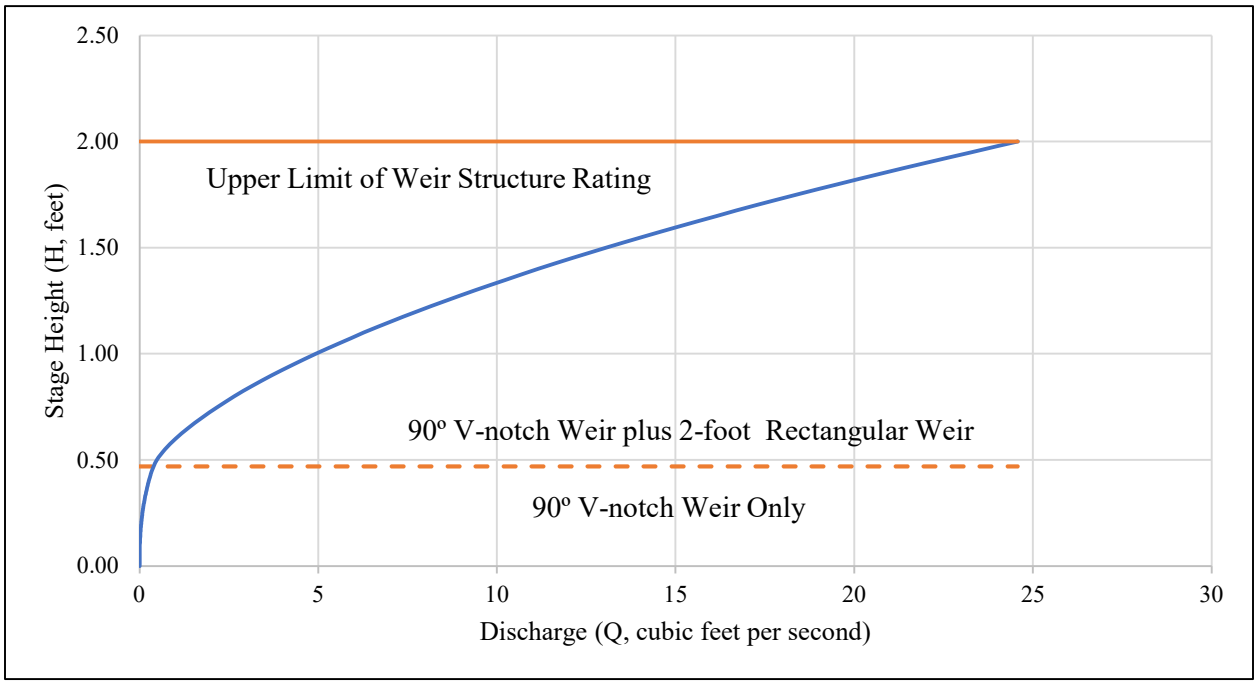



**FIGURE 3. RATING CURVE FOR GRAPEVINE CANYON WEIR STRUCTURE**

## SUMMARY OF GAGING STATION DATA

Since establishment in August 26, 2020, the Grapevine Canyon stream gage has experienced perennial flow through Water Year 2022. In Water Year 2022 total annual streamflows equalled 42.63 acre-feet. The following figure shows the total monthly flows for Water Year 2022.

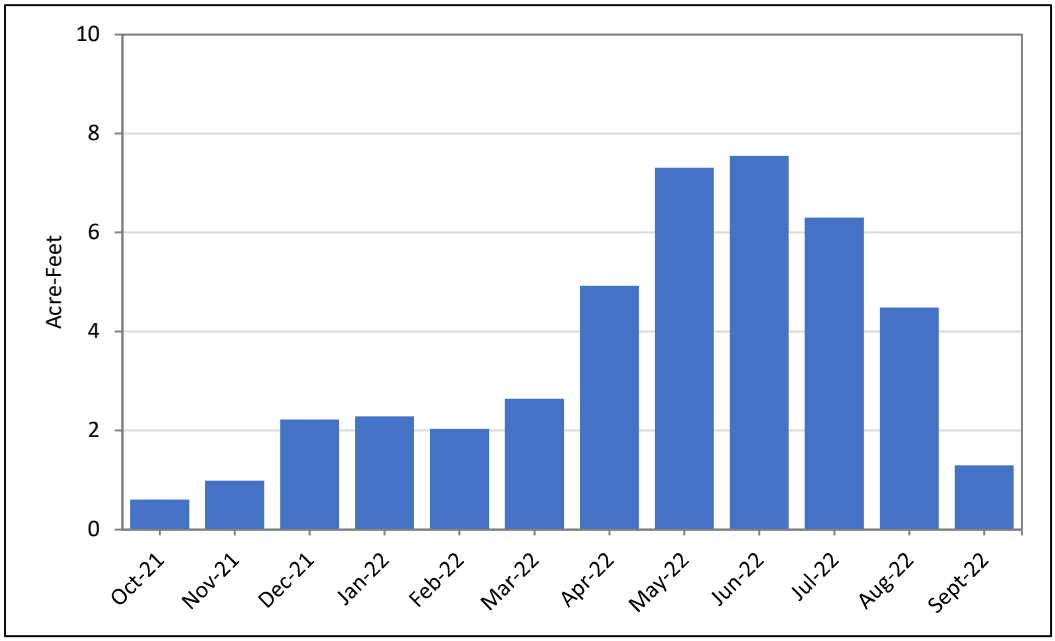



**FIGURE 4. GRAPEVINE CANYON MONTHLY FLOW – WATER YEAR 2022**

The following attached tables are provided to serve as reporting of approved daily values of data collected at the Grapevine Canyon gaging station. The tables reflect; daily average staff gauge readings, daily average stream flow rate in cubic feet per second, and total daily flows in acre-feet; by water year.

# DRAFT MEMORANDUM

**785 Grand Avenue, Suite 202 • Carlsbad, California • 94901**
TEL: (760) 730-0701 FAX: (415) 457-1638 e-mail: stever@stetsonengineers.com

| | | | |
|---|---|---|---|
| TO: | File | DATE: | November 15, 2022 |
| FROM: | Stetson Engineers Inc. | JOB NO: | 2652 |
| RE: | Sand Canyon Stream Gaging Station – Annual Report of Stream Flows | | |

This memorandum serves as an annual summary of station operation and reporting of approved data records associated with the Sand Canyon Stream Gage monitoring station. IWVGA operation of this station is done under legal agreement with the Bureau of Land Management to occupy and operate the stream gage location.

## SAND CANYON STREAM GAGING STATION OVERVIEW

Stetson Engineers (Stetson) as acting agent for IWVGA, re-established monitoring activities at the Sand Canyon Stream Gaging Station, on August 25, 2020. Prior to this the Station was in a semi-defunct state following the cessation of Kern County Water Agency monitoring activities in 2019. As of the time of installation the station and associated stage measuring equipment was maintained by the Meadowbrook Dairy. The existing equipment being any antiquated paper chart recorder with float and pulley. To re-establish the monitoring station Stetson installed new monitoring and cellular telemetry components inside the stilling well. This work is summarized as a Memorandum submitted to the State Department of Water Resources, dated August 28, 2020.

The Gaging station consists of a channel spanning compound rectangular weir. Upstream of the weirs a metal staff gauge is installed to measure weir stage height. Additionally, a perforated intake pipe is installed leading to an off-channel stilling well where the paper chart recorder and new monitoring equipment is installed. The monitoring and telemetry equipment consist of the following listed component parts:

**Equipment List:**

| Part Number | Description |
|---|---|
| In-Situ 0099240 | Level TROLL 400, Level Sensor Range – 11m, 35ft,(30 Psia) |
| In-Situ 0052000-05-01-08-00 | Rugged Twist Lock Cable, Non-vented |
| In-Situ ISR-0000000-VL | VuLink Cellular Telemetry, 4G LTE, Antenna, GPS, 1.5-3.6V Li-MnO2 Battery, built in barometric sensor; HTTPS, FTP, SFTP, SMS, CSV file format |
| Proxicast ANT-121-002 | Omni Antenna, 3G/4G/LTE, 3-5dBi |

**Photographs of Installation:**



**FIGURE 1. SAND CANYON STREAM GAGE SITE**

**Data Resolution & Telemetry Programming:**

The In-Situ monitoring equipment, Level Troll 400 and Vulink device are programmed to record measured pressure (water and barometric pressure) values every 15-minutes, with barometric compensation made at the Vulink. The 15-minute time interval is based on the USGS stream gage standard. From there the Vulink cellular telemetry is programmed to upload the 15-minute readings to In-Situ's FTP server every 24 hours, or 96 readings. Stetson then retrieves the data from the FTP server for hosting on the IWVGSP.com web server.

**Staff Gauge vs. Weir Stage:**

During a December 2020 field visit where a level survey, and other verification measurements were completed, a 0.02-foot difference was recognized between the steel staff gauge and the actual weir crest. The staff gauge is installed with 0.02 feet reading equaling the weir crest. Staff gage readings reported here are reflective of this 0.02-foot difference, and calculations of weir discharge utilize stage values 0.02 feet less than the staff readings.

**Calculation of Discharge:**

Calculation of stream discharge utilizes corrected stage measurements, recorded with the stilling well monitoring equipment, and the following equations (Francis Equation) to calculate discharge. These equations have been updated to reflect weir verification measurements taken during installation. The associated stage-discharge rating curve is shown below in Figure 4.

**Discharge Equation(s) for Sand Canyon Compound Weir Structure**

The discharge equation for the Sand Canyon stream gage includes the sum of the flow through the 2-foot and 12-foot weirs as described below.

***2-foot Weir Component Discharge*:** $Q = 3.33 \times (L_1 - 0.02H_1) \times \left({H_1}^{3/2}\right)$

***12-foot Weir Component Discharge*:** $Q = 3.33 \times \left(L_2 - 0.02(H_2 - 1)\right) \times \left((H_2 - 1)^{3/2}\right)$

*Where:*

Q = Discharge in cubic feet per second

$L_1$ = 2 feet; width of 2-foot weir

$L_2$ = 12 feet; width of 12-foot weir

$H_1$ = water stage height above 2-foot weir crest, in feet

$H_2$ = water stage height above 2-foot weir crest, when H is greater than 0.75, in feet

$H_{max}$ = 2.25 feet, height of top of 12-foot high-flow weir

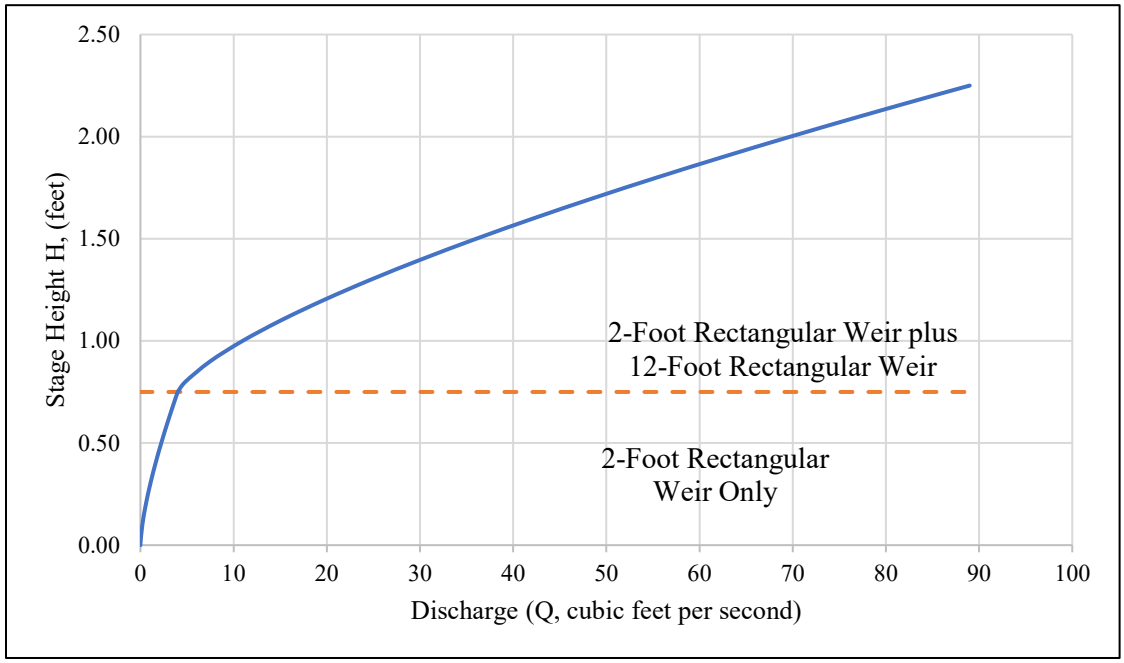



**FIGURE 2. STAGE-DISCHARGE RATING CURVE FOR SAND CANYON WEIR STRUCTURE**

## SUMMARY OF GAGING STATION DATA

Since its establishment in August 2020, the Sand Canyon stream gage has experienced seasonal flow. During Water Year 2022, total annual streamflow equaled 90.1 acre-feet. The following figure shows the total monthly flows for Water Year 2022.

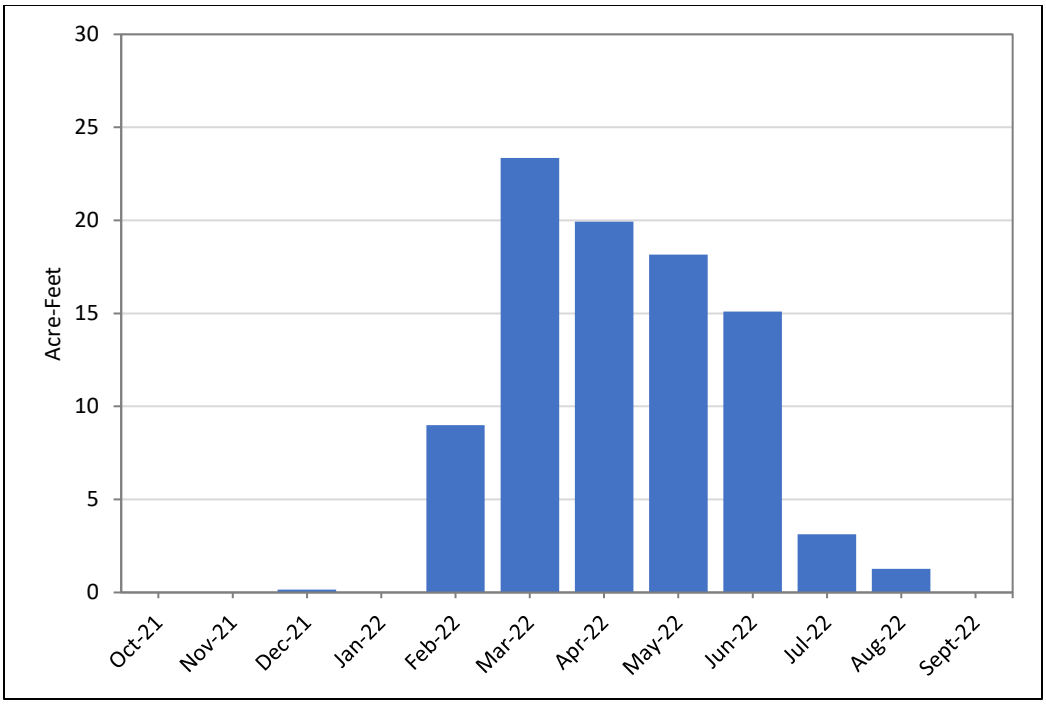



**FIGURE 4. SAND CANYON MONTHLY FLOW – WATER YEAR 2022**

The following attached tables are provided to serve as reporting of approved daily values of data collected at the Sand Canyon gaging station. The tables reflect; daily average staff gauge readings, daily average stream flow rate in cubic feet per second, and total daily flows in acre-feet; by water year.

# Daily Streamflow Data, Staff Gauge Reading
# Sand Canyon, Water Year 2020

| | |
|---|---|
| Water year | 2020 |
| Station Name | Sand Canyon |
| Operating Agency | IWVGA Agent - Stetson Engineers Inc. |
| Latitude | 35°46'33.6"N |
| Longitude | 117°54'27.4"N |

| | Average Daily Staff Gauge Reading (Feet) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2019 | | | 2020 | | | | | | | | |
| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 2 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 3 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 4 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 5 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 6 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 7 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 8 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 9 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 10 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 11 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 12 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 13 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 14 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 15 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 16 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 17 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 18 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 19 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 20 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 21 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 22 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 23 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 24 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 25 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 26 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 | 0.00 |
| 27 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 | 0.00 |
| 28 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 | 0.00 |
| 29 | --- | --- | --- | --- | | --- | --- | --- | --- | --- | 0.00 | 0.00 |
| 30 | --- | --- | --- | --- | | --- | --- | --- | --- | --- | 0.00 | 0.00 |
| 31 | --- | | --- | --- | | --- | | --- | | --- | 0.00 | |
| Mean (ft) | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |

Data Source: IWVGA, Stetson Engineers Inc. Data Management System; via In-Situ HydroVu data platform

# Daily Streamflow Data, Staff Gauge Reading
# Sand Canyon, Water Year 2020

| | |
|---|---|
| Water year | 2020 |
| Station Name | Sand Canyon |
| Operating Agency | IWVGA Agent - Stetson Engineers Inc. |
| Latitude | 35°46'33.6"N |
| Longitude | 117°54'27.4"N |

| | Average Daily Staff Gauge Reading (Feet) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2019 | | | 2020 | | | | | | | | |
| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 0.00 | 0.00 | 0.07 | 0.15 | 0.22 | 0.26 | 0.23 | 0.20 | 0.17 | 0.12 | 0.00 | 0.00 |
| 2 | 0.00 | 0.00 | 0.07 | 0.16 | 0.22 | 0.27 | 0.23 | 0.20 | 0.17 | 0.11 | 0.00 | 0.00 |
| 3 | 0.00 | 0.00 | 0.07 | 0.16 | 0.22 | 0.27 | 0.22 | 0.20 | 0.17 | 0.12 | 0.00 | 0.00 |
| 4 | 0.00 | 0.00 | 0.07 | 0.16 | 0.22 | 0.26 | 0.22 | 0.19 | 0.17 | 0.11 | 0.00 | 0.00 |
| 5 | 0.00 | 0.00 | 0.06 | 0.17 | 0.23 | 0.26 | 0.23 | 0.19 | 0.17 | 0.08 | 0.00 | 0.00 |
| 6 | 0.00 | 0.00 | 0.05 | 0.17 | 0.23 | 0.26 | 0.23 | 0.20 | 0.17 | 0.08 | 0.00 | 0.00 |
| 7 | 0.00 | 0.00 | 0.06 | 0.18 | 0.23 | 0.27 | 0.23 | 0.20 | 0.18 | 0.08 | 0.00 | 0.00 |
| 8 | 0.00 | 0.00 | 0.06 | 0.18 | 0.24 | 0.26 | 0.23 | 0.19 | 0.16 | 0.06 | 0.00 | 0.00 |
| 9 | 0.00 | 0.00 | 0.06 | 0.18 | 0.23 | 0.27 | 0.22 | 0.19 | 0.16 | 0.06 | 0.00 | 0.00 |
| 10 | 0.00 | 0.00 | 0.06 | 0.18 | 0.23 | 0.27 | 0.23 | 0.19 | 0.15 | 0.05 | 0.00 | 0.00 |
| 11 | 0.00 | 0.00 | 0.06 | 0.19 | 0.24 | 0.27 | 0.23 | 0.19 | 0.16 | 0.00 | 0.00 | 0.00 |
| 12 | 0.00 | 0.00 | 0.06 | 0.19 | 0.26 | 0.27 | 0.23 | 0.19 | 0.16 | 0.00 | 0.00 | 0.00 |
| 13 | 0.00 | 0.00 | 0.06 | 0.19 | 0.25 | 0.26 | 0.23 | 0.19 | 0.17 | 0.00 | 0.00 | 0.00 |
| 14 | 0.00 | 0.00 | 0.06 | 0.19 | 0.24 | 0.26 | 0.21 | 0.19 | 0.17 | 0.02 | 0.00 | 0.00 |
| 15 | 0.00 | 0.00 | 0.06 | 0.19 | 0.25 | 0.28 | 0.21 | 0.19 | 0.17 | 0.00 | 0.00 | 0.00 |
| 16 | 0.00 | 0.00 | 0.06 | 0.20 | 0.25 | 0.26 | 0.21 | 0.19 | 0.17 | 0.00 | 0.00 | 0.00 |
| 17 | 0.00 | 0.00 | 0.08 | 0.20 | 0.25 | 0.27 | 0.21 | 0.18 | 0.16 | 0.00 | 0.00 | 0.00 |
| 18 | 0.00 | 0.00 | 0.06 | 0.20 | 0.25 | 0.27 | 0.20 | 0.18 | 0.17 | 0.00 | 0.00 | 0.00 |
| 19 | 0.00 | 0.00 | 0.06 | 0.20 | 0.25 | 0.27 | 0.20 | 0.18 | 0.17 | 0.02 | 0.00 | 0.00 |
| 20 | 0.00 | 0.00 | 0.06 | 0.20 | 0.25 | 0.27 | 0.21 | 0.18 | 0.14 | 0.00 | 0.00 | 0.00 |
| 21 | 0.00 | 0.00 | 0.07 | 0.21 | 0.25 | 0.26 | 0.22 | 0.17 | 0.12 | 0.00 | 0.00 | 0.00 |
| 22 | 0.00 | 0.02 | 0.07 | 0.22 | 0.25 | 0.27 | 0.21 | 0.16 | 0.14 | 0.00 | 0.00 | 0.00 |
| 23 | 0.00 | 0.02 | 0.08 | 0.22 | 0.25 | 0.27 | 0.21 | 0.16 | 0.15 | 0.00 | 0.00 | 0.00 |
| 24 | 0.00 | 0.05 | 0.08 | 0.21 | 0.25 | 0.26 | 0.21 | 0.16 | 0.16 | 0.00 | 0.00 | 0.00 |
| 25 | 0.00 | 0.06 | 0.08 | 0.22 | 0.25 | 0.27 | 0.21 | 0.17 | 0.16 | 0.00 | 0.00 | 0.00 |
| 26 | 0.00 | 0.03 | 0.08 | 0.20 | 0.26 | 0.26 | 0.21 | 0.16 | 0.14 | 0.00 | 0.00 | 0.00 |
| 27 | 0.00 | 0.06 | 0.09 | 0.24 | 0.26 | 0.25 | 0.20 | 0.17 | 0.13 | 0.00 | 0.00 | 0.00 |
| 28 | 0.00 | 0.07 | 0.13 | 0.21 | 0.26 | 0.23 | 0.18 | 0.17 | 0.12 | 0.00 | 0.00 | 0.00 |
| 29 | 0.00 | 0.07 | 0.11 | 0.24 | | 0.22 | 0.18 | 0.17 | 0.18 | 0.00 | 0.00 | 0.00 |
| 30 | 0.00 | 0.07 | 0.12 | 0.21 | | 0.23 | 0.19 | 0.17 | 0.17 | 0.00 | 0.00 | 0.00 |
| 31 | 0.00 | | 0.13 | 0.22 | | 0.23 | | 0.17 | | 0.00 | 0.00 | |
| Mean (ft) | 0.00 | 0.02 | 0.08 | 0.19 | 0.24 | 0.26 | 0.21 | 0.18 | 0.16 | 0.03 | 0.00 | 0.00 |

Data Source: IWVGA, Stetson Engineers Inc. Data Management System; via In-Situ HydroVu data platform

# Daily Streamflow Data, Staff Gauge Reading
# Sand Canyon, Water Year 2022

| | |
|---|---|
| Water year | 2022 |
| Station Name | Sand Canyon |
| Operating Agency | IWVGA Agent - Stetson Engineers Inc. |
| Latitude | 35°46'33.6"N |
| Longitude | 117°54'27.4"N |

| | Average Daily Staff Gauge Reading (Feet) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2021 | | | 2022 | | | | | | | | |
| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.15 | 0.18 | 0.16 | 0.14 | 0.07 | 0.07 | 0.00 |
| 2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.16 | 0.18 | 0.16 | 0.14 | 0.08 | 0.07 | 0.00 |
| 3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.17 | 0.18 | 0.16 | 0.14 | 0.08 | 0.00 | 0.00 |
| 4 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.18 | 0.17 | 0.16 | 0.15 | 0.08 | 0.00 | 0.00 |
| 5 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.17 | 0.17 | 0.16 | 0.14 | 0.10 | 0.11 | 0.00 |
| 6 | 0.00 | 0.00 | 0.00 | 0.00 | 0.06 | 0.15 | 0.17 | 0.16 | 0.14 | 0.10 | 0.07 | 0.00 |
| 7 | 0.00 | 0.00 | 0.00 | 0.00 | 0.07 | 0.16 | 0.16 | 0.17 | 0.14 | 0.09 | 0.00 | 0.00 |
| 8 | 0.00 | 0.00 | 0.00 | 0.00 | 0.08 | 0.16 | 0.16 | 0.16 | 0.14 | 0.08 | 0.00 | 0.00 |
| 9 | 0.00 | 0.00 | 0.00 | 0.00 | 0.09 | 0.17 | 0.17 | 0.15 | 0.15 | 0.07 | 0.00 | 0.00 |
| 10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.17 | 0.17 | 0.15 | 0.14 | 0.06 | 0.00 | 0.00 |
| 11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.11 | 0.16 | 0.17 | 0.14 | 0.14 | 0.05 | 0.00 | 0.00 |
| 12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.11 | 0.17 | 0.15 | 0.13 | 0.15 | 0.04 | 0.00 | 0.00 |
| 13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.12 | 0.18 | 0.14 | 0.14 | 0.15 | 0.02 | 0.00 | 0.00 |
| 14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.13 | 0.17 | 0.15 | 0.14 | 0.14 | 0.00 | 0.00 | 0.00 |
| 15 | 0.00 | 0.00 | 0.00 | 0.01 | 0.14 | 0.18 | 0.15 | 0.15 | 0.14 | 0.00 | 0.00 | 0.00 |
| 16 | 0.00 | 0.00 | 0.00 | 0.01 | 0.13 | 0.18 | 0.16 | 0.15 | 0.14 | 0.00 | 0.00 | 0.00 |
| 17 | 0.00 | 0.00 | 0.00 | 0.01 | 0.12 | 0.18 | 0.15 | 0.15 | 0.15 | 0.00 | 0.00 | 0.00 |
| 18 | 0.00 | 0.00 | 0.00 | 0.01 | 0.12 | 0.18 | 0.16 | 0.14 | 0.14 | 0.00 | 0.00 | 0.00 |
| 19 | 0.00 | 0.00 | 0.00 | 0.01 | 0.13 | 0.19 | 0.17 | 0.15 | 0.13 | 0.00 | 0.00 | 0.00 |
| 20 | 0.00 | 0.00 | 0.00 | 0.01 | 0.15 | 0.18 | 0.16 | 0.16 | 0.13 | 0.00 | 0.00 | 0.00 |
| 21 | 0.00 | 0.00 | 0.00 | 0.01 | 0.15 | 0.17 | 0.16 | 0.15 | 0.13 | 0.00 | 0.00 | 0.00 |
| 22 | 0.00 | 0.00 | 0.00 | 0.01 | 0.14 | 0.18 | 0.16 | 0.15 | 0.15 | 0.00 | 0.00 | 0.00 |
| 23 | 0.00 | 0.00 | 0.04 | 0.01 | 0.13 | 0.18 | 0.15 | 0.15 | 0.14 | 0.00 | 0.00 | 0.00 |
| 24 | 0.00 | 0.00 | 0.03 | 0.01 | 0.11 | 0.18 | 0.15 | 0.15 | 0.13 | 0.00 | 0.00 | 0.00 |
| 25 | 0.00 | 0.00 | 0.02 | 0.01 | 0.12 | 0.18 | 0.15 | 0.15 | 0.14 | 0.00 | 0.00 | 0.00 |
| 26 | 0.00 | 0.00 | 0.01 | 0.01 | 0.13 | 0.19 | 0.16 | 0.15 | 0.14 | 0.00 | 0.00 | 0.00 |
| 27 | 0.00 | 0.00 | 0.00 | 0.01 | 0.13 | 0.19 | 0.16 | 0.16 | 0.12 | 0.00 | 0.00 | 0.00 |
| 28 | 0.00 | 0.00 | 0.00 | 0.01 | 0.14 | 0.20 | 0.16 | 0.16 | 0.11 | 0.00 | 0.00 | 0.00 |
| 29 | 0.00 | 0.00 | 0.00 | 0.01 | | 0.18 | 0.15 | 0.15 | 0.10 | 0.00 | 0.00 | 0.00 |
| 30 | 0.00 | 0.00 | 0.00 | 0.01 | | 0.18 | 0.16 | 0.14 | 0.09 | 0.00 | 0.00 | 0.00 |
| 31 | 0.00 | | 0.00 | 0.01 | | 0.18 | | 0.13 | | 0.00 | 0.00 | |
| Mean (ft) | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.17 | 0.16 | 0.15 | 0.14 | 0.03 | 0.01 | 0.00 |

Data Source: IWVGA, Stetson Engineers Inc. Data Management System; via In-Situ HydroVu data platform

# Daily Streamflow Data, Flow Rate
# Sand Canyon, Water Year 2020

| | |
|---|---|
| Water year | 2020 |
| Station Name | Sand Canyon |
| Operating Agency | IWVGA Agent - Stetson Engineers Inc. |
| Latitude | 35°46'33.6"N |
| Longitude | 117°54'27.4"N |

| | Daily streamflow (cfs) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2019 | | | 2020 | | | | | | | | |
| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 2 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 3 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 4 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 5 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 6 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 7 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 8 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 9 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 10 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 11 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 12 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 13 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 14 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 15 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 16 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 17 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 18 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 19 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 20 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 21 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 22 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 23 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 24 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 25 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 26 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 | 0.00 |
| 27 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 | 0.00 |
| 28 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 | 0.00 |
| 29 | --- | --- | --- | --- | | --- | --- | --- | --- | --- | 0.00 | 0.00 |
| 30 | --- | --- | --- | --- | | --- | --- | --- | --- | --- | 0.00 | 0.00 |
| 31 | --- | | --- | --- | | --- | | --- | | --- | 0.00 | |
| Mean (cfs) | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| Max (cfs) | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| Min (cfs) | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| Total (ac-ft) | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0 |

Data Source: IWVGA, Stetson Engineers Inc. Data Management System; via In-Situ HydroVu data platform

# Daily Streamflow Data, Flow Rate
# Sand Canyon, Water Year 2021

| | |
|---|---|
| Water year | 2021 |
| Station Name | Sand Canyon |
| Operating Agency | IWVGA Agent - Stetson Engineers Inc. |
| Latitude | 35°46'33.6"N |
| Longitude | 117°54'27.4"N |

| | Daily streamflow (cfs) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2020 | | | 2021 | | | | | | | | |
| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 0.00 | 0.00 | 0.07 | 0.29 | 0.55 | 0.74 | 0.62 | 0.48 | 0.36 | 0.25 | 0.00 | 0.00 |
| 2 | 0.00 | 0.00 | 0.07 | 0.31 | 0.57 | 0.77 | 0.60 | 0.49 | 0.36 | 0.21 | 0.00 | 0.00 |
| 3 | 0.00 | 0.00 | 0.06 | 0.33 | 0.58 | 0.77 | 0.58 | 0.47 | 0.36 | 0.23 | 0.00 | 0.00 |
| 4 | 0.00 | 0.00 | 0.06 | 0.33 | 0.56 | 0.74 | 0.58 | 0.45 | 0.37 | 0.22 | 0.00 | 0.00 |
| 5 | 0.00 | 0.00 | 0.05 | 0.36 | 0.59 | 0.76 | 0.61 | 0.45 | 0.37 | 0.15 | 0.00 | 0.00 |
| 6 | 0.00 | 0.00 | 0.03 | 0.37 | 0.61 | 0.75 | 0.59 | 0.47 | 0.38 | 0.15 | 0.00 | 0.00 |
| 7 | 0.00 | 0.00 | 0.05 | 0.39 | 0.63 | 0.79 | 0.60 | 0.48 | 0.39 | 0.14 | 0.00 | 0.00 |
| 8 | 0.00 | 0.00 | 0.05 | 0.38 | 0.64 | 0.77 | 0.62 | 0.45 | 0.34 | 0.10 | 0.00 | 0.00 |
| 9 | 0.00 | 0.00 | 0.05 | 0.41 | 0.63 | 0.77 | 0.58 | 0.46 | 0.33 | 0.11 | 0.00 | 0.00 |
| 10 | 0.00 | 0.00 | 0.05 | 0.41 | 0.62 | 0.80 | 0.61 | 0.45 | 0.31 | 0.08 | 0.00 | 0.00 |
| 11 | 0.00 | 0.00 | 0.05 | 0.43 | 0.65 | 0.79 | 0.61 | 0.44 | 0.33 | 0.00 | 0.00 | 0.00 |
| 12 | 0.00 | 0.00 | 0.05 | 0.43 | 0.74 | 0.77 | 0.59 | 0.42 | 0.33 | 0.00 | 0.00 | 0.00 |
| 13 | 0.00 | 0.00 | 0.05 | 0.44 | 0.69 | 0.72 | 0.59 | 0.43 | 0.35 | 0.00 | 0.00 | 0.00 |
| 14 | 0.00 | 0.00 | 0.05 | 0.44 | 0.66 | 0.75 | 0.53 | 0.43 | 0.35 | 0.03 | 0.00 | 0.00 |
| 15 | 0.00 | 0.00 | 0.05 | 0.45 | 0.68 | 0.81 | 0.52 | 0.44 | 0.36 | 0.00 | 0.00 | 0.00 |
| 16 | 0.00 | 0.00 | 0.05 | 0.47 | 0.68 | 0.75 | 0.51 | 0.45 | 0.36 | 0.00 | 0.00 | 0.00 |
| 17 | 0.00 | 0.00 | 0.08 | 0.48 | 0.71 | 0.79 | 0.53 | 0.42 | 0.35 | 0.00 | 0.00 | 0.00 |
| 18 | 0.00 | 0.00 | 0.04 | 0.48 | 0.68 | 0.80 | 0.49 | 0.40 | 0.37 | 0.00 | 0.00 | 0.00 |
| 19 | 0.00 | 0.00 | 0.05 | 0.47 | 0.69 | 0.77 | 0.50 | 0.41 | 0.37 | 0.03 | 0.00 | 0.00 |
| 20 | 0.00 | 0.00 | 0.05 | 0.50 | 0.68 | 0.79 | 0.52 | 0.41 | 0.29 | 0.00 | 0.00 | 0.00 |
| 21 | 0.00 | 0.00 | 0.06 | 0.51 | 0.68 | 0.76 | 0.57 | 0.35 | 0.25 | 0.00 | 0.00 | 0.00 |
| 22 | 0.00 | 0.01 | 0.06 | 0.54 | 0.70 | 0.77 | 0.52 | 0.33 | 0.29 | 0.00 | 0.00 | 0.00 |
| 23 | 0.00 | 0.01 | 0.08 | 0.56 | 0.72 | 0.79 | 0.50 | 0.31 | 0.31 | 0.00 | 0.00 | 0.00 |
| 24 | 0.00 | 0.04 | 0.08 | 0.54 | 0.72 | 0.75 | 0.51 | 0.33 | 0.33 | 0.00 | 0.00 | 0.00 |
| 25 | 0.00 | 0.05 | 0.08 | 0.56 | 0.71 | 0.79 | 0.54 | 0.35 | 0.32 | 0.00 | 0.00 | 0.00 |
| 26 | 0.00 | 0.02 | 0.08 | 0.49 | 0.73 | 0.75 | 0.51 | 0.35 | 0.27 | 0.00 | 0.00 | 0.00 |
| 27 | 0.00 | 0.05 | 0.12 | 0.63 | 0.75 | 0.71 | 0.47 | 0.35 | 0.26 | 0.00 | 0.00 | 0.00 |
| 28 | 0.00 | 0.06 | 0.22 | 0.54 | 0.73 | 0.63 | 0.42 | 0.36 | 0.25 | 0.00 | 0.00 | 0.00 |
| 29 | 0.00 | 0.06 | 0.15 | 0.66 | | 0.58 | 0.42 | 0.36 | 0.39 | 0.00 | 0.00 | 0.00 |
| 30 | 0.00 | 0.07 | 0.18 | 0.53 | | 0.61 | 0.44 | 0.36 | 0.36 | 0.00 | 0.00 | 0.00 |
| 31 | 0.00 | | 0.24 | 0.54 | | 0.62 | | 0.36 | | 0.00 | 0.00 | |
| Mean (cfs) | 0.00 | 0.01 | 0.08 | 0.46 | 0.66 | 0.75 | 0.54 | 0.41 | 0.34 | 0.05 | 0.00 | 0.00 |
| Max (cfs) | 0.00 | 0.07 | 0.24 | 0.66 | 0.75 | 0.81 | 0.62 | 0.49 | 0.39 | 0.25 | 0.00 | 0.00 |
| Min (cfs) | 0.00 | 0.00 | 0.03 | 0.29 | 0.55 | 0.58 | 0.42 | 0.31 | 0.25 | 0.00 | 0.00 | 0.00 |
| Total (ac-ft) | 0 | 1 | 5 | 28 | 37 | 46 | 32 | 25 | 20 | 3 | 0 | 0 |

Data Source: IWVGA, Stetson Engineers Inc. Data Management System; via In-Situ HydroVu data platform

# Daily Streamflow Data, Flow Rate
# Sand Canyon, Water Year 2022

| | |
|---|---|
| Water year | 2022 |
| Station Name | Sand Canyon |
| Operating Agency | IWVGA Agent - Stetson Engineers Inc. |
| Latitude | 35°46'33.6"N |
| Longitude | 117°54'27.4"N |

| | Daily streamflow (cfs) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2021 | | | 2022 | | | | | | | | |
| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.29 | 0.39 | 0.33 | 0.26 | 0.13 | 0.18 | 0.00 |
| 2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.33 | 0.41 | 0.32 | 0.27 | 0.15 | 0.13 | 0.00 |
| 3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.37 | 0.41 | 0.32 | 0.27 | 0.13 | 0.00 | 0.00 |
| 4 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.39 | 0.37 | 0.31 | 0.29 | 0.14 | 0.00 | 0.00 |
| 5 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.35 | 0.37 | 0.33 | 0.27 | 0.16 | 0.20 | 0.00 |
| 6 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 | 0.30 | 0.36 | 0.32 | 0.26 | 0.17 | 0.13 | 0.00 |
| 7 | 0.00 | 0.00 | 0.00 | 0.00 | 0.07 | 0.31 | 0.34 | 0.35 | 0.27 | 0.16 | 0.00 | 0.00 |
| 8 | 0.00 | 0.00 | 0.00 | 0.00 | 0.09 | 0.34 | 0.34 | 0.33 | 0.28 | 0.14 | 0.00 | 0.00 |
| 9 | 0.00 | 0.00 | 0.00 | 0.00 | 0.11 | 0.38 | 0.37 | 0.30 | 0.28 | 0.11 | 0.00 | 0.00 |
| 10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.14 | 0.37 | 0.37 | 0.28 | 0.26 | 0.10 | 0.00 | 0.00 |
| 11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.16 | 0.33 | 0.35 | 0.25 | 0.26 | 0.09 | 0.00 | 0.00 |
| 12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.17 | 0.35 | 0.29 | 0.24 | 0.29 | 0.06 | 0.00 | 0.00 |
| 13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.19 | 0.38 | 0.27 | 0.25 | 0.30 | 0.03 | 0.00 | 0.00 |
| 14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.23 | 0.35 | 0.29 | 0.26 | 0.26 | 0.00 | 0.00 | 0.00 |
| 15 | 0.00 | 0.00 | 0.00 | 0.00 | 0.26 | 0.39 | 0.30 | 0.28 | 0.25 | 0.00 | 0.00 | 0.00 |
| 16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.22 | 0.39 | 0.33 | 0.28 | 0.27 | 0.00 | 0.00 | 0.00 |
| 17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.20 | 0.38 | 0.30 | 0.28 | 0.29 | 0.00 | 0.00 | 0.00 |
| 18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.21 | 0.39 | 0.31 | 0.28 | 0.24 | 0.00 | 0.00 | 0.00 |
| 19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.24 | 0.43 | 0.35 | 0.30 | 0.22 | 0.00 | 0.00 | 0.00 |
| 20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.28 | 0.42 | 0.33 | 0.32 | 0.22 | 0.00 | 0.00 | 0.00 |
| 21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.29 | 0.38 | 0.34 | 0.30 | 0.22 | 0.00 | 0.00 | 0.00 |
| 22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.27 | 0.38 | 0.33 | 0.29 | 0.31 | 0.00 | 0.00 | 0.00 |
| 23 | 0.00 | 0.00 | 0.06 | 0.00 | 0.24 | 0.39 | 0.28 | 0.29 | 0.24 | 0.00 | 0.00 | 0.00 |
| 24 | 0.00 | 0.00 | 0.01 | 0.00 | 0.15 | 0.41 | 0.29 | 0.29 | 0.24 | 0.00 | 0.00 | 0.00 |
| 25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.19 | 0.42 | 0.30 | 0.30 | 0.25 | 0.00 | 0.00 | 0.00 |
| 26 | 0.00 | 0.00 | 0.00 | 0.00 | 0.22 | 0.43 | 0.33 | 0.31 | 0.25 | 0.00 | 0.00 | 0.00 |
| 27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.23 | 0.45 | 0.34 | 0.33 | 0.22 | 0.00 | 0.00 | 0.00 |
| 28 | 0.00 | 0.00 | 0.00 | 0.00 | 0.26 | 0.47 | 0.34 | 0.31 | 0.20 | 0.00 | 0.00 | 0.00 |
| 29 | 0.00 | 0.00 | 0.00 | 0.00 | | 0.41 | 0.29 | 0.29 | 0.19 | 0.00 | 0.00 | 0.00 |
| 30 | 0.00 | 0.00 | 0.00 | 0.00 | | 0.39 | 0.33 | 0.26 | 0.16 | 0.00 | 0.00 | 0.00 |
| 31 | 0.00 | | 0.00 | 0.00 | | 0.40 | | 0.24 | | 0.00 | 0.00 | |
| Mean (cfs) | 0.00 | 0.00 | 0.00 | 0.00 | 0.16 | 0.38 | 0.33 | 0.30 | 0.25 | 0.05 | 0.02 | 0.00 |
| Max (cfs) | 0.00 | 0.00 | 0.06 | 0.00 | 0.29 | 0.47 | 0.41 | 0.35 | 0.31 | 0.17 | 0.20 | 0.00 |
| Min (cfs) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.29 | 0.27 | 0.24 | 0.16 | 0.00 | 0.00 | 0.00 |
| Total (ac-ft) | 0 | 0 | 0 | 0 | 9 | 23 | 20 | 18 | 15 | 3 | 1 | 0 |

Data Source: IWVGA, Stetson Engineers Inc. Data Management System; via In-Situ HydroVu data platform

# Daily Streamflow Data, Total Flow Volume
# Sand Canyon, Water Year 2020

| | |
|---|---|
| Water year | 2020 |
| Station Name | Sand Canyon |
| Operating Agency | IWVGA Agent - Stetson Engineers Inc. |
| Latitude | 35°46'33.6"N |
| Longitude | 117°54'27.4"N |

| | Daily streamflow (AF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2019 | | | 2020 | | | | | | | | |
| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 2 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 3 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 4 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 5 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 6 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 7 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 8 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 9 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 10 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 11 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 12 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 13 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 14 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 15 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 16 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 17 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 18 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 19 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 20 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 21 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 22 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 23 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 24 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 25 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| 26 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 | 0.00 |
| 27 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 | 0.00 |
| 28 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 | 0.00 |
| 29 | --- | --- | --- | --- | | --- | --- | --- | --- | --- | 0.00 | 0.00 |
| 30 | --- | --- | --- | --- | | --- | --- | --- | --- | --- | 0.00 | 0.00 |
| 31 | --- | | --- | --- | | --- | | --- | | --- | 0.00 | |
| Mean (ac-ft) | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| Max (ac-ft) | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| Min (ac-ft) | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0.00 |
| Total (ac-ft) | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 0 |

Data Source: IWVGA, Stetson Engineers Inc. Data Management System; via In-Situ HydroVu data platform

# Daily Streamflow Data, Total Flow Volume
# Sand Canyon, Water Year 2021

| | |
|---|---|
| Water year | 2021 |
| Station Name | Sand Canyon |
| Operating Agency | IWVGA Agent - Stetson Engineers Inc. |
| Latitude | 35°46'33.6"N |
| Longitude | 117°54'27.4"N |

| | Daily streamflow (AF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2020 | | | 2021 | | | | | | | | |
| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 0.00 | 0.00 | 0.14 | 0.57 | 1.10 | 1.48 | 1.22 | 0.96 | 0.71 | 0.49 | 0.00 | 0.00 |
| 2 | 0.00 | 0.00 | 0.14 | 0.62 | 1.14 | 1.52 | 1.19 | 0.96 | 0.71 | 0.42 | 0.00 | 0.00 |
| 3 | 0.00 | 0.00 | 0.13 | 0.65 | 1.14 | 1.53 | 1.15 | 0.93 | 0.71 | 0.46 | 0.00 | 0.00 |
| 4 | 0.00 | 0.00 | 0.12 | 0.66 | 1.11 | 1.47 | 1.15 | 0.90 | 0.73 | 0.43 | 0.00 | 0.00 |
| 5 | 0.00 | 0.00 | 0.11 | 0.71 | 1.18 | 1.50 | 1.20 | 0.88 | 0.73 | 0.30 | 0.00 | 0.00 |
| 6 | 0.00 | 0.00 | 0.07 | 0.74 | 1.21 | 1.49 | 1.17 | 0.93 | 0.75 | 0.30 | 0.00 | 0.00 |
| 7 | 0.00 | 0.00 | 0.11 | 0.78 | 1.25 | 1.57 | 1.19 | 0.95 | 0.78 | 0.28 | 0.00 | 0.00 |
| 8 | 0.00 | 0.00 | 0.11 | 0.76 | 1.27 | 1.52 | 1.22 | 0.89 | 0.68 | 0.21 | 0.00 | 0.00 |
| 9 | 0.00 | 0.00 | 0.11 | 0.81 | 1.25 | 1.53 | 1.15 | 0.91 | 0.66 | 0.21 | 0.00 | 0.00 |
| 10 | 0.00 | 0.00 | 0.11 | 0.82 | 1.23 | 1.58 | 1.21 | 0.90 | 0.61 | 0.15 | 0.00 | 0.00 |
| 11 | 0.00 | 0.00 | 0.11 | 0.86 | 1.29 | 1.57 | 1.21 | 0.87 | 0.65 | 0.00 | 0.00 | 0.00 |
| 12 | 0.00 | 0.00 | 0.11 | 0.85 | 1.46 | 1.53 | 1.17 | 0.84 | 0.66 | 0.00 | 0.00 | 0.00 |
| 13 | 0.00 | 0.00 | 0.11 | 0.88 | 1.38 | 1.43 | 1.17 | 0.86 | 0.70 | 0.00 | 0.00 | 0.00 |
| 14 | 0.00 | 0.00 | 0.11 | 0.88 | 1.31 | 1.48 | 1.06 | 0.86 | 0.70 | 0.06 | 0.00 | 0.00 |
| 15 | 0.00 | 0.00 | 0.11 | 0.89 | 1.35 | 1.61 | 1.03 | 0.88 | 0.71 | 0.00 | 0.00 | 0.00 |
| 16 | 0.00 | 0.00 | 0.11 | 0.94 | 1.36 | 1.48 | 1.02 | 0.89 | 0.72 | 0.00 | 0.00 | 0.00 |
| 17 | 0.00 | 0.00 | 0.16 | 0.96 | 1.40 | 1.57 | 1.05 | 0.83 | 0.69 | 0.00 | 0.00 | 0.00 |
| 18 | 0.00 | 0.00 | 0.09 | 0.96 | 1.34 | 1.58 | 0.96 | 0.79 | 0.73 | 0.00 | 0.00 | 0.00 |
| 19 | 0.00 | 0.00 | 0.10 | 0.93 | 1.36 | 1.53 | 0.99 | 0.82 | 0.73 | 0.05 | 0.00 | 0.00 |
| 20 | 0.00 | 0.00 | 0.10 | 0.99 | 1.36 | 1.58 | 1.03 | 0.81 | 0.57 | 0.00 | 0.00 | 0.00 |
| 21 | 0.00 | 0.00 | 0.13 | 1.01 | 1.34 | 1.51 | 1.13 | 0.69 | 0.49 | 0.00 | 0.00 | 0.00 |
| 22 | 0.00 | 0.02 | 0.12 | 1.08 | 1.39 | 1.53 | 1.03 | 0.66 | 0.57 | 0.00 | 0.00 | 0.00 |
| 23 | 0.00 | 0.03 | 0.15 | 1.11 | 1.42 | 1.56 | 1.00 | 0.63 | 0.61 | 0.00 | 0.00 | 0.00 |
| 24 | 0.00 | 0.07 | 0.17 | 1.06 | 1.42 | 1.49 | 1.01 | 0.65 | 0.65 | 0.00 | 0.00 | 0.00 |
| 25 | 0.00 | 0.09 | 0.17 | 1.11 | 1.41 | 1.57 | 1.07 | 0.69 | 0.64 | 0.00 | 0.00 | 0.00 |
| 26 | 0.00 | 0.05 | 0.16 | 0.98 | 1.45 | 1.49 | 1.01 | 0.69 | 0.54 | 0.00 | 0.00 | 0.00 |
| 27 | 0.00 | 0.10 | 0.23 | 1.25 | 1.49 | 1.41 | 0.92 | 0.70 | 0.53 | 0.00 | 0.00 | 0.00 |
| 28 | 0.00 | 0.13 | 0.44 | 1.07 | 1.45 | 1.24 | 0.83 | 0.71 | 0.49 | 0.00 | 0.00 | 0.00 |
| 29 | 0.00 | 0.12 | 0.30 | 1.31 | | 1.16 | 0.83 | 0.72 | 0.78 | 0.00 | 0.00 | 0.00 |
| 30 | 0.00 | 0.15 | 0.36 | 1.06 | | 1.21 | 0.87 | 0.71 | 0.71 | 0.00 | 0.00 | 0.00 |
| 31 | 0.00 | | 0.47 | 1.08 | | 1.23 | | 0.71 | | 0.00 | 0.00 | |
| Mean (ac-ft) | 0.00 | 0.02 | 0.16 | 0.91 | 1.32 | 1.48 | 1.07 | 0.81 | 0.66 | 0.11 | 0.00 | 0.00 |
| Max (ac-ft) | 0.00 | 0.15 | 0.47 | 1.31 | 1.49 | 1.61 | 1.22 | 0.96 | 0.78 | 0.49 | 0.00 | 0.00 |
| Min (ac-ft) | 0.00 | 0.00 | 0.07 | 0.57 | 1.10 | 1.16 | 0.83 | 0.63 | 0.49 | 0.00 | 0.00 | 0.00 |
| Total (ac-ft) | 0 | 1 | 5 | 28 | 37 | 46 | 32 | 25 | 20 | 3 | 0 | 0 |

Data Source: IWVGA, Stetson Engineers Inc. Data Management System; via In-Situ HydroVu data platform

# Daily Streamflow Data, Total Flow Volume
# Sand Canyon, Water Year 2022

| | |
|---|---|
| Water year | 2022 |
| Station Name | Sand Canyon |
| Operating Agency | IWVGA Agent - Stetson Engineers Inc. |
| Latitude | 35°46'33.6"N |
| Longitude | 117°54'27.4"N |

| | Daily streamflow (AF) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2021 | | | 2022 | | | | | | | | |
| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.59 | 0.78 | 0.66 | 0.51 | 0.25 | 0.36 | 0.00 |
| 2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.65 | 0.81 | 0.64 | 0.54 | 0.30 | 0.26 | 0.00 |
| 3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.73 | 0.82 | 0.63 | 0.55 | 0.26 | 0.00 | 0.00 |
| 4 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.77 | 0.74 | 0.62 | 0.57 | 0.27 | 0.00 | 0.00 |
| 5 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.70 | 0.73 | 0.65 | 0.53 | 0.33 | 0.40 | 0.00 |
| 6 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.60 | 0.71 | 0.63 | 0.51 | 0.35 | 0.26 | 0.00 |
| 7 | 0.00 | 0.00 | 0.00 | 0.00 | 0.14 | 0.62 | 0.68 | 0.70 | 0.54 | 0.32 | 0.00 | 0.00 |
| 8 | 0.00 | 0.00 | 0.00 | 0.00 | 0.17 | 0.67 | 0.68 | 0.66 | 0.55 | 0.29 | 0.00 | 0.00 |
| 9 | 0.00 | 0.00 | 0.00 | 0.00 | 0.23 | 0.75 | 0.74 | 0.60 | 0.55 | 0.23 | 0.00 | 0.00 |
| 10 | 0.00 | 0.00 | 0.00 | 0.00 | 0.28 | 0.74 | 0.74 | 0.55 | 0.52 | 0.19 | 0.00 | 0.00 |
| 11 | 0.00 | 0.00 | 0.00 | 0.00 | 0.32 | 0.65 | 0.70 | 0.50 | 0.52 | 0.18 | 0.00 | 0.00 |
| 12 | 0.00 | 0.00 | 0.00 | 0.00 | 0.34 | 0.69 | 0.57 | 0.47 | 0.58 | 0.11 | 0.00 | 0.00 |
| 13 | 0.00 | 0.00 | 0.00 | 0.00 | 0.38 | 0.76 | 0.54 | 0.50 | 0.60 | 0.07 | 0.00 | 0.00 |
| 14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.45 | 0.69 | 0.58 | 0.52 | 0.52 | 0.00 | 0.00 | 0.00 |
| 15 | 0.00 | 0.00 | 0.00 | 0.00 | 0.53 | 0.78 | 0.60 | 0.55 | 0.49 | 0.00 | 0.00 | 0.00 |
| 16 | 0.00 | 0.00 | 0.00 | 0.00 | 0.43 | 0.78 | 0.65 | 0.56 | 0.53 | 0.00 | 0.00 | 0.00 |
| 17 | 0.00 | 0.00 | 0.00 | 0.00 | 0.40 | 0.76 | 0.61 | 0.56 | 0.57 | 0.00 | 0.00 | 0.00 |
| 18 | 0.00 | 0.00 | 0.00 | 0.00 | 0.41 | 0.78 | 0.62 | 0.55 | 0.49 | 0.00 | 0.00 | 0.00 |
| 19 | 0.00 | 0.00 | 0.00 | 0.00 | 0.48 | 0.84 | 0.69 | 0.59 | 0.44 | 0.00 | 0.00 | 0.00 |
| 20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.56 | 0.83 | 0.65 | 0.63 | 0.43 | 0.00 | 0.00 | 0.00 |
| 21 | 0.00 | 0.00 | 0.00 | 0.00 | 0.58 | 0.75 | 0.68 | 0.60 | 0.44 | 0.00 | 0.00 | 0.00 |
| 22 | 0.00 | 0.00 | 0.00 | 0.00 | 0.54 | 0.76 | 0.65 | 0.59 | 0.61 | 0.00 | 0.00 | 0.00 |
| 23 | 0.00 | 0.00 | 0.13 | 0.00 | 0.47 | 0.78 | 0.56 | 0.58 | 0.48 | 0.00 | 0.00 | 0.00 |
| 24 | 0.00 | 0.00 | 0.03 | 0.00 | 0.31 | 0.82 | 0.57 | 0.58 | 0.48 | 0.00 | 0.00 | 0.00 |
| 25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.37 | 0.82 | 0.60 | 0.60 | 0.50 | 0.00 | 0.00 | 0.00 |
| 26 | 0.00 | 0.00 | 0.01 | 0.00 | 0.44 | 0.86 | 0.65 | 0.61 | 0.49 | 0.00 | 0.00 | 0.00 |
| 27 | 0.00 | 0.00 | 0.00 | 0.00 | 0.46 | 0.89 | 0.67 | 0.65 | 0.45 | 0.00 | 0.00 | 0.00 |
| 28 | 0.00 | 0.00 | 0.00 | 0.00 | 0.52 | 0.94 | 0.67 | 0.62 | 0.40 | 0.00 | 0.00 | 0.00 |
| 29 | 0.00 | 0.00 | 0.00 | 0.00 | | 0.82 | 0.58 | 0.58 | 0.38 | 0.00 | 0.00 | 0.00 |
| 30 | 0.00 | 0.00 | 0.00 | 0.00 | | 0.77 | 0.66 | 0.51 | 0.32 | 0.00 | 0.00 | 0.00 |
| 31 | 0.00 | | 0.00 | 0.00 | | 0.79 | | 0.47 | | 0.00 | 0.00 | |
| Mean (ac-ft) | 0.00 | 0.00 | 0.01 | 0.00 | 0.32 | 0.75 | 0.66 | 0.59 | 0.50 | 0.10 | 0.04 | 0.00 |
| Max (ac-ft) | 0.00 | 0.00 | 0.13 | 0.00 | 0.58 | 0.94 | 0.82 | 0.70 | 0.61 | 0.35 | 0.40 | 0.00 |
| Min (ac-ft) | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.59 | 0.54 | 0.47 | 0.32 | 0.00 | 0.00 | 0.00 |
| Total (ac-ft) | 0 | 0 | 0 | 0 | 9 | 23 | 20 | 18 | 15 | 3 | 1 | 0 |

Data Source: IWVGA, Stetson Engineers Inc. Data Management System; via In-Situ HydroVu data platform

# Attachment K
# NAWSCL GDE Vegetation Monitoring Progress Report

# Progress Report - NAWSCL GDE Vegetation Monitoring

**Date:** 15 August 2022

**Project:** IWVGA GDE Vegetation Monitoring

**Installation Point of Contact:** Joe Sherrock; joseph.s.sherrock.civ@us.navy.mil; (951)530-2282

**Accomplishments:**

Navy staff established and surveyed three GDE monitoring transects.

Transect locations are based on "Recon Areas" established from previous visits from the Water Resource Manager (WRM) (Stetson Engineers Inc.) and Navy staff. These Recon Areas were further ground-truthed to confirm the presence of phreatophytic species by Navy staff and narrowed down to Recon Areas 6, 8, and 9. Navy staff established one 50m transect in each of these Recon Areas. Transect ID's are based on the original Recon Area number. See Table below for transect locations (maps attached):

**Table 1: GDE Transect Locations**

| Transect ID | Beginning Point Lat | Beginning Point Long | Heading | End Point Lat | End Point Long |
|---|---|---|---|---|---|
| **6-1** | 35.721910° | -117.705200° | 156° | 35.721497° | -117.704973° |
| **8-1** | 35.775895° | -117.619950° | 174° | 35.775448° | -117.619891° |
| **9-1** | 35.824726° | -117.653306° | 345° | 35.825160° | -117.653450° |

Photos were taken at the beginning and end points of each transect. They will be reviewed by the Navy's public affairs office in ordered to be released in the annual GDE vegetation monitoring report.

Navy Staff conducted line-intercept vegetation monitoring for these three transects on June 30, and July 5, 2022. Phreatophyte species identified on the transects are outlined in Table 2 below:

**Table 2: Presence of Phreatophytes on GDE Transects**

| **Transect ID** | Iodine Bush *(Allenrolfea occindentals)* | Alkali Goldenbush (*Isocoma acradenia* ) | Burrobush *(Ambrosia dumosa)* | Four-wing Saltbush *(Atriplex canescens)* | Saltgrass *(Distichlis spicata)* |
|---|---|---|---|---|---|
| **6-1** | X | X | | | |
| **8-1** | X | B* | | | X |
| **9-1** | | | X | X | |

X - Present B* - Observed within a 4m wide belt of the transect. Not directly surveyed on the transect.

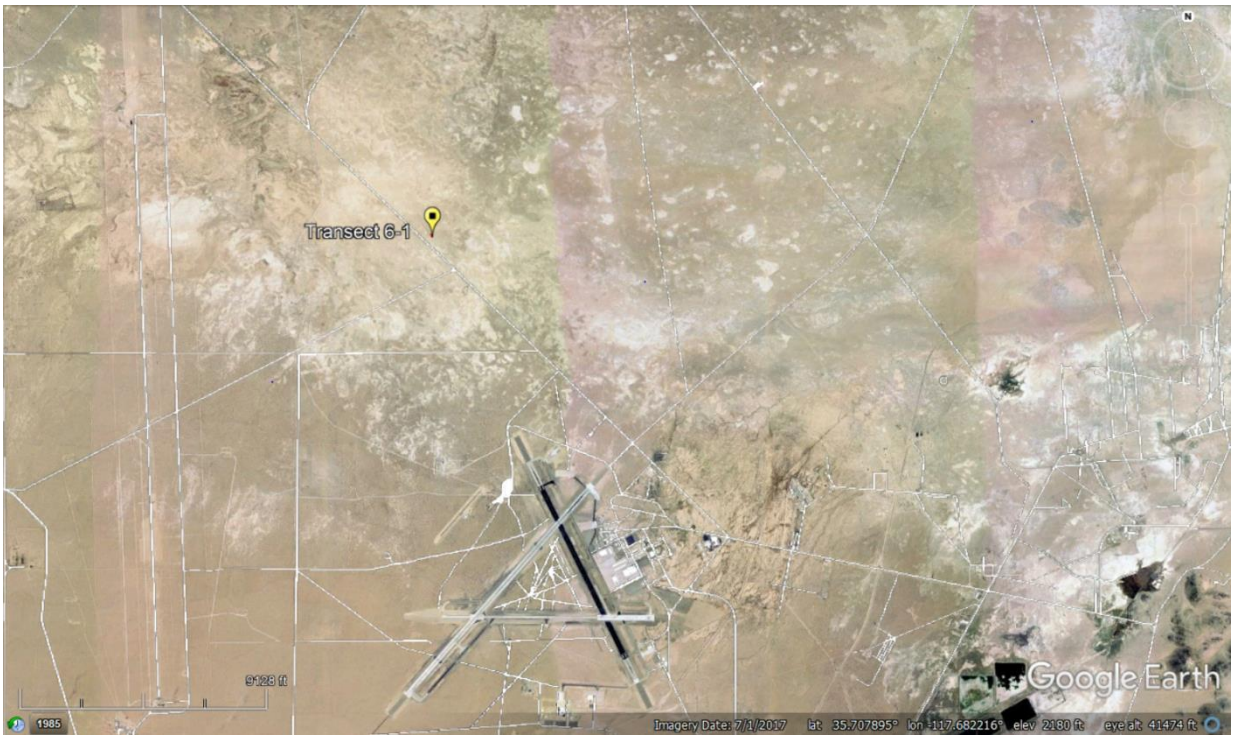
**Future Activities:**

- Prepare **N**AWSCL GDE Vegetation Monitoring – Annual Report: November 2022
- Revise GDE vegetation monitoring protocol; Establish one additional transect in each Recon Area: February 2023

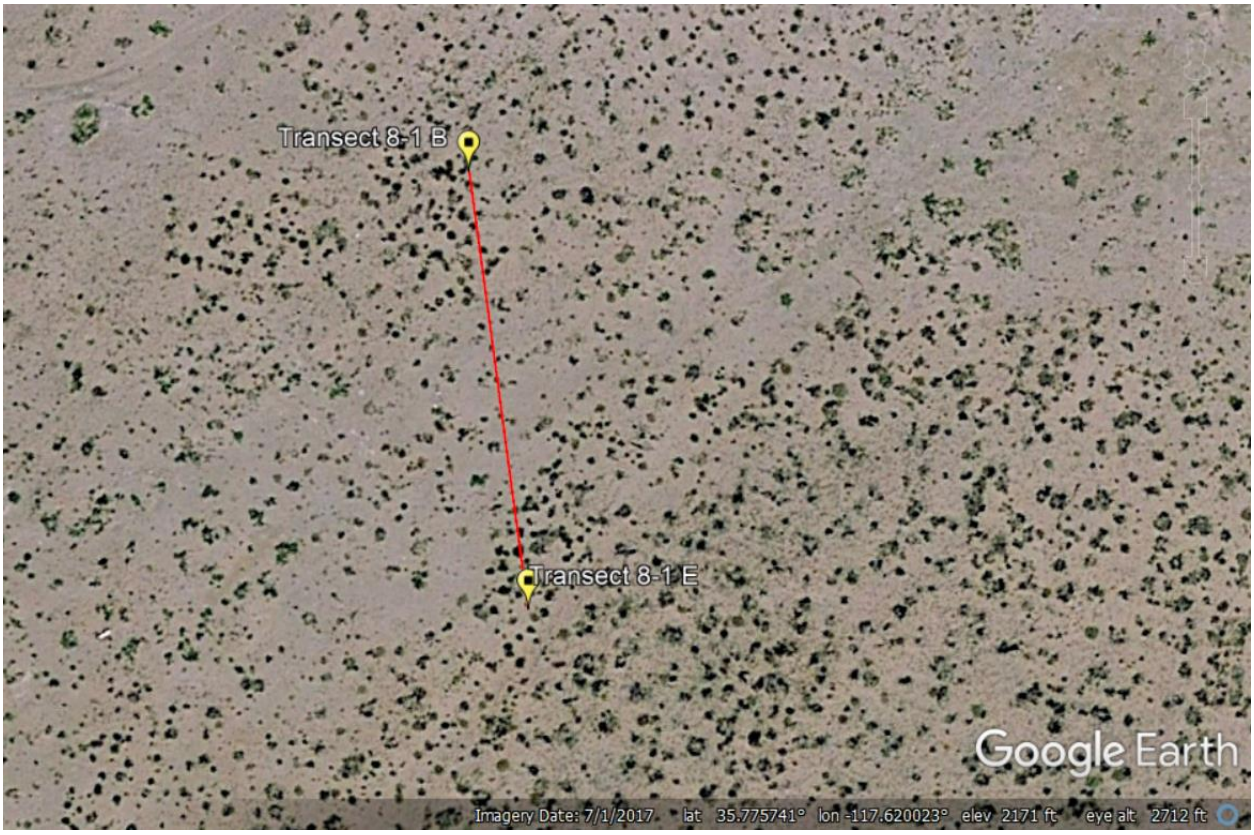
**Attachment: NAWSCL GDE Transect Maps**

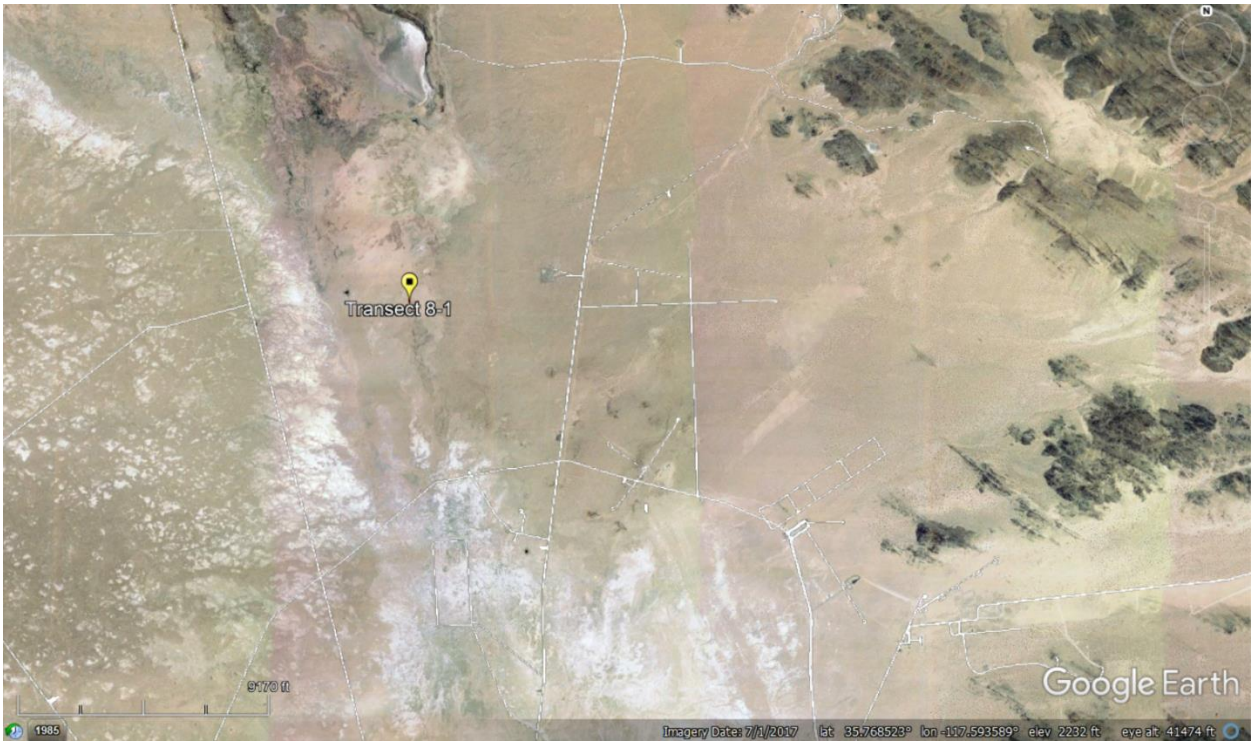
**Transect 6-1**



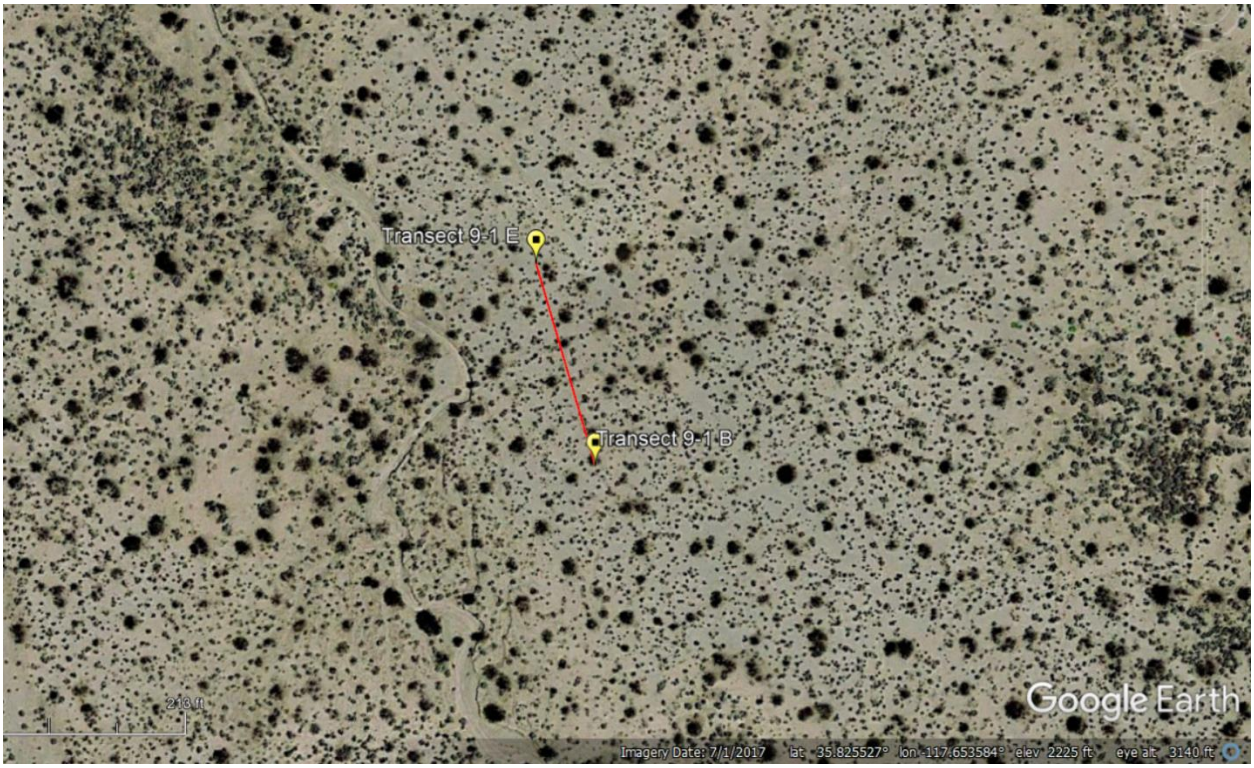



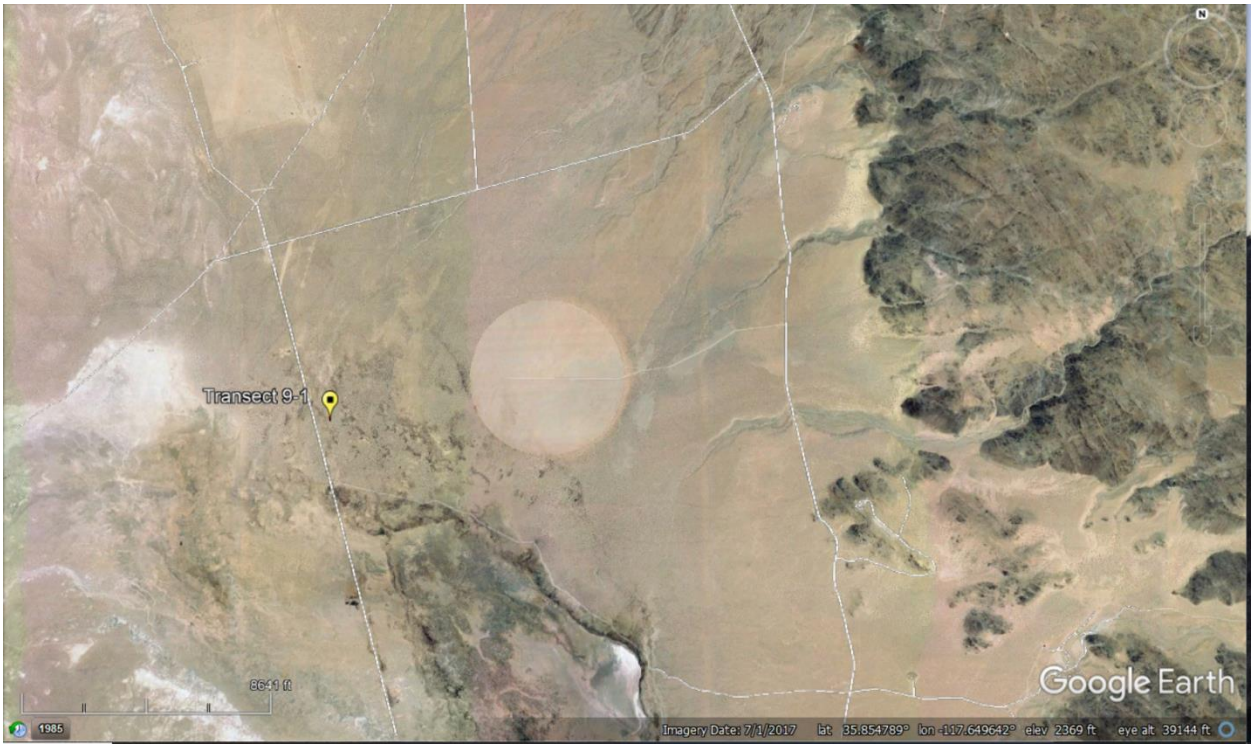
**Transect 8-1:**


Transect 8-1 B
Transect 8-1 E
Google Earth
Imagery Date: 7/1/2017 lat 35.775741° lon -117.620023° elev 2171 ft eye alt 2712 ft

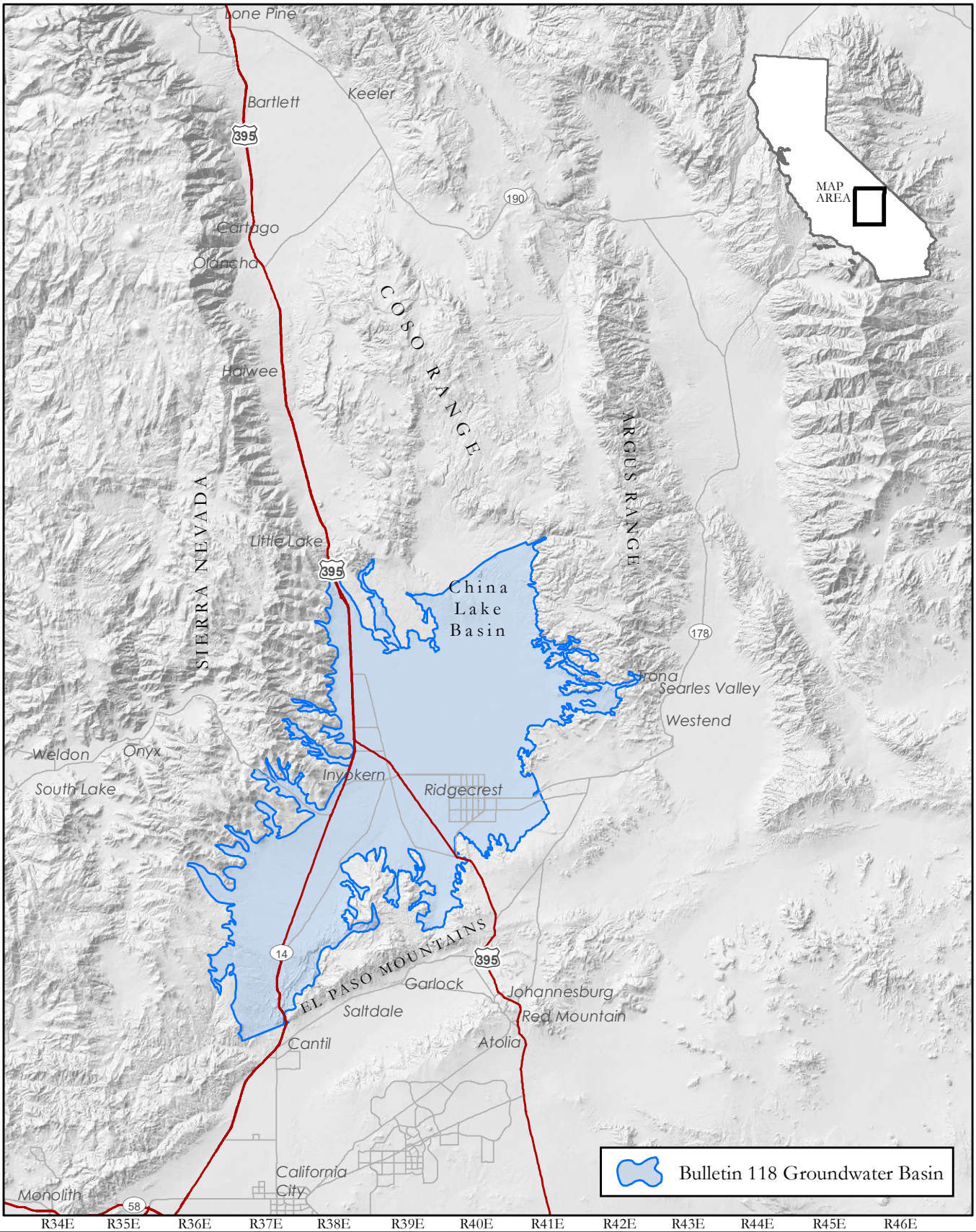

Transect 8-1
Google Earth
Imagery Date: 7/1/2017 lat 35.768523° lon -117.593589° elev 2232 ft eye alt 41474 ft

**Transect 9-1:**


Transect 9-1 E
Transect 9-1 B
Google Earth
Imagery Date: 7/1/2017 lat 35.825527° lon -117.653584° elev 2225 ft eye alt 3140 ft


Transect 9-1
Google Earth
Imagery Date: 7/1/2017 lat 35.854789° lon -117.649642° elev 2369 ft eye alt 39144 ft

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# INDIAN WELLS VALLEY GROUNDWATER BASIN AND INDIAN WELLS VALLEY GROUNDWATER AUTHORITY BOUNDARIES

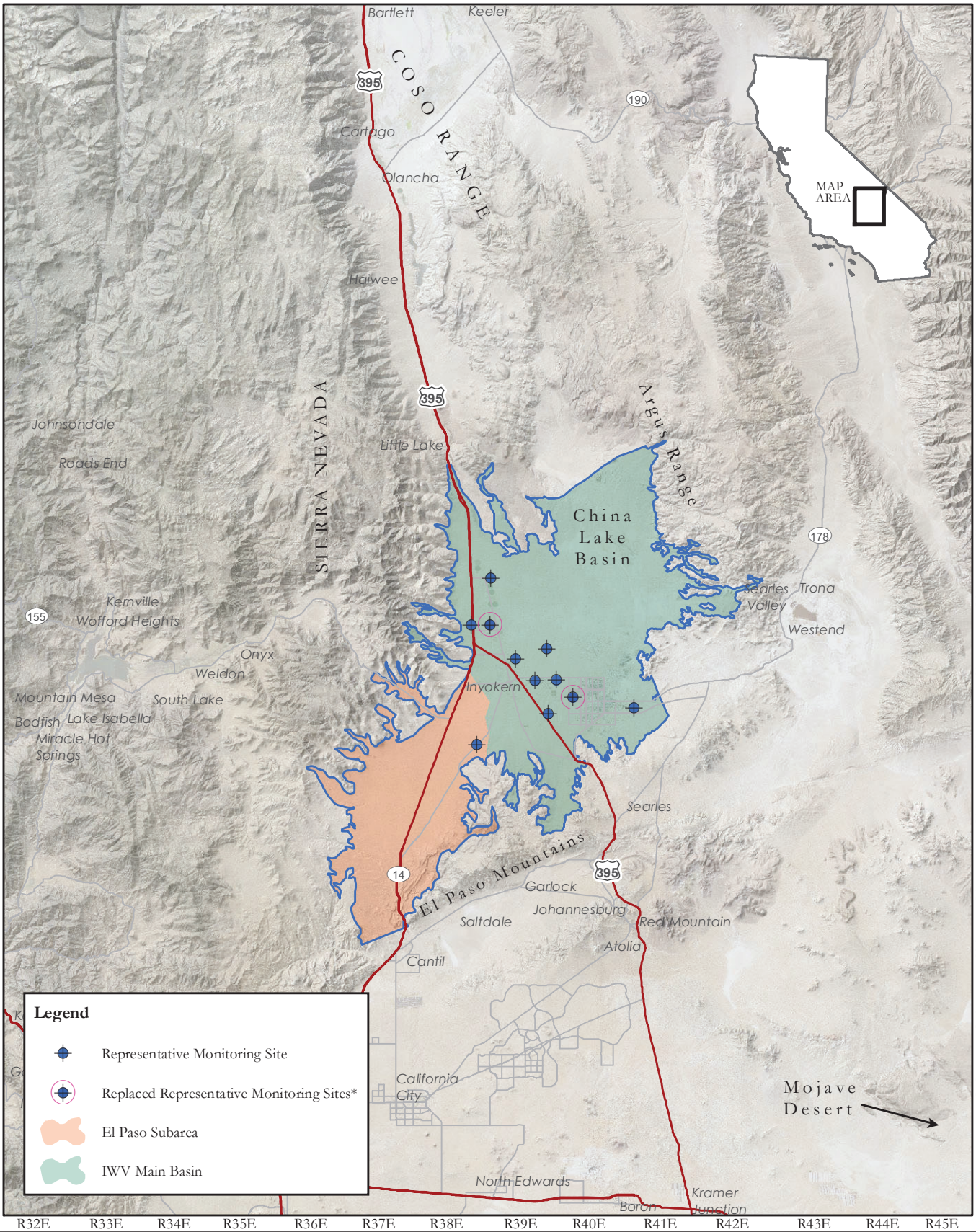
**(DWR BULLETIN 118 BASIN NO. 6-054)**

STETSON ENGINEERS INC.

N

0 5 10 Miles

Document Path: J:\jn2652\Fig2-1_IWV_GW_basin_authority.mxd




# CHRONIC LOWERING OF GROUNDWATER LEVELS
# REPRESENTATIVE MONITORING SITES
## INDIAN WELLS VALLEY, CA

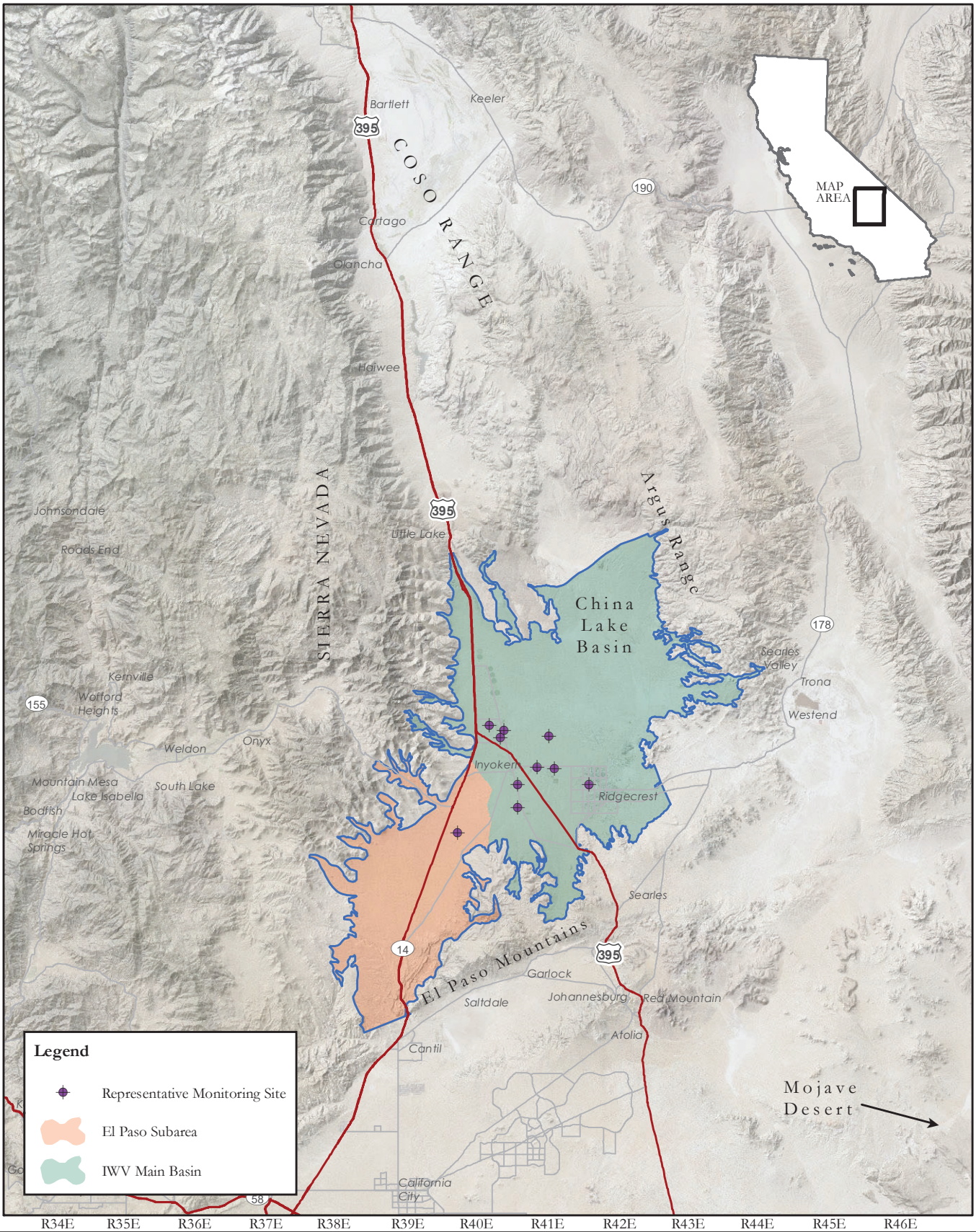
STETSON ENGINEERS INC.

*These wells were originally listed as representative monitoring sites in the GSP, but were replaced due to accessing issues.

N

0 5 10 Miles

Document Path: J:\jn2652\IWV_General_Basin_Setting_RepMonWells.mxd




STETSON ENGINEERS INC.

# WATER QUALITY DEGRADATION
# REPRESENTATIVE MONITORING SITES
## INDIAN WELLS VALLEY, CA

N

0 5 10 Miles

Document Path: J:\jn2652\IWV_General_Basin_Setting_RepMonSites.mxd

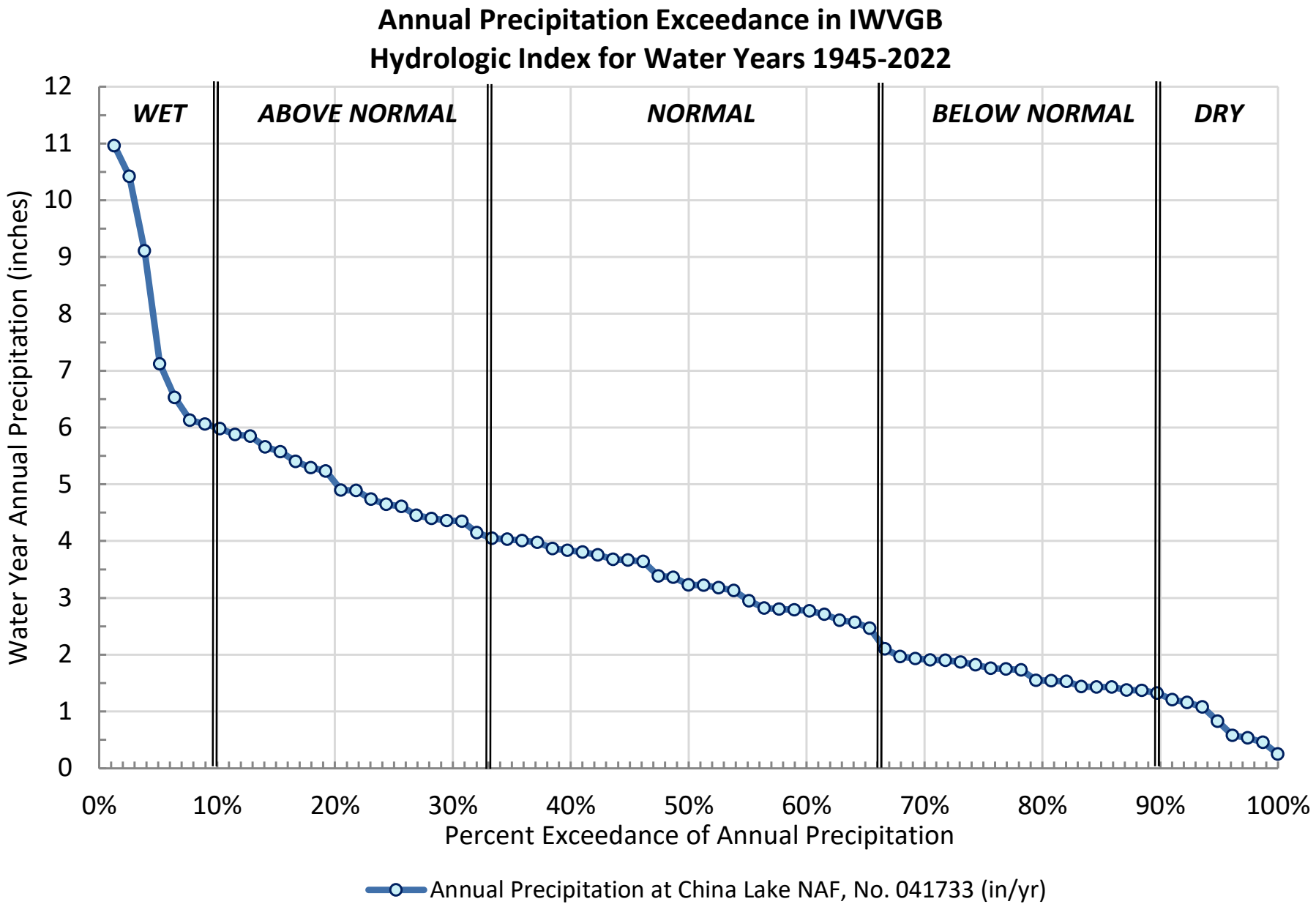
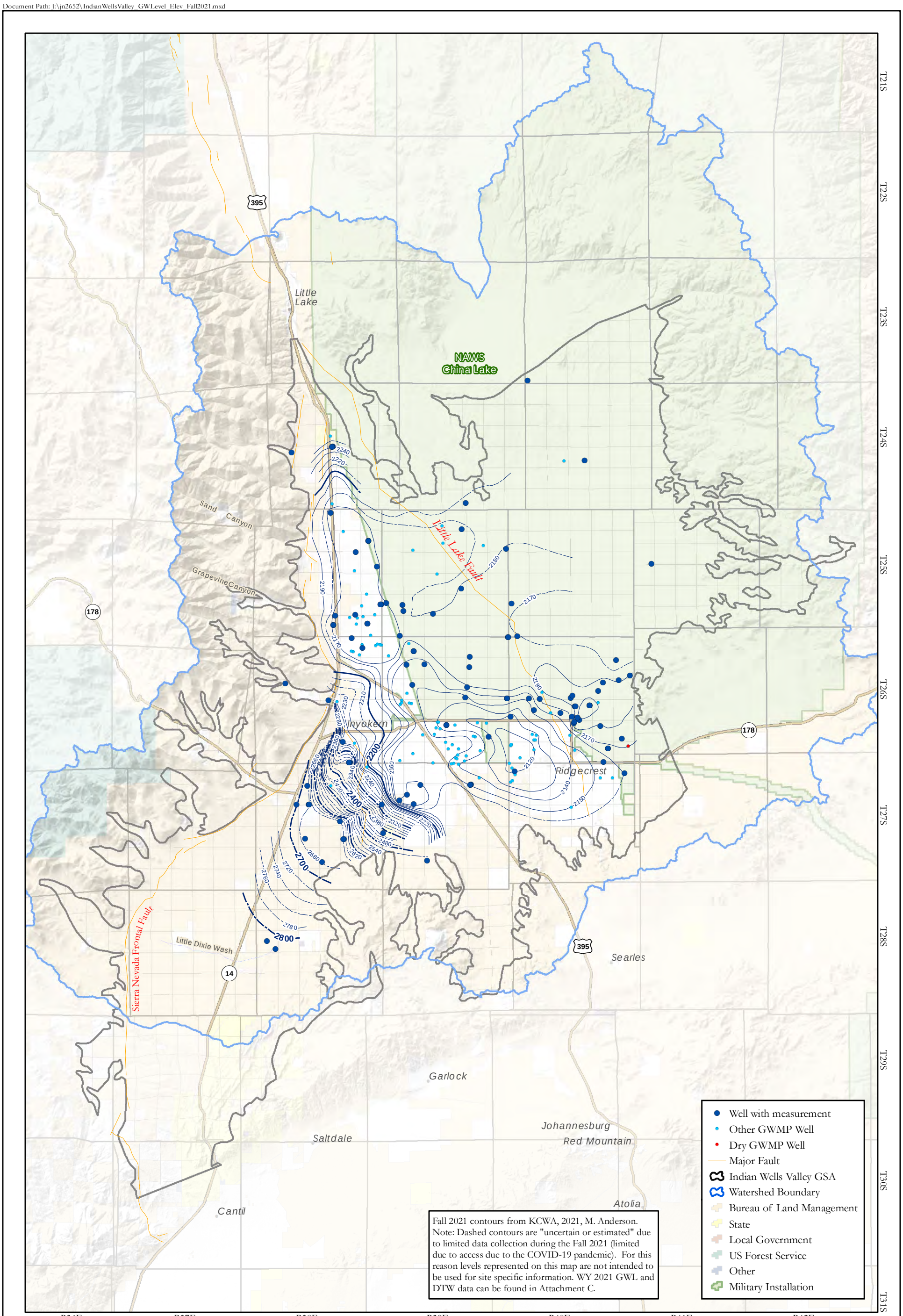

Annual Precipitation Exceedance in IWVGB
Hydrologic Index for Water Years 1945-2022
WET
ABOVE NORMAL
NORMAL
BELOW NORMAL
DRY
Water Year Annual Precipitation (inches)
0
1
2
3
4
5
6
7
8
9
10
11
12
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent Exceedance of Annual Precipitation
Annual Precipitation at China Lake NAF, No. 041733 (in/yr)

FIGURE 4-1

Document Path: J:\jn2652\IndianWellsValley_GWLevel_Elev_Fall2021.mxd




STETSON ENGINEERS INC.

# ESTIMATED FALL 2021 GROUNDWATER ELEVATION CONTOURS

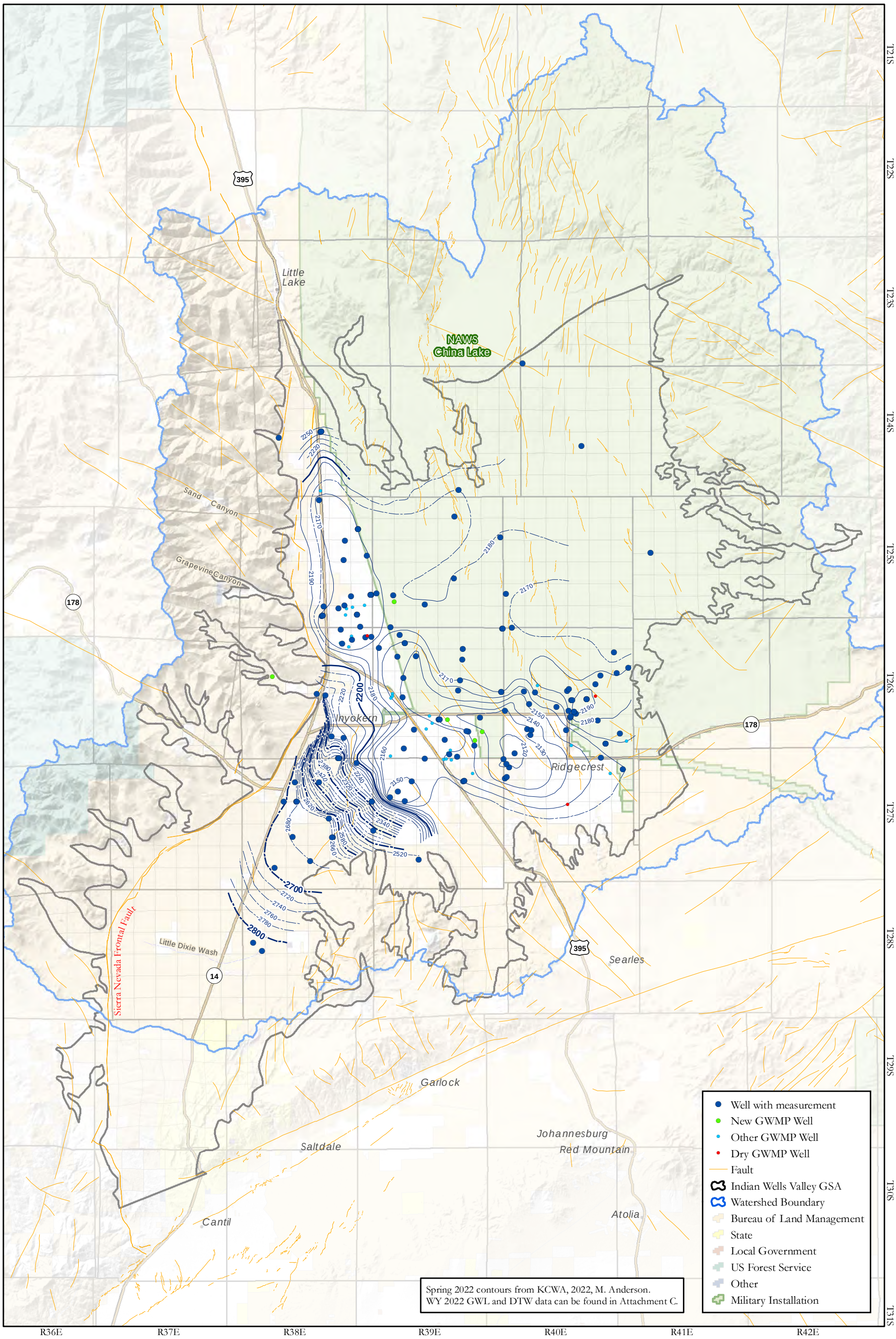
## INDIAN WELLS VALLEY, CA

0 2 4 Miles

N

FIGURE 5-1

Document Path: J:\jn2652\IndianWellsValley_GWLevel_Elev_Spring2022update.mxd




STETSON ENGINEERS INC.

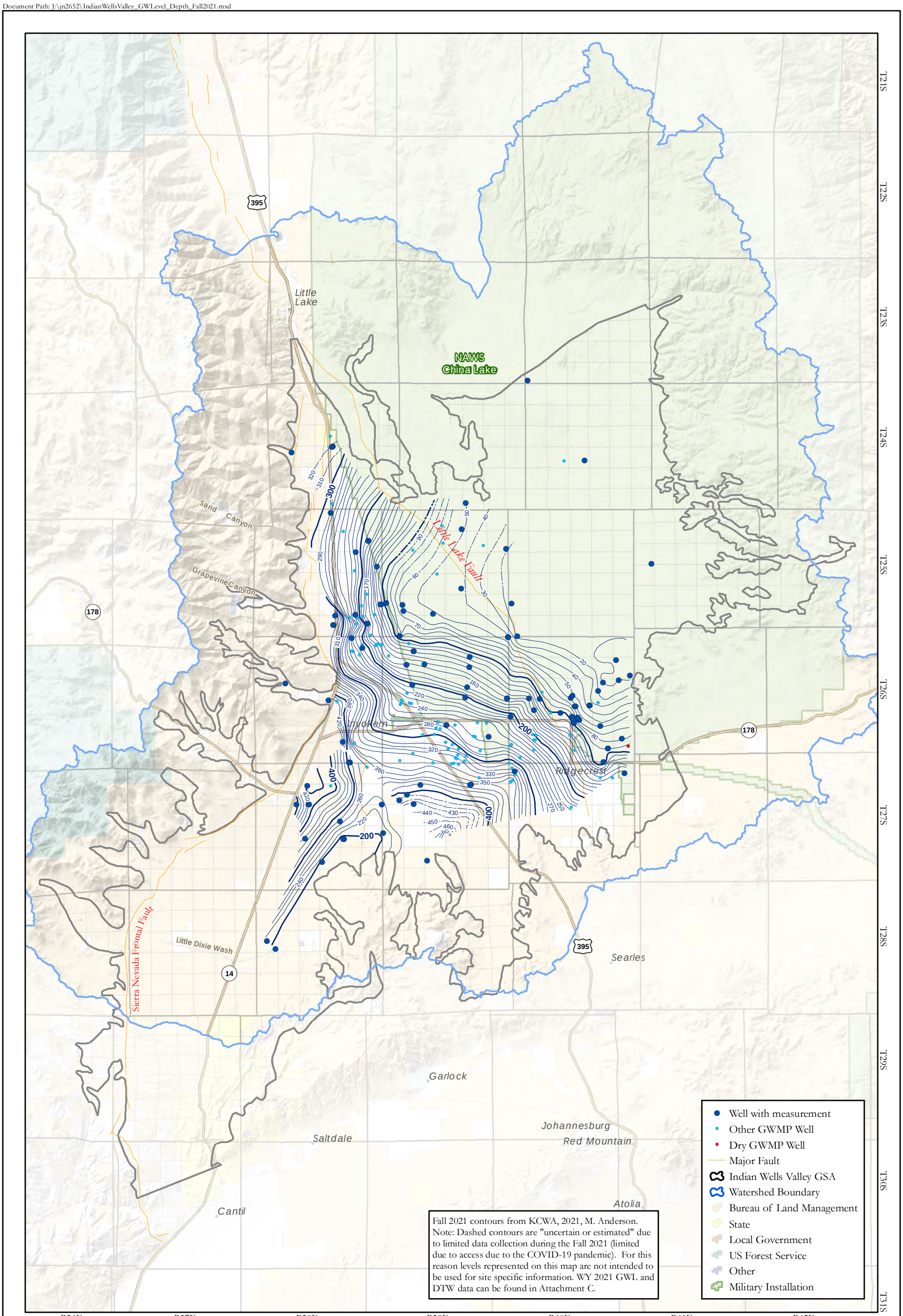
**ESTIMATED SPRING 2022**
**GROUNDWATER ELEVATION CONTOURS**
**INDIAN WELLS VALLEY, CA**

0 2 4 Miles

N

FIGURE 5-2

Document Path: J:\jn2652\IndianWellsValley_GWLevel_Depth_Fall2021.mxd




STETSON ENGINEERS INC.

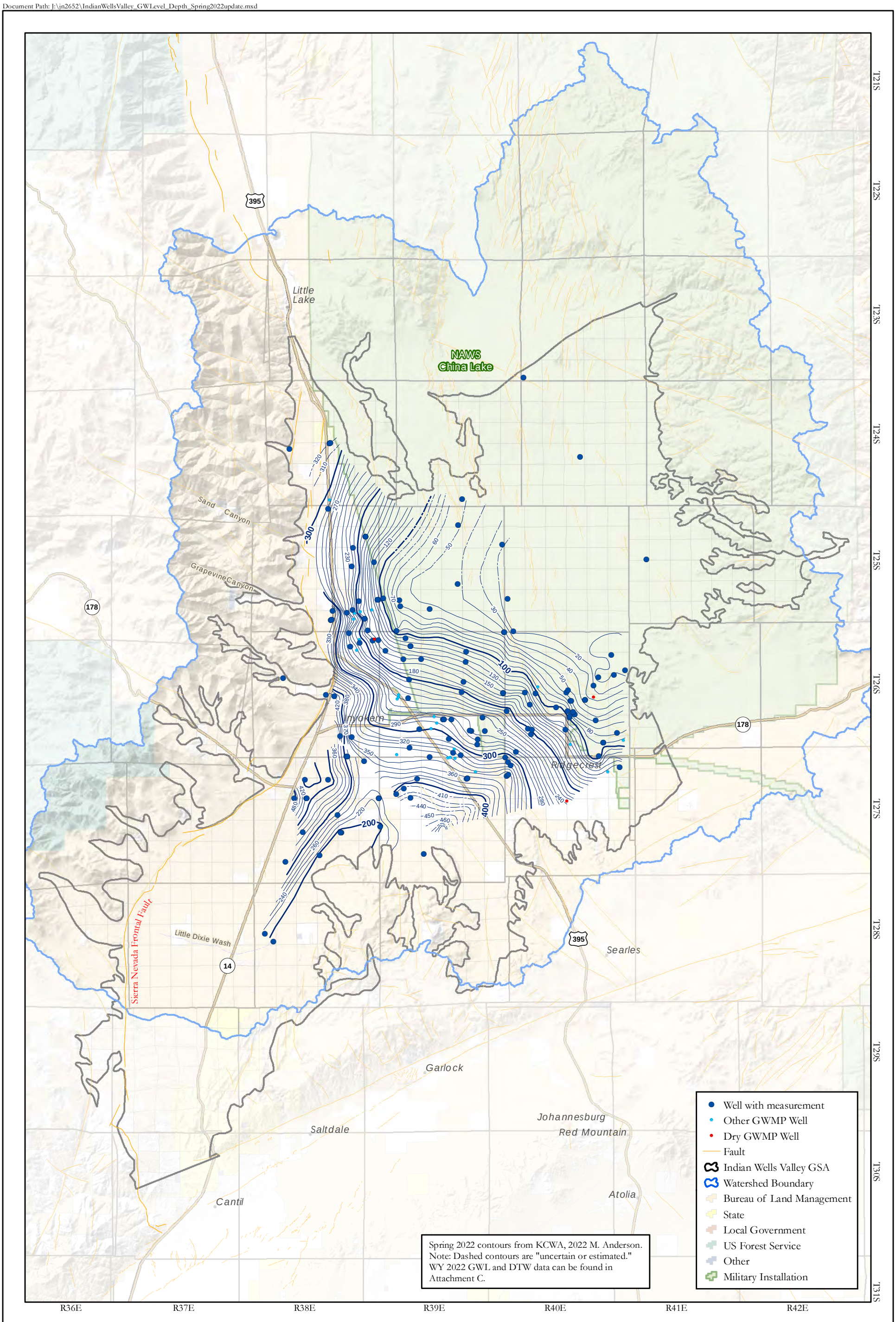
**ESTIMATED FALL 2021**
**GROUNDWATER DEPTH CONTOURS**
**INDIAN WELLS VALLEY, CA**

0 2 4 Miles

N

FIGURE 5-3

Document Path: J:\jn2652\IndianWellsValley_GWLevel_Depth_Spring2022update.mxd



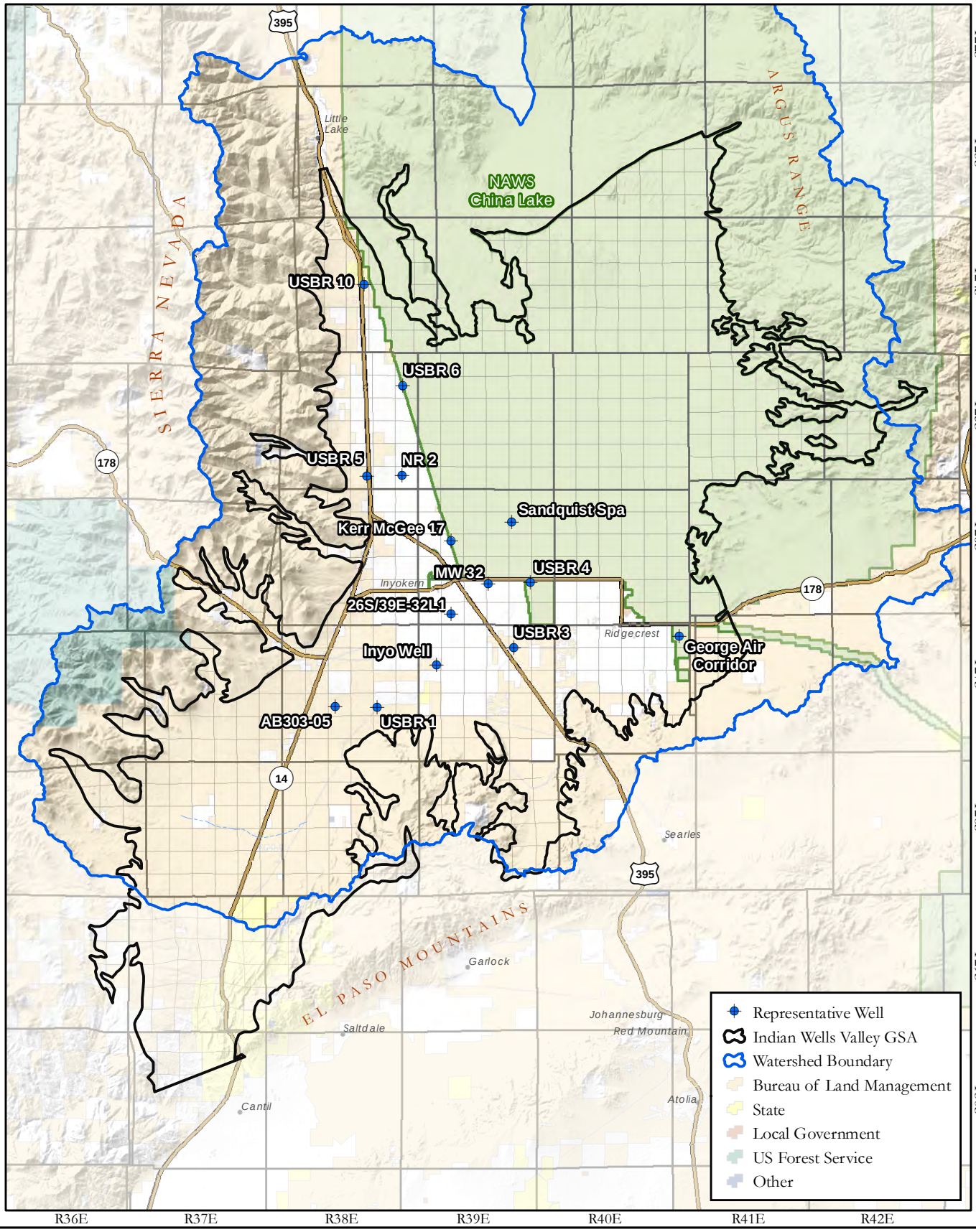

STETSON ENGINEERS INC.

**ESTIMATED SPRING 2022**
**GROUNDWATER DEPTH CONTOURS**
**INDIAN WELLS VALLEY, CA**

0 2 4 Miles

N

FIGURE 5-4




# MONITORING WELLS WITH HYDROGRAPHS IN ATTACHMENT D

## INDIAN WELLS VALLEY, CA

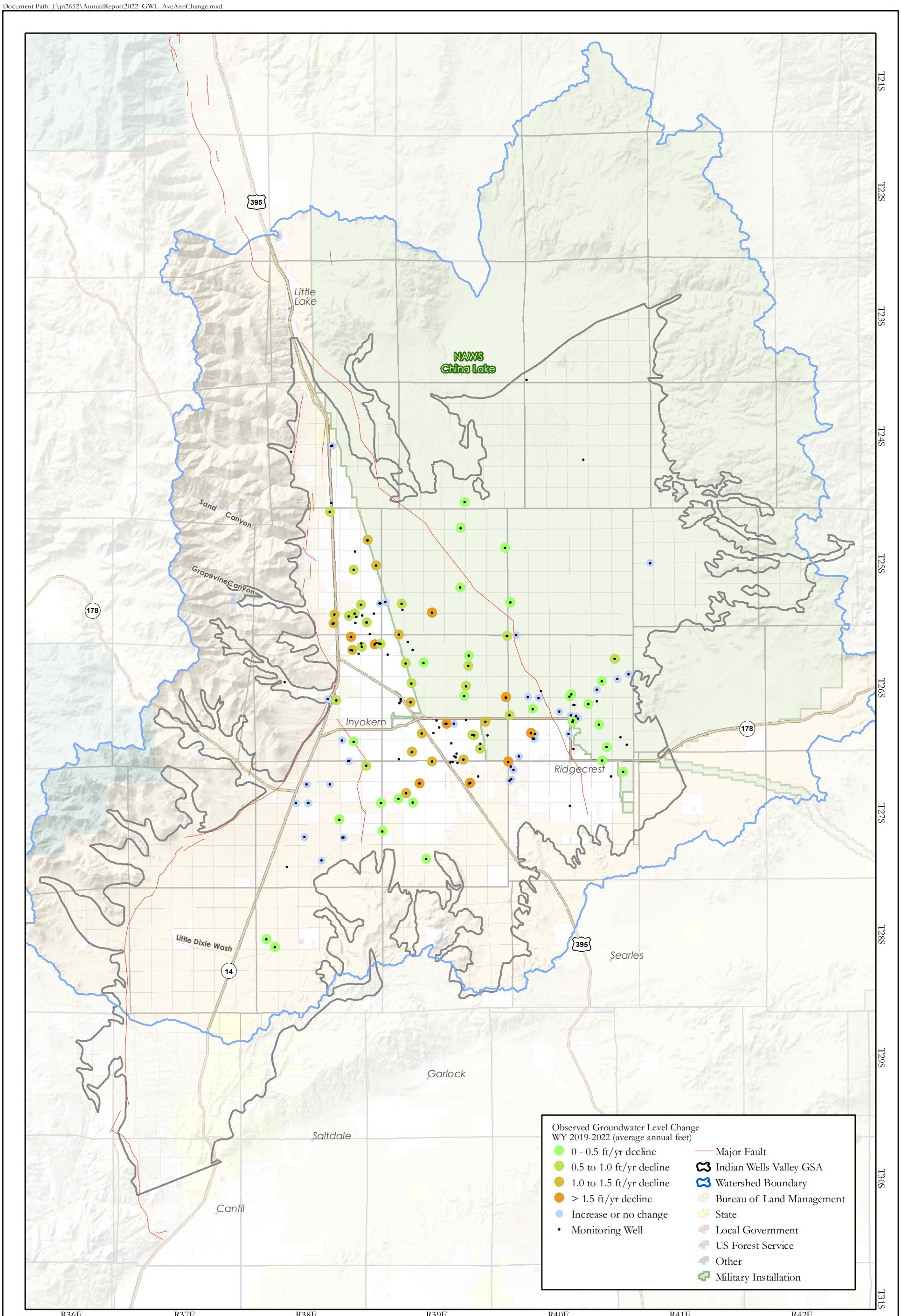
N

0 3 6 Miles

STETSON ENGINEERS INC.

Document Path: J:\jn2652\IndianWellsValley_keywells_20221111.mxd

Document Path: J:\jn2652\AnnualReport2022_GWL_AveAnnChange.mxd




STETSON ENGINEERS INC.

*Note: All multi-level piezometers on this map use data from the shallowest piezometer available for measurement.*

# AVERAGE ANNUAL GROUNDWATER LEVEL CHANGE WY 2019 TO 2022

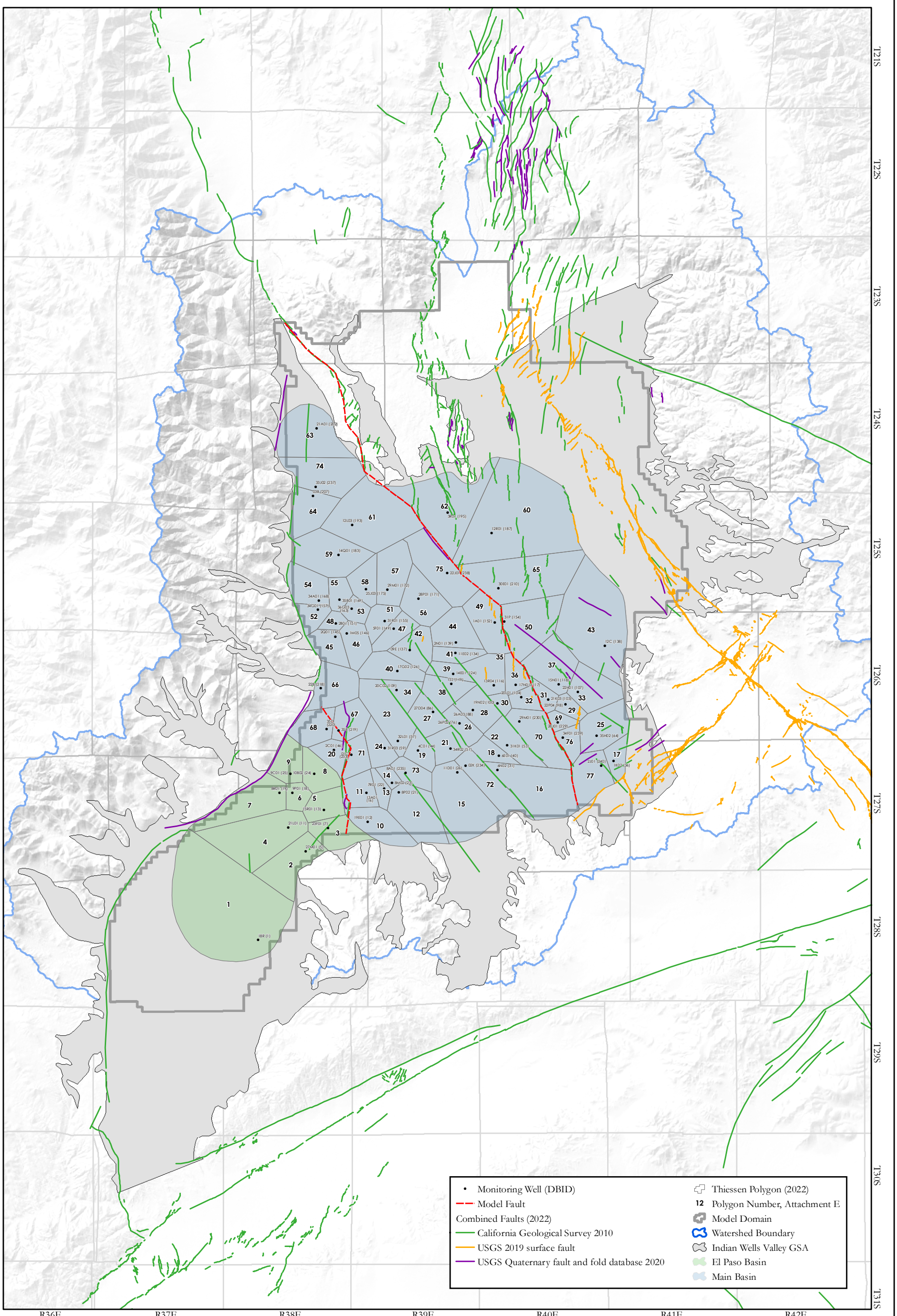
**INDIAN WELLS VALLEY, CA**

N

0 2 4 Miles

FIGURE 5-6

Document Path: J:\jn2652\AnnualReport2022_ThiessenPolygons.mxd



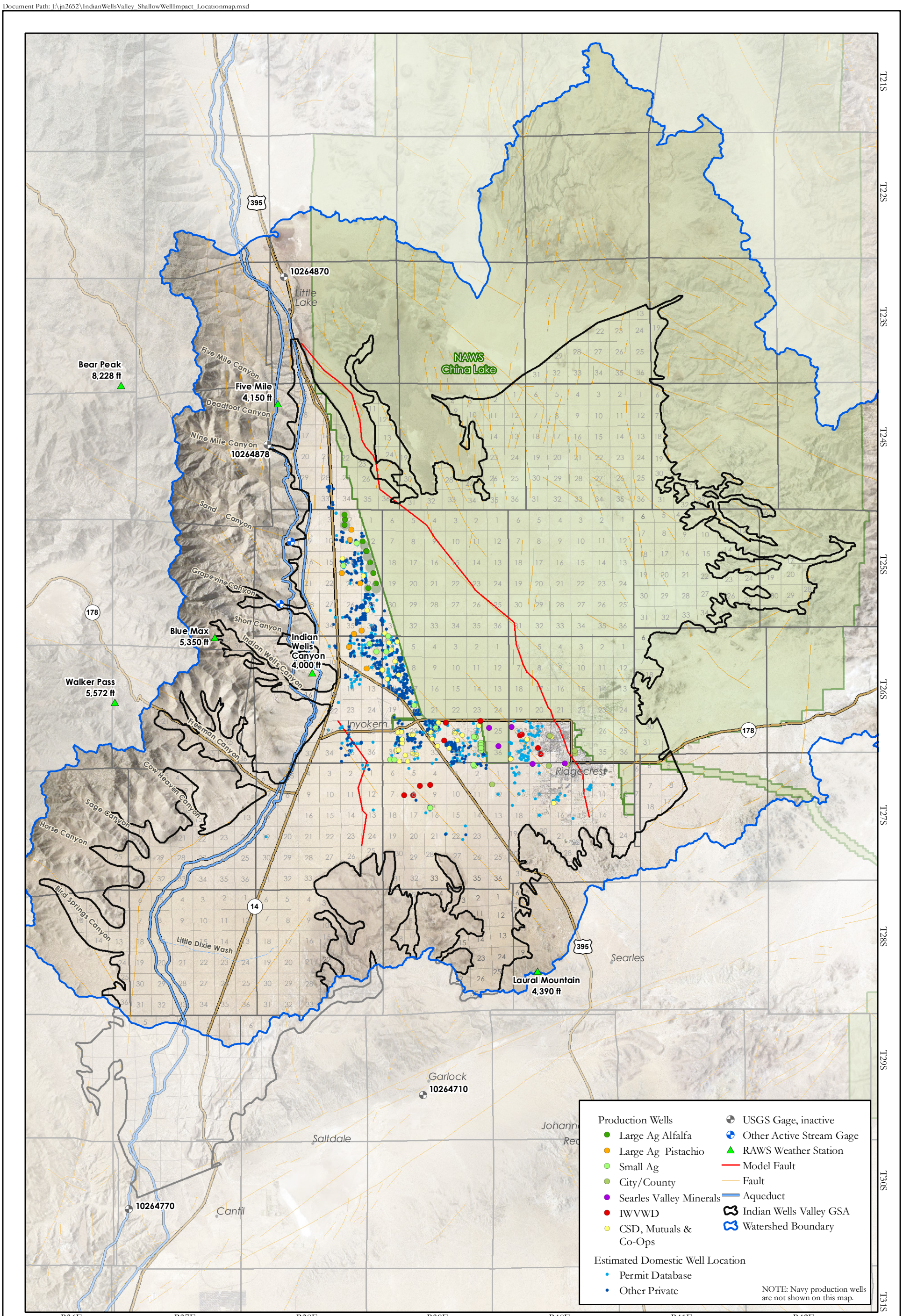

STETSON ENGINEERS INC.

*DBID: Database ID used in Data Management System (DMS) website iwvgsp.com*

**MODIFIED THIESSEN POLYGON METHOD**
**ESTIMATING CHANGES TO GROUNDWATER IN STORAGE**
**INDIAN WELLS VALLEY, CA**

FIGURE 5-7

Document Path: J:\jn2652\IndianWellsValley_ShallowWellImpact_Locationmap.mxd



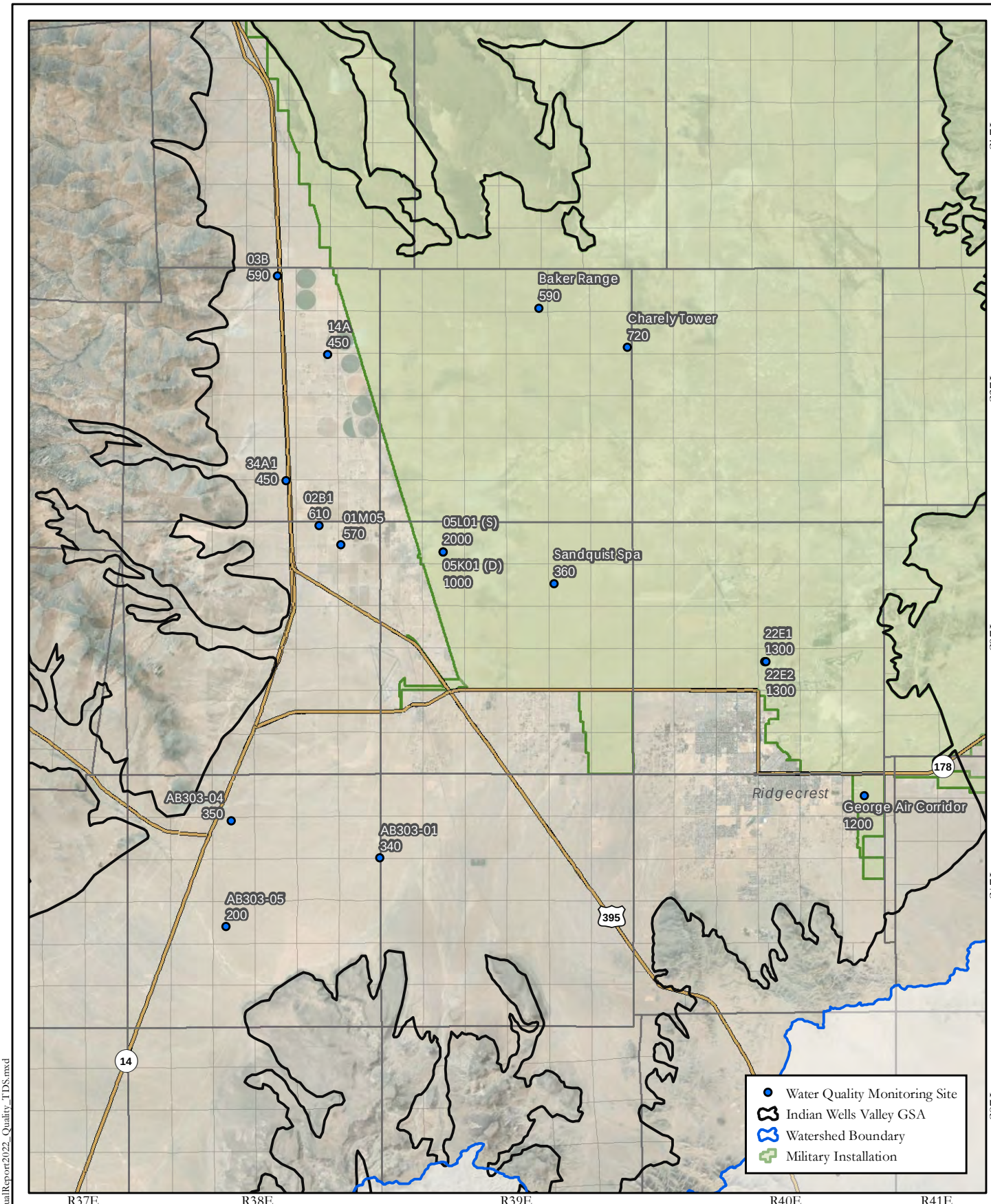

STETSON ENGINEERS INC.

# PUMPING WELL LOCATION MAP
## INDIAN WELLS VALLEY, CA

0 2 4 Miles

N

FIGURE 6-1




**GROUNDWATER QUALITY - TDS**
**OCTOBER 2021**
**INDIAN WELLS VALLEY, CA**

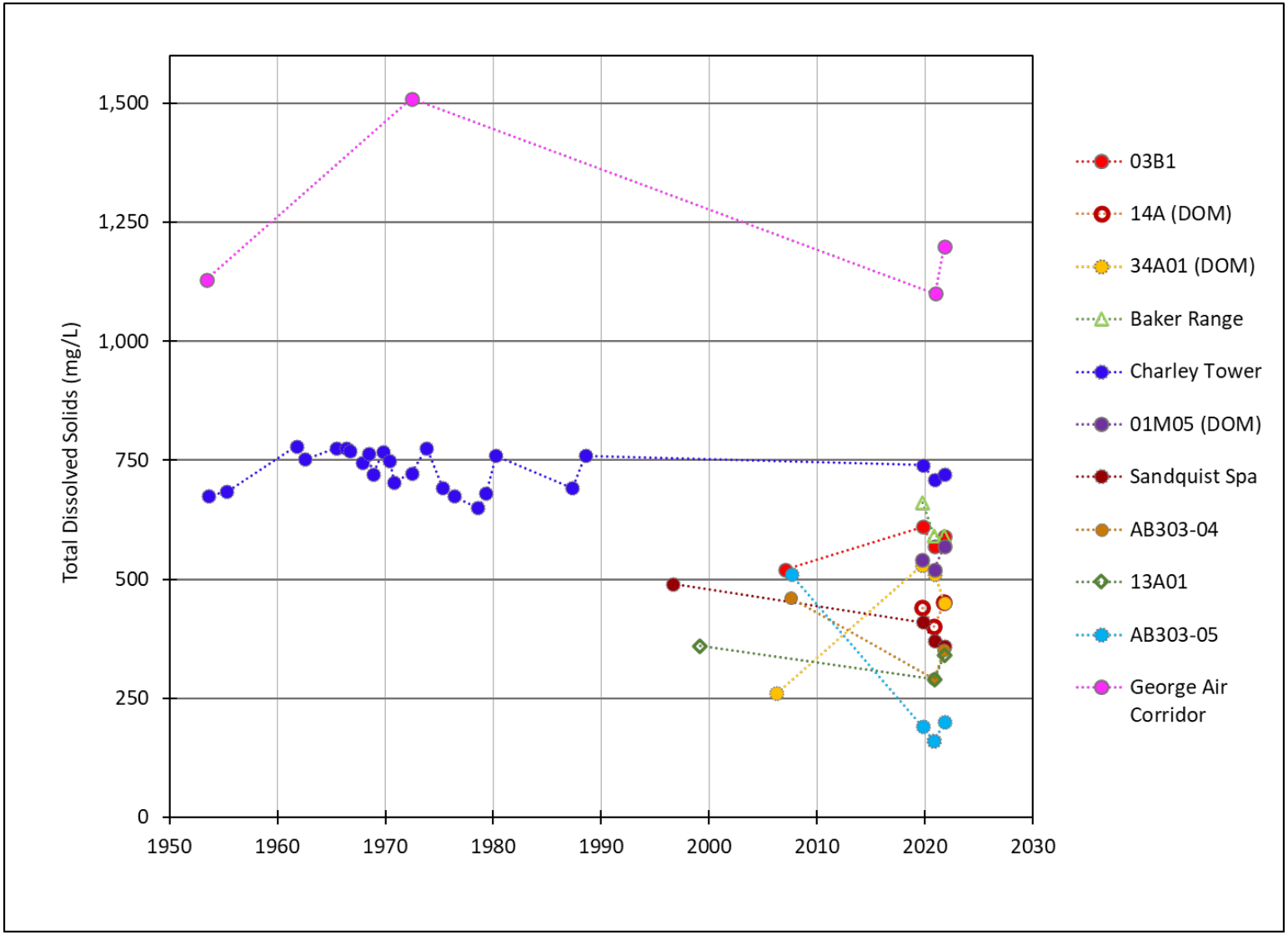
*TDS concentrations are in (mg/L)*

N

0 1.5 3 Miles

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Document Path: J:\jn2652\AnnualReport2022_Quality_TDS.mxd



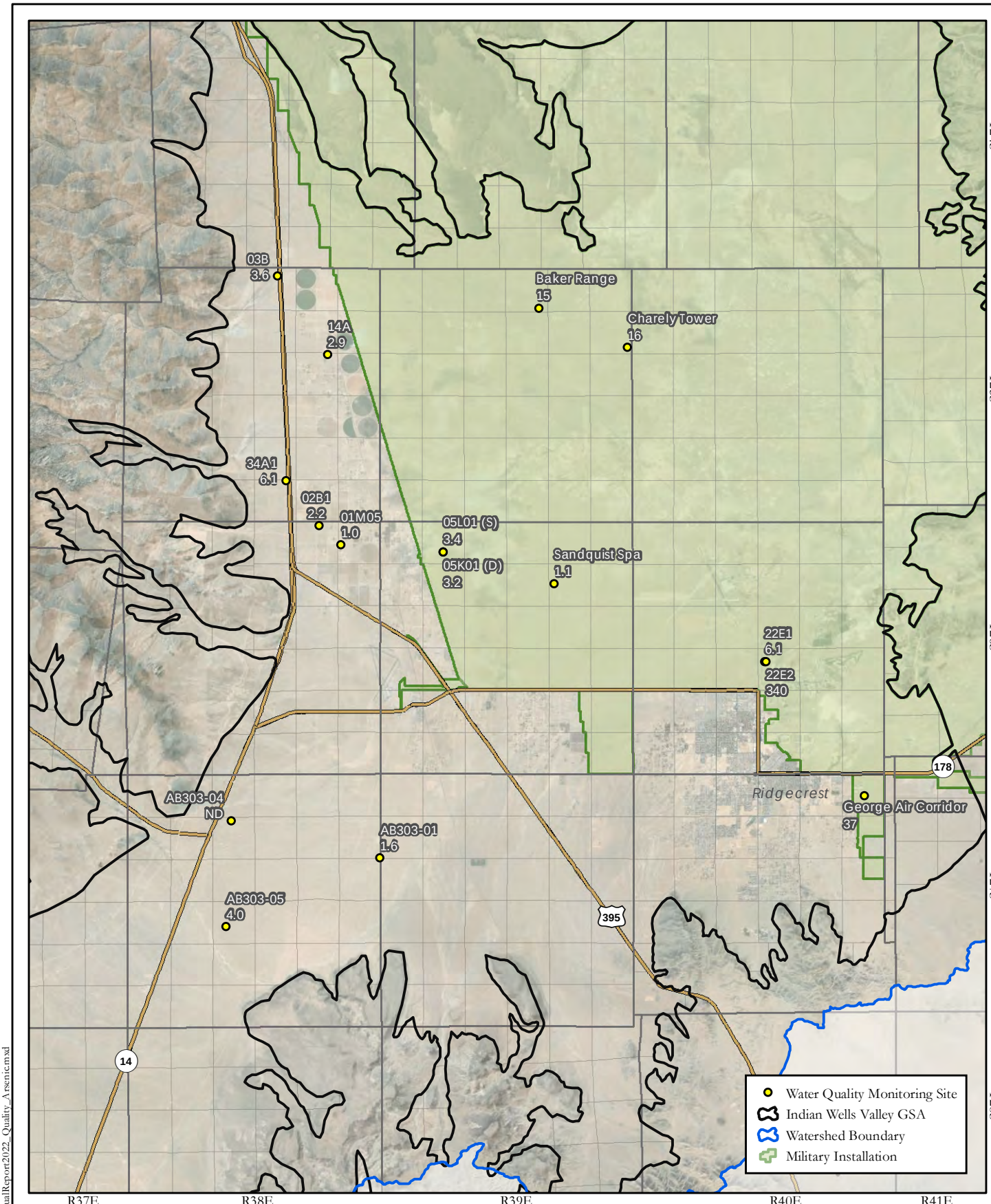

*Note: Wells with less than three TDS data points are not included in the Historical TDS Concentration graph.*

STETSON ENGINEERS INC.

**HISTORICAL TDS CONCENTRATIONS**

Indian Wells Valley Groundwater Basin

FIGURE 7-2




Document Path: J:\jn2652\AnnualReport2022_Quality_Arsenic.mxd

STETSON ENGINEERS INC.

# GROUNDWATER QUALITY - ARSENIC
## OCTOBER 2021
### INDIAN WELLS VALLEY, CA

*Arsenic concentrations are in (µg/L)*

N

0 1.5 3 Miles

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IWVGA Board Meeting
February 8, 2023

# Revised Final Draft WY 2022 GSP Annual Report

**Water Year 2022 (October 1 2021 to September 30 2022)**



1

## Background/Status

- SGMA Requirement
  - Submit annual report to DWR by April 1, reporting on the previous Water Year (WY)
- Draft Annual Report Distributed on November 18, 2022 for Review
  - Major Components:
    - Description of Progress Toward Sustainability
    - Groundwater Elevation Data
    - Groundwater Storage Data
    - Water Supply Data
- Comprehensive presentation of the draft WY 2022 Annual Report was made to the Board on December 14, 2022



2

## Comments Received on Draft Report

- 3 Comment Letters Received
  - Don Decker
  - Stan Rjtora
  - Water District Consultants
- The comments and suggestions were helpful and appreciated to improve the report.
- Each Annual Report since WY 2020 has been improved upon as more comments are incorporated.
- No comments required substantial revisions and no conclusions were altered.



3

## Summary of Revisions to Report

- Figure names and references were revised for consistency
- Figure 5-6, Figure 5-7 and Figure 6-1 were revised to address comments
- Editorial comments were incorporated in the text to improve clarity
- Minimum Thresholds were added to Tables 3-1 and 3-2
- Additional statistical data were added to Chapter 4
- Clarifications to the description of the Thiessen Polygon Method were added



4

## Summary of Revisions to Report (cont.)

- Agricultural pumping in Table 6-1 was revised due to updated data
- Section 7.1 Annual Groundwater Quality Sampling text was updated
- Attachments C, E, and F were revised to address comments



5

## Continued Tasks

- 5-Year GSP Update Tasks (present to January 2025)
  - CMP Process
    - Update the numerical model
  - Plan Updates
    - Incorporate new data collected since GSP preparation (update water budget, update model, re-evaluate any changes to groundwater conditions using sustainability indicators)
    - Incorporate Recommended Corrective Actions (RCAs) from DWR's review of GSP
    - Evaluate representative monitoring sites and sustainable management criteria
  - TAC and PAC Engagement and Input will be Critical



6

## Staff Recommendation

- Staff recommends the Board authorize the Water Resources Manager to submit the WY 2022 Annual Report to DWR.



7

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# IWVGA ADMINISTRATIVE OFFICE

***STAFF REPORT***

---

**TO:** IWVGA Board Members **DATE: February 8, 2023**

**FROM:** IWVGA Staff

**SUBJECT:** **Agenda Item 12 – Resolution 02-23 to Authorize Award of Contract to Provost and Pritchard Consulting Group for Design Services for the Imported Water Pipeline**

## BACKGROUND AND DISCUSSION

On April 28, 2022, the IWVGA was provided notice of award of $7.6 million in grant funding from the California Budget Act of 2021 Sustainable Groundwater Management Grant Program SGMA Implementation Round 1 grant solicitation (SGMA-IP). The grant funding will be primarily used for additional planning for the IWVGA's Imported Water Interconnection Project including design, environmental compliance, right-of-way acquisition, and other permitting and coordination with partnering agencies. A grant funding agreement between the IWVGA and the California Department of Water Resources (DWR) was executed on August 12, 2022. Work under the grant must be completed by March 31, 2025. The original estimated schedule for completion of the design, environmental compliance, right-of-way acquisition, and permitting extended beyond March 2025, in part due to the need for information and approvals from federal and state agencies. An inquiry is being made to DWR regarding the possibility of extending the deadline for completion of work under the grant.

In addition to the SGMA-IP Grant, Staff is expecting some of the cost of the development of Imported Water Interconnection Project to be covered by the USACE Planning Assistance to States Program.

On July 22, 2022, the Board authorized an agreement with Provost & Pritchard Consulting Group ("P&P" or "Provost & Pritchard") to perform an alignment study for the proposed imported water pipeline. Provost & Pritchard presented three initially potential alignments for the imported water pipeline at the November 9, 2022 Board meeting. A joint public meeting of the PAC and TAC was held December 6, 2022 to present screening criteria and preliminary weighting factors for committee and public discussion.

Following presentation of the results of the alternative alignment screening process at the December 14, 2022 Board meeting, the Board adopted Resolution No. 11-22 which; (1) approved the Central Alignment for further Environmental, Right-of-Way, and Design review for consideration for the Imported Water Interconnection Project and, (2) authorized the General Manager to issue Requests for Proposals for Right-of-Way Acquisition Services, Environmental Documents (NEPA/CEQA) and Permitting Services, and Conveyance System Design Services

for the Imported Water Interconnection Project.

A Request for Proposals (RFP) for Imported Water Conveyance System Design Services, was advertised online to solicit proposals from qualified firms for imported water conveyance system design services on December 19, 2022. The design services include conducting surveying, geotechnical, and utility research, developing a preliminary design report, and design of pipelines, pump stations, reservoirs, and associated facilities for the Imported Water Interconnection Project.

On January 4, 2023, the IWVGA hosted a pre-proposal meeting where interested parties were presented information on the RFP's purpose, the scope of work, and the schedule. The IWVGA received questions regarding the RFP and posted responses to the questions on the IWVGA's website as Addendum 1 to the RFP. Staff responded to all Pre-Proposal Questions from Respondents by January 16, 2023. On January 25, 2023, the IWVGA received proposals from Provost & Pritchard Consulting Group and Tetra Tech. A staff review committee met via conference call on January 30, 2023 to discuss the proposals. The committee agreed the proposal that best addressed the RFP was submitted by Provost & Pritchard Consulting Group.

Provost & Pritchard Consulting Group's proposal has a total budget of $6,440,000.00. A Contract Services Agreement by and between the IWVGA and Provost & Prichard Consulting Group has been prepared and is included in your Board packet.

Also included on the Board meeting agenda today are Agenda Item 14 for the Board to consider the adoption of Resolution No. 04-23 to Authorize Award of Contract for CEQA/NEPA Documents and Permit Documentation Services for the Imported Water Pipeline and Agenda Item 13 for the Board to consider the adoption of Resolution No. 03-23 to Authorize Award of Contract for Right-of-Way and Parcel Acquisition Services for the Imported Water Pipeline. The sum of the Not-to-Exceed amounts included in the Contract Services Agreements is $7,867,312.00, which exceeds the $7.6 million available from the SGMA-IP Grant. As mentioned above, Staff is expecting some of the cost of the development of Imported Water Interconnection Project to be covered by the USACE Planning Assistance to States Program. The IWVGA is also continuing to look for additional funding opportunities. The contracts will be administered on a task-order basis. Staff will determine whether sufficient funds are available before issuing each task order.

## ACTION(S) REQUIRED BY THE BOARD

Staff recommends the Board adopt the attached Resolution No. 02-23 to Authorize Award of Contract, subject to approval as to form by legal counsel, to Provost and Pritchard Consulting Group for Design Services for the Imported Water Pipeline

**BEFORE THE BOARD OF DIRECTORS OF THE INDIAN WELLS VALLEY GROUNDWATER AUTHORITY**

**In the matter of:** **Resolution No. 02-23**

**AWARD OF CONTRACT TO PROVOST AND PRITCHARD CONSULTING GROUP FOR DESIGN SERVICES FOR THE IMPORTED WATER PIPELINE**

**I, _____, Clerk of the Board of Directors for the Indian Wells Valley Groundwater Authority, do certify that the following resolution, on motion of Director _____, seconded by Director _____, was duly passed and adopted by the Board of Directors at an official meeting this ____ day of _____, 2023, by the following vote:**

**AYES:**

**NOES:**

**ABSENT:**

_____
Clerk of the Board of Directors
Indian Wells Valley Groundwater Authority

**THE BOARD OF DIRECTORS OF INDIAN WELLS VALLEY GROUNDWATER AUTHORITY RESOLVES AS FOLLOWS:**

Section 1. **WHEREAS:**

(a) The Authority was awarded $7.6 million in grant funding from the California Budget Act of 2021 Sustainable Groundwater Management Grant Program SGMA Implementation Round 1 grant solicitation (SGMA-IP) for additional planning for the Authority's imported water interconnection project (Project).

(b) All work under the SGMA-IP grant must be completed by March 31, 2025.

(c) On December 14, 2022, the Board adopted Resolution 11-22 which; (1) approved the Central Alignment for further Environmental, Right-of-Way, and Design review for consideration for the Imported Water Interconnection Project and, (2) authorized the General Manager to issue Requests for Proposals for Right-of-Way Acquisition Services, Environmental Documents (NEPA/CEQA) and Permitting Services, and Conveyance System Design Services for the Imported Water Interconnection Project.

(d) A Request for Proposals (RFP) for Imported Water Conveyance System Design Services was advertised online to solicit proposals from qualified firms for imported water conveyance system design services on December 19, 2022.

(e) On January 25, 2023, the IWVGA received proposals from Provost & Pritchard Consulting Group and Tetra Tech. A staff review committee met via conference call on January 30, 2023 to discuss the proposals. The committee agreed the proposal that best addressed the RFP was submitted by Provost & Pritchard Consulting Group.

Section 2. **THEREFORE IT IS RESOLVED** by the Board of Directors of the Indian Wells Valley Groundwater Authority, as follows:

1. This Board finds that recited facts are true and that it has the jurisdiction to consider, approve, and adopt this Resolution.

2. The General Manager or his/her designee is authorized to execute a contract services agreement with Provost & Pritchard Consulting Group for design services in the form approved by the General Counsel and in an amount not to exceed $6,440,000.

**PASSED, APPROVED, AND ADOPTED**, by the Indian Wells Valley Groundwater Authority this ____ day of _____, 2023.

SIGNED:

_____
President of the Board of Directors

ATTEST:

_____

# CONTRACT SERVICES AGREEMENT

**By and Between**

**Indian Wells Valley Groundwater Authority**

**and**

**Provost and Pritchard Consulting Group**

**for Imported Water Conveyance Design Services**

**AGREEMENT FOR CONTRACT SERVICES**
**BETWEEN THE INDIAN WELLS VALLEY GROUNDWATER AUTHORITY**

**AND**

**PROVOST AND PRITCHARD CONSULTING GROUP**

**FOR IMPORTED WATER CONVEYANCE DESIGN SERVICES**

THIS AGREEMENT FOR CONTRACT SERVICES (herein "Agreement") is made and entered into this ____ day of _____, 2023 by and between the Indian Wells Valley Groundwater Authority, ("Authority") and Provost and Pritchard Consulting Group ("Contractor"). Authority and Contractor may be referred to, individually or collectively, as "Party" or "Parties."

## RECITALS

A. Whereas, The Authority has recently secured a SGMA-Implementation grant funding opportunity through DWR for planning and design-level activities intended to bring new imported water supplies into the Basin. ;

B. Whereas, on December 19, 2022 the Authority released a Request for Proposals ("RFP") for design services for an imported water conveyance system.

C. Whereas, Contractor responded to the RFP and Authority and Contractor desire to enter into this Agreement for the completion of design services.

## OPERATIVE PROVISIONS

NOW, THEREFORE, in consideration of the mutual promises and covenants made by the Parties and contained herein and other consideration, the value and adequacy of which are hereby acknowledged, the parties agree as follows:

### ARTICLE 1. SERVICES OF CONTRACTOR/CONSULTANT

#### 1.1 Scope of Services.

In compliance with all terms and conditions of this Agreement, the Contractor shall provide those services specified in the "Scope of Work" in its proposal or bid, which shall be incorporated herein by this reference as though fully set forth herein as Exhibit "A," which may be referred to herein as the "services" or "work" hereunder. In the event of any inconsistency between the terms of such proposal and this Agreement, the terms of this Agreement shall govern. As a material inducement to the Authority entering into this Agreement, Contractor represents and warrants that it has the qualifications, experience, and facilities necessary to properly perform the services required under this Agreement in a thorough, competent, and professional manner, and is experienced in performing the work and services contemplated herein. Contractor shall at all times faithfully, competently and to the best of its ability, experience and talent, perform all services described herein. Contractor covenants that it shall

follow the highest professional standards in performing the work and services required hereunder and that all materials will be both of good quality as well as fit for the purpose intended. For purposes of this Agreement, the phrase "highest professional standards" shall mean those standards of practice recognized by one or more first-class firms performing similar work under similar circumstances.

### 1.2 Compliance with Law.

Contractor shall keep itself informed concerning, and shall render all services hereunder in accordance with, all ordinances, resolutions, statutes, rules, and regulations of the Authority and any Federal, State or local governmental entity having jurisdiction in effect at the time service is rendered.

### 1.3 Licenses, Permits, Fees and Assessments.

Contractor shall obtain at its sole cost and expense such licenses, permits and approvals as may be required by law for the performance of the services required by this Agreement. Contractor shall have the sole obligation to pay for any fees, assessments and taxes, plus applicable penalties and interest, which may be imposed by law and arise from or are necessary for the Contractor's performance of the services required by this Agreement, and shall indemnify, defend and hold harmless Authority, its officers, employees or agents of Authority, against any such fees, assessments, taxes, penalties or interest levied, assessed or imposed against Authority hereunder.

### 1.4 Familiarity with Work.

By executing this Agreement, Contractor warrants that Contractor (i) has thoroughly investigated and considered the scope of services to be performed, (ii) has carefully considered how the services should be performed, and (iii) fully understands the facilities, difficulties and restrictions attending performance of the services under this Agreement. If the services involve work upon any site, Contractor warrants that Contractor has or will investigate the site and is or will be fully acquainted with the conditions there existing, prior to commencement of services hereunder. Should the Contractor discover any latent or unknown conditions, which will materially affect the performance of the services hereunder, Contractor shall immediately inform the Authority of such fact and shall not proceed except at Contractor's risk until written instructions are received from the Water Resource Manager.

### 1.5 Care of Work.

The Contractor shall adopt reasonable methods during the life of the Agreement to furnish continuous protection to the work, and the equipment, materials, papers, documents, plans, studies and/or other components thereof to prevent losses or damages, and shall be responsible for all such damages, to persons or property, until acceptance of the work by Authority, except such losses or damages as may be caused by Authority's own negligence.

### 1.6 Further Responsibilities of Parties.

Both parties agree to use reasonable care and diligence to perform their respective obligations under this Agreement. Both parties agree to act in good faith to execute all instruments, prepare all documents and take all actions as may be reasonably necessary to carry out the purposes of this Agreement. Unless hereafter specified, neither party shall be responsible for the service of the other.

## ARTICLE 2. COMPENSATION AND METHOD OF PAYMENT.

### 2.1 Contract Sum.

Subject to any limitations set forth in this Agreement, Authority agrees to pay Contractor the amounts specified in the "Fee Structure and Schedule" included in Exhibit "A" and incorporated herein by this reference. The total compensation, including reimbursement for actual expenses, shall not exceed Six Million, Four Hundred and Forty Thousand Dollars ($6,440,000.00) (the "Contract Sum").

### 2.2 Method of Compensation.

The method of compensation may include: (i) a lump sum payment upon completion; (ii) payment in accordance with specified tasks or the percentage of completion of the services, less contract retention; (iii) payment for time and materials based upon the Contractor's rates as specified in the Schedule of Compensation, provided that (a) time estimates are provided for the performance of sub tasks, (b) contract retention is maintained, and (c) the Contract Sum is not exceeded; or (iv) such other methods as may be specified in the Schedule of Compensation.

### 2.3 Reimbursable Expenses.

Compensation may include reimbursement for actual and necessary expenditures for reproduction costs, telephone expenses, and travel expenses approved by the Water Resource Manager in advance, or actual subcontractor expenses of an approved subcontractor pursuant to Section 4.5, and only if specified in the Schedule of Compensation. The Contract Sum shall include the attendance of Contractor at all project meetings reasonably deemed necessary by the Authority. Coordination of the performance of the work with Authority is a critical component of the services. If Contractor is required to attend additional meetings to facilitate such coordination, Contractor shall not be entitled to any additional compensation for attending said meetings.

### 2.4 Invoices.

Each month Contractor shall furnish to Authority an original invoice for all work performed and expenses incurred during the preceding month in a form approved by Authority. By submitting an invoice for payment under this Agreement, Contractor is certifying compliance with all provisions of the Agreement. The invoice shall contain all information specified in Exhibit "B", and shall detail charges for all necessary and actual expenses by the following categories: labor (by sub-category), travel, materials, equipment, supplies, and sub-contractor

contracts. Sub-contractor charges shall also be detailed by such categories. Contractor shall not invoice Authority for any duplicate services performed by more than one person.

Authority shall independently review each invoice submitted by the Contractor to determine whether the work performed and expenses incurred are in compliance with the provisions of this Agreement. Except as to any charges for work performed or expenses incurred by Contractor which are disputed by Authority, or as provided in Section 7.3, Authority will use its best efforts to cause Contractor to be paid within forty-five (45) days of receipt of Contractor's correct and undisputed invoice; however, Contractor acknowledges and agrees that due to Authority warrant run procedures, the Authority cannot guarantee that payment will occur within this time period. In the event any charges or expenses are disputed by Authority, the original invoice shall be returned by Authority to Contractor for correction and resubmission. Review and payment by Authority for any invoice provided by the Contractor shall not constitute a waiver of any rights or remedies provided herein or any applicable law.

### 2.5 Waiver.

Payment to Contractor for work performed pursuant to this Agreement shall not be deemed to waive any defects in work performed by Contractor.

## ARTICLE 3. PERFORMANCE SCHEDULE

### 3.1 Time of Essence.

Time is of the essence in the performance of this Agreement.

### 3.2 Schedule of Performance.

Contractor shall commence the services pursuant to this Agreement upon receipt of a written notice to proceed and shall perform all services within the time period(s) established in the "Schedule" included in Exhibit "A" and incorporated herein by this reference. When requested by the Contractor, extensions to the time period(s) specified in the Schedule may be approved in writing by the Water Resource Manager but not exceeding one hundred eighty (180) days cumulatively.

### 3.3 Force Majeure.

The time period(s) specified in the Schedule of Performance for performance of the services rendered pursuant to this Agreement shall be extended because of any delays due to unforeseeable causes beyond the control and without the fault or negligence of the Contractor, including, but not restricted to, acts of God or of the public enemy, unusually severe weather, fires, earthquakes, floods, epidemics, quarantine restrictions, riots, strikes, freight embargoes, wars, litigation, and/or acts of any governmental agency, including the Authority, if the Contractor shall within ten (10) days of the commencement of such delay notify the Water Resource Manager in writing of the causes of the delay. The Water Resource Manager shall ascertain the facts and the extent of delay, and extend the time for performing the services for the period of the enforced delay when and if in the judgment of the Water Resource Manager such

delay is justified. The Water Resource Manager's determination shall be final and conclusive upon the parties to this Agreement. In no event shall Contractor be entitled to recover damages against the Authority for any delay in the performance of this Agreement, however caused, Contractor's sole remedy being extension of the Agreement pursuant to this Section.

### 3.4 Term.

Unless earlier terminated in accordance with Article 7 of this Agreement, this Agreement shall continue in full force and effect until completion of the services but not exceeding one (1) year from the date hereof, except as otherwise provided in the Schedule (Exhibit "A").

## ARTICLE 4. COORDINATION OF WORK

### 4.1 Representatives and Personnel of Contractor.

The following principals of Contractor ("Principals") are hereby designated as being the principals and representatives of Contractor authorized to act in its behalf with respect to the work specified herein and make all decisions in connection therewith:

| | |
|---|---|
| Jeff Eklund, P.E. | Principal In Charge |
| Jeff Davis, P.E. | Project Manager |
| Mike McGovern, P.E. | Project Engineer – Pipeline |
| Joseph Long, P.E. | Project Engineer – Pump Stations |

It is expressly understood that the experience, knowledge, capability and reputation of the foregoing principals were a substantial inducement for Authority to enter into this Agreement. Therefore, the foregoing principals shall be responsible during the term of this Agreement for directing all activities of Contractor and devoting sufficient time to personally supervise the services hereunder. All personnel of Contractor, and any authorized agents, shall at all times be under the exclusive direction and control of the Principals. For purposes of this Agreement, the foregoing Principals may not be replaced nor may their responsibilities be substantially reduced by Contractor without the express written approval of Authority. Additionally, Contractor shall utilize only competent personnel to perform services pursuant to this Agreement. Contractor shall make every reasonable effort to maintain the stability and continuity of Contractor's staff and subcontractors, if any, assigned to perform the services required under this Agreement. Contractor shall notify Authority of any changes in Contractor's staff and subcontractors, if any, assigned to perform the services required under this Agreement, prior to and during any such performance.

### 4.2 Status of Contractor.

Contractor shall have no authority to bind Authority in any manner, or to incur any obligation, debt or liability of any kind on behalf of or against Authority, whether by contract or otherwise, unless such authority is expressly conferred under this Agreement or is otherwise

expressly conferred in writing by Authority. Contractor shall not at any time or in any manner represent that Contractor or any of Contractor's officers, employees, or agents are in any manner officials, officers, employees or agents of Authority. Neither Contractor, nor any of Contractor's officers, employees or agents, shall obtain any rights to retirement, health care or any other benefits which may otherwise accrue to Authority's employees. Contractor expressly waives any claim Contractor may have to any such rights.

### 4.3 Water Resource Manager.

The Water Resource Manager shall be such person as may be designated by the Authority. It shall be the Contractor's responsibility to assure that the Water Resource Manager is kept informed of the progress of the performance of the services and the Contractor shall refer any decisions which must be made by Authority to the Water Resource Manager. Unless otherwise specified herein, any approval of Authority required hereunder shall mean the approval of the Water Resource Manager. The Water Resource Manager shall have authority, if specified in writing by the Authority Manager, to sign all documents on behalf of the Authority required hereunder to carry out the terms of this Agreement.

### 4.4 Independent Contractor.

Neither the Authority nor any of its employees shall have any control over the manner, mode or means by which Contractor, its agents or employees, perform the services required herein, except as otherwise set forth herein. Authority shall have no voice in the selection, discharge, supervision or control of Contractor's employees, servants, representatives or agents, or in fixing their number, compensation or hours of service. Contractor shall perform all services required herein as an independent contractor of Authority and shall remain at all times as to Authority a wholly independent contractor with only such obligations as are consistent with that role. Contractor shall not at any time or in any manner represent that it or any of its agents or employees are agents or employees of Authority. Authority shall not in any way or for any purpose become or be deemed to be a partner of Contractor in its business or otherwise or a joint venturer or a member of any joint enterprise with Contractor.

### 4.5 Prohibition Against Subcontracting or Assignment.

The experience, knowledge, capability and reputation of Contractor, its principals and employees were a substantial inducement for the Authority to enter into this Agreement. Therefore, Contractor shall not contract with any other entity to perform in whole or in part the services required hereunder without the express written approval of the Authority. In addition, neither this Agreement nor any interest herein may be transferred, assigned, conveyed, hypothecated or encumbered voluntarily or by operation of law, whether for the benefit of creditors or otherwise, without the prior written approval of Authority. Transfers restricted hereunder shall include the transfer to any person or group of persons acting in concert of more than twenty five percent (25%) of the present ownership and/or control of Contractor, taking all transfers into account on a cumulative basis. In the event of any such unapproved transfer, including any bankruptcy proceeding, this Agreement shall be void. No approved transfer shall release the Contractor or any surety of Contractor of any liability hereunder without the express consent of Authority.

## ARTICLE 5. INSURANCE AND INDEMNIFICATION

### 5.1 Insurance Coverages.

Without limiting Contractor's indemnification of Authority, and prior to commencement of any services under this Agreement, Contractor shall obtain, provide and maintain at its own expense during the term of this Agreement, policies of insurance of the type and amounts described below and in a form satisfactory to Authority.

(a) General liability insurance. Contractor shall maintain commercial general liability insurance with coverage at least as broad as Insurance Services Office form CG 00 01, in an amount not less than $2,000,000 per occurrence, $4,000,000 general aggregate, for bodily injury, personal injury, and property damage. The policy must include contractual liability that has not been amended. Any endorsement restricting standard ISO "insured contract" language will not be accepted.

(b) Automobile liability insurance. Contractor shall maintain automobile insurance at least as broad as Insurance Services Office form CA 00 01 covering bodily injury and property damage for all activities of the Contractor arising out of or in connection with Services to be performed under this Agreement, including coverage for any owned, hired, non-owned or rented vehicles, in an amount not less than $1,000,000 combined single limit for each accident.

(c) Professional liability (errors & omissions) insurance. Contractor shall maintain professional liability insurance that covers the Services to be performed in connection with this Agreement, in the minimum amount of $1,000,000 per claim and in the aggregate. Any policy inception date, continuity date, or retroactive date must be before the effective date of this Agreement and Contractor agrees to maintain continuous coverage through a period no less than three (3) years after completion of the services required by this Agreement.

(d) Workers' compensation insurance. Contractor shall maintain Workers' Compensation Insurance (Statutory Limits) and Employer's Liability Insurance (with limits of at least $1,000,000).

(e) Subcontractors. Contractor shall include all subcontractors as insureds under its policies or shall furnish separate certificates and certified endorsements for each subcontractor. All coverages for subcontractors shall include all of the requirements stated herein.

### 5.2 General Insurance Requirements.

(a) Proof of insurance. Contractor shall provide certificates of insurance to Authority as evidence of the insurance coverage required herein, along with a waiver of subrogation endorsement for workers' compensation. Insurance certificates and endorsements must be approved by the Authority prior to commencement of performance. Current certification of insurance shall be kept on file with Authority at all times during the term of this Agreement.

Authority reserves the right to require complete, certified copies of all required insurance policies, at any time.

(b) Duration of coverage. Contractor shall procure and maintain for the duration of this Agreement insurance against claims for injuries to persons or damages to property, which may arise from or in connection with the performance of the Services hereunder by Contractor, its agents, representatives, employees or subcontractors.

(c) Primary/noncontributing. Coverage provided by Contractor shall be primary and any insurance or self-insurance procured or maintained by Authority shall not be required to contribute with it. The limits of insurance required herein may be satisfied by a combination of primary and umbrella or excess insurance. Any umbrella or excess insurance shall contain or be endorsed to contain a provision that such coverage shall also apply on a primary and non-contributory basis for the benefit of Authority before the Authority's own insurance or self-insurance shall be called upon to protect it as a named insured.

(d) Authority's rights of enforcement. In the event any policy of insurance required under this Agreement does not comply with these specifications or is canceled and not replaced, Authority has the right but not the duty to obtain the insurance it deems necessary and any premium paid by Authority will be promptly reimbursed by Contractor or Authority will withhold amounts sufficient to pay premium from Contractor payments. In the alternative, Authority may cancel this Agreement.

(e) Acceptable insurers. All insurance policies shall be issued by an insurance company currently authorized by the Insurance Commissioner to transact business of insurance or that is on the List of Approved Surplus Line Insurers in the State of California, with an assigned policyholders' Rating of A- (or higher) and Financial Size Category Class VI (or larger) in accordance with the latest edition of Best's Key Rating Guide, unless otherwise approved by the Authority.

(f) Waiver of subrogation. All insurance coverage maintained or procured pursuant to this agreement shall be endorsed to waive subrogation against Authority, its member agencies, elected or appointed officers, agents, officials, employees and volunteers or shall specifically allow Contractor or others providing insurance evidence in compliance with these specifications to waive their right of recovery prior to a loss. Contractor hereby waives its own right of recovery against Authority, and shall require similar written express waivers and insurance clauses from each of its subcontractors.

(g) Enforcement of contract provisions (non-estoppel). Contractor acknowledges and agrees that any actual or alleged failure on the part of the Authority to inform Contractor of non-compliance with any requirement imposes no additional obligations on the Authority nor does it waive any rights hereunder.

(h) Requirements not limiting. Requirements of specific coverage features or limits contained in this section are not intended as a limitation on coverage, limits or other requirements, or a waiver of any coverage normally provided by any insurance. Specific reference to a given coverage feature is for purposes of clarification only as it pertains to a given

issue and is not intended by any party or insured to be all inclusive, or to the exclusion of other coverage, or a waiver of any type. If the Contractor maintains higher limits than the minimums shown above, the Authority requires and shall be entitled to coverage for the higher limits maintained by the Contractor. Any available insurance proceeds in excess of the specified minimum limits of insurance and coverage shall be available to the Authority.

(i) Notice of cancellation. Contractor agrees to oblige its insurance agent or broker and insurers to provide to Authority with a thirty (30) day notice of cancellation (except for nonpayment for which a ten (10) day notice is required) or nonrenewal of coverage for each required coverage.

(j) Additional insured status. General liability policies shall provide or be endorsed to provide that Authority and its officers, officials, employees, and agents, and volunteers shall be additional insureds under such policies. This provision shall also apply to any excess/umbrella liability policies.

(k) Prohibition of undisclosed coverage limitations. None of the coverages required herein will be in compliance with these requirements if they include any limiting endorsement of any kind that has not been first submitted to Authority and approved of in writing.

(l) Separation of insureds. A severability of interests provision must apply for all additional insureds ensuring that Contractor's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the insurer's limits of liability. The policy(ies) shall not contain any cross-liability exclusions.

(m) Pass through clause. Contractor agrees to ensure that its subcontractors, subcontractors, and any other party involved with the project who is brought onto or involved in the project by Contractor, provide the same minimum insurance coverage and endorsements required of Contractor. Contractor agrees to monitor and review all such coverage and assumes all responsibility for ensuring that such coverage is provided in conformity with the requirements of this section. Contractor agrees that upon request, all agreements with Contractors, subcontractors, and others engaged in the project will be submitted to Authority for review.

(n) Authority's right to revise specifications. The Authority reserves the right at any time during the term of the contract to change the amounts and types of insurance required by giving the Contractor ninety (90) days advance written notice of such change. If such change results in substantial additional cost to the Contractor, the Authority and Contractor may renegotiate Contractor's compensation.

(o) Self-insured retentions. Any self-insured retentions must be declared to and approved by Authority. Authority reserves the right to require that self-insured retentions be eliminated, lowered, or replaced by a deductible. Self-insurance will not be considered to comply with these specifications unless approved by Authority.

(p) Timely notice of claims. Contractor shall give Authority prompt and timely notice of claims made or suits instituted that arise out of or result from Contractor's

performance under this Agreement, and that involve or may involve coverage under any of the required liability policies.

(q) Additional insurance. Contractor shall also procure and maintain, at its own cost and expense, any additional kinds of insurance, which in its own judgment may be necessary for its proper protection and prosecution of the work.

**5.3 Indemnification.**

To the full extent permitted by law, Contractor agrees to indemnify, defend and hold harmless the Authority, its member agencies, its officers, employees and agents ("Indemnified Parties") against, and will hold and save them and each of them harmless from, any and all actions, either judicial, administrative, arbitration or regulatory claims, damages to persons or property, losses, costs, penalties, obligations, errors, omissions or liabilities whether actual or threatened (herein "claims or liabilities") that may be asserted or claimed by any person, firm or entity arising out of or in connection with the negligent performance of the work, operations or activities provided herein of Contractor, its officers, employees, agents, subcontractors, or invitees, or any individual or entity for which Contractor is legally liable ("indemnitors"), or arising from Contractor's or indemnitors' reckless or willful misconduct, or arising from Contractor's or indemnitors' negligent performance of or failure to perform any term, provision, covenant or condition of this Agreement, and in connection therewith:

(a) Contractor will defend any action or actions filed in connection with any of said claims or liabilities and will pay all costs and expenses, including legal costs and attorneys' fees incurred in connection therewith;

(b) Contractor will promptly pay any judgment rendered against the Authority, its officers, agents or employees for any such claims or liabilities arising out of or in connection with the negligent performance of or failure to perform such work, operations or activities of Contractor hereunder; and Contractor agrees to save and hold the Authority, its officers, agents, and employees harmless therefrom;

(c) In the event the Authority, its officers, agents or employees is made a party to any action or proceeding filed or prosecuted against Contractor for such damages or other claims arising out of or in connection with the negligent performance of or failure to perform the work, operation or activities of Contractor hereunder, Contractor agrees to pay to the Authority, its member agencies, its officers, agents or employees, any and all costs and expenses incurred by the Authority, its officers, agents or employees in such action or proceeding, including but not limited to, legal costs and attorneys' fees.

Contractor shall incorporate similar indemnity agreements with its subcontractors and if it fails to do so Contractor shall be fully responsible to indemnify Authority hereunder therefore, and failure of Authority to monitor compliance with these provisions shall not be a waiver hereof. This indemnification includes claims or liabilities arising from any negligent or wrongful act, error or omission, or reckless or willful misconduct of Contractor in the performance of professional services hereunder. The provisions of this Section do not apply to claims or

liabilities occurring as a result of Authority's sole negligence or willful acts or omissions, but, to the fullest extent permitted by law, shall apply to claims and liabilities resulting in part from Authority's negligence, except that design professionals' indemnity hereunder shall be limited to claims and liabilities arising out of the negligence, recklessness or willful misconduct of the design professional. The indemnity obligation shall be binding on successors and assigns of Contractor and shall survive termination of this Agreement.

## ARTICLE 6. RECORDS, REPORTS, AND RELEASE OF INFORMATION

### 6.1 Records.

Contractor shall keep, and require subcontractors to keep, such ledgers, books of accounts, invoices, vouchers, canceled checks, reports, studies or other documents relating to the disbursements charged to Authority and services performed hereunder (the "books and records"), as shall be necessary to perform the services required by this Agreement and enable the Water Resource Manager to evaluate the performance of such services. Any and all such documents shall be maintained in accordance with generally accepted accounting principles and shall be complete and detailed. The Water Resource Manager shall have full and free access to such books and records at all times during normal business hours of Authority, including the right to inspect, copy, audit and make records and transcripts from such records. Such records shall be maintained for a period of three (3) years following completion of the services hereunder, and the Authority shall have access to such records in the event any audit is required. In the event of dissolution of Contractor's business, custody of the books and records may be given to Authority, and access shall be provided by Contractor's successor in interest. Notwithstanding the above, the Contractor shall fully cooperate with the Authority in providing access to the books and records if a public records request is made and disclosure is required by law including but not limited to the California Public Records Act.

### 6.2 Reports.

Contractor shall periodically prepare and submit to the Water Resource Manager such reports concerning the performance of the services required by this Agreement as the Water Resource Manager shall require. Contractor hereby acknowledges that the Authority is greatly concerned about the cost of work and services to be performed pursuant to this Agreement. For this reason, Contractor agrees that if Contractor becomes aware of any facts, circumstances, techniques, or events that may or will materially increase or decrease the cost of the work or services contemplated herein or, if Contractor is providing design services, the cost of the project being designed, Contractor shall promptly notify the Water Resource Manager of said fact, circumstance, technique or event and the estimated increased or decreased cost related thereto and, if Contractor is providing design services, the estimated increased or decreased cost estimate for the project being designed.

### 6.3 Ownership of Documents.

All drawings, specifications, maps, designs, photographs, studies, surveys, data, notes, computer files, reports, records, documents and other materials (the "documents and materials") prepared by Contractor, its employees, subcontractors and agents in the performance of this

Agreement shall be the property of Authority and shall be delivered to Authority upon request of the Water Resource Manager or upon the termination of this Agreement, and Contractor shall have no claim for further employment or additional compensation as a result of the exercise by Authority of its full rights of ownership use, reuse, or assignment of the documents and materials hereunder. Any use, reuse or assignment of such completed documents for other projects and/or use of uncompleted documents without specific written authorization by the Contractor will be at the Authority's sole risk and without liability to Contractor, and Contractor's guarantee and warranties shall not extend to such use, reuse or assignment. Contractor may retain copies of such documents for its own use. Contractor shall have the right to use the concepts embodied therein. All subcontractors shall provide for assignment to Authority of any documents or materials prepared by them, and in the event Contractor fails to secure such assignment, Contractor shall indemnify Authority for all damages resulting therefrom. Moreover, Contractor with respect to any documents and materials that may qualify as "works made for hire" as defined in 17 U.S.C. § 101, such documents and materials are hereby deemed "works made for hire" for the Authority.

**6.4 Confidentiality and Release of Information.**

(a) All information gained or work product produced by Contractor in performance of this Agreement shall be considered confidential, unless such information is in the public domain or already known to Contractor. Contractor shall not release or disclose any such information or work product to persons or entities other than Authority without prior written authorization from the Water Resource Manager.

(b) Contractor, its officers, employees, agents or subcontractors, shall not, without prior written authorization from the Water Resource Manager or unless requested by the Authority Attorney, voluntarily provide documents, declarations, letters of support, testimony at depositions, response to interrogatories or other information concerning the work performed under this Agreement. Response to a subpoena or court order shall not be considered "voluntary" provided Contractor gives Authority notice of such court order or subpoena.

(c) If Contractor, or any officer, employee, agent or subcontractor of Contractor, provides any information or work product in violation of this Agreement, then Authority shall have the right to reimbursement and indemnity from Contractor for any damages, costs and fees, including attorney's fees, caused by or incurred as a result of Contractor's conduct.

(d) Contractor shall promptly notify Authority should Contractor, its officers, employees, agents or subcontractors be served with any summons, complaint, subpoena, notice of deposition, request for documents, interrogatories, request for admissions or other discovery request, court order or subpoena from any party regarding this Agreement and the work performed there under. Authority retains the right, but has no obligation, to represent Contractor or be present at any deposition, hearing or similar proceeding. Contractor agrees to cooperate fully with Authority and to provide Authority with the opportunity to review any response to discovery requests provided by Contractor. However, this right to review any such response does not imply or mean the right by Authority to control, direct, or rewrite said response.

## ARTICLE 7. ENFORCEMENT OF AGREEMENT AND TERMINATION

### 7.1 California Law.

This Agreement shall be interpreted, construed and governed both as to validity and to performance of the parties in accordance with the laws of the State of California. Legal actions concerning any dispute, claim or matter arising out of or in relation to this Agreement shall be instituted in the Superior Court of the County of Kern, State of California, or any other appropriate court in such county, and Contractor covenants and agrees to submit to the personal jurisdiction of such court in the event of such action. In the event of litigation in a U.S. District Court, venue shall lie exclusively in the Eastern District of California, in the City of Fresno, State of California.

### 7.2 Disputes; Default.

In the event that Contractor is in default under the terms of this Agreement, the Authority shall not have any obligation or duty to continue compensating Contractor for any work performed after the date of default. Instead, the Authority may give notice to Contractor of the default and the reasons for the default. The notice shall include the timeframe in which Contractor may cure the default. This timeframe is presumptively thirty (30) days, but may be extended, though not reduced, if circumstances warrant. During the period of time that Contractor is in default, the Authority shall hold all invoices and shall, when the default is cured, proceed with payment on the invoices. In the alternative, the Authority may, in its sole discretion, elect to pay some or all of the outstanding invoices during the period of default. If Contractor does not cure the default, the Authority may take necessary steps to terminate this Agreement under this Article. Any failure on the part of the Authority to give notice of the Contractor's default shall not be deemed to result in a waiver of the Authority's legal rights or any rights arising out of any provision of this Agreement.

### 7.3 Retention of Funds.

Contractor hereby authorizes Authority to deduct from any amount payable to Contractor (whether or not arising out of this Agreement) (i) any amounts the payment of which may be in dispute hereunder or which are necessary to compensate Authority for any losses, costs, liabilities, or damages suffered by Authority, and (ii) all amounts for which Authority may be liable to third parties, by reason of Contractor's acts or omissions in performing or failing to perform Contractor's obligation under this Agreement. In the event that any claim is made by a third party, the amount or validity of which is disputed by Contractor, or any indebtedness shall exist which shall appear to be the basis for a claim of lien, Authority may withhold from any payment due, without liability for interest because of such withholding, an amount sufficient to cover such claim. The failure of Authority to exercise such right to deduct or to withhold shall not, however, affect the obligations of the Contractor to insure, indemnify, and protect Authority as elsewhere provided herein.

### 7.4 Waiver.

Waiver by any party to this Agreement of any term, condition, or covenant of this Agreement shall not constitute a waiver of any other term, condition, or covenant. Waiver by any party of any breach of the provisions of this Agreement shall not constitute a waiver of any other provision or a waiver of any subsequent breach or violation of any provision of this Agreement. Acceptance by Authority of any work or services by Contractor shall not constitute a waiver of any of the provisions of this Agreement. No delay or omission in the exercise of any right or remedy by a non-defaulting party on any default shall impair such right or remedy or be construed as a waiver. Any waiver by either party of any default must be in writing and shall not be a waiver of any other default concerning the same or any other provision of this Agreement.

### 7.5 Rights and Remedies are Cumulative.

Except with respect to rights and remedies expressly declared to be exclusive in this Agreement, the rights and remedies of the parties are cumulative and the exercise by either party of one or more of such rights or remedies shall not preclude the exercise by it, at the same or different times, of any other rights or remedies for the same default or any other default by the other party.

### 7.6 Legal Action.

In addition to any other rights or remedies, either party may take legal action, in law or in equity, to cure, correct or remedy any default, to recover damages for any default, to compel specific performance of this Agreement, to obtain declaratory or injunctive relief, or to obtain any other remedy consistent with the purposes of this Agreement. Notwithstanding any contrary provision herein, Contractor shall file a statutory claim pursuant to Government Code Sections 905 et seq. and 910 et seq., in order to pursue a legal action under this Agreement.

### 7.7 Termination Prior to Expiration of Term.

This Section shall govern any termination of this Contract except as specifically provided in the following Section for termination for cause. The Authority reserves the right to terminate this Contract at any time, with or without cause, upon thirty (30) days' written notice to Contractor, except that where termination is due to the fault of the Contractor, the period of notice may be such shorter time as may be determined by the Water Resource Manager. In addition, the Contractor reserves the right to terminate this Contract at any time, with or without cause, upon sixty (60) days' written notice to Authority, except that where termination is due to the fault of the Authority, the period of notice may be such shorter time as the Contractor may determine. Upon receipt of any notice of termination, Contractor shall immediately cease all services hereunder except such as may be specifically approved by the Water Resource Manager. Except where the Contractor has initiated termination, the Contractor shall be entitled to compensation for all services rendered prior to the effective date of the notice of termination and for any services authorized by the Water Resource Manager thereafter in accordance with the Schedule of Compensation or such as may be approved by the Water Resource Manager, except as provided in Section 7.3. In the event the Contractor has initiated termination, the Contractor shall be entitled to compensation only for the reasonable value of the work product actually

produced hereunder. In the event of termination without cause pursuant to this Section, the terminating party need not provide the non-terminating party with the opportunity to cure pursuant to Section 7.2.

### 7.8 Termination for Default of Contractor.

If termination is due to the failure of the Contractor to fulfill its obligations under this Agreement, Authority may, after compliance with the provisions of Section 7.2, take over the work and prosecute the same to completion by contract or otherwise, and the Contractor shall be liable to the extent that the total cost for completion of the services required hereunder exceeds the compensation herein stipulated (provided that the Authority shall use reasonable efforts to mitigate such damages), and Authority may withhold any payments to the Contractor for the purpose of set-off or partial payment of the amounts owed the Authority as previously stated.

### 7.9 Attorneys' Fees.

If either party to this Agreement is required to initiate or defend or made a party to any action or proceeding in any way connected with this Agreement, the prevailing party in such action or proceeding, in addition to any other relief which may be granted, whether legal or equitable, shall be entitled to reasonable attorney's fees. Attorney's fees shall include attorney's fees on any appeal, and in addition a party entitled to attorney's fees shall be entitled to all other reasonable costs for investigating such action, taking depositions and discovery and all other necessary costs the court allows which are incurred in such litigation. All such fees shall be deemed to have accrued on commencement of such action and shall be enforceable whether or not such action is prosecuted to judgment.

## ARTICLE 8. AUTHORITY OFFICERS AND EMPLOYEES: NON-DISCRIMINATION

### 8.1 Non-liability of Authority Officers and Employees.

No officer or employee of the Authority shall be personally liable to the Contractor, or any successor in interest, in the event of any default or breach by the Authority or for any amount which may become due to the Contractor or to its successor, or for breach of any obligation of the terms of this Agreement.

### 8.2 Conflict of Interest.

Contractor covenants that neither it, nor any officer or principal of its firm, has or shall acquire any interest, directly or indirectly, which would conflict in any manner with the interests of Authority or which would in any way hinder Contractor's performance of services under this Agreement. Contractor further covenants that in the performance of this Agreement, no person having any such interest shall be employed by it as an officer, employee, agent or subcontractor without the express written consent of the Water Resource Manager. Contractor agrees to at all times avoid conflicts of interest or the appearance of any conflicts of interest with the interests of Authority in the performance of this Agreement.

No officer or employee of the Authority shall have any financial interest, direct or indirect, in this Agreement nor shall any such officer or employee participate in any decision relating to the Agreement which affects her/his financial interest or the financial interest of any corporation, partnership or association in which (s)he is, directly or indirectly, interested, in violation of any State statute or regulation. The Contractor warrants that it has not paid or given and will not pay or give any third party any money or other consideration for obtaining this Agreement.

### 8.3 Covenant Against Discrimination.

Contractor covenants that, by and for itself, its heirs, executors, assigns, and all persons claiming under or through them, that there shall be no discrimination against or segregation of, any person or group of persons on account of race, color, creed, religion, sex, gender, sexual orientation, marital status, national origin, ancestry or other protected class in the performance of this Agreement. Contractor shall take affirmative action to insure that applicants are employed and that employees are treated during employment without regard to their race, color, creed, religion, sex, gender, sexual orientation, marital status, national origin, ancestry or other protected class.

### 8.4 Unauthorized Aliens.

Contractor hereby promises and agrees to comply with all of the provisions of the Federal Immigration and Nationality Act, 8 U.S.C. § 1101 *et seq.*, as amended, and in connection therewith, shall not employ unauthorized aliens as defined therein. Should Contractor so employ such unauthorized aliens for the performance of work and/or services covered by this Agreement, and should any liability or sanctions be imposed against Authority for such use of unauthorized aliens, Contractor hereby agrees to and shall reimburse Authority for the cost of all such liabilities or sanctions imposed, together with any and all costs, including attorneys' fees, incurred by Authority.

## ARTICLE 9. MISCELLANEOUS PROVISIONS

### 9.1 Notices.

Any notice, demand, request, document, consent, approval, or communication either party desires or is required to give to the other party or any other person shall be in writing and either served personally or sent by prepaid, first-class mail, in the case of the Authority, to the attention of the Water Resource Manager (with her/his name and Authority title), Indian Wells Valley Groundwater Authority, 100 West California Avenue, Ridgecrest California 93555 and in the case of the Contractor, to the person(s) at the address designated on the execution page of this Agreement. Either party may change its address by notifying the other party of the change of address in writing. Notice shall be deemed communicated at the time personally delivered or in seventy-two (72) hours from the time of mailing if mailed as provided in this Section.

### 9.2 Interpretation.

The terms of this Agreement shall be construed in accordance with the meaning of the language used and shall not be construed for or against either party by reason of the authorship of this Agreement or any other rule of construction which might otherwise apply.

### 9.3 Counterparts.

This Agreement may be executed in counterparts, each of which shall be deemed to be an original, and such counterparts shall constitute one and the same instrument.

### 9.4 Integration; Amendment.

This Agreement including the attachments hereto is the entire, complete and exclusive expression of the understanding of the parties. It is understood that there are no oral agreements between the parties hereto affecting this Agreement and this Agreement supersedes and cancels any and all previous negotiations, arrangements, agreements and understandings, if any, between the parties, and none shall be used to interpret this Agreement. No amendment to or modification of this Agreement shall be valid unless made in writing and approved by the Contractor and by the Authority Council. The parties agree that this requirement for written modifications cannot be waived and that any attempted waiver shall be void.

### 9.5 Severability.

In the event that any one or more of the phrases, sentences, clauses, paragraphs, or sections contained in this Agreement shall be declared invalid or unenforceable by a valid judgment or decree of a court of competent jurisdiction, such invalidity or unenforceability shall not affect any of the remaining phrases, sentences, clauses, paragraphs, or sections of this Agreement which are hereby declared as severable and shall be interpreted to carry out the intent of the parties hereunder unless the invalid provision is so material that its invalidity deprives either party of the basic benefit of their bargain or renders this Agreement meaningless.

### 9.6 Warranty & Representation of Non-Collusion.

No official, officer, or employee of Authority has any financial interest, direct or indirect, in this Agreement, nor shall any official, officer, or employee of Authority participate in any decision relating to this Agreement which may affect his/her financial interest or the financial interest of any corporation, partnership, or association in which (s)he is directly or indirectly interested, or in violation of any corporation, partnership, or association in which (s)he is directly or indirectly interested, or in violation of any State or municipal statute or regulation. The determination of "financial interest" shall be consistent with State law and shall not include interests found to be "remote" or "noninterests" pursuant to Government Code Sections 1091 or 1091.5. Contractor warrants and represents that it has not paid or given, and will not pay or give, to any third party including, but not limited to, any Authority official, officer, or employee, any money, consideration, or other thing of value as a result or consequence of obtaining or being awarded any agreement. Contractor further warrants and represents that (s)he/it has not engaged in any act(s), omission(s), or other conduct or collusion that would result in the payment of any

money, consideration, or other thing of value to any third party including, but not limited to, any Authority official, officer, or employee, as a result of consequence of obtaining or being awarded any agreement. Contractor is aware of and understands that any such act(s), omission(s) or other conduct resulting in such payment of money, consideration, or other thing of value will render this Agreement void and of no force or effect.

Contractor's Authorized Initials _____

**9.7 Corporate Authority.**

The persons executing this Agreement on behalf of the parties hereto warrant that (i) such party is duly organized and existing, (ii) they are duly authorized to execute and deliver this Agreement on behalf of said party, (iii) by so executing this Agreement, such party is formally bound to the provisions of this Agreement, and (iv) that entering into this Agreement does not violate any provision of any other Agreement to which said party is bound. This Agreement shall be binding upon the heirs, executors, administrators, successors and assigns of the parties.

**[SIGNATURES ON FOLLOWING PAGE]**

**IN WITNESS WHEREOF**, the parties hereto have executed this Agreement on the date and year first-above written.

**AUTHORITY:**

Indian Wells Valley Groundwater Authority

_____
Carol Thomas-Keefer, Acting General Manager

**APPROVED AS TO FORM:**
ALESHIRE & WYNDER, LLP

_____
Keith Lemieux, Board Counsel

**CONTRACTOR:**

Provost and Pritchard Consulting Group

By:_____
Name: _____
Title:_____

By:_____
Name: _____
Title:_____

Address:1800 30th Street, Suite 280
Bakersfield, CA 93301

**Two corporate officer signatures required when Contractor is a corporation, with one signature required from each of the following groups: 1) Chairman of the Board, President or any Vice President; and 2) Secretary, any Assistant Secretary, Chief Financial Officer or any Assistant Treasurer. CONTRACTOR'S SIGNATURES SHALL BE DULY NOTARIZED, AND APPROPRIATE ATTESTATIONS SHALL BE INCLUDED AS MAY BE REQUIRED BY THE BYLAWS, ARTICLES OF INCORPORATION, OR OTHER RULES OR REGULATIONS APPLICABLE TO CONTRACTOR'S BUSINESS ENTITY.**

# CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy or validity of that document.

STATE OF CALIFORNIA

COUNTY OF KERN

On _____, 2023 before me, _____, personally appeared _____, proved to me on the basis of satisfactory evidence to be the person(s) whose names(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature: _____

**OPTIONAL**

Though the data below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent reattachment of this form

**CAPAAUTHORITY CLAIMED BY SIGNER**

☐ INDIVIDUAL
☐ CORPORATE OFFICER

_____
TITLE(S)

☐ PARTNER(S) ☐ LIMITED
☐ GENERAL
☐ ATTORNEY-IN-FACT
☐ TRUSTEE(S)
☐ GUARDIAN/CONSERVATOR
☐ OTHER_____

_____

**SIGNER IS REPRESENTING:**
(NAME OF PERSON(S) OR ENTITY(IES))

_____
_____

**DESCRIPTION OF ATTACHED DOCUMENT**

_____
TITLE OR TYPE OF DOCUMENT

_____
NUMBER OF PAGES

_____
DATE OF DOCUMENT

_____
SIGNER(S) OTHER THAN NAMED ABOVE

# CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy or validity of that document.

STATE OF CALIFORNIA

COUNTY OF KERN

On _____, 2023 before me, _____, personally appeared _____, proved to me on the basis of satisfactory evidence to be the person(s) whose names(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature: _____

**OPTIONAL**

Though the data below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent reattachment of this form.

**CAPAAUTHORITY CLAIMED BY SIGNER**

☐ INDIVIDUAL
☐ CORPORATE OFFICER

_____
TITLE(S)

☐ PARTNER(S) ☐ LIMITED
☐ GENERAL
☐ ATTORNEY-IN-FACT
☐ TRUSTEE(S)
☐ GUARDIAN/CONSERVATOR
☐ OTHER_____

_____

**SIGNER IS REPRESENTING:**
(NAME OF PERSON(S) OR ENTITY(IES))

_____
_____

**DESCRIPTION OF ATTACHED DOCUMENT**

_____
TITLE OR TYPE OF DOCUMENT

_____
NUMBER OF PAGES

_____
DATE OF DOCUMENT

_____
SIGNER(S) OTHER THAN NAMED ABOVE

# EXHIBIT "A"

## Contractor's Proposal

# EXHIBIT "B"

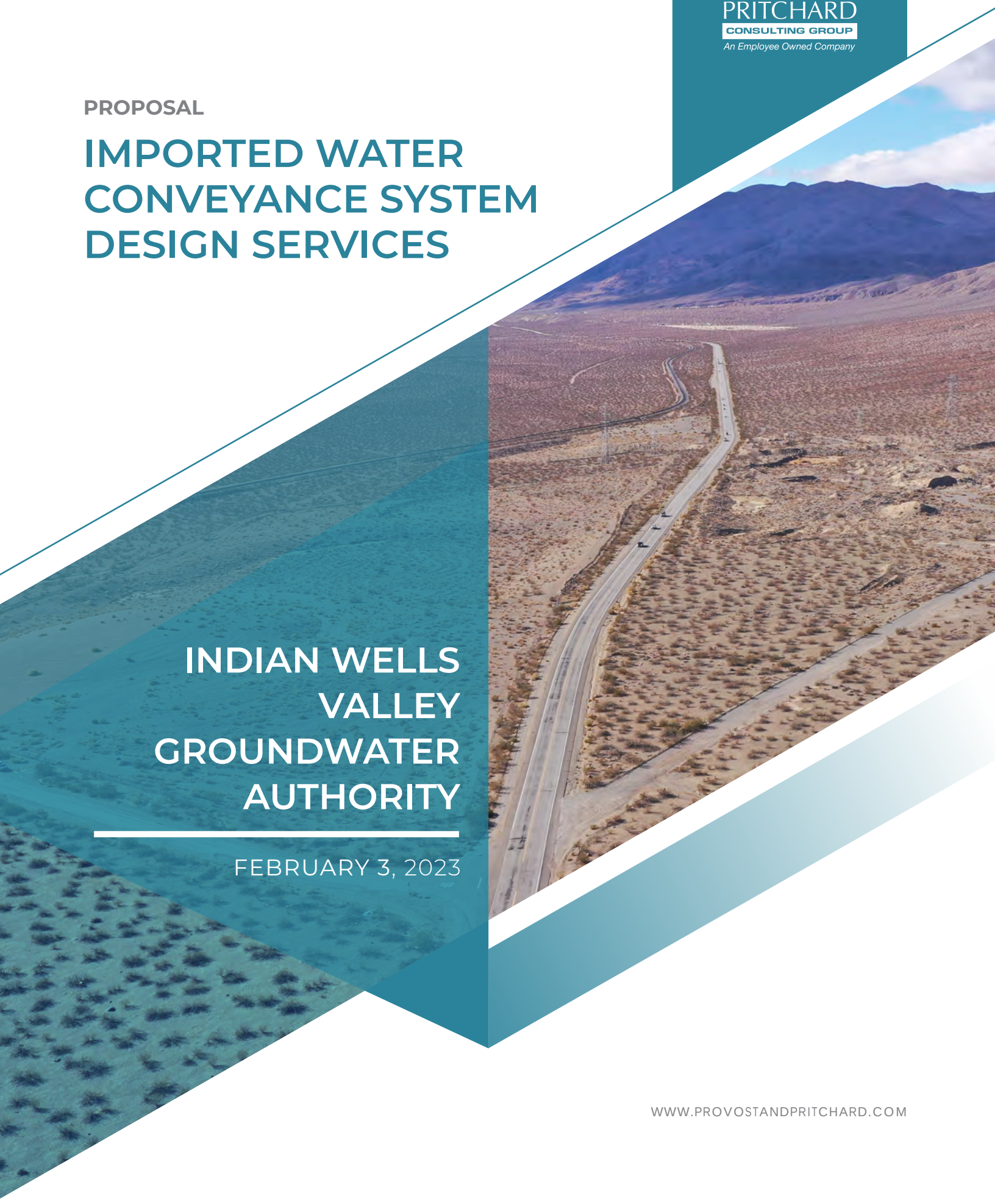
## Invoice Sample

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EST. 1968
PROVOST& PRITCHARD
CONSULTING GROUP
*An Employee Owned Company*

PROPOSAL

# IMPORTED WATER CONVEYANCE SYSTEM DESIGN SERVICES



## INDIAN WELLS VALLEY GROUNDWATER AUTHORITY

FEBRUARY 3, 2023

WWW.PROVOSTANDPRITCHARD.COM

INDIAN WELLS VALLEY GROUNDWATER AUTHORITY

# IMPORTED WATER CONVEYANCE SYSTEM DESIGN SERVICES

## Proposal

February 3, 2023


**Prepared for:**

**INDIAN WELLS VALLEY GROUNDWATER AUTHORITY**
April Keigwin, Clerk of the Board of Directors
100 W. California Ave.
Ridgecrest, CA 93555
Telephone: (805) 764-5452
Email: akeigwin@rgs.ca.gov

**Submitted by:**

**PROVOST & PRITCHARD CONSULTING GROUP**
1800 30th St. Suite 280
Bakersfield, CA 93301
Phone: (661) 616-5900

**www.provostandpritchard.com**

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METHOD OF SERVICE APPLICATION



# INTRODUCTION

Feburary 3, 2023

EST. 1968
PROVOST& PRITCHARD
CONSULTING GROUP
*An Employee Owned Company*

April Keigwin, Clerk, Board of Directors
Indian Wells Valley Groundwater Authority
100 West California Avenue Ridgecrest, CA 93555
(805) 764-5452
akeigwin@rgs.ca.gov

**RE: IWVGA Imported Water Conveyance System Design Services**

Ms. Keigwin,

Provost & Pritchard Engineering Group (Provost & Pritchard) is pleased to submit this proposal for design services for the Indian Wells Valley Groundwater Authority (IWVGA/the Authority) Imported Water Conveyance System. Our team is well qualified and well-equipped to undertake and complete this large, complex, critical linear infrastructure project in the time frame specified.

Provost & Pritchard performed the alignment study for the IWVGA imported water conveyance system. Our team made a recommendation for the preferred alignment within the aggressive timeline required for that portion of the project. Stantec Consulting Services Inc. (Stantec), who will be performing the bulk of the pump station design, has designed pump stations on many similar projects in the past, and has worked with Provost & Pritchard on a number of large projects. The two firms have an excellent and longstanding working relationship. Dahl Consultants, Inc. (Dahl Consultants), a longstanding partner of the two firms, assisted with the alignment study and will serve as a technical advisor during the design and perform in a Quality Assurance/Quality Control (QA/QC) function. Soils Engineering Inc. (SEI) will continue providing geotechnical engineering services during final design, and Bennett Trenchless Engineers, LLP (Bennett Trenchless) will continue in its role assisting with trenchless pipeline installation design. RF Yeager Engineering Inc. (RF Yeager) is a niche corrosion engineering firm that has worked with the Stantec team on a number of past projects. In short, we offer a well-integrated team with all the resources required to complete this project ahead of schedule.

The aggressive schedule identified in the Request for Proposals (RFP) and the limited availability of electrical power on portions of the preferred alignment are the two biggest challenges that our design team will have to overcome on this project. As our proposal indicates, we have a plan for developing engineering solutions for both of these issues. Stantec has a long history of working closely with Southern California Edison (SCE) to obtain power for complex new infrastructure projects. Provost & Pritchard worked closely with SCE staff in the Bishop regional office during the alignment study. Between the two firms, we are confident that we will get power from SCE to all pump station locations before construction is complete. Even with our vast experience and connections with SCE, this will still be a challenge. The process of constructing power lines to serve a new facility through SCE can be agonizingly slow.

Regarding the aggressive schedule, because of our six-month head start on the project, we believe we can “hit the ground running” and complete the 100% design submittal in advance of the March 31, 2025 deadline (see our proposed schedule in Section 6).

You will note that Provost & Pritchard, again with Stantec as a major subconsultant, is also proposing on the California Environmental Quality Act (CEQA)/National Environmental Policy Act (NEPA) work. Due to our accumulated knowledge of this project and our ability to coordinate more easily with our own staff, should the Authority decide to award both contracts to Provost & Pritchard, we would be able to reduce our fees for both projects through these gained efficiencies.

We have enjoyed working with the Authority’s board and staff, as well as the Technical Advisory Committee and the Policy Advisory Committee, on the alignment study. We would be honored to continue our relationship and to perform the design services for this complex and interesting project.

Respectfully,

Jeff Eklund, PE
Director of Operations
JEklund@ppeng.com

Jeff Davis, PE
Principal Engineer
JDavis@ppeng.com

# PROPOSING FIRM(S)

PROVOST&PRITCHARD
CONSULTING GROUP

**Name:** Provost & Pritchard Consulting Group
**Contact:** Jeff Davis, PE
1800 30th St. Suite 280
Bakersfield, CA 93301
**Phone:** (909) 782-5455
**Fax:** (661) 616-5890
**Email:** jdavis@ppeng.com

**Additional address where work will be performed:**
455 W. Fir Ave
Clovis, CA 93611

## COMPANY BACKGROUND

In 1968, Provost & Pritchard began a tradition of engineering excellence in the San Joaquin Valley. Over the course of 55 years, Provost & Pritchard has grown in size, services offered, and geography with ten offices located throughout California. With over 240 employees, our staff is diverse in its specialties, and includes civil engineers, hydrogeologists, land surveyors, construction managers and field representatives, planners, environmental specialists, and support personnel.

Importantly, Provost & Pritchard is responsible for the preparation of the Indian Wells Valley Groundwater Authority's Imported Water Pipeline Alignment Study. Working closely with the Authority over the last few months has helped our team gain a deep understanding of the needs and challenges of the overall project which include geographical terrain, jurisdictional issues, power supply to pump stations, and the expedited schedule stipulated by grant funding. Our work on the alignment study has allowed us time to collaborate and develop solutions in advance of beginning the design portion of the project.

## FIRM OWNERS/OFFICERS

As an employee-owned corporation, Provost & Pritchard is a closely held company. Only employees may be owners of the corporation and current major stockholders include Michael Taylor, Brian Ehlers, Ronald Samuelian, Donald Ikemiya, and Kevin Johansen. The remainder of the company stock is owned by 79 individual shareholders and the Employee Stock Ownership Plan (ESOP).

| CHIEF OFFICERS |
|---|
| Ronald Samuelian, President |
| Randy Hopkins, Chief Strategic Officer |
| Donald Ikemiya, Chief Strategic Officer |
| Matthew Kemp, Chief Strategic Officer |
| Russell McKay, Chief Financial Officer |

| BOARD OF DIRECTORS |
|---|
| Kevin Johansen, Chair |
| Heather Bashian |
| Kevin Berryhill |
| Brian Ehlers |
| Donald Ikemiya, Corporate Secretary |
| Charlie Stringer |
| Michael Taylor |

| DIRECTORS OF OPERATIONS | |
|---|---|
| Heather Bashian | Matthew Klinchuch |
| Alex Collins | Keith Mortensen |
| Jeffrey Dorn | David Norman |
| Jeffrey Eklund | Gavin O'Leary |
| Joseph Hopkins | Soo Ho Park |
| Kevin Johansen | Linda Sloan |
| Karen Kirk | Steve Spencer |

# SUBCONTRACTORS & RESPONSIBILITIES

Provost & Pritchard will serve as the primary consultant and has teamed with qualified subconsultants for this endeavor. Our firm will be responsible for overall project management and delivery, as well as lead the pipeline design and utility coordination efforts.

We will utilize Stantec for pump station design and surge analysis, Dahl Consultants for Pump Station QA/QC, RF Yeager Engineering for corrosion analysis and engineering, Bennett Trenchless for design of reaches of the pipeline that can be performed through trenchless installation, and SEI for geotechnical engineering. Provost & Pritchard has worked extensively with this team of subconsultants on many projects and details about their specialty services can be found below.

## STANTEC

### PUMP STATION DESIGN AND SURGE ANALYSIS

**Contact:** Joseph Long, PE
**Address:** 38 Technology, Suite 200, Irvine, CA 92618
**Phone:** (949) 413-1620
**Fax:** N/A
**Email:** Joseph.Long@stantec.com

**Additional address where work Stantec's portion of the work will be performed:**

300 North Lake Avenue Suite 400
Pasadena, CA 91101-4169

3133 West Frye Road Suite 300
Chandler, AZ 85226-5155

727 East Riverpark Lane Suite 150
Boise, ID 83706-4089

1340 Treat Boulevard Suite 300
Walnut Creek, CA 94597-7966

2890 Gateway Oaks Drive Suite 200
Sacramento, CA 95833-4325

One South Church Avenue Suite 2100
Tucson, AZ 85701-1635

1560 Broadway Suite 1800
Denver, CO 80202-6000

Since 1954, Stantec has partnered with California's public agencies, bringing fully integrated solutions, by incorporating required project design goals in concert with environmental regulations. Their collaborative design team has the foresight to anticipate project challenges and develop thoughtful solutions.

Our professionals are well-versed in pump station facility upgrades, including:

- System hydraulic analysis
- Surge mitigation requirements
- Structural engineering
- Civil engineering
- Process mechanical/electrical and controls engineering

The Stantec team collaborates across disciplines and industries to bring buildings, energy and resource, and infrastructure projects to life. Their work—professional consulting in engineering, environmental resources and planning, and power systems—begins with a thorough understanding of the client's goals and concludes with a successful project. Their clients include Antelope Valley-East Kern Agency, Friant Water Authority, Metropolitan Water District of Southern California (MWD), Los Angeles County Sanitation and Environment (LASAN), Los Angeles County Sanitation Districts (LACSD), and East Bay Municipal Utility District (EBMUD).

Stantec currently employs more than 26,000 people across 400 offices.

## DAHL CONSULTANTS

### QA/QC AND CONSTRUCTABILITY REVIEW (PUMP STATIONS)

**Contact:** Wayne Dahl
**Address:** 157 Parkshore Drive, Folsom, CA 95630
**Phone:** (916) 221-3900
**Fax:** N/A
**Email:** wdahl@dahlconsultants.com

Dahl Consultants, Inc. (Dahl Consultants) is focused on providing planning, design, and construction management services to water agencies in the western U.S. primarily for projects involving raw water conveyance facilities including canals, pipelines, and pump stations. Dahl's founders and staff have worked on the delivery of significant water conveyance projects in California and the western U.S. for more than 35 years for numerous water agencies including: Antelope Valley – East Kern Water Agency, Banta-Carbona Irrigation District, Contra Costa Water District, Central Arizona Water Districts, Coachella Valley Water District, DWR, Friant Water Authority, Imperial Irrigation District, Metropolitan Water District of Southern California, USBR, San Diego County Water Authority, Semitropic Water Storage District, West Stanislaus Irrigation District, and others. Representative projects include planning, design, and construction services for significant projects involving many miles of lined and unlined canals, large diameter pipelines, fish screens, pump stations, and other related appurtenances.

## BENNETT TRENCHLESS ENGINEERING

### TRENCHLESS PIPELINE DESIGN

**Contact:** Kate Wallin
**Address:** 950 Glenn Drive, Suite 115, Folsom, CA 95630
**Phone:** (916) 294-0095
**Fax:** N/A
**Email:** kate.wallin@bennetttrenchless.com

Bennett Trenchless Engineers, LLP is a certified California SBE specialty consulting engineering firm located in Folsom, CA that focuses 100% on trenchless technology. The partners of the firm, David Bennett and Matthew Wallin, are recognized industry leaders who bring extensive experience to bear in developing innovative, cost-effective solutions to complex, real-world problems. The firm specializes in all aspects of design, including feasibility studies, full design services, and construction management services. Technologies mastered by the firm include microtunneling, open-shield pipejacking, earth pressure balance pipejacking and tunneling, horizontal directional drilling, pilot tube method, and pipe ramming. Studies have included evaluation of geotechnical data and site conditions to determine the most favorable construction method. Feasibility studies have led to the development of design reports, recommending construction methods, pipe diameter, alignment, appropriate pipeline depths, the evaluation of relative risks, and development of risk avoidance and risk management strategies. Design services have included the production of trenchless plans and specifications, geotechnical baseline reports, project schedules, and engineer's cost estimates. The firm has conducted design reviews and served on value engineering panels at various levels of design, suggesting modifications to add value and reduce construction risk of the project.

## SOILS ENGINEERING, INC. (SEI)

### GEOTECHNICAL ENGINEERING SERVICES

**Contact:** On Man Lau
**Address:** 4400 Yeager Way, Bakersfield, CA 93313
**Phone:** (661) 831-5100
**Fax:** (661) 831-2111
**Email:** onman@soilsengineering.com

Soils Engineering, Inc. (SEI) has been in the business of providing Geotechnical Engineering and Engineering Geology for almost 60 years. SEI is based in Kern County and has performed services on multiple projects throughout Eastern Kern. SEI has also provided materials testing, soil remediation analyses, and land surveying services in central California during this time.

SEI's geotechnical staff has achieved over 40 years experience evaluating earth materials including soil, rock, groundwater, and man-made materials and their interaction with earth retention systems and foundations. We have expertise in the principles of soil mechanics and earth sciences along with knowledge of engineering laws, formulas, and construction techniques.

SEI has also been providing geological services to Kern County and other regions of California for over 25 years. Our State Certified Engineering Geologist is experienced in a wide variety of subsurface investigatory methods, such as hollow-stem auger borings, fault trenching, and seismic surveys.

During the construction phase, SEI provides earthwork observation, special inspection services, quality assurance and quality control for a variety of projects.

## RF YEAGER ENGINEERING

### CORROSION ENGINEERING SERVICES

**Contact:** Rick Yeager
**Address:** 1016 Broadway, Suite A, El Cajon, CA 92021
**Phone:** (619) 312-0195
**Fax:** (619) 312-0197
**Email:** rfyeager@rfyeager.com

RF Yeager Engineering Inc. is a DVBE/SBE, SLBE, and SCOOP certified Corrosion Engineering firm providing work primarily in the water and wastewater industries since 2004. They have extensive experience in Corrosivity Assessments, Corrosion Control/Cathodic Protection Designs, Corrosion Control/ Cathodic Protection Inspections, Pipeline Assessments, and Engineering Support Services. RF Yeager is highly qualified in areas of corrosion control for water and wastewater systems, pipelines, reservoirs, treatment plants, pump stations, and pressure reducing stations. All work is conducted under qualified and certified personnel with more than 60 years of combined experience and service in the corrosion engineering industry. Their work includes a corrosivity assessment and cathodic protection design (impressed current or galvanic anode). The corrosivity assessment includes site resistivity testing, stray current interference analysis, a review of geotechnical soil chemical analysis, and a corrosivity assessment report. The cathodic protection design includes current requirement calculations, cathodic protection details and specifications, working with local utility company to locate power for the impressed current rectifiers and anode beds, as well as engineering cost estimates.

# PROJECT PERSONNEL

The following chart represents Provost & Pritchard's team organization for this project. Provost & Pritchard will not substitute lead personnel without prior approval of IWVGA.

**TEAM LEGEND**

- Provost & Pritchard
- Stantec
- Dahl Consultants, Inc.
- Bennett Trenchless Engineers
- Soils Engineering, Inc.
- RF Yeager Engineering

IWVGA
INDIAN WELLS VALLEY GROUNDWATER AUTHORITY

**Jeff Eklund, PE – Principal-in-Charge**

**Jeff Davis, PE – Project Manager / Subconsultant Coordination**

## Pipeline Facilities

**Mike McGovern, PE**
Task Manager/Project Engineer – Pipeline

### Pipeline Design
- JEANE HILL, PE – Pipeline Engineer
- NICK JACOBSON, PE – Pipeline/Hydraulics Engineer
- CHUCK ARMSTRONG, PE – Pipeline Engineer

### Utility Coordination
- ADAM OJEDA, PE, QSD/QSP – Utilities/Pipeline Alignment Design

### Water Quality
- KEVIN BERRYHILL, PE – Water Quality

### Constructability/Estimating
- RICK DARNLEY – Constructability Review/Cost Estimating

### Pump Station Site Grading
- MATT BARNES, PE – Pump Station Site Design

## Pumping Facilities

**Joseph Long, PE**
Task Manager/Project Engineer – Pump Stations

### Hydraulic Modeling and Analysis
- MIKE GEORGALAS, PE – Transient/Surge Analysis

### Pump Station Mechanical
- TIM AYVAZ, PE – Process and Mechanical Lead
- SEAN NEPRUD, PE, LEED AP – Process and Mechanical Project Engineer
- SAVVAS SAVVAS, PE, LEED AP – Building and Mechanical

### Electrical and I&C
- NADARAJAN (SANKI) SANKARAN, PE – SCADA Design Package Lead
- BRUCE WONG, PE, PMP, ENV SP – Electrical Lead

### Structural
- SIMON LIN, PH.D., PE, SE – Structural

### Civil
- COLE WARRICK, PE – Civil Lead

### Estimating
- DON CRONE – Pump Station Cost Estimating
- JOHN DAHL – Constructability Review

## QA/QC
- MATT KEMP, PE – QA/QC - Pipeline
- TINO SENON, PE – QA/QC - Pump Stations
- WAYNE DAHL – QA/QC
- SUSAN FOX – QA/QC - Pump Stations

## Survey
- TIM ODOM, PLS – Project Surveyor

## GIS
- PHIL SLATER – GIS

## Trenchless Construction
- MATTHEW WALLIN, PE – Horizontal Directional Drilling Reaches
- KATHRYN WALLIN – Horizontal Directional Drilling Reaches

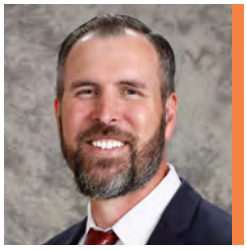
## Geotechnical Engineering
- ON MAN LAU, PE, GE – Geotechnical Engineering
- ROBERT BECKER, PG, CEG, QSD/QSP – Geotechnical Engineering

## Corrosion Analysis & Engineering
- RICK YEAGER, PE – Corrosion Analysis & Engineering Lead
- RANDY J. GEVING, PE – Corrosion Analysis & Engineering

# PERSONNEL QUALIFICATIONS

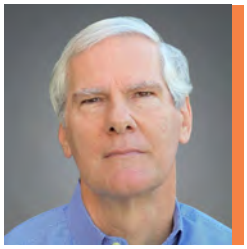
Provost & Pritchard has assembled a large team of skilled professionals to execute this project. Below, please find a brief introduction to each team member (including subconsultants), along with their responsibilities on the project.

PROVOST& PRITCHARD



## JEFF EKLUND, PE
### PRINCIPAL-IN-CHARGE

Jeff Eklund is a principal engineer and the Bakersfield Director of Operations at Provost & Pritchard with 20 years of experience in the field of civil engineering. He has design experience on a variety of municipal infrastructure projects in the areas of water supply and distribution, pump stations, and transmission pipelines. Mr. Eklund managed and designed projects throughout the life of the project, including the conception, funding, planning, environmental compliance, preliminary and final design, permitting, bidding, and construction. He has worked with multiple utility companies, Division of Drinking Water, SCE, Union Pacific and BNSF Railroads, Caltrans, County of Kern, and other agencies for the design and permitting of facilities. **Jeff Eklund is the Principal-in-Charge on the IWVGA Imported Water Pipeline Alignment Study project.**



## JEFF DAVIS, PE
### PROJECT MANAGER

Jeff Davis is a Principal Engineer at Provost & Pritchard with more than 40 years of water resources engineering experience. Prior to joining Provost & Pritchard, he served for 15 years as the General Manager and Chief Engineer for the San Gorgonio Pass Water Agency in Beaumont, California, where he worked collaboratively with local retail water agencies as well as other State Water Contractors. As the Chair of the Sites Reservoir Committee in 2021, he led over twenty public and private water purveyors in the effort to plan, design, and construct a $4 billion reservoir in the Sacramento Valley. He also spent 13 years at the Metropolitan Water District of Southern California (MWDSC) where he was involved in the planning, design, and management of numerous water infrastructure projects, large and small. While at MWDSC, he also developed a project management training program for the Engineering Division. **Jeff Davis is the Project Manager on the IWVGA Imported Water Pipeline Alignment Study project.**



## MATTHEW KEMP, PE
### QUALITY CONTROL/ASSURANCE

Matthew Kemp is a Chief Strategic Officer and principal engineer at Provost & Pritchard specializing in municipal water infrastructure. He has served our public agency clients for more than 22 years as a project manager and engineer. He has managed a wide range of water infrastructure projects including transmission mains, distribution system pipe replacements, trenchless pipe installation, water supply wells, storage tanks, booster pump stations and lift station projects. Matthew has worked with a wide range of utility companies, railroads and regulatory agencies for utility locating, new utility service, and agency permits which include Division of Drinking Water, Caltrans, Department of Fish and Wildlife, Regional Water Quality Control Board (RWQCB), United States Army Corps of Engineers (USACE), DWR, Union Pacific and BNSF Railroads, Pacific Gas & Electric (PG&E), SCE, and various cities, counties, and

irrigation districts. He has experience working with staff at the State Water Resources Control Board (SWRCB), Division of Financial Assistance on projects funded through the Drinking Water and Clean Water State Revolving Fund Programs. He has extensive experience working on projects from the early planning stages through construction. He served as district engineer for multiple water systems overseeing capital improvement program development, master planning, rate analysis, regulatory compliance, engineering studies, CEQA/NEPA compliance, grant writing, capital projects, and bidding and construction administration. **Matthew is providing Quality Control Review on the IWVGA Imported Water Pipeline Alignment Study project.**



## MIKE MCGOVERN, PE

### PROJECT ENGINEER – PIPELINE

Michael McGovern joined Provost & Pritchard Consulting Group as a senior engineer in 2022 after 11 years as a Facilities Engineer with Kern County Water Agency. Mike served as project manager and project engineer in the planning, design, bid, and construction phases of various water infrastructure projects associated with the Agency's canal, water banking, and water treatment and distribution facilities. In addition, he spent 11 years as a project engineer and project manager with Kennedy/Jenks Consultants on numerous water-related projects. At Kennedy/Jenks, Mike obtained extensive pipeline design experience with projects in Kern, Los Angeles, and Riverside counties as a project engineer and project manager, including several projects with the City of Bakersfield, Kern Water Bank Authority and California Water Service Company for various pipe materials, including PVC, HDPE, ductile iron, RCP and CML&C welded steel in pipe diameters ranging from 6-inch to 60-inch pipe. In Los Angeles and Riverside counties, Mike designed pipelines across congested road intersections, inside Metropolitan Water District's Henry Mills Water Treatment facility, and water supply pipelines for the Thomas Bradley International Terminal at LAX. **Mike is the lead engineer on the IWVGA Imported water Pipeline Alignment Study project.**



## JEANE HILL, PE

### PIPELINE ENGINEER

Jeane Hill is a senior engineer at Provost & Pritchard with over 30 years of experience. She has worked as a consulting **engineer for water-related projects including transmission and distribution facilities, pump stations, storage facilities, treatment and disinfection systems, and regulatory compliance.** She has led teams in the preparation of feasibility studies and conducted project engineering services including design, bidding, and construction management. She works collaboratively with technical teams incorporating expertise from throughout the company, and mentors and trains junior technical staff.



## NICK JACOBSON, PE

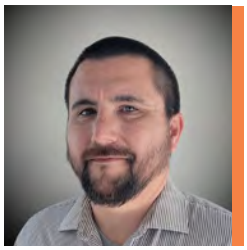
### PIPE DESIGN

Nicholas Jacobson is a senior engineer with Provost & Pritchard with nearly 12 years of professional experience. Mr. Jacobson's experience includes providing engineering services for the design of numerous potable water projects including the design of pipelines, pump stations, tanks, and water distribution systems as a whole. Mr. Jacobson led the hydraulic evaluation and computerized modeling for the Indian Wells Valley Groundwater Authority (IWVGA) Alignment Study. Mr. Jacobson also has performed hydraulic calculations, generated system curves, and performed computerized hydraulic modeling for numerous other water projects including an 85-mile potable water transmission main and for several large stormwater pump stations. **Nick provided hydraulic calculations and modeling to support the IWVGA Imported Water Pipeline Alignment Study project.**



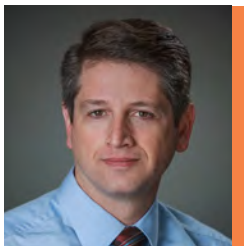
## CHUCK ARMSTRONG, PE
### PIPELINE ENGINEER

Chuck Armstrong is a senior engineer at Provost & Pritchard with more than 25 years of experience in the planning and design of engineering projects including water, wastewater, drainage, and flood control structures, and development infrastructure. Mr. Armstrong's responsibilities have included overseeing design engineers and drafters, preparing plans and specifications, and performing quality control reviews and third-party reviews for municipalities. He has served as engineer for **infrastructure projects ranging in construction cost from several thousand dollars up to $200 million**, and team size from one person to over 20 within multiple disciplines.



## ADAM OJEDA, PE, QSD/QSP
### PIPELINE ALIGNMENT AND UTILITY COORDINATION

Adam Ojeda is a registered Professional Engineer with Provost & Pritchard with more than 15 years of experience working on Capital Improvement Projects for private and public clients. He has been involved in all aspects of such projects beginning at the initial planning stages into design, permitting, bidding, contracting, construction management and observation, through project closeout. He also is the former City Engineer and Community Development Director for the City of Arvin, and in that role, he also became familiar with how projects are initiated and managed as a representative of a City. In these roles he was responsible for issuing encroachment permits and oversaw the issuance of building and other types of permits including utility companies. In these roles, he was responsible for coordinating with utility companies for approvals and permits from those companies and authorities having jurisdiction for capital improvement projects. He also reported regularly to the City Council, Planning Commission, City Manager, and Community Development Director until he assumed that role for the city. **Adam worked with other public agencies to obtain right of way data and utility information to support the IWVGA Imported Water Pipeline Alignment Study project, which is still in progress.**



## KEVIN BERRYHILL, PE
### WATER QUALITY

Kevin Berryhill is a principal engineer at Provost & Pritchard with nearly 25 years of engineering experience. He is experienced in the evaluation of water quality and the selection and design of water treatment processes. He has experience in feasibility and pre-design studies, design and preparation of plans, specifications and cost estimates, permitting, pilot studies, and construction support. His experience includes conventional and membrane surface water treatment; **wellhead treatment projects involving the removal of volatile organic chemicals (VOC), synthetic organic chemicals (SOC), natural organic matter (NOM), disinfection byproducts, nitrate, perchlorate, iron, manganese, arsenic, hydrogen sulfide, carbon dioxide (CO2), radon, uranium, and color; and disinfection improvement projects.**



## MATT BARNES, PE
### PUMP STATION SITE GRADING

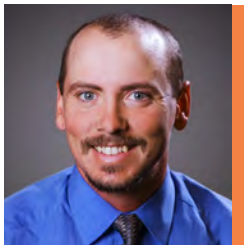
Matthew Barnes is a senior engineer at Provost & Pritchard with 18 years of experience. His experience includes the management and design of site-civil, municipal infrastructure and land development projects including design-build projects. Mr. Barnes has experience with **site development, grading, drainage**, sewers, storm drains, water systems, pavement, retaining walls, traffic engineering, roadways, curb and gutter, roadway rehabilitation, striping plans, walkways and ADA compliance.



## RICK DARNLEY

### CONSTRUCTABILITY REVIEW AND PIPELINE COST ESTIMATING

Rick Darnley has over **42 years of experience in construction management, quality control, and coordination of large projects with critical schedules.** His expertise includes public works facilities, healthcare, and education, which require project tracking, contract review, contract budgeting, cost estimates, schedule reviews, quality assurance/quality control, and technical services. Additionally, Rick performs constructability reviews on many of Provost and Pritchard's municipal projects. His experience helps identify potential challenges so they can be mitigated ahead of time. **Mr. Darnley provided constructability review for the IWVGA Imported Water Pipeline Alignment Study.**



## TIM ODOM, PLS

### PROJECT SURVEYOR

Tim Odom has over 18 years of experience in the surveying-engineering, mapping, and geographic information system (GIS) fields. His responsibilities have included planning and execution of geodetic and conventional control surveys, American Land Title Association (ALTA)/National Society of Professional Surveyors (NSPS) surveys, topographic surveys, boundary analysis/legal descriptions, subdivision mapping, and construction staking. Additionally, Tim has experience with conventional surveying methods, global positioning system (GPS) surveying, remote sensing, and unmanned aerial vehicle (UAV) surveys. He is experienced at working on and managing projects throughout the Western United States, in urban, suburban, agricultural, and wilderness environments. **Mr. Odom is the project surveyor for the IWVGA Imported Water Pipeline Alignment Study project and has recently completed UAV flights over the preferred Central alignment, as selected by the IWVGA Board.**



## PHILIP SLATER

### GEOGRAPHIC INFORMATION SYSTEMS (GIS)

Philip Slater is a Senior GIS Specialist at Provost & Pritchard with more than 13 years of GIS experience. He is experienced in providing GIS services to a variety of clients, including managing, updating and analyzing tasks for five Central Valley cities. He also helped design and pioneer an enterprise GIS system at the largest private landholder in the state of California spanning over 270,000 acres. **Phil has been working closely with the IWVGA alignment study team preparing maps and additional GIS exhibits.**

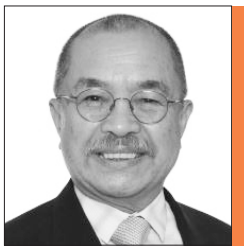
Stantec



## JOSEPH LONG, PE

### TASK MANAGER/PROJECT ENGINEER – PUMP STATIONS

Joe has 31 years of experience in planning and engineering consulting for publicly owned water infrastructure. His expertise includes the planning and design of hydraulic structures, sanitary sewer collection systems, water conveyance facilities, sanitary lift stations, water pumping facilities and groundwater augmentation facilities (water banks). Joe provided master planning of linear infrastructure on projects focused on water and wastewater systems, hydraulic modeling for both pressure and gravity flow systems, transient surge mitigation measures to be incorporated into pumping facilities, and pump/lift station engineering services to several water districts, public utilities districts, and municipalities throughout Southern California.



## CONSTANTINO SENON, PE

### TECHNICAL ADVISER (PUMP STATION)

Tino has 56 years of experience, over 45 of which have been at Stantec. He was chief mechanical engineer and currently Stantec's Global Pump Systems Technical Leader. Tino has designed pump stations of more than two million horsepower over the past years working for the firm. Using his wealth of experience on numerous pump station projects, Tino has worked on projects from concept to startup and held multiple responsibilities as design engineer, project engineer, resident engineer in construction, value engineering reviewer and startup engineer for pumping stations and treatment plants. Tino is the principal author of Stantec's Best Practice Guide for Pumping Systems and has been an active member of Hydraulic Institute Standards for over 20 years. In addition, he is the principal author of Drinking Water Pump Station Design and Operation for Energy Efficiency Guidebook published by Water Research Foundation, 2015.



## MIKE GEORGALAS, PE

### TRANSIENT/SURGE ANALYSIS

Mike has extensive experience in conducting fluid transient analysis studies, as well as mitigation design for both existing and new water and wastewater systems. He represents a unique blend of practical design and computer simulation expertise. With more than 25 years of experience in conducting modeling assignments and water and wastewater conveyance system design, Mike's proposed solutions are practical and constructible. He has completed more than 140 hydraulic transient (water hammer) projects at locations throughout North America. These projects included analyzing existing and proposed systems to quantify the magnitude of potential pressures that could be experienced under various transient inducing events and recommending measures to eliminate, or mitigate, the transient pressures. Operational measures include recommending the sequencing and timing of pump start-ups and shut-downs, as well as recommending times for valve closures. Design recommendations include assisting in determining the type and pressure class of pipe to be used in a project, specifying appropriate check, air release, vacuum, surge anticipating, pressure relief, and combination valves, and sizing air chambers. Mike has constructed transient models using Pipe 2010: Surge by KYPipe, AFT Impulse by Applied Flow Technology, InfoSurge by Innovyze, and HAMMER by Bentley Systems.



## TIM AYVAZ, PE
### PROCESS AND MECHANICAL LEAD

As one of Stantec's accomplished pump station project leaders, Tim brings 22 years of engineering and design management experience. His unique blend of previous work experience with a pump manufacturer gives him a high-level understanding of pump construction, performance and installation requirements. Tim has led complex and technically challenging pump station projects design projects.



## SEAN NEPRUD, PE, LEED AP
### PROCESS AND MECHANICAL PROJECT ENGINEER

Sean is a mechanical engineer with 20 years of experience in water and wastewater treatment, mechanical electrical and plumbing (MEP), and decorative water features. He brings 13 years of experience servicing the water and utilities sector in the Western US, and several years of experience engineering and managing decorative water feature projects internationally. Sean is also knowledgeable on a variety of infrastructure elements, including pumping and piping systems, emergency power generators, compressed air, fire protection, electrical power distribution systems, chemical storage and delivery, control systems, and instrumentation. As a project manager, he is experienced in all stages of traditional and creative engineering projects, including engineering, construction management and coordination, production, startup and commissioning, and project closeout.



## SAVVAS SAVVAS, PE, LEED AP
### BUILDING AND MECHANICAL

Savvas has 36 years of experience in HVAC/plumbing/fire protection system design for commercial and industrial facilities. He has designed building mechanical services for water and wastewater treatment plants, hospitals, hotels, and high-rise buildings, with responsibilities encompassing 3D building mechanical modeling, value engineering, feasibility studies, energy modeling and analysis, and energy conservation studies. As a discipline lead, Savvas also performs quality assurance reviews for Stantec's building mechanical services discipline (BMSD) designs, provides oversight of discipline standards, maintains practice guides, and coordinates software licensing. He is responsible for the control of the BMSD's intellectual property, design tools, and software applications, including the coordination of advancement and staff training.



## NADARAJAN (SANKI) SANKARAN, PE
### SCADA DESIGN PACKAGE LEAD

Nadarajan (Sanki) brings 11 years of experience for both design and construction of electrical, instrumentation and control (E, I&C) and supervisory control and data acquisition (SCADA) systems. He has provided effective engineering solutions for water and wastewater treatment plants, oil & gas, and mining sectors using both PLC and DCS platforms in the US and internationally. He has developed smart P&ID's, network architecture diagrams, loop diagrams and technical specifications including control philosophies, instrumentation data sheets and instrument schedules in addition to single line diagrams, control schematics, electrical plans and electrical specifications. Additionally, he has both Allen Bradley PLC and HMI programming, redundant SCADA server and historian data configuration experience.



## BRUCE WONG, PE, PMP, ENV SP
### ELECTRICAL LEAD

Bruce brings 18 years of experience in design of power and control systems for numerous process configurations, including water/wastewater treatment plants. His design expertise includes chemical delivery/containments systems, low-, medium-, and high-voltage power generation/distribution, hydropower generation, high-voltage sub station design, and indoor/outdoor lighting design. Recently, Bruce assisted in the detailed design of two processes for a 16-MGD water recycling plant in the pacific northwest. In Southern California, Bruce has most recently worked with the City of South Pasadena and the Metropolitan Water District of Southern California.



## SIMON LIN, PH.D., PE, SE
### STRUCTURAL

With 19 years of national and international experience as a civil/structural engineer, Simon has a strong structural analysis background with hands-on structural design and project management experience. His professional expertise includes water delivery facilities, earthquake engineering, seismic retrofit and design, and applications of advanced technologies.



## COLE WARRICK PE
### CIVIL LEAD

Cole is a professional engineer with six years of progressive experience in preparing project specific specifications, drawings, cost estimates, and permitting for civil, mechanical, electrical, and instrumentation disciplines in municipal water and wastewater improvement projects. He is well-versed in project management and prepares design services proposals, fee adjustment requests, and monthly billing progress reports.



## DON CRONE
### PUMP STATION COST ESTIMATING

Don has 47 years of experience in the engineering and construction industry. His extensive experience includes project planning, estimating, contracts, allocation of labor and equipment resources, scheduling, budgeting, and overall project execution. Don's process for cost estimation includes site visits, reviewing local labor rates, developing equipment rates, and obtaining material prices and subcontractor quotes. The estimate is then developed by crew base estimating by performing quantity takeoffs and applying reasonable production rates for the crews. The estimates are prepared with direct cost and indirect cost with markup and appropriate contingencies added. These estimates are prepared to an AACE Class 2 estimate level. Over the course of Don's career, he has served as a surveyor, office engineer, field engineer, project engineer, estimator, project manager, operations manager, and Vice President of Operations of a top 10 ENR construction company. The last position made Don responsible for the financial viability of five area offices in the United States as well as construction groups.

DAHL consultants



## WAYNE C. DAHL, PE, PLS
### QA/QC

Mr. Dahl has over 40 years of experience in planning, design, and construction management of large civil engineering water resources projects including water banking, water conveyance, and water storage facilities. He has expertise in the design and construction of water distribution systems; hydrology and drainage projects; canals, channels, pipelines, and pump stations; reservoir design; and bridges and roadways for which he has served as the engineer of record for well over $1B of constructed infrastructure. Mr. Dahl is experienced in all phases of project and program implementation, including planning, analysis, design, plans and specifications, costing, bidding, and construction management.



## SUSAN FOX, PE
### QA/QC

Susan Fox is a registered engineer with over 15 years of experience in planning, design, and construction support of water resources projects with a focus in pipelines, canals, regulating reservoirs/tanks, pump/booster plants, pump station rehabilitation and improvements, and groundwater banking facilities. Ms. Fox's experience includes preparation of design plans and specifications, coordination of design activities, construction support, and the preparation of feasibility studies, design reports, and grant applications.



## JOHN DAHL
### CONSTRUCTABILITY REVIEW

Mr. Dahl has over 35 years of experience in construction management of pipelines, pumping plants, canals, levees, fish screens, spreading basins, regulating reservoirs, water treatment plants, and water wells. His responsibilities include preparing specifications, cost estimating, constructability review of drawings during design, reviewing contractor bid documents, project coordination with clients and contractors, construction quality assurance, construction cost control and scheduling, and preparing monthly progress payments and reports. He is also responsible for preparing operation and maintenance manuals, record drawings, and final reports of construction.

BENNETT
trenchless engineers



## KATHRYN WALLIN
### TRENCHLESS REACHES

Kathryn Wallin is a Senior Scientist for Bennett Trenchless Engineers. Ms. Wallin has been involved with trenchless design since 2005 and has provided design and construction management services on projects using horizontal directional drilling, microtunneling, pipe ramming, guided boring, and earth pressure balance pipe jacking. Ms. Wallin has cultivated relationships with owners, engineers, permitting agencies, contractors, and manufacturers within the field of trenchless technology to improve the standard of practice in the field. Ms. Wallin's technical duties include preparing construction cost estimates and construction schedules, technical specifications, detail drawings; performing design calculations; and conducting preliminary design tasks, including review of geotechnical information, alternative alignment evaluations, and alternative construction method evaluations.



## MATTHEW WALLIN, PE
### TRENCHLESS REACHES

Matthew Wallin has been involved in trenchless design and construction management since 2000. With an emphasis on geotechnical considerations, his experience includes the design and implementation of trenchless technology construction, geotechnical analysis and design, construction management and inspection, and trenchless technology consulting expert services. Specific focus is applied to new pipeline construction using horizontal directional drilling (HDD), auger boring, pilot-tube guided methods, pipe ramming, open-shield pipejacking, microtunneling, and conventional tunneling. He has provided claims evaluation and consulting expert services on disputes involving HDD, microtunneling, pipe reaming, utility strikes, and geotechnical differing site conditions. He has authored or co-authored over 20 technical papers on various aspects of trenchless technology, tunneling, and geotechnical engineering, and currently serves as Chair of the Board of Directors for the North American Society for Trenchless Technologies (NASTT) where he actively participates in trenchless industry education through NASTT's Good Practices Guidelines courses, taught throughout the US and Canada.

Soils Engineering Inc.



## ON MAN LAU, PE, GE
### GEOTECHNICAL ENGINEERING

Mr. Lau has more than 30 years of experience in geotechnical engineering, soils/earthwork observation and testing, and construction materials testing and inspection. His areas of expertise include investigations for foundations, seismic hazards, slope stability, liquefaction analyses, drainage studies, footing foundation designs, settlement evaluations, pavement designs, slab-on-grade design, drilled pier design and construction, pile driving design and construction, expansive soils, corrosive soils, excavation stability, shoring, compaction requirements and volumetric calculations.

His projects have included water and wastewater facilities, pipelines, canals, bridges, roadways and highways, schools, hospitals, parks, multi-story buildings, commercial office complexes, airports, energy sites, dams, retaining walls, manufacturing plants, and police/fire/prison sites. Mr. Lau has performed and managed geotechnical engineering and construction materials testing projects in Kern, Tulare, Kings and Fresno counties, and Owens Valley, Antelope Valley, and the Mojave Desert regions of California.



## ROBERT J. BECKER, PG, CEG, QSD/QSP
### GEOTECHNICAL ENGINEERING

Mr. Becker has more than 30 years of experience in environmental assessment and remediation, geologic investigations, and geotechnical investigations. His areas of expertise include investigations for environmental contamination (Phase 1 & Phase 2 Environmental Site Assessments), soil and groundwater sampling and remediation (soil vapor extraction, excavation and disposal, excavation and capping), soil gas surveys, oil well investigations, geologic hazard studies, seismic hazard investigations, earthquake fault investigations, GPR surveys, slope stability, liquefaction analyses and settlement evaluations, SWPPP and SPCC plans. Experienced with regulatory agencies such as the Department of Toxic Substances Control (DTSC), Regional Water Quality Control Board (RWQCB) and County & City agencies.

His projects have included water and wastewater facilities, recycling and dairy facilities, pipelines, numerous existing and proposed school sites, hospitals, parks, commercial office and retail complexes, residential tracts, energy sites (power plants, oil fields, wind and solar farms), dams, manufacturing plants, and police/fire/prison sites. Mr. Becker has performed and managed environmental and geologic engineering projects in Kern, Tulare, Kings, Santa Barbara, San Bernardino, Los Angeles and Fresno counties, and Owens Valley, Antelope Valley, and the Mojave Desert regions of California.

R F Yeager ENGINEERING
CORROSION ENGINEERING SERVICES



## RICHARD F. YEAGER JR., PE
### CORROSION ANALYSIS LEAD

Richard F. (Rick) Yeager Jr. is a California Registered Civil Engineer and a NACE International Certified Cathodic Protection Specialist with a broad background in corrosion engineering, inspections, and construction support services. Mr. Yeager has extensive experience in water and wastewater corrosion control and cathodic protection system designs, corrosivity assessments, pipe and coating materials of construction, and inspection and monitoring of installed piping systems. Additionally, Mr. Yeager has provided construction inspection services for projects that have included pipelines, water reservoirs, treatments plants, and roadways.



## RANDY J. GEVING, PE
### CORROSION ANALYSIS

Randy Geving has over thirty-five years of corrosion engineering experience in the water, wastewater, and oil & gas industries. Mr. Geving is a Registered Professional Corrosion Engineer and has served as engineering manager and lead project corrosion engineer for numerous water infrastructure projects. He has extensive experience in the design and installation of cathodic protection systems, condition assessment of metallic pipelines and concrete reinforced structures, metallic component failure analysis, and metallurgical materials selection for hydro processing and water/wastewater facilities.

# KEY STAFF RESUMES

Resumes for all team members can be found in the Appendix A to this submittal.

# REFERENCES, RELATED EXPERIENCE & EXAMPLES OF WORK

Provost & Pritchard and our subconsultants provide a broad range of professional services, making it easy for our clients to choose our team to manage and complete their most critical projects. While most of the required services can be provided in-house, we elected to tap into the expertise of our longstanding teaming partners to help us ensure that projects are scrutinized under the highest levels of design and quality control by experts in niche fields.

As noted in our cover letter, our entire team has worked closely on many projects, and will provide great value to the Project as a whole.

The following project descriptions are demonstrative of large and complex projects that are relevant to the design services required for IWVGA's Imported Water Conveyance System. Each individual resume included in the Appendix provides additional examples of relevant projects that further justify the careful selection of each team member.



**Redrock Randsburg Road looking west. Pipeline would be south of road. Photo taken by Provost & Pritchard during IWVGA Alignment Study.**

**PROVOST & PRITCHARD:**

# IMPORTED WATER PIPELINE ALIGNMENT STUDY, INDIAN WELLS VALLEY GROUNDWATER AUTHORITY

## CALIFORNIA CITY TO RIDGECREST, CA





**Reference:**

**Jeff Helsley, Engineering Manager**
Stetson Engineers Inc.
861 Village Oaks Drive, Suite 100, Covina, CA 91724
(626) 967-6202
JeffH@stetsonengineers.com

Provost & Pritchard performed the alignment study for a planned imported water pipeline from **California City to Ridgecrest** in Kern County, CA. Our team was responsible for projecting water demands, identifying connection and tie-in points, and defining capacity available at the connection point. Through the initial process, we identified eleven potential alignments and used a thorough screening process to narrow our focus to three, and then eventually to one preferred alternative. Screening criteria included environmental issues, capital and operating costs, permitting issues, potential community disruption, and constructability. We have worked with outside entities such as the Bureau of Land Management (**BLM**), **SCE**, **AVEK**, Los Angeles Department of Water and Power (**LADWP**), and the Indian Wells Valley Water District (**IWVWD**) to obtain information that was analyzed as part of the screening process. We also made presentations to the Authority Board and Technical Advisory Committee. In the process of performing this work, we performed portions of the preliminary design of the pipeline, including researching pipe materials and meeting with pipe manufacturers, developing a hydraulic profile for the system running back to AVEK's Mojave tank farm, and obtaining right of way and parcel ownership information. We have performed engineering, surveying, GIS mapping, and biological survey services during this process.

We are currently in the process of drafting the final report for presentation to the IWVGA Board, as well as continuing work that would otherwise have to be done in preliminary design.

**Implementation Results/Status:** This project is expected to be completed in February 2023.

**Project Team Members and Roles:**

- Jeff Davis, PE – Project Manager
- Jeff Eklund, PE – Principal-in-Charge
- Mike McGovern, PE – Project Engineer
- Nick Jacobson, PE – Hydraulic calculations and analysis
- Adam Ojeda, PE, QSD/QSP- Utility Research
- Tim Odom, PLS – Drone Survey
- Phil Slater – Mapping
- Matthew Kemp, PE – QA/QC
- Rick Darnley – Constructability Review
- Wayne Dahl, PE (Dahl Consultants)– Technical Adviser
- Kate Wallin (Bennett Trenchless Engineers) – Trenchless Design Consulting
- Matthew Wallin, PE (Bennett Trenchless Engineers) – Trenchless Design Consulting
- On Man Lau, PE, GE (SEI) – Geotechnical Engineering Consulting
- Robert Becker, PG, CEG, QSD/QSP (SEI) – Geotechnical Engineering Consulting

# FRIANT-KERN CANAL RAW WATER PIPELINE

## CITY OF FRESNO








**Reference:**

**Brock Buche, PE**
Director of Public Utilities
City of Fresno, Department of Public Utilities
1626 E Street, Fresno, CA 93706
(559) 621-1610
Brock.Buche@fresno.gov

Provost & Pritchard was responsible for design of a 5-mile long, 60-inch diameter raw water pipeline for the City of Fresno Northeast Surface Water Treatment Plant. An alignment study was conducted to select the most feasible alignment between the upper reaches of the Friant-Kern Canal and the City's Northeast Surface Water Treatment Plant. Selected pipe material for this project was cement mortar lined and coated welded steel pipe. The project included plant piping and controls integration, a crossing under the Big Dry Creek Diversion Channel, and a turnout and meter structure at the Friant-Kern Canal. The pipeline alignment was predominantly located outside roadways in easements across rolling terrain through sensitive biological habitats which required mitigation for various species, including the California Tiger Salamander. Permitting was required from numerous agencies, including the Army Corps of Engineers, the Bureau of Reclamation, California Fish and Wildlife, Friant Users Water Authority, Fresno Metropolitan Flood Control District, the County of Fresno and Garfield Water District. The project included an alignment study, stakeholder outreach, environmental review documents, permitting, right-of-way acquisition, land surveying, utility coordination and potholing, design, construction documents, and engineering services during bidding and construction.

**Results/Status:** Design and construction for this project is complete.

**Project Team Members and Roles:**

- Matthew Kemp, PE – Project Manager
- Chuck Armstrong, PE – Technical Adviser

## KINGS RIVER PIPELINE
### CITY OF FRESNO, CA



**Reference:**
**Martin Wendels**
City of Fresno, Department of Public Utilities
1626 E Street, Fresno, CA 93706
(559) 621-1627
martin.wendels@fresno.gov

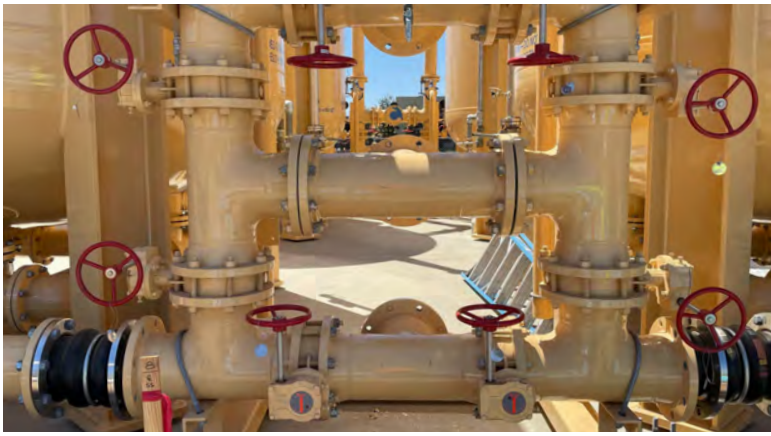
Provost & Pritchard was a teaming partner with Carollo Engineers to design a 4.3-mile segment of a 72" pipeline as part of the City of Fresno's new Southeast Water Treatment Facility (SEWTF). The plant provides potable water to users in the southeastern portion of the City's water service area. The purpose of the new pipeline was to provide raw water conveyance from the Kings River in the Fresno Canal, up to the point of diversion and transition to piped conveyance to the SEWTF. The alignment of the pipeline runs from the SEWTF location; east along Olive Avenue; south along Temperance Avenue; east along Belmont Avenue; and northeast along Trimmer Springs Road to the Fresno Canal at a location approximately 0.6 miles southwest of the Kings River diversion. Provost & Pritchard was responsible for design of the diversion structure and eastern segment of the pipeline. Permitting was required from numerous agencies, including the Fresno Irrigation District, Consolidated Irrigation District, and the County of Fresno.

**Implementation Results/Status:** Design and construction for this project is complete.

**Project Team Members and Roles:**

- Matthew Kemp, PE – Project Manager

## DESIGN-BUILD FOR TCP WELLHEAD TREATMENT
### CITY OF ATWATER, CA



**Reference:**
**Justin Vinson**
Public Works – Superintendent
City of Atwater
2101 "G" Street, Building A, Fresno, CA 93706
(209) 357-6375
jvinson@atwater.org

Provost & Pritchard prepared a TCP Mitigation Feasibility Study to address TCP contamination in all of the drinking water supply wells for the City of Atwater. The study included evaluation of alternative methods of mitigation and treatment, an evaluation of water quality, an assessment of existing well sites, development of schematic treatment site layouts, and preparation of capital and O&M cost opinions. The design-build team of Provost & Pritchard and W.M. Lyles Company completed a multi-site TCP treatment project for the City of Atwater. Provost & Pritchard provided surveying and engineering design services for GAC treatment of eight of the City's wells and three miles of 12" to 24" diameter transmission pipelines. Due to space limitations, all of the wells were treated at remote sites purchased by the City. Four wells were treated individually. The other three wells were treated at a centralized treatment plant with a capacity of 5,800 gpm. The design of one treatment plant was completed by Provost & Pritchard as part of a traditional design-bid-build process.

**Results/Status:** Construction was completed in 2022.

**Project Team Members and Roles:**

- Jeane Hill, PE – Design Engineer
- Kevin Berryhill, PE – Project Manager
- Chuck Armstrong, PE – Design Engineer
- Matt Barnes, PE – Design Engineer (Site Civil/Grading)

STANTEC

# FRIANT-KERN CANAL MIDDLE REACH CAPACITY AND SUBSIDENCE CORRECTION PROJECT, FRIANT WATER AUTHORITY

## FRESNO TO BAKERSFIELD, CA



**Reference:**

**Johnny Amaral**
Chief of External Affairs
Friant Water Authority
854 N. Harvard Avenue, Lindsay, CA 93247
(559) 368-2860
Jamaral@friantwater.org

The 152-mile Friant-Kern Canal (FKC), owned by the U.S. Bureau of Reclamation (Reclamation) and operated by the Friant Water Authority (FWA), has lost significant water delivery capacity due to regional land subsidence. Running from Millerton Lake on the San Joaquin River to the Kern River four miles west of Bakersfield, the FKC conveys water for agricultural and urban uses. The Project is to address original design and subsidence induced capacity reductions, which is most prevalent in the FKC Middle Reach (Milepost 88 to 121) in Tulare County, where the original design capacity varied from 4,500 to 2,500 cubic-feet-per-second. Following the severe drought of 1977, Reclamation performed corrective action work by raising the liner through a 17-mile long portion of this reach. More recent regional subsidence, including that induced by increased groundwater pumping during the drought period from 2012 through 2016, has caused further subsidence of the FKC and an approximate 60% reduction in canal capacity to levels that impair water delivery operations.

Starting in 2008, Stantec has supported development of technical approaches and alternatives for capacity corrections for the FKC. This work included the development of hydraulic models to identify bottlenecks in the FKC, water supply operations models to quantify potential water supply benefits, and estimating pre-appraisal-level engineering and construction costs for the corrective measures.

In 2018, Stantec was selected by FWA to provide engineering and environmental services for the FKC Subsidence Correction Project. Our team prepared alternative analyses,

*Continued on page 27*

**PROJECT HIGHLIGHTS:** ... 20 miles of new parallel canal that includes 16 new siphon undercrossings, 2 new check structures, 11 new distribution pump stations, 35 turnouts/ turnout modifications; and 11 miles of canal lining raise. Due to funding limitations, a 10-mile segment of the new parallel canal was designated as the Phase 1 project.







*Continued from page 26*

including hydraulic (i.e. HEC-RAS) and hydrological analyses, hydrogeology, surveying and mapping, geotechnical investigations and recommendations, and cost estimating. We identified, developed, and evaluated more than seven project alternatives, including a canal enlargement, bypass canal, parallel canal and pumping plants at several locations, under several flow requirements, and varying freeboard criteria. An analysis of potential future subsidence was conducted using a calibrated numerical groundwater flow model for a range of future hydrologic conditions and timing and magnitude of future groundwater pumping. Provost & Pritchard provided detailed topographic mapping, which was obtained to conduct 3D land surface modeling needed to estimate earthwork volumes (including borrow requirements) for alternative canal sections and estimate rights-of-way requirements. We evaluated alternatives for operational flexibility, constructability, durability, cost, schedule, and environmental impacts. Close coordination with FWA and Reclamation was conducted along with use of canal standards and criteria and development of feasibility studies per Reclamation principals and guidelines. Preliminary design for two alternatives (canal enlargement and parallel canal) was completed and the final design completed that has the following elements; 20 miles of new parallel canal that includes 16 new siphon undercrossings, 2 new check structures, 11 new distribution pump stations, 35 turnouts/turnout modifications; and 11 miles of canal lining raise. Due to funding limitations, a 10-mile segment of the new parallel canal was designated as the Phase 1 project. The Phase 1 Project construction is underway and is expected to be completed in 2025.

**Implementation Results/Status:** The Phase 1 Project construction is underway and is expected to be completed in 2025. Moving forward into design of next project phases.

**Project Team Members and Roles:**

- Sean Neprud – Process Mechanical Engineer
- Mike Georgalas – Hydraulics
- Sanki Sankaran – I&C/SCADA
- Tim Odom, PLS (Provost & Pritchard) – Land Surveyor

# HIGH DESERT WATER BANK (HDWB), AVEK

## ANTELOPE VALLEY, CA



**Reference:**

**Matt Knudson**
General Manager
AVEK
6450 W. Avenue N., Palmdale, CA 93551
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mknudson@avek.org

The HDWB will provide up to 70,000 acre-feet of annual groundwater storage with a maximum capacity of 280,000 acre-feet, improving the area's drought resiliency capabilities. This groundwater recharge project consists of a new 250 cfs capacity SWP turnout, pumps, pipelines, recharge basins, and electrical facilities. The HDWB effort symbolizes a different investment strategy for AVEK: partnering with Metropolitan Water District of Southern California (MWDSC) to improve MWDSC's drought resiliency and, as an ancillary benefit, expanding AVEK's future opportunities to improve regional water management and facilitate additional partnership opportunities.

Stantec developed a groundwater model which included early implementation of four pilot recovery wells to refine data to improve the groundwater model's predictability in the groundwater basin, groundwater quality, and potential groundwater yield for water recovery production.

Onsite infrastructure improvements included a water delivery/recovery conveyance system to provide water deliveries to the groundwater recharging basins and from the groundwater recovery well field. A 100 cfs pump station has been included in the overall project design to facilitate water deliveries to elevated portions of the site where gravity flow delivery was infeasible. The team designed a new 250 cfs capacity aqueduct turn-out/in facility reviewed for approval by the California DWR.

**Implementation Results/Status:** The implementation of the project has been segregated into several construction projects including the following:

- State Water Project Turn-out Facilities – Status currently in construction
- Recharge Basin Facilities and Delivery Conveyance Systems – Status currently in construction
- Recovery Wells 10 of 27 – Status Construction Completed
- Recovery Conveyance Systems and Well Equipping Design – Status in design

**Project Team Members and Roles:**

- Joe Long – Project Manager
- Cole Warrick – Project Coordinator/Project Engineer

# ROSEMONT WELL WATER DISTRIBUTION SYSTEM (WFDS) AND FRESH WATER DELIVERY SYSTEM (FWDS), HUDBAY MINERALS INC./ROSEMONT COPPER

## SAHUARITA, AZ




**PROJECT HIGHLIGHTS:** The design included two high-pressure pump stations to pump over 2,500 feet of elevation head, seven groundwater wells, 55,000 linear feet of 20-inch-high pressure steel, 15,000 feet of 22-inch, 250 psi HDPE pipe, and another 25,000 linear feet HDPE groundwater well collection pipe (eight- to 20-inch).



**Reference:**

**Clarissa Barraza**
Director of Engineering
Hudbay Mineral Inc.
5255 East Williams Circle, Tucson, AZ 85711
(520) 495-3514
clarissa.barraza@hudbayminerals.com

Stantec has been providing preliminary design, planning, and right-of-way support for this project since 2006. Given our understanding and history with the project, we were selected as the prime consultant for this contract when funding became available in 2015. We assisted Rosemont Copper with the plan and design of a well field and water supply system to deliver operating water to the company's proposed mine, just south of Tucson. The design included two high-pressure pump stations to pump over 2,500 feet of elevation head, seven groundwater wells, 55,000 linear feet of 20-inch-high pressure steel, 15,000 feet of 22-inch, 250 psi HDPE pipe, and another 25,000 linear feet HDPE groundwater well collection pipe (eight- to 20-inch). Our design required corridor assessment, maintenance road, pipe material option assessment, and ROW acquisition assistance for 14 miles of transmission main.

The project was value engineered in 2018 to reduce the number of pump stations from four to two, saving Rosemont millions of dollars in infrastructure development costs. It also included multiple agencies and stakeholder coordination, project management, alternatives analysis, crossings of highway and railroad, bridge hanging of pipeline, AC voltage and soil corrosion mitigation, public outreach support, and ROW acquisition support.

Implementation Results/Status: Stantec completed design through Issued for Construction (IFC). Construction on hold since 2019 due to Forest Service Case decision that made new interpretation of mining law.

**Project Team Members and Roles:**

- Mike Georgalas, Hydraulics Lead

DAHL CONSULTANTS

**PROJECT HIGHLIGHTS:**
The Phase I facilities included the Oasis Tower bypass, Lateral 97.1 Tie-In facility, a 60-acre feet reservoir, a control structure to maintain the required system pressures, and half a mile of 72-inch steel piping.

## OASIS IN-LIEU RECHARGE PROJECT, COACHELLA VALLEY WATER DISTRICT

### COACHELLA, CA

**Reference:**

**Dan Charlton**
Assistant General Manager
Coachella Valley Water District
75-515 Hovley Lane East
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dcharlton@cvwd.org

The team provided environmental documentation, preliminary design, public outreach, land acquisition, final design, engineering, and bid support for the Oasis In-Lieu Recharge Project. Dahl Consultants worked closely with CVWD to meet the tight schedule of the project, which is currently in the second phase of construction. The project consists of converting approximately 7,100 acres of land that is currently irrigated (or formerly irrigated) from groundwater wells to the use of up to 32,000 AF of canal water that will be delivered from the Coachella Canal.

The first phase of the Project, which was recently completed, included facilities to retire and replace the Oasis Tower. The Oasis Tower is a 40-foot-high circular standpipe that received water from Lateral 97.1 and served as a distribution point for five gravity flow laterals (including a wasteway pipeline) that exited the tower in a configuration similar to the spokes of a wagon wheel. Piping changes were required to bypass the Oasis Tower and the reconfiguration resulted in the Oasis Tower no longer being a functional part of the system. The Phase I facilities included the Oasis Tower bypass, Lateral 97.1 Tie-In facility, a 60-acre feet reservoir, a control structure to maintain the required system pressures, and half a mile of 72-inch steel piping.

The Phase II project facilities include 18 miles of pipeline that varies from 12 inches to 66 inches, four regulating/storage reservoirs, four new pump stations, two replacement pump stations, and 43 delivery points. The team provided all the easement acquisition activities to acquire a total of 75 easements (permanent easement, temporary construction easements, and land in fee) from 29 different landowners for all the Phase II facilities.

**Results/Status:** Under construction

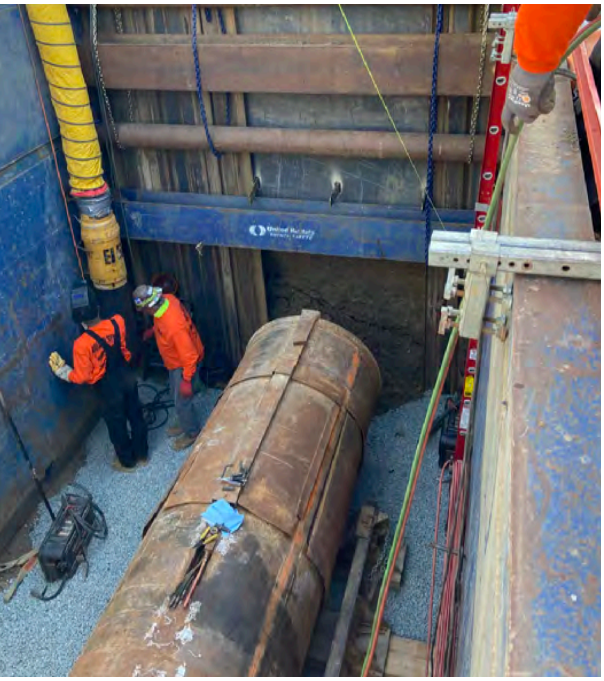
**Project Team Members and Roles:**

- Wayne Dahl – Project Manager
- Susan Fox – Project Engineer
- John Dahl – Cost Estimating/Constructability Review

BENNETT TRENCHLESS

# CROSS VALLEY PIPELINE EXTENSION PROJECT, SANTA CLARA VALLEY WATER DISTRICT

## SAN JOSE, CA





**Reference:**

**Ann Meyer**
Senior Engineer – Construction Services Unit
Santa Clara Valley Water District
5750 Almaden Expressway, San Jose, CA 95118
(408) 613-1978
AMeyer@ValleyWater.org

Bennett Trenchless provided trenchless design services as a subconsultant to Kennedy Jenks for an auger-bore crossing of UPRR and a major commuter corridor in Coyote, CA. The 205-foot crossing installed 54-inch steel casing for a 36-inch raw water pipeline as part of a larger pipeline resiliency program. Previous work in the area indicated a high likelihood of encountering significant gravel, cobbles, and boulders which could pose significant challenges for trenchless construction. BTE assisted in developing a geotechnical investigation that would identify the extent of problematic soil layers, as well as identifying seasonal fluctuations in groundwater elevation. Using the geotechnical data, BTE evaluated feasible trenchless construction methods, conducted a settlement analysis to identify the preferred crossing elevation to satisfy UPRR permit conditions, drafted technical tunneling specifications, identified preferred shaft locations to mitigate traffic impacts, and developed preliminary cost estimates. BTE also provided engineering services during construction including submittal review and full-time specialty construction inspection for the tunneling activities.

Challenges on the trenchless components of the project included mitigating risks associated with gravel and cobble lenses, selection of appropriate mitigation measures to limit risk of settlement to the UPRR tracks, working with RailPros during construction, constrained work areas on both sides of the crossing, developing an alignment that limited risk of damage to multiple existing utilities, limiting traffic impacts to a major commuter corridor, and a compressed design schedule.

**Results/Status:** Trenchless components were finished in May of 2022. Additional open-cut work was completed in Fall 2022.

**Project Team Members and Roles:**

- Kate Wallin – Trenchless Design Services
- Matthew Wallin, PE – Trenchless Design Services

This is one of the largest public works projects the City of Fresno has ever constructed with a total construction cost of over $500 million dollars. While employed at BSK Associates, On Man Lau was involved in these projects for over seven years from design through construction.

# RECHARGE PROGRAM

## CITY OF FRESNO, CA

**Reference:**

**Gino Rapagna**
VP, Director of Program Delivery, Program Management
AECOM
3071 E Franklin Rd, Suite 210, Meridian, ID 83642
(714) 425-4081
Gino.Rapagna@aecom.com

This is one of the largest public works projects the City of Fresno has ever constructed with a total construction cost of over $500 million dollars. While employed at BSK Associates, On Man Lau was involved in these projects for over seven years from design through construction.

The projects consisted of:

- The 4.5-mile long, 60-inch diameter Friant-Kern Canal Pipeline to convey surface water from the Friant-Kern Canal to the existing Northeast Surface Water Treatment Facility.
- The 13-mile long, 72-inch diameter Kings River Pipeline to convey surface water from the Kings River to the new Southeast Surface Water Treatment Facility.
- The Southeast Surface Water Treatment Facility, which treats over 54 million gallons per day of drinking water.
- The 13-mile long, 20- to 66-inch diameter Regional Transmissions Mains that convey treated drinking water from the new Southeast Surface Water Treatment Facility to the existing smaller diameter mains.
- The 20-mile long Recycled Water Transmissions Mains that convey recycled water from the Fresno-Clovis Regional Water Reclamation Facility into the City of Fresno for irrigation use and groundwater recharge.

**Results/Status:** Mr. Lau completed this work while employed at BSK Associates.

**Project Team Members and Roles:**

- On Man Lau, PE, GE – Mr. Lau has served as senior geotechnical reviewer for the geotechnical engineering investigations and Project Manager for the Quality Assurance materials testing and special inspection services as the numerous projects have proceeded to construction.

## GEOLOGIC HAZARD STUDIES, PRELIMINARY ENVIRONMENTAL ASSESSMENTS (PEA) AND REMEDIAL ACTION, KERN HIGH SCHOOL DISTRICT

### BAKERSFIELD, CA

**Reference:**

**Jenny Hannah Brown**
Facilities Director
Kern High School District
801 S. Mt. Vernon Ave., Bakersfield, CA 93307
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jenny_hannah@kernhigh.org

SEI conducted the following Geologic, Environmental & Geotechnical Services at eight (8) New High School Sites for the KHSD. Our team conducted Geologic Hazard Studies and Geotechnical Investigations at eight proposed High School sites which included determining the soil type and characteristic of the subsurface soil by advancing soil borings and collecting soil samples for geotechnical testing; determining the geologic setting of each site based on the review of available Geologic Maps and the soil/rock encountered in the soil borings conducted; determining if the site is within or near any Alquist-Priolo Fault zones; determining the Site Class and Seismic Design Parameters for each site based on site-specific characteristics (blowcount per foot, soil types, USGS fault location data, etc); evaluating the seismic hazard for the site based on the nearby active faults and their historical activity and intensity/magnitude of the earthquakes on these faults; determining the flood zones and if they are in a flood inundation area of potential concern; determining liquefaction potential and estimating seismic induced settlement at each site; assist in the preparation of the Geotechnical Investigation reports.

**Results/Status:** For the Kern High School Projects 6 of the 8 sites mentioned are completed. The Career Technical Training Center (CTEC) is still undergoing annual inspections but nothing major left. The new Del Oro High School is currently under construction.

**Project Team Members and Roles:**

- Robert Becker, PG, CEG, QSD/QSP – Principal Geologist and Project Manager for Geologic Hazard Studies, Preliminary Environmental Assessments (PEAs), and Remedial Action Implementation
- On Man Lau – Principal Geotechnical Engineer for Geotechnical Investigation for Del Oro High School

**RF YEAGER**

## MORENA PUMP STATION AND CONVEYANCE SYSTEM PROJECT, CITY OF SAN DIEGO

### SAN DIEGO, CA

**Reference:**

**Ernesto R. Fernandez, P.E.**
Senior Corrosion Engineer
City of San Diego
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(858) 614-5560
EFernandez@sandiego.gov

The Project is part of the City of San Diego's Pure Water Program and includes approximately 11 miles of 48-inch Steel Force Main and 30-inch Brine Pipeline. Also included in the Project is a Pump Station with approximately 3.5 miles of 36-inch Waterline. As Project Corrosion Engineer, RF Yeager Engineering Inc. conducted a corrosivity assessment along the pipeline alignments and provided impressed current cathodic protection designs (4 rectifiers and deepwell anode beds) for the buried metallic pipelines as well as galvanic anode cathodic protection for the buried pump station yard piping. The cathodic protection design included utility and alignment review to determine appropriate locations for rectifiers, deepwell anode beds, and where electrical power is available. Additionally, provided current requirement calculations, cathodic protection design details, specifications, and cost estimates.

**Results/Status:** Currently under construction

**Project Team Members and Roles:**

- Richard F. Yeager, Jr., PE – Senior Corrosion Engineer
- Randy J. Geving, PE – Senior Corrosion Engineer

# STATEMENT OF FINANCIAL CAPACITY

Provost & Pritchard Consulting Group continues to be a financially strong and viable consulting services firm with many employees having been with the company for more than 10 years. Provost & Pritchard's management is comprised of key principals and officers who are also shareholders with an average of over 15 years of service to the company. They continue to follow the prudent approach to financial management and growth of the company as established by its founders. Provost & Pritchard's staff utilize the latest project management tools that allow them to monitor both a project's schedule and budget in real-time. Ultimately this allows our project managers to keep projects on time and on budget. Through this success, the company has been able to fund its operations from its own resources, without the need for external borrowing.

# SCHEDULE

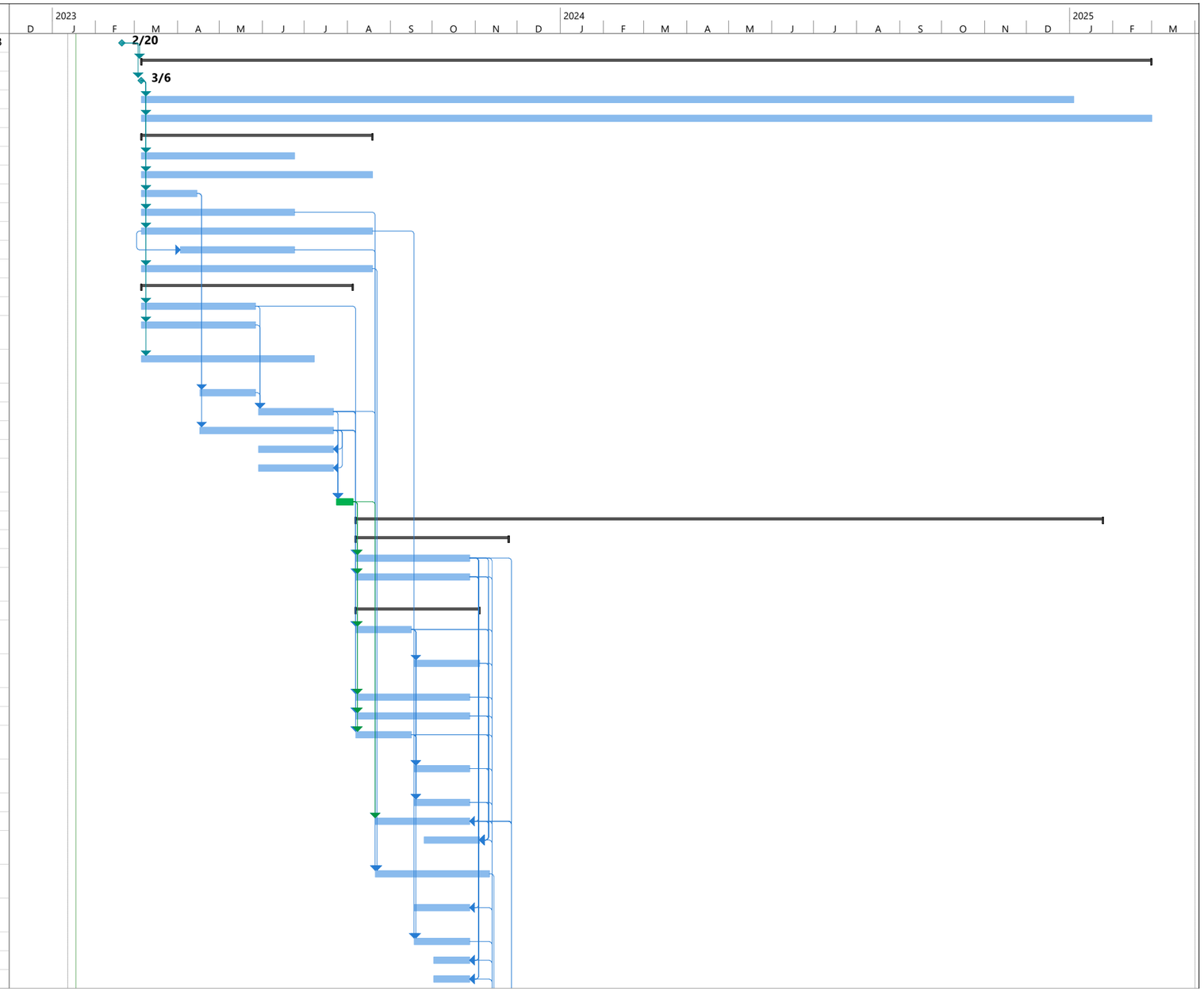
## SCHEDULE SUMMARY: DESIGN + ENVIRONMENTAL

The following summary schedule provides an overview of the overall Project with overlapping Design, CEQA/NEPA process, and Permitting tasks (the latter two are based on Provost & Pritchard's Environmental Consultant Proposal). For a detailed breakdown of the Design schedule, please refer to the Gantt chart on the following two pages. The tasks in the Gantt chart are organized consistent with the Scope of Work.

| | 2023 | | | | | | | | | | 2024 | | | | | | | | | | | | 2025 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Mar | Apr | May | June | July | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | June | July | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar |
| **DESIGN** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Notice to Proceed / Project Kickoff | | | | | | | | | | | | | | | | | | | | | | | | | |
| Preliminary Design | | | | | | | | | | | | | | | | | | | | | | | | | |
| Final Design | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30% Submittal | | | | | | | | | | | | | | | | | | | | | | | | | |
| 60% Submittal | | | | | | | | | | | | | | | | | | | | | | | | | |
| 90% Submittal | | | | | | | | | | | | | | | | | | | | | | | | | |
| 100% Submittal | | | | | | | | | | | | | | | | | | | | | | | | | |
| **PROJECT COMPLETION DEADLINE** | | | | | | | | | | | | | | | | | | | | | | | | | |
| **ENVIRONMENTAL** | | | | | | | | | | | | | | | | | | | | | | | | | |
| NTP/Project Kickoff | | | | | | | | | | | | | | | | | | | | | | | | | |
| Initial Study | | | | | | | | | | | | | | | | | | | | | | | | | |
| Technical Studies | | | | | | | | | | | | | | | | | | | | | | | | | |
| Administrative Draft EIR/EA | | | | | | | | | | | | | | | | | | | | | | | | | |
| Notice of Preparation | | | | | | | | | | | | | | | | | | | | | | | | | |
| Draft EA/Focused EIR | | | | | | | | | | | | | | | | | | | | | | | | | |
| Notice of Completion/ Notice of Availability | | | | | | | | | | | | | | | | | | | | | | | | | |
| 45-Day Public Review | | | | | | | | | | | | | | | | | | | | | | | | | |
| Final EA/EIR & Board Adoption | | | | | | | | | | | | | | | | | | | | | | | | | |
| File Notice of Determination; NEPA/FONSI Determination | | | | | | | | | | | | | | | | | | | | | | | | | |
| **PERMITTING** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Regulatory Compliance Technical Report | | | | | | | | | | | | | | | | | | | | | | | | | |
| BLM Special Use Permit and Coordination with BLM | | | | | | | | | | | | | | | | | | | | | | | | | |
| Federal Endangered Species Act Consultation | | | | | | | | | | | | | | | | | | | | | | | | | |
| California Endangered Species Act Incidental Take Permit | | | | | | | | | | | | | | | | | | | | | | | | | |
| Section 404 Permit | | | | | | | | | | | | | | | | | | | | | | | | | |
| Section 401 Permit | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1600 Lake or Streambed Alteration Agreement Notification | | | | | | | | | | | | | | | | | | | | | | | | | |

# DESIGN SCHEDULE DETAIL

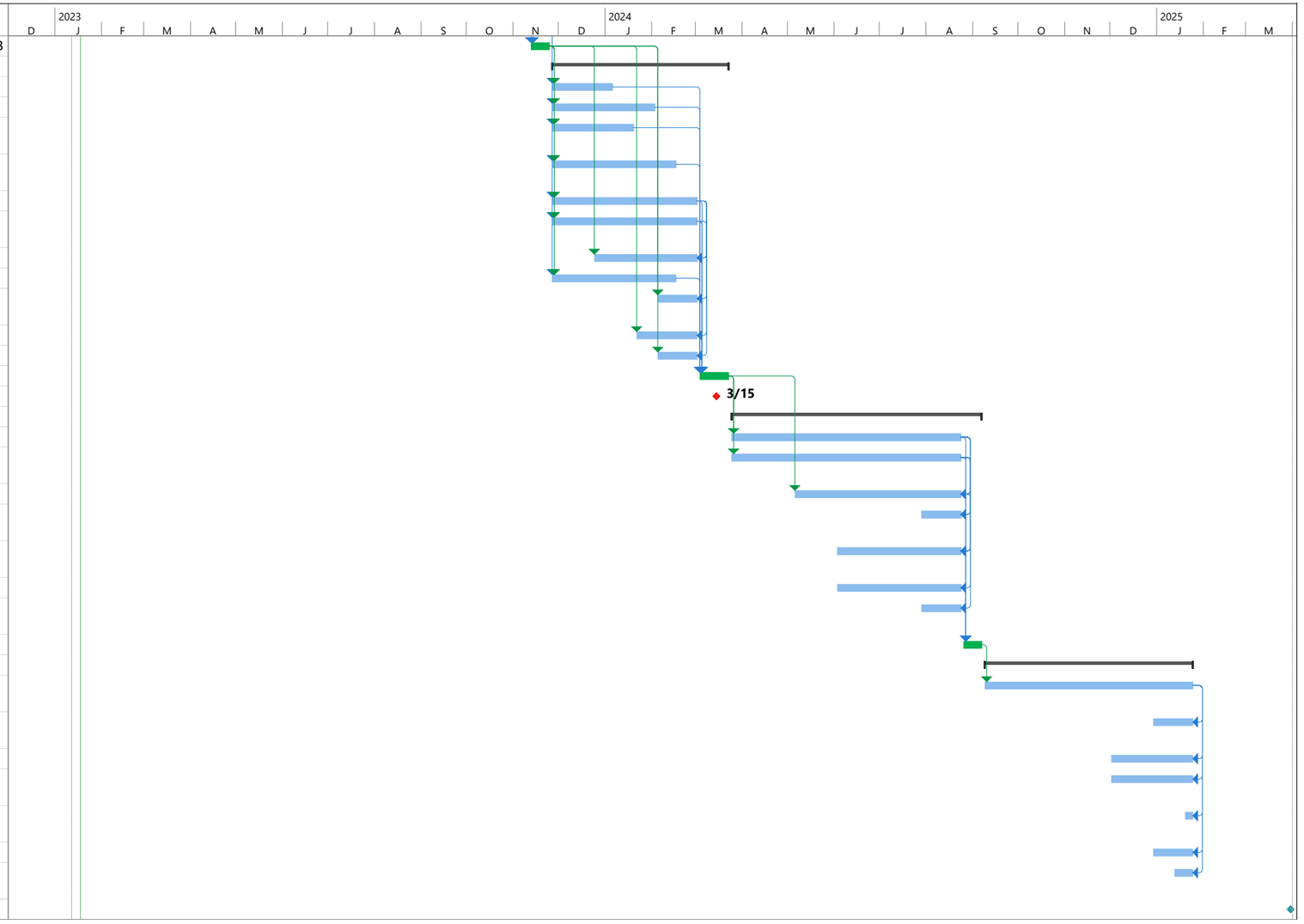
| ID | Task Name | Duration | Start | Finish |
|---|---|---|---|---|
| 1 | **Projected Contract Start Date** | 0 days | Mon 2/20/23 | Mon 2/20/23 |
| 2 | **Task 1 - Project Management** | **520 days** | **Mon 3/6/23** | **Fri 2/28/25** |
| 3 | 1.1 Kickoff Meeting | 0 days | Mon 3/6/23 | Mon 3/6/23 |
| 4 | 1.2 Coordination Meetings | 24 mons | Mon 3/6/23 | Fri 1/3/25 |
| 5 | 1.3 General PM | 26 mons | Mon 3/6/23 | Fri 2/28/25 |
| 6 | **Task 2 - Preliminary Design** | **120 days** | **Mon 3/6/23** | **Fri 8/18/23** |
| 7 | 2.1 Coordination | 16 wks | Mon 3/6/23 | Fri 6/23/23 |
| 8 | 2.2 Environmental and ROW Coordination | 24 wks | Mon 3/6/23 | Fri 8/18/23 |
| 9 | 2.3 Control and UAV Surveys | 6 wks | Mon 3/6/23 | Fri 4/14/23 |
| 10 | 2.4 Utility Research/Coordination | 16 wks | Mon 3/6/23 | Fri 6/23/23 |
| 11 | 2.5 Geotechnical Services | 24 wks | Mon 3/6/23 | Fri 8/18/23 |
| 12 | 2.6 Corrosion Protection and System Design | 12 wks | Mon 4/3/23 | Fri 6/23/23 |
| 13 | 2.7 Permits | 24 wks | Mon 3/6/23 | Fri 8/18/23 |
| 14 | **2.8 Preliminary Design Report** | **110 days** | **Mon 3/6/23** | **Fri 8/4/23** |
| 15 | 2.8.01 Preliminary System Hydraulics TM | 12 wks | Mon 3/6/23 | Fri 5/26/23 |
| 16 | 2.8.02 Pipe Optimizations and Refinement TM | 12 wks | Mon 3/6/23 | Fri 5/26/23 |
| 17 | 2.8.03 Sub-Regional Power Availability and Coordination with SCE TM | 18 wks | Mon 3/6/23 | Fri 7/7/23 |
| 18 | 2.8.04 Pipe Crossings TM | 6 wks | Mon 4/17/23 | Fri 5/26/23 |
| 19 | 2.8.05 Preliminary Design Report | 8 wks | Mon 5/29/23 | Fri 7/21/23 |
| 20 | 2.8.06 Preliminary Design Drawings | 14 wks | Mon 4/17/23 | Fri 7/21/23 |
| 21 | 2.8.07 Preliminary Design Level EOPCC | 8 wks | Mon 5/29/23 | Fri 7/21/23 |
| 22 | 2.8.08 Preliminary Design Level Construction Schedule | 8 wks | Mon 5/29/23 | Fri 7/21/23 |
| 23 | **Agency Review** | 2 wks | Mon 7/24/23 | Fri 8/4/23 |
| 24 | **Task 3 - Final Design** | **385 days** | **Mon 8/7/23** | **Fri 1/24/25** |
| 25 | **Task 3.1 - 30% Submittal** | **80 days** | **Mon 8/7/23** | **Fri 11/24/23** |
| 26 | 3.1.01 Prepare 30% Pipeline Design Plans | 12 wks | Mon 8/7/23 | Fri 10/27/23 |
| 27 | 3.1.02 Prepare 30% Pumping Facility Design Plans | 12 wks | Mon 8/7/23 | Fri 10/27/23 |
| 28 | **3.1.03 Complete Design Technical Studies** | **65 days** | **Mon 8/7/23** | **Fri 11/3/23** |
| 29 | 3.1.03.A System Hydraulics and Transient Mitigation Analysis TM | 6 wks | Mon 8/7/23 | Fri 9/15/23 |
| 30 | 3.1.03.B Pipe Design Calculation Summary | 7 wks | Mon 9/18/23 | Fri 11/3/23 |
| 31 | 3.1.03.C Required Pipeline Facilities | 12 wks | Mon 8/7/23 | Fri 10/27/23 |
| 32 | 3.1.03.D Blending Tank Design | 12 wks | Mon 8/7/23 | Fri 10/27/23 |
| 33 | 3.1.03.E Mechanical Process Pump Selection TM | 6 wks | Mon 8/7/23 | Fri 9/15/23 |
| 34 | 3.1.03.F Electrical System Equipment Requirements TM | 6 wks | Mon 9/18/23 | Fri 10/27/23 |
| 35 | 3.1.03.G Instrumentation and Control TM | 6 wks | Mon 9/18/23 | Fri 10/27/23 |
| 36 | 3.1.03.H Corrosion Assessment TM | 10 wks | Mon 8/21/23 | Fri 10/27/23 |
| 37 | 3.1.04 Outline of Project Specifications with Narrative | 6 wks | Mon 9/25/23 | Fri 11/3/23 |
| 38 | 3.1.05 Preliminary Permitting Requirements TM | 12 wks | Mon 8/21/23 | Fri 11/10/23 |
| 39 | 3.1.06 Recommendations for Potholing Locations | 6 wks | Mon 9/18/23 | Fri 10/27/23 |
| 40 | 3.1.07 Prepare Final Geotechnical Reports | 6 wks | Mon 9/18/23 | Fri 10/27/23 |
| 41 | 3.1.08 Revise EOPCC | 4 wks | Mon 10/2/23 | Fri 10/27/23 |
| 42 | 3.1.09 Revise Construction Schedule | 4 wks | Mon 10/2/23 | Fri 10/27/23 |




*Continued on page 37*

*Continued from page 36*

| ID | Task Name | Duration | Start | Finish |
|---|---|---|---|---|
| 43 | **Agency Review** | 2 wks | Mon 11/13/2 | Fri 11/24/23 |
| 44 | **Task 3.2 - 60% Submittal** | **85 days** | **Mon 11/27/23** | **Fri 3/22/24** |
| 45 | 3.2.01 Potholing of Existing Utilities | 6 wks | Mon 11/27/23 | Fri 1/5/24 |
| 46 | 3.2.02 Cathodic Protection System Design | 10 wks | Mon 11/27/23 | Fri 2/2/24 |
| 47 | 3.2.03 Complete Project Description for CEQA/NEPA Process | 8 wks | Mon 11/27/23 | Fri 1/19/24 |
| 48 | 3.2.04 Develop Special Provisions and Special Conditions | 12 wks | Mon 11/27/23 | Fri 2/16/24 |
| 49 | 3.2.05 Prepare 60% Pipeline Design Plans | 14 wks | Mon 11/27/23 | Fri 3/1/24 |
| 50 | 3.2.06 Prepare 60% Pumping Facility Design Plans | 14 wks | Mon 11/27/23 | Fri 3/1/24 |
| 51 | 3.2.07 Prepare 60% Specifications | 10 wks | Mon 12/25/23 | Fri 3/1/24 |
| 52 | 3.2.08 Material Supplier Coordination | 12 wks | Mon 11/27/23 | Fri 2/16/24 |
| 53 | 3.2.09 Prepare Response to 30% Review Comments | 4 wks | Mon 2/5/24 | Fri 3/1/24 |
| 54 | 3.2.10 Prepare 60% Level EOPCC | 6 wks | Mon 1/22/24 | Fri 3/1/24 |
| 55 | 3.2.11 Revise Construction Schedule | 4 wks | Mon 2/5/24 | Fri 3/1/24 |
| 56 | **Agency Review** | 3 wks | Mon 3/4/24 | Fri 3/22/24 |
| 57 | **60% Design Submittal Deadline** | 0 days | Fri 3/15/24 | Fri 3/15/24 |
| 58 | **Task 3.3 - 90% Submittal** | **120 days** | **Mon 3/25/24** | **Fri 9/6/24** |
| 59 | 3.3.01 Prepare 90% Pipeline Design Plans | 22 wks | Mon 3/25/24 | Fri 8/23/24 |
| 60 | 3.3.02 Prepare 90% Pumping Facility Design Plans | 22 wks | Mon 3/25/24 | Fri 8/23/24 |
| 61 | 3.3.03 Prepare 90% Specifications | 16 wks | Mon 5/6/24 | Fri 8/23/24 |
| 62 | 3.3.04 Prepare Response to 60% Review Comments | 4 wks | Mon 7/29/24 | Fri 8/23/24 |
| 63 | 3.3.05 Prepare Final Summary of Permitting Reqs. | 12 wks | Mon 6/3/24 | Fri 8/23/24 |
| 64 | 3.3.06 Prepare 90% Level EOPCC | 12 wks | Mon 6/3/24 | Fri 8/23/24 |
| 65 | 3.3.07 Prepare 90% Level Construction Schedule | 4 wks | Mon 7/29/24 | Fri 8/23/24 |
| 66 | **Agency Review** | 2 wks | Mon 8/26/24 | Fri 9/6/24 |
| 67 | **Task 3.4 - 100% Submittal** | **100 days** | **Mon 9/9/24** | **Fri 1/24/25** |
| 68 | 3.4.01 Prepare 100% Final Design Drawings and Specifications | 20 wks | Mon 9/9/24 | Fri 1/24/25 |
| 69 | 3.4.02 Prepare Response to 90% Design Review Comments | 4 wks | Mon 12/30/24 | Fri 1/24/25 |
| 70 | 3.4.03 Prepare QA/QC Package for Review | 8 wks | Mon 12/2/24 | Fri 1/24/25 |
| 71 | 3.4.04 Prepare 100% Constructability Review Report | 8 wks | Mon 12/2/24 | Fri 1/24/25 |
| 72 | 3.4.05 Prepare Statement of Completeness Letter | 1 wk | Mon 1/20/25 | Fri 1/24/25 |
| 73 | 3.4.06 Prepare 100% Level EOPCC | 4 wks | Mon 12/30/24 | Fri 1/24/25 |
| 74 | 3.4.07 Prepare 100% Level Construction Schedule | 2 wks | Mon 1/13/25 | Fri 1/24/25 |
| 75 | **Project Completion Deadline** | 0 days | Mon 3/31/25 | Mon 3/31/25 |



# FEE STRUCTURE AND SCHEDULE

The fee on the following page represents Provost & Pritchard's Fee Estimate for the proposed Imported Water Conveyance System Design Services. Each project task will be performed on a time and material basis. Several optional tasks have been suggested with no cost estimates for them presented at this time. Should the Authority wish to proceed with any of the optional tasks, we will provide a fee estimate for approval prior to beginning the task. Should Provost & Pritchard be selected for both the design services and the CEQA work, we estimate that the coordination effort and efficiency gain will reduce our fees for both projects.

## FEE SCHEDULES

Fee schedules for Provost & Pritchard and our subconsultants can be found beginning on page 40.

# PROPOSED FEE

**PROPOSAL FOR INDIAN WELLS VALLEY GROUNDWATER AUTHORITY**
**IMPORTED WATER CONVEYANCE SYSTEM DESIGN SERVICES**
**Estimated Staffing Plan and Cost Breakdown**

| Task | P&P Staffing Plan | | | | | | | | | | | | | | | | P&P Totals | | | Sub-Consultant Totals | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Principal Engineer II | Principal Engineer IV | Principal Const. Manager IV | Senior Engineer V | Senior Engineer V | Senior Engineer III | Assoc. Engineer V | Assist. Engineer IV | Senior Tech V | Assoc. Tech IV | Assist. Tech III | Licensed Surveyor IV | 2 man Survey Prevail | UAV Drone Services | Assoc. GIS Spec. II | Project Admin IV | Total Hours | Subtotal Labor | P&P Expenses | Dahl | Stantec | SEI | BTE | Pace Analytical (WQ Testing) | Yeager | Total Fee |
| **TASK 1 - PROJECT MANAGEMENT** Unit Rate: | $222 | $243 | $220 | $200 | $200 | $183 | $161 | $131 | $163 | $124 | $96 | $185 | $290 | $215 | $116 | $106 | | | | | | | | | | |
| 1.1 Kickoff Meeting | *8* | *16* | *0* | *16* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | *8* | *0* | *0* | *0* | *0* | 48 | $10,344 | *$750* | *$1,176* | *$2,832* | *$0* | *$0* | | *$0* | **$15,102** |
| 1.2 Coordination Meetings | *32* | *426* | *0* | *516* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | *24* | 998 | $216,366 | *$3,399* | *$0* | *$40,292* | *$0* | *$0* | | *$0* | **$260,057** |
| 1.3 General Project Management | *136* | *406* | *0* | *208* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | *64* | 814 | $177,234 | *$0* | *$0* | *$130,144* | *$0* | *$0* | | *$0* | **$307,378** |
| Task units | *176* | *848* | *0* | *740* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | *8* | *0* | *0* | *0* | *88* | 1,860 | | | | | | | | | |
| Task Total $ | *$39,072* | *$206,064* | *$0* | *$148,000* | *$0* | *$0* | *$0* | *$0* | *$0* | *$0* | *$0* | *$1,480* | *$0* | *$0* | *$0* | *$9,328* | | $403,944 | *$4,150* | *$1,176* | *$173,268* | *$0* | *$0* | | *$0* | **$582,537** |
| **TASK 2 - PRELIMINARY DESIGN** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2.1 Coordination | *8* | *24* | *0* | *60* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | *48* | 140 | $24,786 | *$0* | *$0* | *$39,200* | *$0* | *$0* | | *$0* | **$63,986** |
| 2.2 Environ. & ROW Consultant Coord. | *0* | *48* | *0* | *60* | *0* | *24* | *0* | *0* | *0* | *0* | *0* | *8* | *0* | *0* | *0* | *0* | 140 | $29,626 | *$0* | *$0* | *$0* | *$0* | *$0* | | *$0* | **$29,626** |
| 2.3 Surveying | *0* | *6* | *0* | *97* | *0* | *0* | *0* | *0* | *40* | *0* | *0* | *168* | *152* | *40* | *0* | *0* | 503 | $111,207 | *$9,616* | *$0* | *$0* | *$0* | *$0* | | *$0* | **$120,824** |
| 2.4 Utility Research/Coordination | *0* | *2* | *0* | *72* | *0* | *100* | *0* | *40* | *0* | *0* | *20* | *0* | *0* | *0* | *20* | *16* | 270 | $44,452 | *$666* | *$0* | *$0* | *$0* | *$0* | | *$0* | **$45,118** |
| 2.5 Geotechnical Services | *1* | *2* | *0* | *32* | *0* | *8* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | *8* | *4* | 55 | $10,014 | *$0* | *$0* | *$0* | *$718,512* | *$0* | | *$0* | **$728,525** |
| 2.6 Corrosion Analysis and Engineering | *0* | *2* | *0* | *32* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | 34 | $6,976 | *$0* | *$0* | *$0* | *$0* | *$0* | | *$37,277* | **$44,253** |
| 2.7 Permits | *0* | *40* | *0* | *100* | *0* | *0* | *0* | *100* | *0* | *0* | *0* | *0* | *0* | *0* | *50* | *0* | 290 | $48,710 | *$300* | *$0* | *$0* | *$0* | *$0* | | *$0* | **$49,010** |
| 2.8 Preliminary Design Report | *54* | *30* | *8* | *227* | *128* | *8* | *185* | *162* | *173* | *228* | *348* | *0* | *0* | *0* | *0* | *32* | 1,583 | $237,809 | *$0* | *$25,394* | *$99,901* | *$0* | *$107,567* | | *$0* | **$470,671** |
| Task units | *63* | *154* | *8* | *683* | *128* | *140* | *185* | *302* | *213* | *228* | *368* | *176* | *152* | *40* | *78* | *100* | 3,018 | | | | | | | | | |
| Task Total $ | *$13,986* | *$37,422* | *$1,760* | *$136,637* | *$25,600* | *$25,620* | *$29,785* | *$39,562* | *$34,719* | *$28,272* | *$35,328* | *$32,560* | *$44,080* | *$8,600* | *$9,048* | *$10,600* | | $513,579 | *$10,582* | *$25,394* | *$139,101* | *$718,512* | *$107,567* | | *$37,277* | **$1,552,011** |
| **TASK 3 - FINAL DESIGN** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3.1 30% Submittal | *66* | *15* | *40* | *393* | *256* | *80* | *369* | *324* | *346* | *455* | *543* | *0* | *0* | *0* | *0* | *28* | 2,915 | $441,382 | *$4,280* | *$25,394* | *$487,893* | *$201,016* | *$0* | | *$19,992* | **$1,179,957** |
| 3.2 60% Submittal | *50* | *36* | *40* | *405* | *320* | *40* | *416* | *365* | *432* | *568* | *668* | *0* | *0* | *0* | *0* | *0* | 3,339 | $500,552 | *$4,280* | *$25,394* | *$587,829* | *$0* | *$43,775* | | *$112,375* | **$1,274,205** |
| 3.3 90% Submittal | *47* | *12* | *40* | *573* | *320* | *40* | *462* | *405* | *432* | *568* | *668* | *40* | *0* | *0* | *0* | *0* | 3,607 | $547,797 | *$4,280* | *$25,394* | *$186,506* | *$0* | *$63,767* | | *$38,661* | **$866,406** |
| 3.4 100% Final Submittal | *26* | *13* | *160* | *475* | *256* | *20* | *369* | *324* | *346* | *455* | *727* | *40* | *0* | *0* | *0* | *41* | 3,252 | $490,143 | *$15,435* | *$0* | *$125,073* | *$0* | *$19,992* | | *$63,859* | **$714,502** |
| Task units | *189* | *76* | *280* | *1845* | *1152* | *180* | *1616* | *1418* | *1556* | *2046* | *2606* | *80* | *0* | *0* | *0* | *69* | 13,113 | | | | | | | | | |
| Task Total $ | *$41,958* | *$18,468* | *$61,600* | *$369,049* | *$230,400* | *$32,940* | *$260,144* | *$185,693* | *$253,628* | *$253,704* | *$250,176* | *$14,800* | *$0* | *$0* | *$0* | *$7,314* | | $1,979,873 | *$28,275* | *$76,183* | *$1,387,300* | *$201,016* | *$127,535* | | *$234,888* | **$4,035,070** |
| **TASK 4 - Optional Tasks** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4.1 Scour Analysis of BLM Drainage Crossings | | | | | | | | | | | | | | | | | 0 | $0 | | | *$128,640* | | | | | **$147,936** |
| 4.2 Water Quality Bench Testing for AVEK and IWVWD Water Sources | | *11* | | *8* | | | *42* | *295* | | | | | | | | *8* | 364 | $50,528 | *$4,125* | | | | | *$110,000* | | **$164,653** |
| Task units | *0* | *11* | *0* | *8* | *0* | *0* | *42* | *295* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | *8* | 364 | | | | | | | | | |
| Task Total $ | *$0* | *$2,673* | *$0* | *$1,600* | *$0* | *$0* | *$6,762* | *$38,645* | *$0* | *$0* | *$0* | *$0* | *$0* | *$0* | *$0* | *$848* | | $50,528 | *$4,125* | *$0* | *$128,640* | *$0* | *$0* | | *$0* | **$312,589** |
| **Project Total units** | *428* | *1089* | *288* | *3276* | *1280* | *320* | *1843* | *2015* | *1769* | *2274* | *2974* | *264* | *152* | *40* | *78* | *265* | 18,355 | | | | | | | | | |
| **Project Total $** | *$95,016* | *$264,627* | *$63,360* | *$655,286* | *$256,000* | *$58,560* | *$296,691* | *$263,900* | *$288,347* | *$281,976* | *$285,504* | *$48,840* | *$44,080* | *$8,600* | *$9,048* | *$28,090* | | **$2,897,396** | ***$43,007*** | ***$102,753*** | ***$1,699,668*** | ***$919,528*** | ***$235,102*** | | ***$272,164*** | **$6,480,000** |

Environmental Coordination Reduction **($40,000)**

Total Estimated Fee: **$6,440,000**

# 2023 STANDARD FEE SCHEDULE

This schedule supersedes previously published fee schedules as of the effective date of January 1, 2023.
*Multi-year contracts are subject to any subsequent changes in these rates.*

| Staff Type | Fee Range |
|---|---|
| **Engineering Staff** | |
| Assistant Engineer | $105.00 – $138.00 |
| Associate Engineer | $126.00 – $161.00 |
| Senior Engineer | $164.00 – $200.00 |
| Principal Engineer | $207.00 – $253.00 |
| Associate Structural Engineer | $120.00 – $151.00 |
| Senior Structural Engineer | $150.00 – $185.00 |
| Principal Structural Engineer | $190.00 – $235.00 |
| **Specialists** | |
| Assistant Biologist | $90.00 – $110.00 |
| Associate Biologist | $110.00 – $135.00 |
| Principal Biologist | $165.00 – $200.00 |
| Assistant Environmental Specialist | $90.00 – $125.00 |
| Associate Environmental Specialist | $126.00 – $160.00 |
| Senior Environmental Specialist | $165.00 – $200.00 |
| Principal Environmental Specialist | $205.00 – $250.00 |
| Assistant GIS Specialist | $85.00 – $108.00 |
| Associate GIS Specialist | $105.00 – $137.00 |
| Senior GIS Specialist | $140.00 – $180.00 |
| Assistant Geologist/Hydrogeologist | $95.00 – $125.00 |
| Associate Geologist/Hydrogeologist | $127.00 – $160.00 |
| Senior Geologist/Hydrogeologist | $160.00 – $195.00 |
| Principal Geologist/Hydrogeologist | $200.00 – $245.00 |
| Associate Water Resources Specialist | $105.00 – $135.00 |
| Senior Water Resources Specialist | $135.00 – $175.00 |
| Environmental & Roof Specialist | $130.00 – $205.00 |
| External Affairs Specialist | $98.00 – $133.00 |
| Principal Tunneling Consultant | $235.00 – $260.00 |
| **Planning Staff** | |
| Assistant Planner/CEQA-NEPA Specialist | $90.00 – $115.00 |
| Associate Planner/CEQA-NEPA Specialist | $115.00 – $143.00 |
| Senior Planner/CEQA-NEPA Specialist | $145.00 – $178.00 |
| Principal Planner/CEQA-NEPA Specialist | $180.00 – $211.00 |

| Staff Type | Fee Range |
|---|---|
| **Technical Staff** | |
| Assistant Technician | $80.00 – $102.00 |
| Associate Technician | $102.00 – $130.00 |
| Senior Technician | $130.00 – $163.00 |
| **Construction Services Staff** | |
| Associate Construction Manager | $125.00 – $150.00 |
| Senior Construction Manager | $152.00 – $181.00 |
| Principal Construction Manager | $185.00 – $220.00 |
| Construction Inspector [1] | $155.00 – $185.00 |
| Construction Inspector [2] | $190.00 – $226.00 |
| **Support Staff** | |
| Administrative Assistant | $70.00 – $95.00 |
| Project Administrator | $83.00 – $113.00 |
| Senior Project Administrator | $115.00 – $205.00 |
| Intern | $65.00 – $85.00 |
| **Surveying Services Staff** | |
| Assistant Surveyor | $100.00 – $135.00 |
| Licensed Surveyor | $150.00 – $195.00 |
| 1-Man Survey Crew | $175.00/$205.00[1] |
| 2-Man Survey Crew | $245.00/$290.00[1] |
| 2-Man Survey Crew including LS | $280.00/$300.00[1] |
| UAV (Drone) Services | $215.00 |

(Field work not including survey equipment billed at individual standard rate plus vehicle as appropriate.)

(1) Prevailing wage rates shown for San Joaquin, Stanislaus, Merced, Madera, Fresno, Tulare, Kings, and Kern counties; other counties as quoted.

(2) Overtime for Construction Services prevailing wage will be calculated at 125% of the standard prevailing wage rate.

## Additional Fees

**Expert Witness / GIS Training:** As quoted.
**Travel Time (for greater than one (1) hour from employee's base office):** $80/hour (unless the individual's rate is less)

## Project Costs

**Mileage:** IRS value + 15%
**Outside Consultants:** Cost + 15%
**Direct Costs:** Cost + 15%

**STANTEC FEE SCHEDULE**

**Indian Wells Valley Groundwater Authority**

**Imported Water Pipeline & CEQA/NEPA Documents and Permit Documentation**

| Labor Category | Hourly Rates* |
|---|---|
| Technical Advisor | $325.00 |
| Senior Principal | $300.00 |
| Principal | $280.00 |
| Associate | $260.00 |
| Senior GIS/CAD/Graphics | $160.00 |
| GIS/CAD/Graphics | $130.00 |
| Editor | $160.00 |
| Project Controls | $175.00 |
| Administrator | $115.00 |
| **Engineering** | |
| Project Lead Engineer | $240.00 |
| Project Engineer | $220.00 |
| Senior Engineer | $200.00 |
| Staff Engineer | $180.00 |
| Senior Designer | $160.00 |
| Designer | $140.00 |
| Assistant Engineer | $120.00 |
| **Planning** | |
| Senior Project Planner/Scientist | $250.00 |
| Project Planner/Scientist | $230.00 |
| Supervising Planner/Scientist | $200.00 |
| Senior Planner/Scientist | $175.00 |
| Staff Planner/Scientist | $150.00 |
| Junior Planner/Scientist | $130.00 |

**rates are good through March 31, 2025.*

| | |
|---|---|
| Mark up on Other Direct Costs | 10% |
| Mark up on Outside Services | 10% |

**DAHL CONSULTANTS 2023 FEE SCHEDULE**

| Personnel Category | Billing Rate $ per hour |
|---|---|
| Grade 1 – Assistant Engineer / Consultant | $90 |
| Grade 2 – Staff Engineer / Consultant | $100 |
| Grade 3 – Staff Engineer / Consultant | $115 |
| Grade 4 – Associate Engineer / Consultant | $135 |
| Grade 5 – Senior Engineer / Consultant | $155 |
| Grade 6 – Senior Engineer / Consultant | $185 |
| Grade 7 – Principal Engineer / Consultant | $200 |
| Grade 8 – Senior Principal Engineer / Consultant | $225 |
| Grade 9 – Executive Principal Engineer / Consultant | $240 |

These rates are billed for both regular and overtime hours in all categories. Rates may increase up to 5% annually, at Dahl Consultant's option, for all contracts that extend beyond twelve (12) months after the date of the contract.

**OTHER PROJECT COSTS**

**Subconsultants, Subcontractors, and Other Project Expenses -** All costs for subconsultants, subcontractors, and other project expenses will be billed at cost plus a 10% service charge. Examples of such expenses ordinarily charged to projects are subcontractors; subconsultants; printing and reproduction; communications and mailing charges; shipping costs; rental vehicles; fares for travel on public carriers; meals, lodging, and other travel expenses; special fees for insurance certificates, permits, licenses, etc.; state sales and use taxes and state taxes on Dahl Consultant fees.

Automobile expenses for Dahl Consultants or employee owned cars will be charged at the rate per mile set by the Internal Revenue Service for tax purposes plus tolls and parking charges. When required for a project, four-wheel drive vehicles owned by Dahl Consultants or the employees will be billed at a daily rate appropriate for those vehicles.

**PAYMENT TERMS**

Invoices will be submitted monthly or upon completion of a specified scope of service, as described in the accompanying contract (proposal, project, or agreement document that is signed and dated by Dahl Consultants and CLIENT).

Payment is due upon receipt of the invoice. Interest will accrue at the rate of 1% of the invoice amount per month, for amounts that remain unpaid more than 30 days after the invoice date. All payments will be made by either check or electronic transfer to the address specified by Dahl Consultants and will include reference to the Dahl Consultants' invoice number.

BENNETT
trenchless engineers

## 2023 FEE SCHEDULE

| | |
|---|---|
| Principal - Design, CM | $290 / hr |
| Senior Project Manager | $255 / hr |
| Project Manager | $240 / hr |
| Senior Project Engineer | $235 / hr |
| Senior Scientist | $235 / hr |
| Senior Construction Inspector | $225 / hr |
| Project Engineer | $215 / hr |
| Associate Engineer | $180 / hr |
| Staff Engineer | $160 / hr. |
| Construction Inspector | $160 / hr |
| Eng. Assistant/AutoCAD Spec | $150 / hr |
| Executive Assistant | $125 / hr |
| Office Manager | $115 / hr |
| Clerical Assistant | $ 95 / hr |

## DIRECT EXPENSES

All travel, subconsultant services, photocopying, and other direct expenses are billed at actual costs plus 5%. Mileage is billed at IRS business mileage allowance rates.

## PAYMENT TERMS

All invoiced payments are due within 30 days of the invoice date, unless otherwise agreed to in contract provisions.

## INSURANCE LIMITS

Statutory limits coverage for workers' compensation for Bennett Trenchless Engineers employees, Client employees, and additional insured agreed to in contract provisions. $2,000,000 per occurrence, $4,000,000 aggregate, maximum coverage for general liability; $2,000,000 per claim and $2,000,000 aggregate for professional liability; $1,000,000 for automobile liability. Additional coverage limits can be provided, subject to agreement in contract provisions.

*950 Glenn Drive, Suite 115, Folsom, CA 95630*
*916-294–0095- tel*

Soils Engineering Inc.

# 2023
# FEE SCHEDULE

**Geotechnical Engineering • Geological Engineering • Environmental Engineering**
**Surveying • Drilling Services • Materials Testing & Inspection**

**Leadership Team**

L. Thomas Bayne..... President
Tony Frangie.....Vice President
On Man Lau..... Engineering Manager
Robert Becker..... Environmental Manager
Darren McCaffrey.....Chief Surveyor
Jacob Guffey.....Field Manager
Andrew Lucas..... Laboratory Manager

Soils Engineering Inc.



## INTRODUCTION

Since our inception in Bakersfield, California in 1966, Soils Engineering, Inc. has endeavored to provide our clients with the best in professional engineering consulting, materials testing, and drilling services for geotechnical and environmental exploration.

Listed herein are prices for engineering and testing services we most frequently perform.

Sampling and testing are conducted in accordance with the latest applicable specifications of the American Society for Testing and Materials, American Association of State Highway Officials, or other pertinent agencies.

**Basis for charges for 2023**

Test prices shown are for laboratory work only and include reporting of routine results not calling for recommendation or conclusion. The standard turn-around time for all laboratory testing is five (5) working days. For all expedited laboratory testing requests, an additional rush fee of fifty percent (50%) will be added. All soil samples will be discarded after test completion, unless prior arrangements have been made.

Services and inspection(s) within a radius of fifty (50) miles will incur a two-hour minimum with a one-hour block thereafter. Services and inspection(s) outside of fifty (50) miles will incur a four-hour minimum with a two-hour block thereafter. Service commenced between the hours of 7:00am and 4:00pm will be performed at the standard rates presented herein. Any services initiated outside of these hours will be billed at the appropriate rate. Services that are rendered more than eight-hours (and up to twelve) on any weekday and on Saturdays will be billed at time and a half. Services rendered more than twelve-hours on any weekday, on Holidays, on Sundays, or more than eight-hours on Saturdays will be charged at two-times the hourly rate.

Requests for copies of Geotechnical or Environmental Investigations previously completed and reported must be approved by the original client. Once approved by the client, the person requesting will be required to pay a one-time report charge of two-hundred dollars ($200.00) prior to release of the report.

Miscellaneous expenses encountered in performance of services, such as printing and binding, permits, supplies not normally used to perform a specific job, etc. are billed at cost plus a twenty percent (20%) service charge. All heavy equipment rentals are based on a minimum charge of four hours, not including travel time.

Invoices are submitted at monthly intervals, or upon completion of the project, whichever is sooner. Engineering, project management and report preparation time will be added to invoices, as required. Payment for all work performed is due upon receipt of the invoice, unless otherwise agreed. A service charge of one and one-half percent (1.5%) per month will be added to overdue accounts thirty (30) days after the date of the original invoice.

Soils Engineering Inc.

# 2023 FEE SCHEDULE

## PROFESSIONAL STAFF RATES

Senior Registered Engineer / Licensed Land Surveyor or Principal .....$195.00/hr.
Registered Engineer or Geologist, REA II .....$195.00/hr.
Project Professional .....$150.00/hr.
Staff Engineer .....$120.00/hr.
Staff Geologist .....$120.00/hr.
Expert Testimony and Special Consultation (4hr Minimum) .....$500.00/hr.
Project Administrator/Coordinator .....$85.00/hr.
Administrative Assistant/Clerical .....$75.00/hr.
Report Preparation/Clerical ..... $45.00/per report

## TECHNICAL STAFF RATES

Field, Laboratory, & Project Manager .....$100.00/hr.
Engineering Technician (Field or Laboratory) .....$80.00/hr.
Deputy Inspector (Requires Certified Testers or Inspectors, i.e., ICC, AWS, Caltrans, etc.) .....$90.00/hr.

## SURVEYING SERVICES

Survey Crew (1-Person) .....$160.00/hr.
Survey Crew (2-Person) .....$200.00/hr.
Dig Alert USA Ticket Staking / Layout .....$105.00/hr.
Surveyor Office Research & Calculations .....$125.00/hr.
Computer Aided Drafting (CAD) .....$125.00/hr.
Trimble Handheld GPS Device, & Digital Optical Level ..... $105.00/day
Trimble R8 GPS, & Trimble VX Total Station ..... $260.00/day
Leica C10 3D Scanner ..... $750.00/day

## DRILLING SERVICES

Drilling Services (CME 75 HT) two-man crew .....$320.00/hr.
Drilling Services (CME 45 HT) two-man crew .....$270.00/hr.
In adverse drilling conditions, the client will be responsible for replacing lost or broken equipment.

Soils Engineering Inc.



## PREVAILING WAGE RATES – SOUTHERN CALIFORNIA

***This Fee Schedule was developed based on determination index SC-23-63-2-2020-2D, general prevailing wage journeyman. The billing rates are subject to revision at the time of issuance of a new Determination and subsequent Determinations or Predetermined Increases for the duration of the project. The rates in effect at the time of a Determination or Predetermination shall be increased proportionally with respect to any labor and benefits rate increases mandated by the California Department of Industrial Relations.***

Group 1 .....$115.00/hr.
*Field Soils & Materials Tester, Field Asphaltic Concrete, Field Earthwork, Roof Inspector, Water Proofer*

Group 2 .....$120.00/hr.
*AWS-CWI Inspector, Building/Construction Inspector, Licensed Grading Inspector, Reinforcing Steel, Reinforced Concrete, Pre/Post-Tension Concrete, Structural Steel & Welding Inspector, Glue-Lam & Truss Joints, Truss-Type Joint Construction, Shear Wall & Floor System, Concrete Batch Plant, Spray-Applied Fireproofing, Structural Masonry*

Group 3 .....$125.00/hr.
*Non-Destructive Testing (NDT)*

Survey Crew (1-Person) .....$210.00/hr.
Survey Crew (2-Person) .....$300.00/hr.

Drilling Services (CME 75 HT) two-man crew .....$370.00/hr.
Drilling Services (CME 45 HT) two-man crew .....$345.00/hr.

## PREVAILING WAGE RATES – NORTHERN CALIFORNIA

***This Fee Schedule was developed based on determination index NC-63-3-9-2020-2, general prevailing wage journeyman. The billing rates are subject to revision at the time of issuance of a new Determination and subsequent Determinations or Predetermined Increases for the duration of the project. The rates in effect at the time of a Determination or Predetermination shall be increased proportionally with respect to any labor and benefits rate increases mandated by the California Department of Industrial Relations.***

Group 1 .....$125.00/hr.
*DSA Masonry, DSA Shotcrete, Lead Inspector, NICET Level IV & NDT Level II*

Group 2 .....$115.00/hr.
*AWS-CWI, ICC Certified Structural Inspector, NICET Level III, Shear Wall/Floor System Inspector, Building/Construction Inspector*

Group 3 .....$110.00/hr.
*Geotechnical Driller, Soils/Asphalt, Earthwork Grading, Excavation & Backfill, NICET Level II*

Group 4 .....$105.00/hr.
*ACI, Drillers Helper, ICC Fireproofing, NICET Level I, Proof-load Testing, Torque Testing, NACE, NDT Level I*

Survey Crew (1-Person) .....$210.00/hr.
Survey Crew (2-Person) .....$300.00/hr.

Drilling Services (CME 75 HT) two-man crew .....$370.00/hr.
Drilling Services (CME 45 HT) two-man crew .....$345.00/hr.

Soils Engineering Inc.

# 2023 FEE SCHEDULE

## TRAVEL AND EXPENSES

| | |
|---|---|
| Travel Time Rates | Hourly Rates |
| Vehicle Mileage Rates | $0.585/mile |
| Drill Rig Mileage Rates | $2.50/mile |
| Per Diem Per Person | Cost plus 20% |
| Equipment Rental or Subcontracting Charges | Cost plus 20% |

## SOIL TESTING OR INSPECTIONS

### RELATIVE COMPACTION TESTS

| | |
|---|---|
| Nuclear Gauge Method - (ASTM D2922 Soil / ASTM D2950 Asphalt) | $10.00/test |
| Nuclear Gauge Method - (CTM-231 Soil / CTM-375 Asphalt) | $10.00/test |
| Sand Cone Method - (ASTM D1556) | $10.00/test |
| Sand Calibration - (ASTM D1556) | $100.00/test |

### DENSITY & MOISTURE DETERMINATIONS

| | |
|---|---|
| Tube Density - (ASTM D2937) | $20.00/test |
| Native Soil Moisture - (ASTM D2216 / CTM-226) | $20.00/test |
| Maximum Density/Optimum Moisture (Proctor) (ASTM D1557 Method A or B) | $170.00/test |
| Maximum Density/Optimum Moisture (Check Point) (ASTM D1557 Method A or B) | $75.00/test |
| Maximum Density/Optimum Moisture (Proctor) (ASTM D1557 Method C) | $220.00/test |
| Maximum Density/Optimum Moisture (Check Point) (ASTM D1557 Method C) | $100.00/test |
| Maximum Density/Optimum Moisture w/ Rock Correction (ASTM D1557 & D4718) | $350.00/test |
| California Impact (CTM-216) | $250.00/test |

### SOIL TESTS

| | |
|---|---|
| Sieve Analysis with # 200 Wash Test - (ASTM D422) | $100.00/test |
| Hydrometer Method - (ASTM D422) | $200.00/test |
| # 200 Wash Test Only - (ASTM D422) | $60.00/test |
| Plasticity Index - (ASTM D4318) | $200.00/test |
| Expansion Index - (ASTM D4829) | $150.00/test |
| Specific Gravity of Soils (Vacuum) (ASTM D854) | $200.00/test |
| Sand Equivalent (CTM-217) | $100.00/test |
| Standard Resistance “R” Value (CTM-301) | $250.00/test |
| Aggregate Base Resistance “R” Value (CTM-301) | $350.00/test |
| Dispersion Test (Pin Hole) (ASTM D4647) | $300.00/test |
| Permeability Coefficient (ASTM D2434) | $150.00/test |

Percolation Rate (Field Test) ..... By Quote
$SO^4$/pH/CL/EC (Sulfate/pH/Chloride) ..... $150.00/set
Thermal Conductivity of Soils and Soft Rock by Thermal Needle Probe (ASTM D5334) ..... $250.00/test

## SOIL STRENGTH, SHEAR AND CONSOLIDATION TEST

Consolidation (4-Points) (ASTM D2435) ..... $150.00/test
Direct Shear (3-Point Curve) (ASTM D3080) ..... $200.00/test
Unconfined Compression (ASTM D2166) ..... $200.00/test
Soil Strength Specimen Preparation & Testing (Cement / Lime) (Various Methods) ..... By Quote

## ASPHALT & AGGREGATE TESTING OR INSPECTIONS

## ASPHALTIC CONCRETE TESTING

HVEEM Method Max Density Compaction (CTM-304, Set of 3, Lab Mixed) ..... $300.00/set
HVEEM Method Max Density Compaction (CTM-304, Set of 3, Pre-Mixed) ..... $200.00/set
Marshall Method Max Density Compaction (ASTM D1559, Set of 3, Lab Mixed) ..... $300.00/set
Marshall Method Max Density Compaction (ASTM D1559, Set of 3, Pre-Mixed) ..... $200.00/set
Theoretical Maximum Specific Gravity/Density (RICE) (CTM-309) ..... $175.00/test
Bitumen Content by Ignition Oven (CTM-382) ..... $200.00/test
Mix Design Ignition Oven Correction Factor Determination @ 538°C or 482°C(CTM-382) ..... $720.00/ea.
Moisture Content of Bituminous Mixtures (CTM-370) ..... $50.00/test
Reclaimed Asphalt Paving (RAP) Oil Content (CTM-LP9) ..... $200.00/test
Reclaimed Asphalt Paving (RAP) Moisture Content (CTM-LP9) ..... $30.00/test
Bulk Specific Gravity and Density of Asphalt Cores (CTM-308) ..... $20.00/ea.
Test Preparation of Drilled Asphalt Cores (Saw Cuts for Layer Separation) ..... $10.00/ea.
Stabilometer “S” Value of Bituminous Mixtures (CTM-366 Set of 3 + Compaction) ..... $200.00/set

## AGGREGATE TESTING

Combined Aggregate Gradation (CTM-202) (ASTM C117 & C136) ..... $200.00/test
Split Coarse Aggregate Gradation (CTM-202) (ASTM C117 & C136) ..... $100.00/split
Sand Equivalent (CTM-217) ..... $100.00/test
Percentage Crushed Particles (CTM-205) ..... $150.00/test
Specific Gravity of Coarse Aggregate (CTM-206) (ASTM D127) ..... $100.00/test
Specific Gravity of Fine Aggregate (CTM-207) (ASTM D128) ..... $150.00/test
Durability Index (DI) (Coarse) (CTM-229) ..... $220.00/test
Durability Index (DI) (Fine) (CTM-229) ..... $220.00/test
Cleanness Value (CV) (CTM-227) ..... $210.00/test
Abrasion by use of LA Rattler Machine (CTM-211) ..... $350.00/test
Organic Impurities (ASTM C40) ..... $100.00/test

## CONCRETE / MASONRY TESTING OR INSPECTIONS

### CONCRETE TESTING

Compressive Strength of Concrete Cylinders (ASTM C39 / CTM-521) (Set of 4) ..... $100.00/set
Compressive Strength of Concrete Cylinders (ASTM C39 / CTM-521) (Individual >4) ..... $25.00/ea.
Flexural Test of Concrete Beams (ASTM C78) ..... $150.00/ea.
Compressive Strength of Drilled Concrete Cores (ASTM C42) ..... $50.00/ea.
Test Preparation of Drilled Cores or Cast Cylinders (Saw Cuts) ..... $10.00/ea.
Compressive Strength of Lightweight Insulating Concrete Cylinders (ASTM C495) ..... $50.00/ea.
Unit Weight of Structural Lightweight Concrete (ASTM C567) ..... $100.00/test
Air Content of Freshly Mixed Concrete (ASTM C231) ..... $100.00/test
Concrete Moisture/Alkali Test Kit (ASTM F1869) ..... $75.00/test
Concrete Relative Humidity Probe (ASTM F2170) ..... $75.00/test

### MASONRY TESTING

Compressive Strength of Grout (ASTM C942) (Set of 3) ..... $100.00/set
Compressive Strength of Mortar (ASTM C109) (Set of 3) ..... $100.00/set
Compressive Strength of Drilled Masonry Cores (ASTM C42) ..... $50.00/ea.
Masonry Core Shear Test ..... $50.00/test
Compressive Strength of Grouted Masonry Prism (ASTM C1314) ..... $450.00/set
Test Preparation of Grouted Masonry Prism (Saw Cutting) ..... By Quote
Compressive Strength of Concrete Masonry Unit (CMU) (3 Required) (ASTM C140) ..... $300.00/set
Moisture, Absorption & Unit Weight of CMU (3 Required) (ASTM C140) ..... $150.00/set
Shrinkage of CMU (3 Required) (ASTM C426) ..... $450.00/set

## STRUCTURAL TESTING OR INSPECTIONS

### REINFORCING STEEL

Tensile Strength & Bend Test # 3 through # 8 (ASTM A615/A706) ..... $100.00/test
Tensile Strength & Bend Test # 9 through # 11 (ASTM A615/A706) ..... $200.00/test
Tensile Strength # 14 or #18 (ASTM A615/A706) ..... By Quote
Bend Test # 14 or #18 (ASTM A615/A706) ..... By Quote

### WELDING INSPECTION

Visual Field or Shop Welding Inspection ..... $85.00/hr.
Ultrasonic Field or Shop Testing ..... $120.00/hr.

## STRUCTURAL STEEL

Spray Applied Fireproofing Inspection ..... $85.00/hr.
Spray Applied Fireproofing Density Tests ..... $100.00/test
Spray Applied Fireproofing Adhesion Tests ..... $50.00/test
Tensile Strength (ASTM A36) ..... By Quote
Bend Test (ASTM A36) ..... By Quote
Sample Preparation ..... By Quote

## STRUCTURAL BUILDING (Shear Wall / Roofing)

Shear Panel Inspection ..... $100.00/hr.
Roof Installation Inspection ..... By Quote
Glu-Lam Inspection ..... By Quote
Cut Analysis of Built-Up Roofs ..... $200.00/ea.
Roof Tile Strength Test - Clay or Concrete (5 Required) ..... $100.00/test
Roof Tile Absorption Test - Clay or Concrete (5 Required) ..... $60.00/test

## STRUCTURAL BOLTING

Structural Bolts - Bolt/Nut/Washer (Proof Load, Tensile, Hardness) ..... $600.00/set of 3
Structural Anchor Bolts - Bolt/Nut/Washer (Proof Load, Tensile, Hardness) ..... By Quote

## BRINELL HARDNESS

Standard Indenter for Steel or Cast Iron (F Pins) (ASTM E10) ..... $50.00/ea.

# EQUIPMENT & MATERIALS

## MISCELLANEOUS EQUIPMENT

Service Truck / Flat Bed Truck (Mileage Charged Separately) ..... $150.00/day
Concrete/Asphalt/Masonry Coring Rig ..... $200.00/day
Hydraulic Pull Test Equipment (Up to 24 Tons) ..... $100.00/day
Hydraulic Pull Test Equipment (25 Tons to 50 Tons) ..... $200.00/day
“S” Beam Load Cell (0.5 Tons to 5 Tons) ..... $100.00/day
Auto-Read Floor Profiler (Floor Flatness Dipstick) ..... $400.00/day
Pachometer - Rebar Locator ..... $100.00/day
Schmidt Hammer ..... $100.00/day
Ultrasonic Testing Equipment ..... $150.00/day
Skidmore-Wilhelm Device (Model MZ) ..... $250.00/day
Skidmore-Wilhelm Device (Model H) ..... $300.00/day
Calibrated Torque Wrench (Large) ..... $75.00/day
Calibrated Torque Wrench (Small) ..... $25.00/day
Steam Cleaning Unit ..... $200.00/day
Generator ..... $100.00/day

Roto Hammer / Demo Hammer..... $25.00/day
Submersible Pump..... $150.00/day
Water Level Meter..... $50.00/day
Water Quality Test Meter..... $50.00/day
Paint Thickness Meter..... $75.00/day

## GEOPHYSICAL TESTING & EQUIPMENT

Ground Penetrating Radar (GPR) - Noggin 100.....$500.00/site/day
Utiliguard Locating System (Ditchwitch) .....$200.00/site/day
Nimbus Seismograph..... $500.00/test
Resistivity Meter (A-Spacings) ..... $300.00/test
Ground Rod Resistivity Meter..... $100.00/day
Downhole Geophones.....By Quote
Magnetometer.....By Quote
Neutron Moisture Gauge .....By Quote

R F Yeager ENGINEERING

## BILLING RATES

| | | |
|---|---|---|
| **Corrosion Engineering Services** | | |
| Senior Project Manager - SPM<br>(NACE Certified or Corrosion PE) | $210 | *** |
| **Corrosion Management Services** | | |
| Senior Corrosion Manager - SCM<br>(NACE Certified or Corrosion PE) | $210 | |
| **Administrative Services** | | |
| Administor - AD | $120 | *** |
| **CADD Design Services** | | |
| Senior CADD Technician - SCT | $145 | *** |

*** Billing Rates Used for This Project

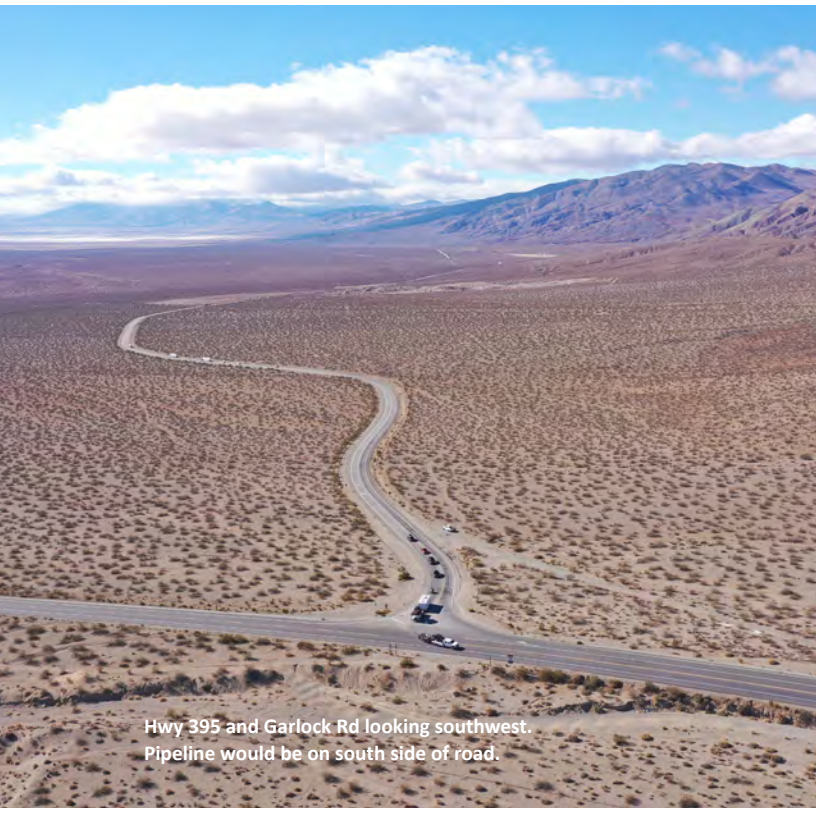
**Note: All Mileage and Admin costs are included in the above billing rates**

*1016 Broadway, Suite A - El Cajon, CA 92021 Phone: 619.312.0195 Fax: 619.312.0197 RFYeager@RFYeager.com*

# APPROACH AND PROPOSED SCOPE OF WORK

## PROJECT UNDERSTANDING AND PROJECT GOALS

The Indian Wells Valley Groundwater Authority (Authority) is currently developing a new imported water supply project as part of its Groundwater Sustainability Program. The project is being funded through a $7.6 million State Groundwater Management Act (SGMA) implementation grant, which is intended to develop a water supply project that mitigates groundwater overdraft conditions. The heart of the project is a new 50-mile pipeline and accompanying pumping facilities that will convey potable water from California City to the City of Ridgecrest with delivery into the existing Indian Wells Valley Water District's (IWVWD) water distribution system through a blending tank located at their Ridgecrest Heights Tank facility.



Hwy 395 and Garlock Rd looking southwest.
Pipeline would be on south side of road.

As part of our team's previous work for the Authority, Provost & Pritchard developed a series of potential pipeline routes and recommended a preferred alignment referred to as the "Central Alignment".

Although the Imported Water Pipeline Project has the relatively simple goal of moving water from its source to the point of use in the IWVWD system, there are several technical, environmental, and operational challenges that will need to be addressed during the preliminary and final design phases of the project. Some of the challenges to be addressed include:

- The preferred alignment traverses sensitive lands and significant topographic changes, resulting in large pressure differentials throughout the pipeline length;
- The proposed conveyance system will require several pumping facilities to pump flows from lower elevations over the El Paso Mountains;
- A wide range of operating flow rates based on either available supply or constraints imposed by State Water Project will require great operational flexibility for the pump stations;
- The lack of available existing power capacity near several of the proposed pump station facilities; and
- Environmental and regulatory requirements related to land-use, sensitive habitat, use of public lands, and permitting through differing regulatory/ resources agencies.



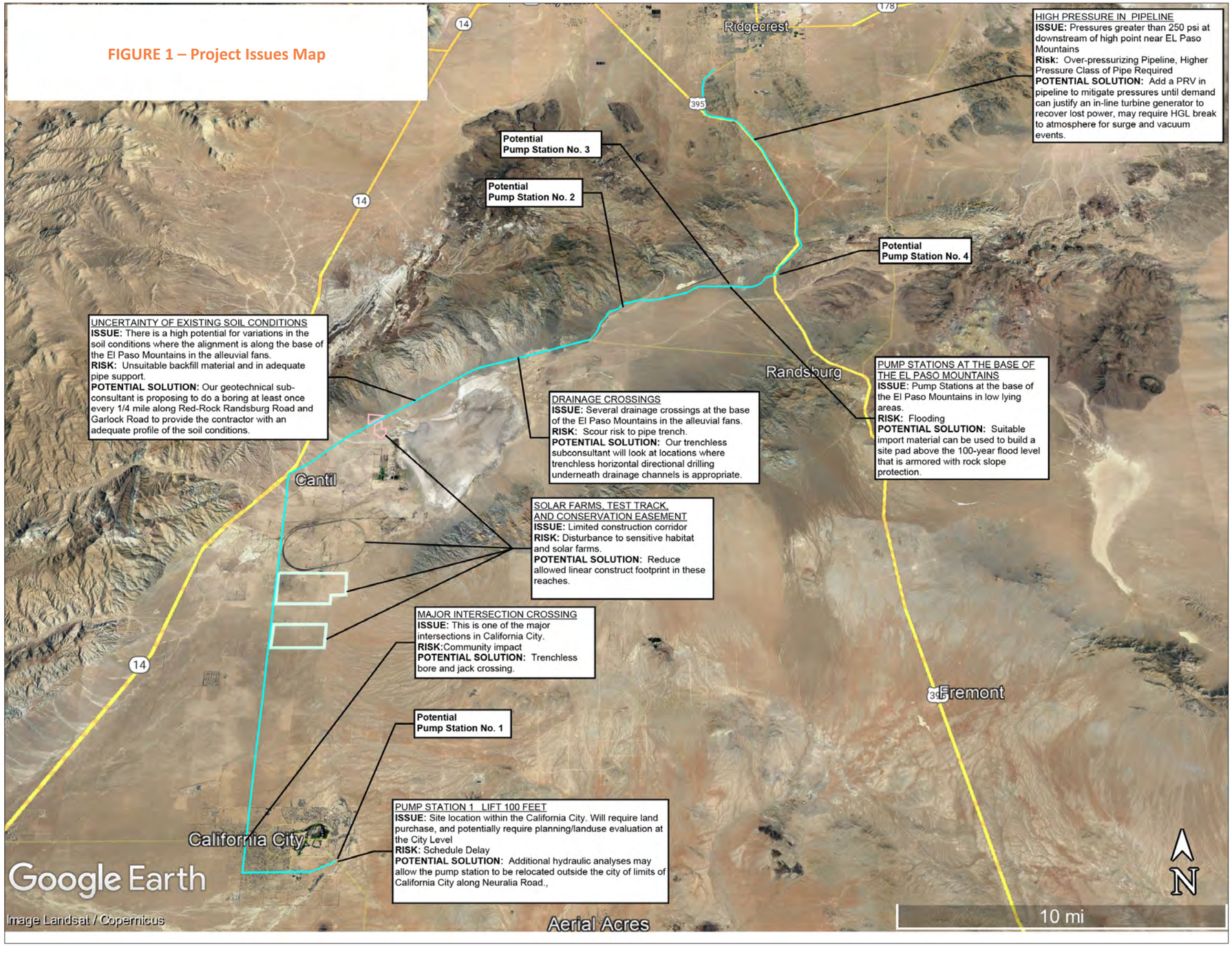
Hwy 395 looking south towards Garlock Rd
Pipeline would be on east side of Hwy 395

Regarding physical and technical requirements of the project, it is our understanding that the project will be required to be developed in stages--from the initial flow rate through year 2035 (anticipated flow rate of 3,210 gpm or 7.2 cfs) to an ultimate flow rate of approximately 4,850 gpm (10.8 cfs) in 2070. These flow rates could also vary depending on water supply availability throughout the course of a year, adding yet another level of complexity to the design.

Since the staging of the project spans beyond 25 years, it is anticipated that the pipeline transmission portion of the project will be sized for the ultimate condition. In regard to the pumping facilities, it is assumed that proposed pump stations will be designed for the ultimate condition and equipped for the initial stage, to be expanded when needed as imported water demands increase over time. Due to the design life of some equipment, and more specifically, the surge mitigation facilities, our design team will provide a life-cycle cost analysis to determine if it is cost effective to install the ultimate equipment as part of the initial construction and provide for expanded surge protection mitigation features in the future, or just construct the required equipment for the ultimate condition.

The following Project Issues Map, **Figure 1**, shows some risks that will need to be addressed by the design consultant.

**FIGURE 1 – Project Issues Map**



# APPROACH

The Provost & Pritchard team (Team), due to our efforts on the alignment study, has an excellent knowledge of the area, along with an understanding of the historical development of the project to date. Our previous work on the project eliminates any learning curve for our team and thus we will be able to hit the ground running. Our six-month "head start" provides us with a better overall understanding of the Authority's needs and timetable, as well as the challenges facing construction of a 50-mile pipeline through a desert and over a mountain range in a region inhabited by several listed species. Further, should Provost & Pritchard also be awarded the contract for CEQA/NEPA services, we will be able to more easily coordinate and interact with our own staff and reduce some coordination fees for both projects.

**Our overall objectives for this project include the following:**

- To meet the Authority's defined schedule in order to guarantee full availability of the $7.6 million SGMA implementation grant. This will be our highest priority from Day 1, and our means and methods will be driven by this objective.
- To work with Southern California Edison (SCE) to develop new electric transmission facilities for service to the proposed pumping stations. Previous experience with SCE in developing extended and/or new electric power facilities has taught us that this is a time-consuming process. Because of this, our Team will develop early power requirements for the pumping facilities to be submitted to Edison as part of the preliminary design efforts. In parallel, our Team will also prepare the SCE Method of Service Application and provide supporting documentation to start the Edison controlled design services. In the event that SCE's internal processes delay the installation of new power lines beyond the pump stations becoming operational (a real possibility), we will have an alternate plan to utilize natural gas or diesel pumps, or standby power, in the first year or two of operation.
- To optimize the preferred alignment to avoid California State Parks right of way and the permitting that goes with it. Avoiding a California State Parks permit will save thousands of dollars in design time and potentially shave months or even years off the project timeline.
- To confirm that the private conservation easement along Redrock Randsburg Road will not be an impediment to construction. While we believe that it will not, we need to confirm this by investigating the details of the easement, as well as the width of the Redrock-Randsburg Road right of way through the easement.
- To start working with BLM from Day 1 to assure that there will be no problems with using its right of way, and determine what restrictions or mitigation, if any, it will place on use of its land. Should BLM require a NEPA document in order to take borings on its property (which we believe to be the case), this could delay the project design significantly. This is an issue that will have to be dealt with immediately.
- To work with the selected Environmental Consultant on a regular basis throughout the project to ensure that permit requirements are known prior to our 90% design submittal and to determine what mitigation measures may need to be incorporated into the final design and contract documents. Further, we will need to provide this consultant with details of the alignment for permitting and project description purposes. We propose bi-weekly coordination meetings with the Environmental Consultant throughout the preliminary and final design process to accomplish this.
- To work with the selected ROW Consultant on a regular basis throughout the project to ensure that permanent and temporary construction easements can be obtained within the design process. From our experience, we understand the potential for delays in finding, locating, and agreeing on easements with the parcel owners, especially when a parcel has multiple owners. We propose bi-weekly coordination meetings with the ROW Consultant throughout the preliminary and final design process to get updates on communication with property owners and discuss any issues that require us to modify the pipeline alignment. Delays in responses from individual property owners are beyond our control and may delay our ability to finalize the design.

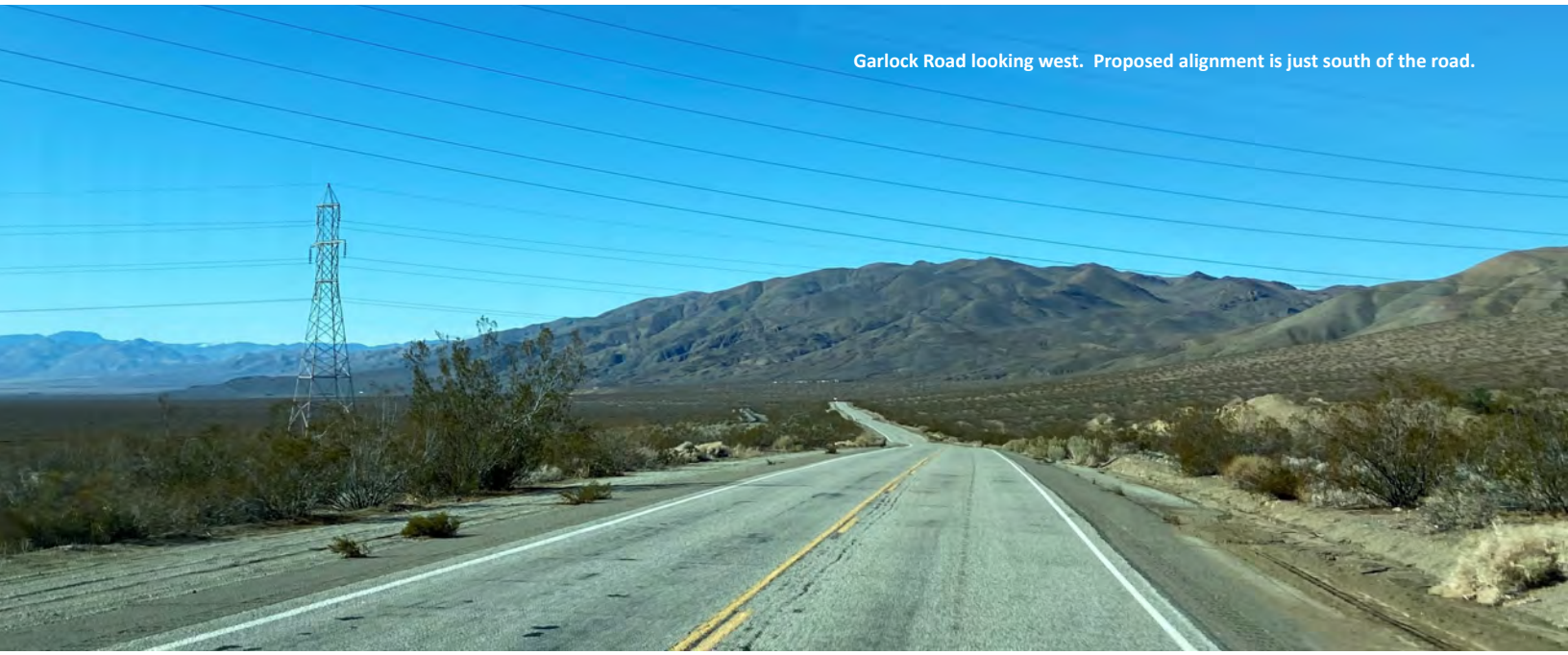


Neuralia road looking north towards solar farms. Proposed alignment is just to the east of the road.

If we can meet each of these objectives, we are confident that we will be able to complete the design by submitting a 100% design package prior to the March 31, 2025, date stipulated in the RFP. Note that our project schedule shows a completion date of January 31, two months prior to this deadline. It should be pointed out, however, that regulatory delays and land acquisition are issues that the design consultant cannot control and could impact various design tasks, necessitating revisions to the schedule.

Due to the terrain, timeline, and habitat between California City and Ridgecrest, there are a number of challenges that need to be met in the design phase of this project, including the following:

- **Power availability.** The availability of power for the pump stations is one of the key challenges, perhaps the key challenge, in this project. Attachment A-Map Book shows local SCE power lines in relation to the preferred alignment and its pump stations as proposed in the alignment study. The figure clearly shows that power will have to be imported to several pump stations from existing lines in the area. This assumes that these lines have capacity for the pump stations, which is also an unknown at this time. We have already identified this as a challenge and have a plan to work aggressively with SCE to resolve this prior to pipeline construction (see scope of work below). Should SCE not be able to meet our aggressive schedule, we will work with the Authority to develop an alternative plan that could include installing natural gas- or diesel-powered pumps temporarily until power lines are completed.
- **Phasing.** Phasing of the pump stations to recognize that additional water supplies will be procured over time and that pipe flows will also increase over time is another challenge. If we do not do this correctly, we risk utilizing too much power up front, when demands are low, and having to break that head downstream with pressure reducing facilities.



Garlock Road looking west. Proposed alignment is just south of the road.

- **Pipe diameter.** Optimizing pump station power demand and forebay size is a challenge that will need to be met by finalizing the pipe diameter early in the preliminary design process.
- **SCADA.** A SCADA system will be critical to the operations of the conveyance facility. With the long distances and significant topography, the communications will be a challenge for the project that can be adequately addressed by our team. Additionally, redundancy for the communication system, a backup SCADA server, and backup power will be needed to ensure continuous operation. Coordination with IWVWD early on to understand their existing SCADA system will be critical to our design of the new system.
- **CEQA/NEPA.** Coordinating design with the Environmental Consultant will be important and challenging. We will need to be aware of all the technical studies in order to ensure that mitigation measures may be incorporated into the design (we would be able to do this better and at less cost if we were both the design consultant and Environmental Consultant). Sheet 6 of Attachment A-Central Alignment Map Book shows where the preferred alignment traverses identified Desert Tortoise critical habitat. This reach of the alignment will be among the most sensitive to design and construct, as it will need to incorporate mitigation measures defined by the USFWS.

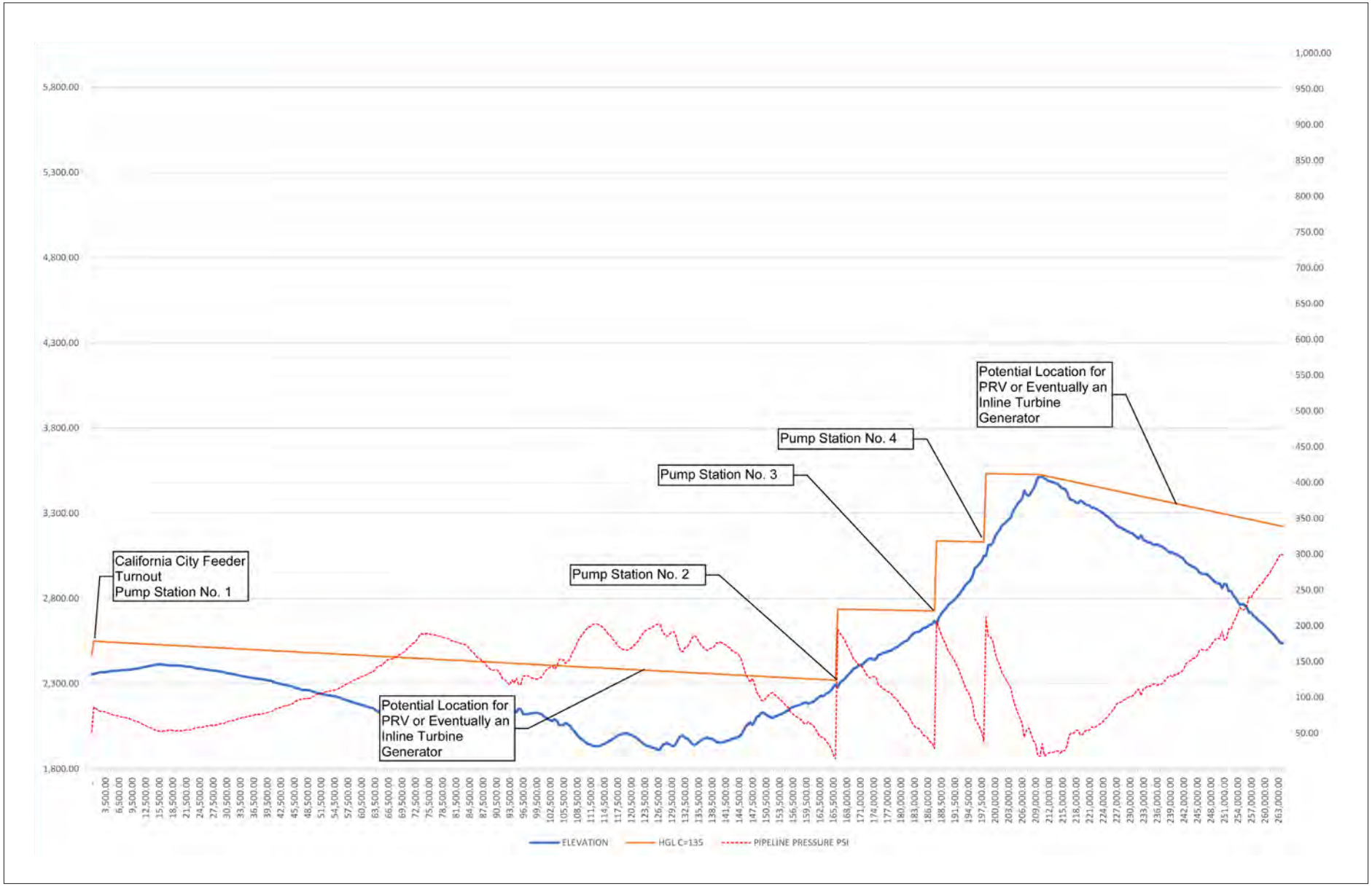



Desert Tortoise Natural Area

- **Water quality.** We will work with the California Division of Drinking Water (DDW) and perform chlorine residual analyses based on the phasing of the project to determine locations of chlorination facilities and DDW's minimum chlorine residual levels throughout the pipeline. If the pipeline is operated sporadically, it is possible that the entire contents of the pipeline may need to be "blown off" with each use, as the quality of the water sitting in the pipeline would degrade. This could represent up to 35 AF each time the pipeline is used. We will need to consider whether an emergency basin be constructed at the terminus should the stagnant water be deemed unsuitable for drinking water purposes. Also, we will need to ensure that AVEK water is compatible with IWVWD water or can be made compatible through a treatment process in the blending tank. This may require testing of both waters in a lab to determine what treatment, if any, will be required in the blending tank. Bench testing of each water supply is an optional task that is discussed later in the proposal.

- **Pipe materials.** For high pressure portions we would likely use cement mortar-lined and coated (CML&C) steel pipe, and we will look at other options in lower pressure reaches of the line. It should be noted that the pipeline will need to be designed for static head, operating pressure, and surge pressures. It is anticipated that the down pressure (vacuum pressure) of a surge event will control due to the length of the pipeline and length between the pumping stations.
- **Trenchless Pipe Installation.** Trenchless pipe installation will be required at multiple locations. The crossings will need to comply with the requirements of each jurisdictional agency—Caltrans (Highway 395), UPRR (railroad track), and possibly Kern County and California City. Attachment A-Central Alignment Map Book shows the locations of potential bore and jack sites and potential horizontal directional drilling (HDD) sites. The challenge here will be to determine the different requirements for each and to incorporate them into the design. Cal Trans allows HDD across its right-of-way, however, this option may lengthen both the permitting process and the length of the bore required. Bennett Trenchless Technologies, one of our subconsultants, has vast experience in this area and will be able to help us identify opportunities to use this technology at various points along the alignment.
- **Contractor work areas.** Many lay-down areas and contractor work areas will have to be identified along the alignment early on so that easements may be obtained or parcels acquired. The challenge will be to identify the areas that will be most efficient for the contractor to utilize and how much area will be needed at each location. This will include storage of pipe and other materials, heavy equipment, backfill material, parking for workers, office space, etc.
- **Construction timing.** We will need to determine if the contract documents should require the contractor to work in more than one location at a time in order to meet project schedules, and how that would be accomplished. Or, alternatively, to determine if breaking the design into multiple bid packages would result in faster construction and lead to a larger pool of bidders.
- **Backfill material and construction water.** Identification of economical sources of backfill material and a source of construction water will be key so that this can be incorporated into the final design specifications. We will not recommend utilizing backfill material from any BLM lands.
- **Pump Station Development and Optimization.** The proposed pumping systems are a critical and costly element of the overall project. Our Team, as part of our due diligence in the preparation of this proposal, has spent significant effort evaluating potential pump station locations, pumping scenarios, and site constraints in order to identify a feasible and economical solution. Based on our initial review of the overall system hydraulics, it appears that total lift required for conveyance is on the order of 1,200 vertical feet. In an effort to keep operational pipeline pressures reasonable, the project will require four pumping stations (a change from the alignment study, which identified up to six) with a maximum lift of 410 feet per pump station. Variable frequency drives are proposed to allow for differing flow rates over time. **Figure 2** provides a generalized overview of the hydraulics of the system including the anticipated hydraulic grade line.

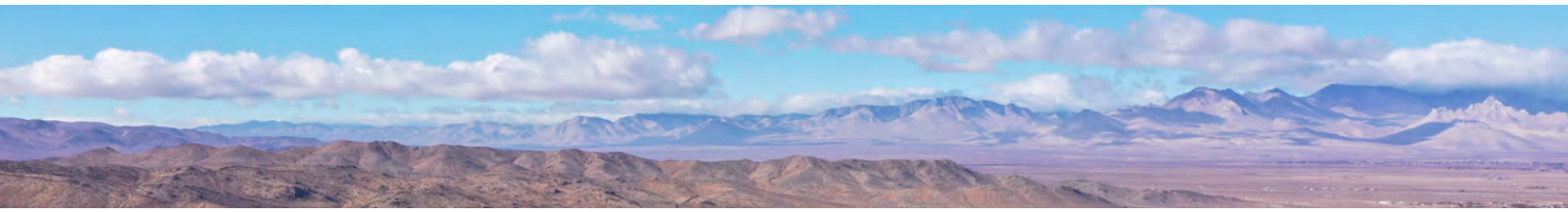
**FIGURE 2 – System Hydraulic Grade Line**



# OPTIONAL TASKS

We have identified some additional tasks that we feel may be appropriate for this project and they are included below. Costs for two of these optional tasks are provided below. Cost for the others can be provided at the request of the Authority.

- **Multiple Bid Packages.** We propose an optional task to generate multiple bid packages to speed up the construction process and broaden the pool of potential contractors. This would require breaking up the drawings into multiple packages and separating out technical specifications needed for each. Contract documents would be prepared for each package; most, but not all, of the language would be identical.
- **Bid Support.** We propose an optional task to provide support during the construction bidding process. Based on the assumed need for multiple bid packages, each package will require the following bidding phase tasks: scheduling and leading a pre-construction meeting, answering written questions from potential bidders, issuing addenda as appropriate, leading the bid opening, reviewing bids, and recommending a lowest responsible bidder.
- **Engineering Services During Construction.** Our team can provide engineering support during construction phase. We can participate in construction meetings as requested. This task would include reviewing the contractor's submittals and responding to their RFIs. At the conclusion of the project, our team would incorporate the redline drawings from the construction contractor and the construction manager.
- **Hydrologic and Scour Analysis.** The BLM may require a full scour analysis on certain drainage crossings on its land. We propose as an optional task a full scour analysis of up to ten drainage channels, as required by BLM and as authorized by the Authority, on a time-and-materials basis not to exceed **$147,936**. This is detailed in our cost proposal. This analysis includes a full hydrologic analysis of each drainage sub-watershed, if required.
- **Water Quality Analysis and Mitigation.** In order to ensure that AVEK water and IWVWD water are compatible, we proposal an alternate task to test water from each of the eleven wells that feed AVEK's Rosamond Water Treatment Plant and each of the four that feed IWVWD's Ridgecrest Heights Tank. We also propose testing water from each of these two facilities monthly for a year for standard Title 22 constituents. The deliverable will be a technical memo summarizing this effort and making recommendations for any treatment process that may be required along the alignment or at the delivery point. Our proposed cost to perform this work on a time-and-materials basis is not to exceed **$164,653**.
- **SCADA Control Building.** We have assumed in our scope that SCADA will be housed at either a pump station or at an existing IWVWD building. Should the Authority or IWVWD require a separate control building, an additional task can be added to our scope of work.
- **Power Generation at Pressure Reduction Station.** The inclusion of in-line turbine generators at pressure reducing valve (PRV) station locations may present a green energy opportunity. Under the proposed scope of services, we will provide an initial investigation, review power interconnection requirements, and determine land needs. Final design of this power generation facility can be considered under an amendment after the initial investigation is complete.
- **Stormwater Pollution Prevention Plan (SWPPP).** Our design team can prepare a SWPPP that can cover the entire project and be used by multiple contractors if the project is completed with multiple bid packages. Our team has a Qualified SWPPP Developer (QSD). If this optional scope is not desired, our team has developed a technical specification for the SWPPP requirements that are restrictive to the contractor to ensure that the SWPPP prepared by the contractor meets the state storm water construction permit requirements.
- **Parallel California City Feeder.** Based on initial analysis during the Alignment Study, the existing 18" California City Feeder will not have sufficient capacity to meet the projected demands for the IWVGA Conveyance System in addition to California City's demands. Options for additional capacity will be considered in our hydraulic modeling in the preliminary engineering phase. Should new California City Feeder facilities be required, our Team can coordinate with the Authority and AVEK on a scope of work for the design of these facilities, if requested.



# SCOPE OF WORK

## TASK 1 PROJECT MANAGEMENT

### TASK 1.1 KICKOFF MEETING

The kickoff meeting sets the tone for any project. All key personnel from all parties need to attend. There must be a well thought-out and complete agenda, and everyone present must have an opportunity to ask questions and explain their role in the project. We prefer that these meetings be in person and would expect to hold this meeting in Ridgecrest. However, we will have to await future events to see if that makes sense from a public health standpoint. A virtual meeting is also feasible and would be functional but would not be preferred. We would schedule this kickoff meeting soon after Notice to Proceed as possible. It would include representatives from the Authority, Provost & Pritchard, all our principal subconsultants, and, if possible, a representative of the BLM. Detailed notes would be prepared, and minutes of the meeting made available to the Authority.

### TASK 1.2 COORDINATION MEETINGS

This includes attendance and coordination of presentations and meetings, as requested, including:

- IWVGA Board, Water Resource Manager, Technical Advisory Committee, and Policy Advisory Committee meetings
- Monthly coordination meetings with ROW consultant and bi-weekly meetings with the Environmental Consultant
- Coordination meetings with IWVGA and Water Resources Manager, monthly or as needed

We propose bi-weekly coordination meetings with the environmental consultant. While there may not be a need for a meeting every two weeks, more often than not there will be progress to report and efforts to coordinate. We feel that the monthly coordination meeting with the ROW Consultant is sufficient.

As with the alignment study, we believe that the design process should be transparent, and propose a meeting with the Technical Advisory Committee quarterly, starting in June 2023. This will provide an opportunity for TAC members to ask questions and to provide relevant input to the process. While these meetings could be held virtually, the technical problems that arose during the December 6 meeting that prevented some TAC members from participating verbally indicate that in-person meetings are better than virtual meetings most of the time. During these meetings, we would provide a progress update on the design process, coordination with regulatory agencies, and outline any hurdles that need to be overcome and our plan for doing so.

We are proposing four in-person presentations to the IWVGA Board throughout the course of design—approximately one every six months. This, combined with the quarterly meetings with the TAC and monthly coordination meetings with IWVGA staff, should provide the transparency that is so critical in large infrastructure projects. We are also prepared to meet separately, as requested, with the California City City Council, Kern County Board of Supervisors, IWVWD board, Ridgecrest City Council, or any other public board that would like to hear an update on the project from us.

As with our pipeline alignment study project, we propose monthly coordination meetings with IWVGA staff and WRM, along with a written monthly report to document project progress. We also propose a bi-weekly email progress report so that the IWVGA staff is aware of any issues that may arise sooner rather than later. While the written and emailed reports are not requested in the RFP, we feel that they will provide an excellent written record of the design progress and of hurdles overcome along the way. The budget in the proposal fee estimate for the coordination meetings is based on the project being completed in a 24-month time period.

### TASK 1.3 GENERAL PROJECT MANAGEMENT

Managing a project of this size and complexity involves much more than coordination meetings with the client and other consultants. Coordination must happen with multiple individuals and subconsultants on a daily basis. Communication, whether via phone, email, memo, letter, or videoconferencing, must be adequately documented. Schedules must be reviewed regularly, along with budget (and adjusted as appropriate). Monthly invoices must be sent, along with monthly progress reports. All major decisions made during the project must be adequately documented and retrievable at any point in the future. Outside entities must be contacted, meetings set, and correspondence sent and received. Files must be maintained.

The project manager will be responsible for all this work. Some of it may be delegated to others, but in the end the project manager must ensure that it is all adequately documented, filed, and communicated to all appropriate parties, both internal and external to the design team. Task 1.3, an additional task not identified in the RFP, will encompass this effort. We do not consider this task to be an optional task proposed for approval; it is a necessary task that is required in order to keep track of the hours and costs associated with this overall management effort.

#### DELIVERABLES

- Monthly progress reports
- Meeting notes
- Bi-weekly progress reports
- Presentations

## TASK 2 PRELIMINARY DESIGN

### TASK 2.1 COORDINATION

Our approach on this subtask will be to utilize and continue to enhance the contacts that we made during the alignment study to obtain all information needed from outside entities in a timely fashion. We developed (or already had) relationships with AVEK, California City, BLM, IWVWD, SCE, Kern County Public Works, and Caltrans, and have good working relationships with each of them. The maps that we developed during that project already include some of the infrastructure in the region, including SCE's power lines and some water lines and storm drains in California City.

We would not have to start from scratch on a map but would continue with the map of the Central Alignment that we previously developed and shared with the Authority. Based on that map, we will look for ways to revise the alignment in order to stay out of Red Rock Canyon State Park and to minimize the impact to the project of the conservation easement owned by the Sequoia River Lands Trust.

We will begin working with SCE immediately so that we can submit a Method of Service (MOS) study application as soon as possible. This is the most important relationship of this subtask. A copy of the application form for a Request for Method of Service Study is included as Attachment B. The process of extending power lines to pump stations could potentially be the critical path on this project. Our Team's experience in working with SCE on MOS studies will help us to get this process moving early on and reduce the risk of power availability delaying the construction or having to utilize another energy source for pumps when operation commences.

### TASK 2.2 ENVIRONMENTAL AND ROW CONSULTANT COORDINATION

In addition to monthly coordination meetings with the environmental and ROW consultants, we will work with them as needed in order to provide information to them (primarily alignment data for their use) and for them to provide information to our Team (parcel availability, preliminary title reports for all parcels, permitting and mitigation requirements) that we can incorporate into our design packages. The environmental permitting and mitigation requirements in particular will impact our design packages, including both drawings and special conditions.

## TASK 2.3 SURVEYING

### TASK 2.3.01 - PERFORM CONTROL SURVEYS AND REVISED UAV SURVEYS

As part of the Alignment Study, our survey team performed an aerial survey of the Central Alignment using imagery captured by an unmanned aerial vehicle (UAV). Data collected from this survey will be supplemented with ground survey data and used to generate the topographical information for the pipeline plan and profiles sheets and the pump station sites. Our survey team will perform infill ground surveying to supplement and validate the aerial survey information at the pump station sites, road and utility crossings, and at existing at-grade facilities. The survey team will perform additional aerial surveys and ground surveys over any reaches of the alignment that may need to be modified or pump station locations that may be revised during preliminary design. Project benchmarks and control points used and set in the surveys will be shown on a survey control sheet in the 30% design submittal.




### TASK 2.3.02 - MARK POTHOLE LOCATIONS AND MEASURE GRADE ELEVATIONS

Prior to the potholing of existing utilities, our surveyor will field locate and mark the proposed pothole locations for the Authority's potholing contractor. At the completion of the potholing effort, our surveyor will go back out and obtain the restored grade elevations so that we can relate the depth of utilities measured by the Authority's potholing contractor with the surveyed elevations. The potholing effort is described in more detail in Task 2.4 and Task 3.2.01 below.

### TASK 2.3.03 - ESTABLISH PROPERTY BOUNDARIES FOR IMPACTED PARCELS

Our survey team will research existing survey records and maps to establish the existing boundaries of impacted parcels and public rights-of-way through the project area. Using preliminary title reports obtained by the Authority's right-of-way consultant, any existing plottable easements disclosed in those reports that fall within the pipe alignment will be drafted in our survey drawings.

## TASK 2.4 UTILITY RESEARCH/COORDINATION

Performing a detailed utility search of the alignment is critical to finalizing the designs of trenchless crossings and the profile of the pipeline. Provost & Pritchard will have a team member dedicated to coordinating with California City, County of Kern Public Works, IWVWD, and the City of Ridgecrest Public Works Departments as well as private utilities to compile a current database of existing utilities and other facilities in proximity to the pipe alignment and verify the potential construction constraints. Provost & Pritchard will provide the utilities with our preliminary alignment design drawings that will be completed for the PDR. Provost & Pritchard staff will also meet with the representatives from the respective utility planning departments to understand planned utility installations. Through the preparation of the Alignment Study, Provost & Pritchard has already established contact with some of the major utilities that will have to be crossed, including the California City Public Works Department and Southern California Edison. We have already developed a list of utilities and representatives in the project area. Provost & Pritchard staff will hold utility planning meetings with affected utilities. Based on our experience from past projects, our team has found that holding utility planning meetings with multiple utility representatives in attendance can be an efficient and effective way to coordinate our pipe design with the utility stakeholders.

## TASK 2.5 GEOTECHNICAL SERVICES

Performing soil borings along the pipeline and at the pump station sites will be a top priority after the design contract is executed. Soil Engineering, Inc.'s (SEI) extensive amount of experience in the California City-Ridgecrest area as well as the desktop geological study that they performed for the alignment study will help ensure that our team hits the ground running. SEI will perform the borings required along the pipeline, at the pump stations, at the Ridgecrest Heights Blending Facility and at the trenchless crossings. The borings will be drilled to proposed depths or refusal, whichever comes first. Borings will be advanced using a 4-1/4-inch I.D. hollow-stem auger attached to a CME-45, CME-75, and/or CME-95 drilling rig. Test pits at specific locations along the pipeline where rocky conditions are likely will be excavated with a small backhoe.

Earth materials encountered will be logged, classified in accordance with the Unified Soils Classification System, and graphically presented on Test Boring Logs. Undisturbed and bulk soil samples of representative subsurface soils will be obtained at five (5) foot intervals, retrieved using ASTM D1586 for granular soils and ASTM D1587 for cohesive soils. Standard Penetration Test results will be recorded for each sampling process.

SEI will stake boring locations for Underground Service Alert North (USAN) utility locating and clearing. Bores will be backfilled with trimmings and consolidated with a rig hammer. In the drainage wash areas, due to the narrow shoulders, will provide traffic control to close one lane of the road temporarily. SEI will prepare traffic control plans encroachment permits from Kern County for work within the Kern County Road right-of-way and our Team will assist SEI to obtain a BLM encroachment permit for field investigations. It is our understanding that the Authority will submit any permit applications and pay any fees.

SEI will perform soils testing in their laboratory on the samples retrieved to assist with our team's design efforts. The following tests are anticipated:

- Sieve Analysis (ASTM D422 and/or D1140)
- Consolidation Test (ASTM D2435)
- Direct Shear Test (ASTM D3080)
- In-Situ Moisture & Density Determinations (ASTM D2216 & D2937)
- Moisture Density Relationship (ASTM D1557)
- Atterberg Limits (ASTM D4318)
- Expansion Index Test (ASTM D4829)
- Resistant "R" Value Test (CTM-301)
- Corrosivity Review- Sulfate (SO4), pH, Chlorides (Cl), Soil Resistivity



Soil Boring Samples

SEI will prepare separate stand-alone geotechnical reports for the pipeline, pump stations, the trenchless crossings, and the blending reservoir at the Ridgecrest Heights Tank facility. This will allow for a more focused report, in the event that the project is split up into multiple contracts. The reports will cover the followings subjects:

- **Trench stability**- SEI will perform the analyses necessary to predict the need for shoring to prevent collapse and undermining adjacent properties. Trench stability depends most on soil type, shear-strength, density, and erosion-potential. Each one of these soil characteristics will require measurement and classification.
- **Backfill trench design**- SEI will also address the following items: Trench excavation (width & clearance), pipe foundation materials, pipe bedding classification, thickness, and compaction requirements.
- **Criteria for the design of structures and pipe foundations**- SEI will provide the following design criteria to assist with our teams civil and structural designs:
    - Most adequate foundations for the proposed structures
    - Maximum allowable soil bearing pressures to be used for design of pipejacking pit and structures.
    - Anticipated total and differential static settlements.
    - Lateral earth pressures and friction coefficients to be used for evaluating passive resistance of foundations and friction factors.
    - Seismic values per the 2022 California Building Code
    - Perform an assessment of the groundwater table in the area and depth to groundwater if encountered during the field investigations.
    - SEI will incorporate the results of their desktop geological study that was prepared for Provost & Pritchard's recent alignment study.

Because the results of SEI's investigations are a critical path component of our design, SEI anticipates using three separate crews to perform approximately 300 soil borings over a period of approximately two to three months. As our team delves further into the design, the number of soil borings required may adjust up or down. Based on SEI's coordination with Provost & Pritchard and Bennett Trenchless Technology, SEI estimates that borings the following borings will be required at each site:

- **Pipeline Alignment**
  - 225 borings drilled to a depth of 15'
  - 25 backhoe excavations to a depth of 6' in reaches where rocky conditions are probable.
- **Pump Stations (assumes 6 pump stations)**
  - 2 borings at each site to a depth of 20 feet
  - 2 borings at each site to a depth of 40 feet
- **Bore & Jack Locations (assumes 5 crossings)**
  - 2 borings to a depth of 40 feet per each site.
- **Horizontal Directional Drilling Crossings under Drainage Channels (7 crossings assumed)**
  - 2 borings to a depth of 75 feet (Rancho Seco Drainage)
  - 2 borings to a depth of 50 feet Wash 1(near Hwy 14)
  - 2 borings to a depth of 100 feet Wash 2(northwest of Cantil)
  - 3 borings to a depth of 75 feet Wash 3(Red Rock Canyon)
  - 4 borings to a depth of 100 feet Wash 4(Last Chance Canyon wash)
  - 4 borings to a depth of 100 feet Wash 5(Golar Gulch)
  - 1 boring to a depth of 40 feet Wash 6 (adjacent to Hwy 395)

SEI's work will be performed on a time and material basis.

Our concern here is whether SEI will be able to take borings from BLM land without a certified NEPA document. If such a document is required prior to drilling on BLM land, aspects of the design could be delayed by several months. We will want to work with the Authority, Capital Core, and the BLM to help us navigate this process as quickly as possible. Per Addendum No. 1, it is our understanding that the Authority would submit the permit application and provide the permit fee required for the geotechnical field investigations on BLM land. Based on our Team's experience this could be a 2-3 month process with BLM. From our experience, Cal Trans and UPRR do not prefer to have soil borings taken within their ROW, and work will be performed outside of their ROW, unless site constraints make that unfeasible. If it is determined by BLM and the other regulatory agencies that scour analysis is required to use HDD under the drainage crossings, this will require additional borings inside the channel that are not included as part of our scope, but can be included as an optional task. To assist with maintaining the project schedule while navigating the permitting process or getting individual landowner approval, SEI will start with the borings in reaches of the alignments that are less encumbered.

## TASK 2.6 CORROSION PROTECTION AND SYSTEM DESIGN

RF Yeager Engineering (Yeager) will provide our team with the corrosion analysis and corrosion engineering required along the entire pipeline alignment, at the pump station sites, and at the blending tank at the Ridgecrest Heights Tank Facility. At the completion of SEI's field investigations and laboratory testing of the boring samples for soil corrosivity, Yeager will review the testing data from SEI and identify potential locations for field testing. Yeager will coordinate with SEI to obtain soil chemical analysis data, soil classification, and groundwater elevations to be included in the corrosivity assessment report. They will conduct in-situ (field) resistivity testing at the project site and where buried metallic yard piping may be included in the design and provide a review for the potential of stray current interference on new buried and/or submerged metallic utilities. Yeager will prepare engineering design calculations and cathodic current requirements for new construction of pipelines, yard piping, and buried or submerged metallic components. As the designs progress, they will conduct site visits along pipeline alignments and at sites for pump stations. This site visit will assist in selecting locations for anodes, anode beds, test stations, and other corrosion control/cathodic protection facilities. They will provide plans and specifications at the 60%, 90%, and 100% design levels.

## TASK 2.7 PERMITS

Our approach on this task is to obtain as much information as we can as quickly as we can from permitting agencies and from members of our Team. Permitting agencies are typically challenging to work with and generally require detailed information prior to even meeting with applicants. This would generally include design drawings as part of the application package. **Table 1** on the following page summarizes the permits we believe are needed for this project and are segregated into environmental-related permits to be obtained by the Environmental Consultant and design/construction-related permits that we will assist with in this scope of work. The table shows that we will need to work with a number of federal, state, and local agencies. Fortunately, our Team and individual members of the Team have extensive experience working with these entities.

At this time, it is our position that we can optimize the preferred alignment so that it does not encroach on Red Rock Canyon State Park, thus obviating the need for a permit from California State Parks. California State Parks has recently confirmed to us that they do own the land on either side of Redrock Randsburg Road. Our experience from the alignment study is that this organization is challenging to work with and generally very slow in its response to inquiries. Thus, we believe it is better to avoid the Park altogether.

We worked with the BLM during the alignment study and found their staff relatively easy to work with and we are confident that the permits required from BLM will be obtained relatively easily. Permits required for drilling on BLM lands are, as noted above, our biggest concern here. From past experience, we expect archaeological issues to be the most time-consuming for the BLM permits.

For the final design, our Team will focus on preparing the encroachment permit application packages for the pipeline crossings at Hwy 395 and at the UPRR crossing. Some road encroachment permits may require traffic control plans. While our Team is capable of developing such plans, our experience is that many contractors prefer to do that themselves, as each may have a different methodology in how it prosecutes the work in road rights of way. We will want to discuss the specific issue of road encroachment permits with California City, Kern County, and Caltrans with IWVGA staff prior to applying for these permits to ensure that the Authority does indeed want these encroachment permits in advance.

TABLE 1- List of Permits

| PERMITTING AGENCY | TYPE OF PERMIT | ESTIMATED TIMELINE OF PERMIT APPROVAL | NOTES |
|---|---|---|---|
| **DESIGN-RELATED PERMITS** | | | |
| Kern County Roads | Franchise Agreement | TBD | To obtain permission for permanent facility in ROW |
| Kern County Roads | Encroachment Permit | 4 weeks(estimated) | To obtain permission for borings and potholing in ROW |
| City of California City | Franchise Agreement | Unknown | To obtain permission for permanent facility in ROW |
| City of California City | Encroachment Permit | Unknown | To obtain permission for borings and potholing in ROW |
| SWRCB Division of Drinking Water | Consultation | 4- 6 months | To confirm requirements for maintaining water quality |
| **CONSTRUCTION-RELATED PERMITS** | | | |
| California State Parks | Special Use Permit* | 3-4 years | To encroach on park land |
| Kern County Roads | Franchise Agreement | Unknown | To obtain permission for permanent facility in ROW |
| Kern County Roads | Encroachment Permit | 8 weeks | To utilize road ROW |
| City of California City | Encroachment Permit | 8-12 weeks | To utilize road ROW |
| City of Ridgecrest | Encroachment Permit** | 8-12 weeks | To utilize road ROW |
| Railroad | Crossing Permit | 6-8 months | To utilize railroad ROW |
| Cal Trans | Encroachment Permit | 4-6 months | To utilize road ROW |
| SWQCB (Lahontan Region) | General Construction Permit (SWPPP) | Typically <3 months | To control project site run-off, duration includes preparation of SWPPP. |
| Southern California Edison | Encroachment Permit | 6 months(estimated) | Would include review of plans by Cal ISO for crossing major high voltage transmission line crossings |
| SWRCB Division of Drinking Water | Consultation | Unknown | Consultation during startup |
| **ENVIRONMENTAL-RELATED PERMITS (BY ENVIRONMENTAL CONSULTANT)** | | | |
| Bureau of Land Management | Special Use Permit | 18 months | Includes coordination time to encroach on BLM land during design and for construction |
| Cal Dept of Fish and Wildlife | 1600 permit-Lake and Streambed Alteration Agreement | 6 months | Compliance with Water Quality Certification and Section 404 Permit regulations |
| Cal Dept of Fish and Wildlife | California Endangered Species Act Incidental Take Permit | 6 months | Needed if there is “take” of habitat or species |
| East Kern APCD | California Emissions Estimator Model for CEQA | Unknown | To model potential air pollutants generated during construction activities |
| Regional Water Board | Section 401 Permit | 6 months | Waters of the State |
| Sequoia River Lands Trust | Memorandum of Understanding | Unknown | Private Conservation Easement |
| US Army Corps of Engineers | Section 404 Permit | 6 months | Waters of the US; Aquatic Delineation Required for USACE Section 404 NWP 58 may be required. |
| US Fish and Wildlife Service | Federal Endangered Species Act Consultation | 14 months | Needed if there is “take” of habitat or species |
| * May be avoided if alignment is modified. | | | |
| ** At this time, we believe that all field investigations for the design and all construction activities will be outside the city limits of Ridgecrest. | | | |

## TASK 2.8 PRELIMINARY DESIGN REPORT

Due to the strict timeline required to develop the alignment study, a number of pipeline factors were not part of the study scope of work, and thus will need to be addressed in the Preliminary Design Report (PDR). Our Team's approach to the PDR will include finalizing those issues. Some of these may have been identified in the alignment study but may be able to be improved (such as moving the alignment out of the State Park or reducing the number of pump stations or relocating some of them). During the preparation of this proposal, we are already refining the number and locations of pump stations and believe it is possible to construct this project with as few as four pump stations (see **Figure 1** on page 55).

Our approach will also include analyzing critical path issues and key issues that have not been decided yet but that will need to be known prior to moving to final design. Critical path issues will be addressed in separate technical memorandums that will be attached to the final PDR—well before the final technical memos that will accompany the 30% design submittal.

**Critical Path Issues**

- Preliminary System Hydraulics-Pump Station and Pipeline
- Pipe Optimization and Refinement
- Power Availability and Coordination with SCE
- Pipeline Crossings-Trenchless and Open-cut

To facilitate timely responses to key stakeholders, including SCE, UPRR, and Cal Trans, our Team will focus on the critical path issues required to initiate the Method of Service Study with SCE for power availability; submit the crossing permit application to UPRR; and the encroachment permit application for the Hwy 395 bore and jack crossing early in the preliminary design process. It is important that system hydraulics and pipe optimization analyses are part of this critical path because the pipe sizes must be finalized to bring the trenchless crossing designs to a 90% design level. We propose to make these stand-alone packages for UPRR and Cal Trans review to facilitate a quicker turnaround.

### TASK 2.8.01 - PRELIMINARY SYSTEM HYDRAULICS TECHNICAL MEMORANDUM

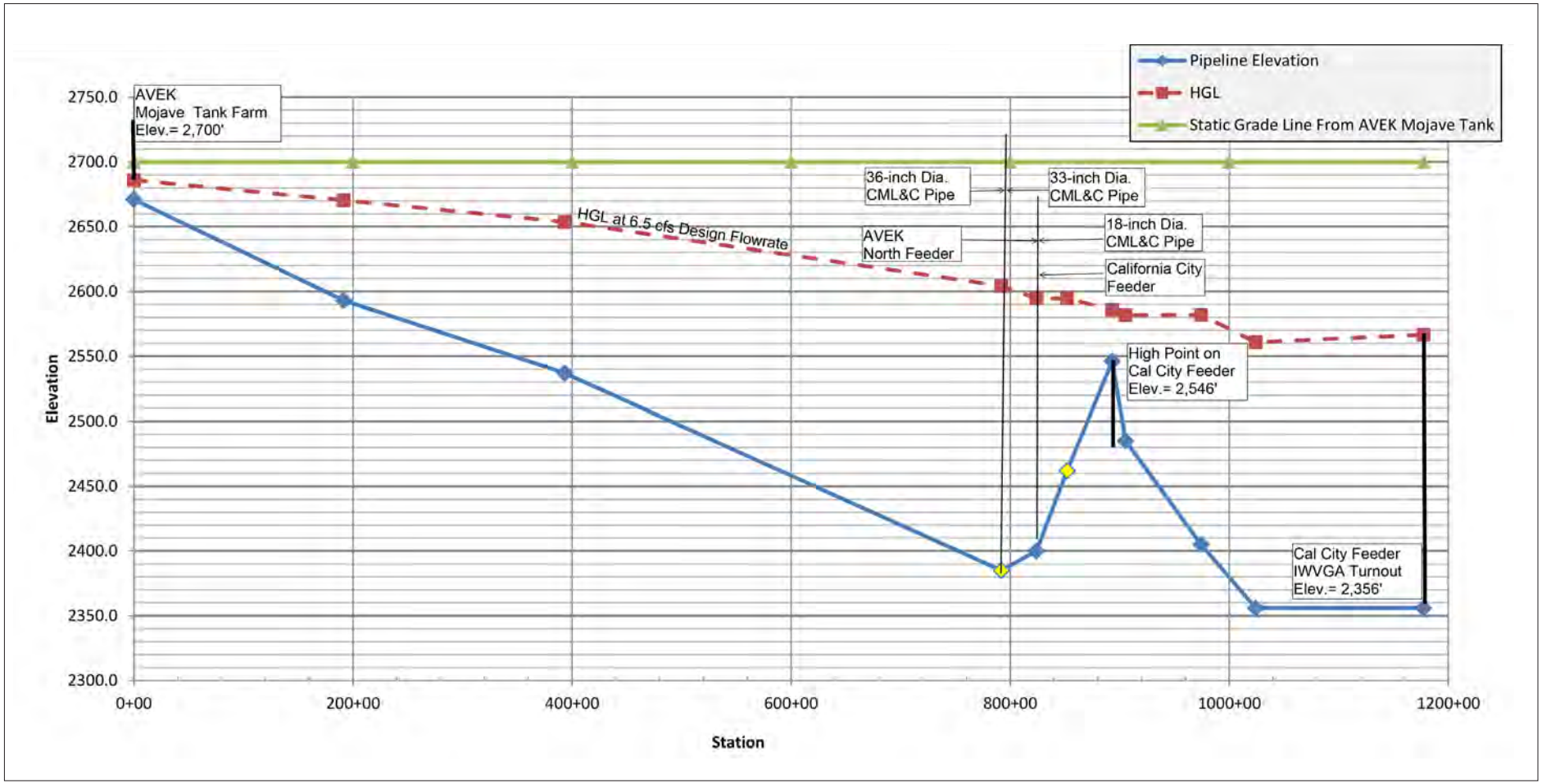
Our Team will prepare hydraulic analyses for the proposed pipeline and pumping conveyance system, all the way back to the Mojave Tank Farm. A simple hydraulic profile for the AVEK pipeline upstream of the tie-in to the California City Feeder is shown in **Figure 3** on the following page. As mentioned previously, the California City Feeder will not have sufficient capacity to meet IWVGA demands as it was designed with a flowrate of 6.5 cfs. Our analysis will review this condition and provide recommendations for facilities to expand capacity for consideration by the Authority. A technical memorandum will also summarize the hydraulic modeling effort used to size the pipeline in different reaches of the alignment as well as locate and size pump stations building and site layouts. It is assumed that each pump station will incorporate a forebay to provide operational flexibility and to hydraulically isolate each pump station. The hydraulic analyses will be prepared for the initial flow condition, the intermediate flow condition and the ultimate flow condition as defined below (these numbers will be further analyzed in the PDR):

**Initial Flow Condition** – 0 to 3,008 gpm (6.7 cfs)

**Intermediate Flow Condition** – 3,008 gpm to 3,915 gpm (8.7 cfs)

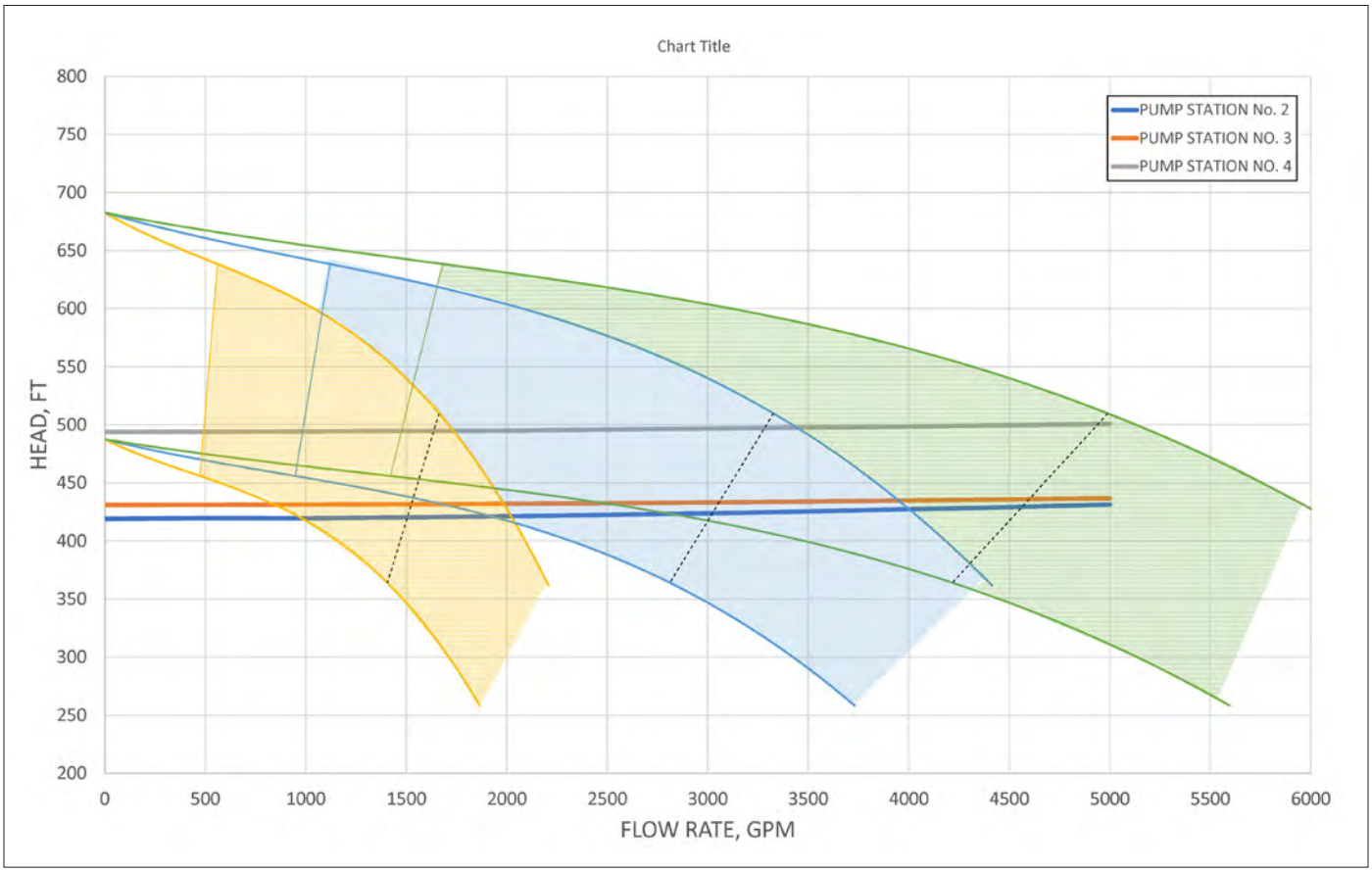
**Ultimate Flow Condition** – 3,915 gpm to 4,850 gpm (10.8 cfs)

FIGURE 3 – Hydraulic Grade Line Upstream of California City Feeder



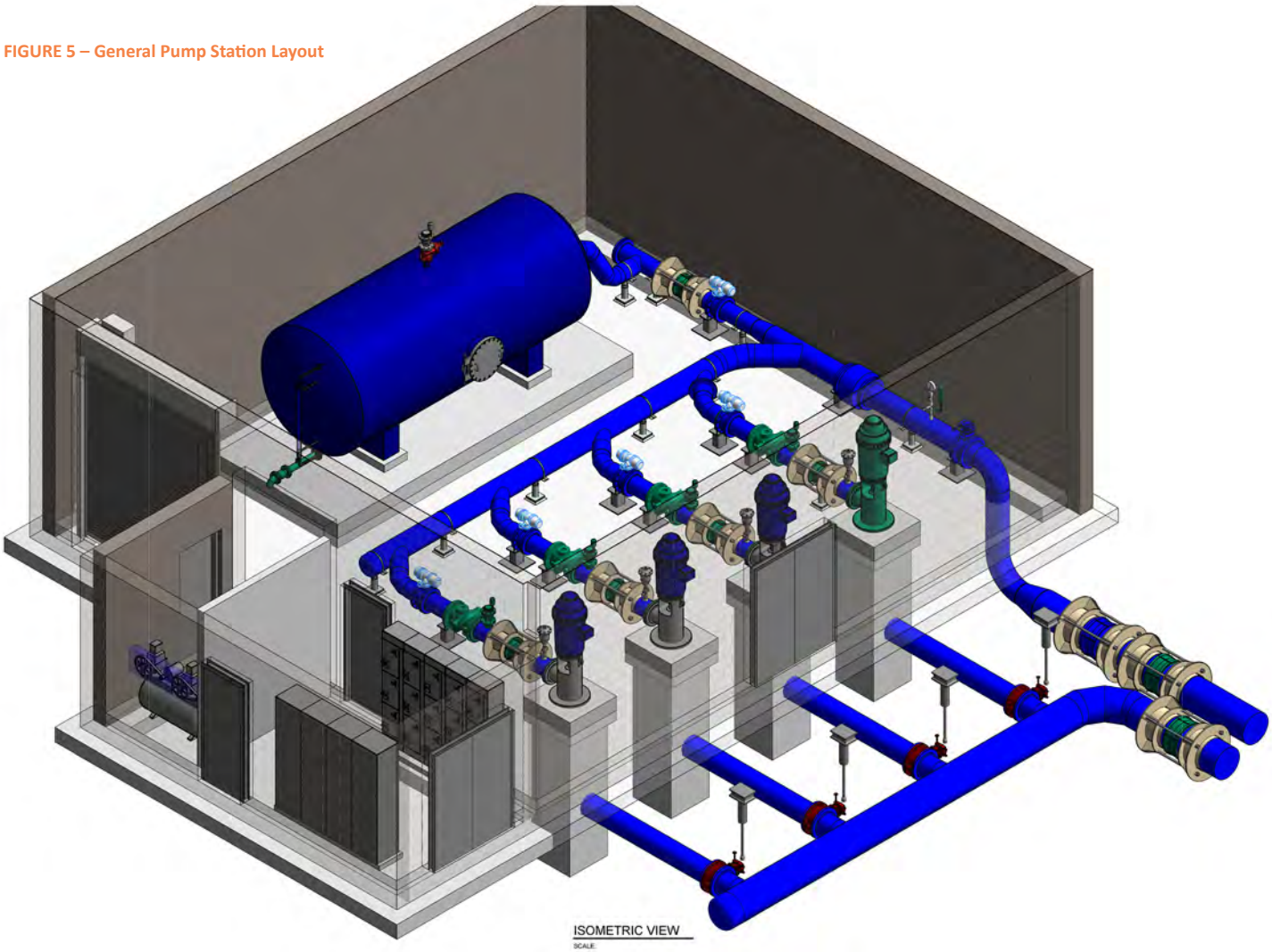
Each pump is anticipated to require 300 horsepower electric motors with a pumping range of about 900 gpm to 1,700 gpm for each pump. **Figure 4** provides an initial pump curve for a 3 + 1 ultimate configuration. For reference, the initial pump selection is based on a Flowserve 14EMM Vertical Turbine Pump.

**FIGURE 4 – Pump and System Curves**



The following **Figure 5** represents a potential arrangement of the proposed pump station. Additional equipment may include chemical injection of sodium hypochlorite to maintain water quality and surge tanks to mitigate transient events due to a power failure. Since electrical power may be a long lead item, if required, each pump station may also include standby power generation but at a minimum will include the use of an ATS with power hookups for the use of temporary portable generators for emergency conditions.

**FIGURE 5 – General Pump Station Layout**





SCE 33 KV power line along Red Rock Randsburg Road.
Pipeline would be south of road.

## TASK 2.8.02 - PIPE OPTIMIZATIONS AND REFINEMENT TECHNICAL MEMORANDUM

Recommendations on final pipe size and material, including locations of potential manufacturing facilities. Recommended final pipe size will represent an optimized size that considers both capital and long-term power costs.

## TASK 2.8.03 - POWER AVAILABILITY AND COORDINATION WITH SCE TECHNICAL MEMORANDUM

In order to identify the required regional power supply utility owned infrastructure for the operation of the pump stations, SCE will need to prepare a MOS Study that reviews the existing power infrastructure, identifies additional power infrastructure to accommodate the power needs for the project, and to develop a cost analysis of the additional power infrastructure to accommodate the power requirements of the project. The MOS Study is prepared by SCE with specific loading requirements provided by our design team. Attachment B is the SCE MOS application form.

For SCE to commence with the MOS Study, our Team will develop the electrical loads required for each pump station based on the horsepower requirements identified as part of the overall project hydraulic analyses. The required information for SCE to start their work will include the following:

- Overall pipeline routing;
- Location of each pump station
- Horsepower requirements and motor sizing for each pump station. This analysis will include initial and ultimate power requirements
- Electric Motor Locked Loads
- Motor sequencing and start-up requirements
- Completed MOS application

The baseline information required by SCE will be summarized in a Technical Memorandum and will be appended to the MOS application for use by SCE. It should be noted that SCE will require a deposit of fees for their work prior to the commencement of the MOS Study efforts. The MOS study can typically take two years or more, which is an issue of great concern to us.

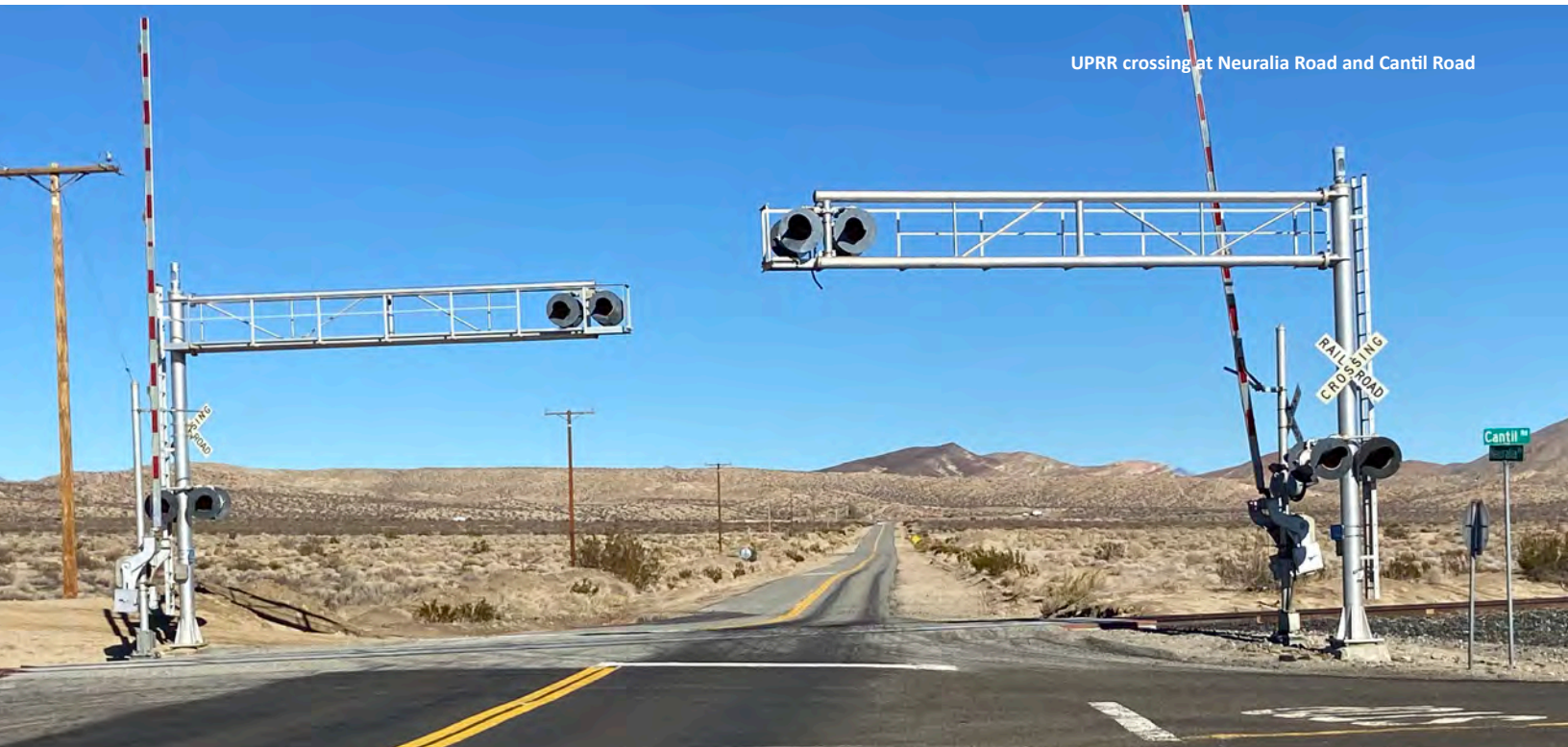


Typical Bore & Jack operation

## 2.8.04 - PIPE CROSSINGS TECHNICAL MEMORANDUM

Trenchless construction methods will be required at several locations where the alignment crosses UPRR and Caltrans right-of-way, where traffic impacts must be reduced, and where environmental concerns indicate open-cut is undesirable. However, we understand that specialty trenchless construction adds cost and potential risk to the project. To optimize the use of trenchless construction methods, our Team proposes a thorough geotechnical investigation at each potential trenchless crossing to identify subsurface conditions and evaluate the feasibility, risk/reward balance, and overall benefit of using trenchless methods. While Cal Trans, UPRR, and the Kern County Roads department require trenchless technology when crossing their right-of-way, Cal City public works and potentially some of the regulatory agencies may provide allowances for open-cut crossings. Our Team will select appropriate trenchless construction methods for each crossing that mitigate construction risk, reduce construction cost, and address the concerns of the applicable permitting agencies.

Our Team's extensive experience with Caltrans, UPRR, US Army Corps of Engineers, California Department of Fish and Wildlife, and various regulatory agencies, will streamline the trenchless permitting process as we understand how to design a trenchless project that will satisfy the permit conditions and mitigate the specific risks that are of importance to each agency. Provost & Pritchard staff and Bennett Trenchless Engineers will prepare a technical memorandum that will summarize the design considerations and requirements for each type of crossing described below. A table summarizing the design parameters, bore and jack rules for Caltrans, UPRR, and any other permitting agency in which a bore and jack or HDD processes will be required for each crossing will be included with the memorandum:

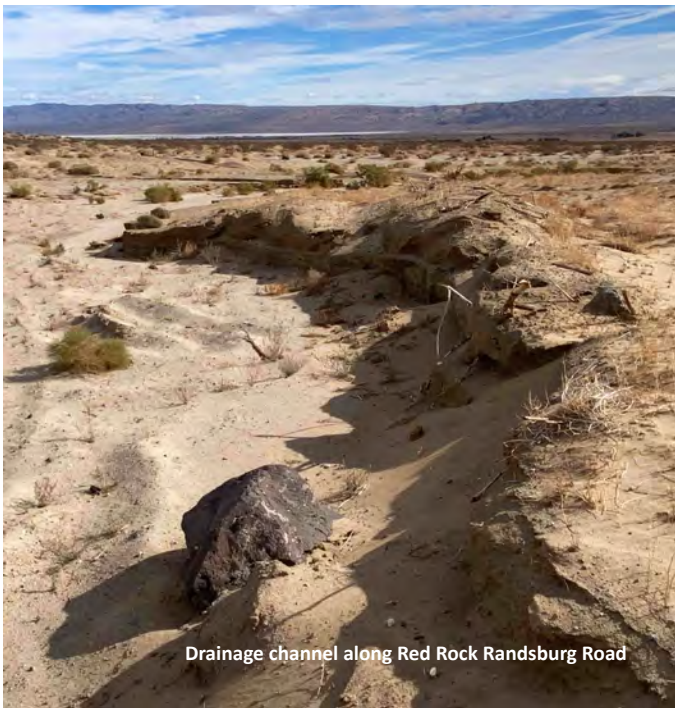



UPRR crossing at Neuralia Road and Cantil Road

- **Railroad Crossings** (an accelerated design for this will be included in the memorandum so that Provost & Pritchard may initiate the encroachment permit process as soon as possible)
- **Cal Trans Highway crossings** (an accelerated design of this will be included in the memorandum so that Provost & Pritchard may initiate the encroachment permit process as soon as possible)
- **California City road crossings**
  - **Bore and Jack Crossings**
    - Neuralia Road at California City Boulevard
    - Neuralia Road at Yerba Rushe Creek culvert
  - **Open cut crossings** - It is our current assumption that all other feeder street crossings will be open-cut and designed according to California City Public Works requirements. Further discussions with California City Public Works staff will be required to confirm this.
- **County road crossings**—All Kern County paved roads will have to be bored and jacked crossings per Kern County Roads Department requirements.
  - Neuralia Road at Cantil Road
  - Searles Station Cut-Off, east of Hwy 395
  - China Lake Boulevard



Neuralia Road and Red Rock Randsburg Road at Highway 14



Drainage channel along Red Rock Randsburg Road

- **Trenchless drainage crossings** (up to 12 potential crossings initially identified)
  - Bennett Trenchless Engineers will confirm whether HDD is appropriate for the location or not and our Team will coordinate with BLM and the CEQA/NEPA consultant to determine where the trenchless crossing will be required.
- **Flood protection for open-cut drainage crossings**
  - Provost & Pritchard Staff will summarize the design measures to mitigate for drainage run-off in the reaches needing flood protection, but not HDD. It should be noted that we have not included budget for a full scour analysis at any crossing. Should such a full scour analysis be required, for example by BLM, the cost of such analyses would be supplemental to our proposal and would represent an additional optional task. At this time we do not believe that they will be required; however, we acknowledge that BLM could require a scour analysis for one or more crossings on its land.

The ability to secure permanent and temporary construction easements for property adjacent to the trenchless crossing may have an impact on our ability to accelerate the crossing drawings to a level required by UPRR and Cal Trans. Changes to the location of crossings because of issues with the underlying property owner could delay the submission of encroachment permit with these entities.

## TASK 2.8.05 - PRELIMINARY DESIGN REPORT

Below is a list of additional key issues that we anticipate addressing in the PDR before the final design commences. This list is not considered complete at this time, as additional issues may develop during the preliminary design phase. However, it represents our current understanding of the project.

- Recommendations on changes to the alignment and pump station locations as defined in the previous alignment study. These recommendations would be based on simplifying the design either by reducing the number of required permits, relocating or reducing the number of pump stations, or avoiding existing utilities.
- A detailed list of permits expected to be required prior to and during construction, along with the permitting agencies and contact information for each.
- Recommendations on spacing, location, and type of line valves, air relief valves, and meters.
- A recommendation on the size and material of the blending tank at the Ridgecrest Heights Tank Facility. While the RFP states that this is to be a one (1) MG tank, we will perform a study to optimize the capacity of the tank and, if warranted, recommend a different capacity.
- A schematic of a typical pump station, a rough outline of what each will look like and the footprint they will occupy, and a recommendation on capacity of forebays at each station.
- A recommendation on how pump stations may be phased to grow in capacity as demands and water rights procured increase over time.
- A discussion of whether to use PRV's or inline turbine generators to reduce energy along the pipeline alignment. Preliminary hydraulic profiles indicate that, once the line hits the peak elevation of approximately 3,500 feet, the pressure will have to be reduced significantly. This provides an opportunity to recover some of the energy costs by generating power and introducing it back into the grid, or to reduce pipe diameter and thus reduce capital costs.
- A water quality analysis that will include information from the Department of Drinking Water (DDW) related to whether a chlorine residual will have to be maintained throughout the line, since it is potable water. This will dictate whether chlorination stations will be required at each station, and the capacity of each. The analysis will also compare AVEK groundwater to IWVWD groundwater to determine what treatment, if any, may be required in the blending tank. Bench testing of these waters is proposed as an optional task.
- Details of the emergency basin to be constructed at the terminus to discharge stagnant water deemed unsuitable for drinking water purposes
- Results of the utility research.
- Detailed survey information based on the survey performed.
- Preliminary geotechnical results, if available.
- Recommendations on lay-down areas and contractor work areas along the alignment. This will be important for the contractors in their bidding process. This may also dictate additional parcels or temporary construction easements to be obtained.
- Identification of a water source and backfill material source for the contractor to use during construction.
- Recommendations for potholing.
- Detailed information on all rights of way to be used along the alignment, including California City and Kern County rights of way.
- Preliminary estimate of probable cost of construction.
- Preliminary project construction schedule, including recommendations on whether and how to break the design up into multiple packages to increase the pool of bidders.

In short, we anticipate the PDR will include a series of informational technical memorandums to discuss the critical path issues and a discussion to summarize the key issues and recommendations for the final design. The PDR will be accompanied by the preliminary design drawings as discussed below. Because some of the information in the PDR will be right of way related, and because this information can be relatively difficult to pin down, we anticipate a longer period for development of the PDR. However, we feel that including this information will shorten the design time significantly.

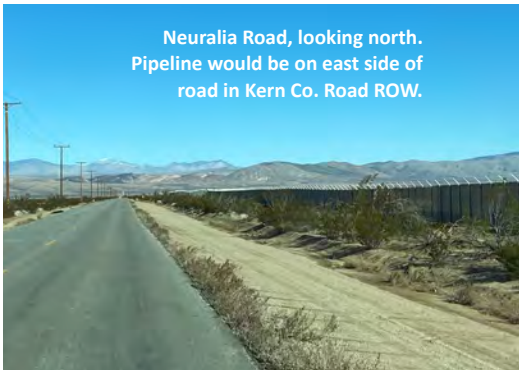
## TASK 2.8.06 - PRELIMINARY DESIGN DRAWINGS

The preliminary design drawings will include a complete set of plan and profile drawing showing the selected features, including the pipe alignment, and alignment of adjacent utilities. At a 1"=40' scale for the plan and profile drawings, we estimate that there will be approximately 182 plan and profile drawings for the alignment. We are proposing to adjust the scale to 1"=50' within the city limits of California City and changing the scale to 1"=100' in the unincorporated areas beyond the city limits to the terminus at the Ridgecrest Heights Tank Facility. This would reduce the sheet count of plan and profile from 182 to 123. We will include preliminary plan and section views of the turnout and pressure reducing stations. The preliminary design drawings will contain the basic layouts of the proposed pump and pump forebay facilities and the related standard details. At this level, we will provide preliminary site plans, and plan and section views of the pump stations, control buildings, and Ridgecrest Heights Blending Facility. Electrical and Instrumentation & Control drawings will include an electrical site plan, one-line diagram, pump motor control diagram & load summary, and P&ID for the pump stations and Ridgecrest Heights Blending Facility. **Table 2** below provides an estimate of sheets for the preliminary design drawings.

**Table 2 – Summary of Preliminary Design Drawings**

| Drawing Group | Total Sheets |
|---|---|
| General | 3 |
| Pipeline | 146 |
| Pump Station | 21 |
| Ridgecrest Heights Blending Facility | 3 |
| **Estimated Preliminary Design Sheet Count =** | **173 sheets** |

1. This assumes that the plan and profile scale within the limits of California City are at a 1"=50' scale and outside the city limits are 1"=100' scale.



Neuralia Road, looking north. Pipeline would be on east side of road in Kern Co. Road ROW.

## TASK 2.8.07 - PRELIMINARY DESIGN LEVEL EOPCC

Our cost estimating team will prepare a Class 3 Engineer's Opinion of Probable Construction Cost (EOPCC) in accordance with the Association for the Advancement of Cost Engineering International (AACE) at the preliminary design level and revise it at each design submittal level to refine quantities and refine material and equipment costs with vendors.

## TASK 2.8.08 - PRELIMINARY DESIGN LEVEL CONSTRUCTION SCHEDULE

Our Team will prepare and update a construction schedule at the preliminary design submittal level. The draft construction schedule will be a Gantt chart that summarizes the key tasks of the project by bid package, critical path construction tasks driven by regulatory permitting requirements, and state and federal time constraints associated with grants and regulatory permitting requirements. The construction schedule will estimate the timeline for the procurement of materials, based on current information from material and equipment manufacturers.

## TASK 2.8.08 - PREPARE OUTLINE OF PROJECT SPECIFICATIONS

Our Team will provide the Authority with an outline of the technical specifications for each discipline of the design work required. Provost & Pritchard staff will coordinate with our sub-consultants to provide a complete list. We are assuming that front-end contract documents will be supplied by the Authority, with modfications as needed (such as special conditions and special provisions) to be developed by our Team.

### DELIVERABLES

- TM on Preliminary System Hydraulics-Pump Station and Pipeline
- TM on Pipe Optimization and Refinement
- TM on Sub-regional Power Availability and Coordination with SCE
- TM Pipeline Crossing-Trenchless and Open-cut
- Draft Preliminary Design Report
- Preliminary Design Drawings
- Preliminary design level EOPCC
- Preliminary design level Construction Schedule.

# TASK 3 FINAL DESIGN

## TASK 3.1 30% SUBMITTAL

### TASK 3.1.01 - PREPARE 30% PIPELINE AND BLENDING TANK DESIGN PLANS

Our Team's AutoCAD production staff will generate plan and profile drawings that show the pipe alignment and the alignment of existing utilities in plan view and depths of existing utilities based on the available record drawings. Plan views will be underlain with the topography generated from the drone survey of the final alignment obtained as part of the alignment study. The plan views will delineate the permanent and temporary construction easements required as well as laydown and staging areas to facilitate early coordination with the Environmental and the ROW Consultants. Provost & Pritchard staff will collaborate with pipe manufacturers and pipeline contractors that our Team has worked with in the past to get an accurate daily pipe installation rate. This will allow our staff to quantify and size the lay down areas along the pipe alignment and the onsite and offsite storage areas for pipe and other equipment. Standard details for pipeline facilities and preliminary layouts for the pressure reducing stations and turnout and metering structure will be included with the 30% design drawings. A preliminary layout of the blending tank and yard piping at the Ridgecrest Heights Tank facility will be included.



**Existing Ridgecrest Heights Tank Facility Site.**
**Tank would be to the east of the existing tank on IWVWD property.**

## TASK 3.1.02 - PREPARE 30% PUMPING FACILITY DESIGN PLANS

The 30% design drawings will further the site & grading plan design of the proposed pump and pump forebay facilities and the related details. We will add section views to the pump stations and control buildings and add yard piping to the site layout. Electrical and instrumentation and control drawings will be furthered by additional discussions with requirements from SCE and an understanding of the Authorities current SCADA and control needs.

## TASK 3.1.03 - COMPLETE DESIGN TECHNICAL STUDIES

To facilitate timely responses to our Team's design decisions, our Team will provide draft technical memorandums for the key components of the design for review and comment from the IWVGA staff and the TAC committee. We propose to provide the following technical memorandums to facilitate this process:

### TASK 3.1.03.A - ADDITIONAL SYSTEM HYDRAULICS ANALYSIS AND TRANSIENT MITIGATION ANALYSIS TECHNICAL MEMORANDUM

After the completion of the initial hydraulic analysis in Task 2 and the completion of the PDR, we will refine the system hydraulics and perform a transient mitigation analysis for the system.

Based on the preliminary hydraulics analysis (presented above) the controlling pressure conditions in the system is under low flow conditions due to lack of friction head within the system. This condition may require additional pressure control at each pump station to reduce the hydraulic grade line entering the forebay of the pump station. System Hydraulic Curves will be prepared for each flow condition and used to develop required pump selections. For the purposes of this hydraulic analysis it is assumed that each pump station will use vertical turbine pumps in a 2 + 1 configuration. To further eliminate flow and pressure pulsing, variable frequency drives will be used for smooth hydraulic flow.

Our Team will prepare a hydraulic transient analysis for the proposed conveyance system. Based on the length of the overall pipeline and the distance / elevation differences between each of the pump station, surge analyses for both up pressures and down pressures will be evaluated. The transient mitigation requirements will be developed as part of this effort and will include recommendations. Several mitigation approaches will be analyzed including the following:

- Surge Tanks
- Open Atmosphere Standpipes
- Surge Anticipation Valves
- Adjustments to Pipe Thicknesses
- Or combinations as appropriate.

In addition, our Team will analyze the hydraulic system to determine the locations where the pressure in the pipe should be reduced. From our preliminary hydraulic analyses, it appears that the pressure will need to be reduced in two segments of the pipeline, between the first pump station and the second pump station and downstream of the highpoint along Hwy 395 in the El Paso mountains. As mentioned in the Optional Task section, the inclusion of in-line turbine generators at pressure reducing valve (PRV) station locations may present a green energy opportunity. Our team will perform an initial hydraulic analysis to determine hydraulic impacts of a PRV, an in-line turbine generation or reducing the downstream pipe diameter on the system initially, in 20 years, and in 2070. Our team will also perform an economic analysis to compare the three alternatives. It may be that the system is designed initially with PRVs when flows are low, but they are replaced with an in-line turbine generator when flow rates are closer to the ultimate demand or when current power rates provide an incentive to capture this energy and put it into the power grid.



Highway 395 at Garlock Road, looking northwest.
Pipeline would be on south side of Garlock Road before crossing Hwy 395

## TASK 3.1.03.B - PIPE DESIGN CALCULATION SUMMARY

Our Team will summarize the pipeline design calculations effort to account for soil conditions, potential loading conditions, potential surge conditions, and seismic considerations. At this stage, it is assumed that the pipe material at pressures higher than 150 psi will be CML&C steel pipe designed according to AWWA C200 and AWWA M11. Depending on the optimized pipe diameters selected, there are some reaches where the pressures are less than 150 psi and plastic pipe could be used to reduce material and installation costs. Plastic (PVC or HDPE) pipe would be designed in accordance with AWWA standards. The reach of alignment along Red Rock Randsburg Road and Garlock Road parallels or traverses the Garlock fault. Calculations and pipe design criteria, such as allowable joint deflections, restrained joints, etc. will be summarized and incorporated into our final design criteria.

### TASK 3.1.03.C - REQUIRED PIPELINE FACILITIES

After input from the IWVGA on the pipeline design criteria discussed in the PDR, Provost & Pritchard Staff will provide a brief memorandum to refine recommended design for the PRV stations, spacing of in-line valves, location of blow-off assemblies and potential discharge restrictions, turnout and metering facilities, air-valve assemblies, and surge suppression facilities.

### TASK 3.1.03.D - BLENDING TANK DESIGN FOR RIDGECREST HEIGHT TANK FACILITY

After input from the IWVGA and IWVWD operations staff on the tank sizing and design criteria discussed in the PDR we will make a recommendation on the material and size of this tank. It is assumed that IWVWD will want to have a welded steel tank similar to the existing 3.0 MG Tank. The tank will be designed in accordance with AWWA D100 standards.

### TASK 3.1.03.E - MECHANICAL PROCESS PUMP SELECTION TECHNICAL MEMORANDUM

Our Team will update the initial hydraulic analyses to capture additional requirements, if any, to refine the overall horsepower requirements for the proposed pump stations. Upon finalizing the update, our Team will prepare an overall mechanical layout of each pump station to include process piping, valving, metering, and pressure controls. Based on the results of the transient analyses, surge mitigation equipment will be included as part of this effort incorporating surge tanks (or other surge mitigation requirements) as part of this technical memorandum. The Mechanical Process Pump Selection Technical Memorandum will include the final selection of all pumps, motors, and piping systems.

### TASK 3.1.03.F - ELECTRICAL SYSTEM EQUIPMENT REQUIREMENTS TECHNICAL MEMORANDUM

Our Team will finalize the electrical equipment to be included as part of the pump station design. The Electrical System Equipment Requirements Technical Memorandum will update electrical loading requirements for the pump stations, lighting, mechanical equipment, pump motors and miscellaneous loadings. Conduit sizing and routing will be accomplished as part of the final design in the 60% submittal. Preferred equipment manufacturers will be identified as part of the technical memorandum efforts, along with process and instrumentation diagrams, single line diagrams and equipment layouts to be incorporated into the final pump station floor plan.

### TASK 3.1.03.G - INSTRUMENTATION AND CONTROLS TECHNICAL MEMORANDUM

The Provost & Pritchard Team will work with IWVGA staff (or their designee) to identify the instrumentation and control and SCADA requirements for the operation of the proposed pump stations and conveyance system. As identified above, the overall operations and control systems have not been fully vetted regarding platform, control philosophy, or data requirements. As such, our Team has made the assumption that the proposed pump stations will be required to operate remotely with oversight from a central motor control room. Communication systems will need to be identified along with appropriate software platforms for the ultimate implementation of the project. The project team will develop a SCADA and control system outline to be presented to the Authority for review and approval.

### TASK 3.1.03.H - CORROSION ASSESSMENT TECHNICAL MEMORANDUM

Our Team will prepare a corrosivity assessment report for the work discussed in Task 2.6, and it will include observations, conclusions, and provide options and recommendations for long-term and corrosion protection for buried or submerged metallic piping.

## TASK 3.1.04 - PREPARE OUTLINE OF PROJECT SPECIFICATIONS WITH NARRATIVE

Our Team will provide the Authority with an outline and narrative of the technical specifications by each discipline of the design work required. Provost & Pritchard staff will coordinate with our sub-consultants to provide an exhaustive list of specifications for the civil, mechanical, electrical, and instrumentation and control work required for this project. Because of the size of this project and the number of disciplines involved, our Team recommends using the Construction Specifications Institute (CSI) standard 50 CSI divisions for the disciplines. We believe that this will provide the Authority with Contract documents that are more detailed for the bidding of project and execution of the contract than the Greenbook format would allow. Where appropriate, our Team will reference applicable Greenbook standards in the CSI specifications. It is our assumption that our Team will be provided with the Authority's boiler plate front-end specifications to assist in making the front-end specifications project specific.

## TASK 3.1.05 - TECHNICAL MEMORANDUM ON PRELIMINARY PERMITTING REQUIREMENTS

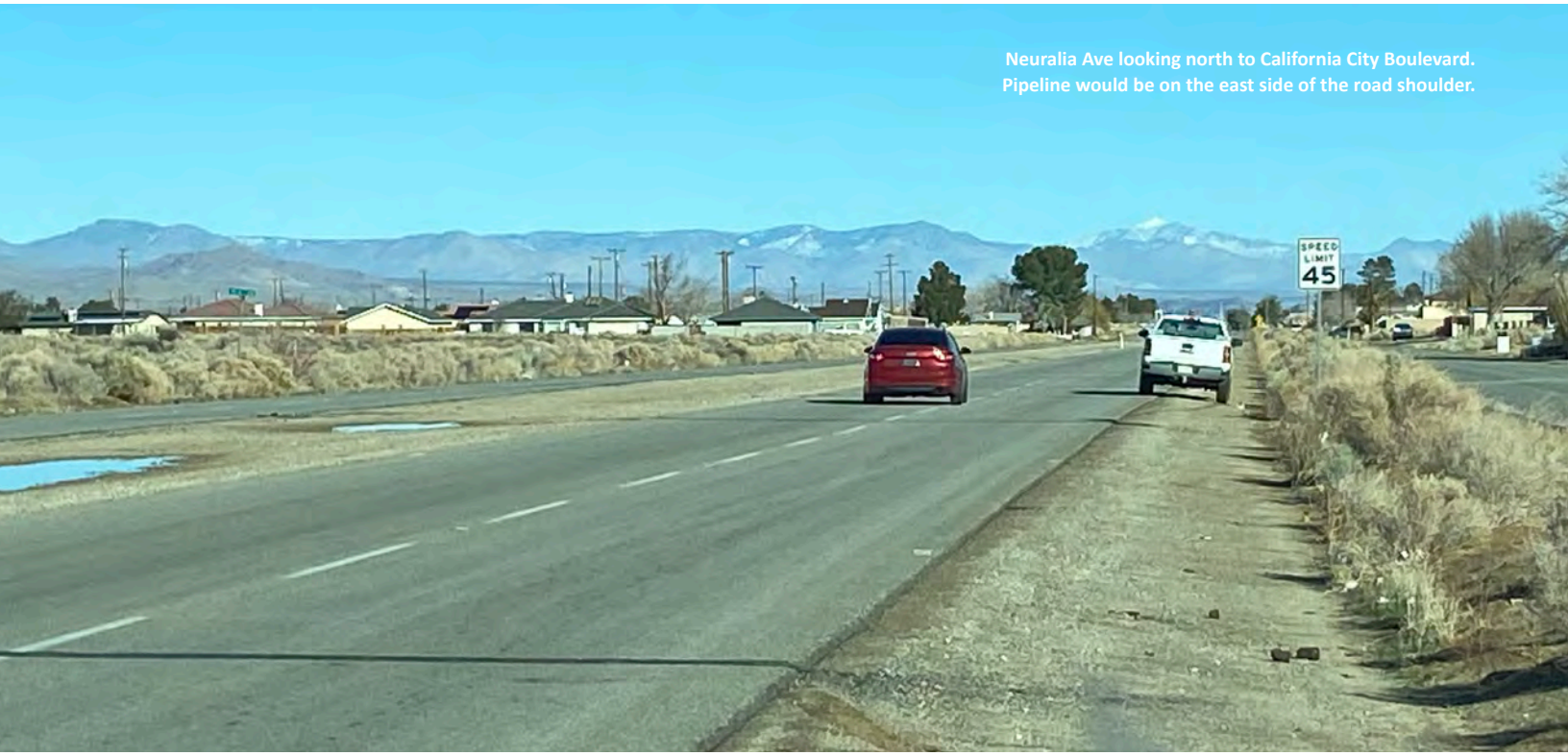
As mentioned in the previous sections, our Team will further the designs of the bore and jack crossings required for Cal Trans and UPRR to the 90% level to initiate the process to obtain encroachment permits for each early in the design process. The Cal Trans permit will be for the Hwy 395 crossing at Garlock Road.

The UPRR permit will be required for crossing the UPRR railroad tracks at Neuralia Road and Cantil Road and where the alignment will cross the UPRR property, approximately 3.4 miles northeast of Searles Station Road. This is approximately 0.4 miles northwest of the UPRR train yard, beyond any railroad tracks. UPRR crossing applications are expected to take a minimum of 45-60 days for an engineering review response, but from our experience this may take 6-8 months for the review and approval process. Review of the application will not begin until an estimate is provided.

Once the permitting process is initiated with these entities, our Team will hold up to three (3) meetings with each to expedite their understanding of the project and to assist in accelerating their permit approval process. Bennett Trenchless will provide permitting support for the Cal Trans and UPRR crossing permits. Our Team's experience with obtaining encroachment permits with Cal Trans and with UPRR and regular correspondence with these entities will ensure the Authority avoid costly time delays that revisions and re-submittals of permit applications packages may cause.

Our Team will also meet with our established contacts at California City Public Works, City of Ridgecrest Public Works, and the Kern County Public Works to review our 30% design plan & profile drawings and work with all parties to create a franchise agreement with the Authority for the temporary and permanent easements required for the project. See **Table 1** for a List of Permits.

Our Team will meet with the Authority's selected Environmental Consultant early and frequently during the design process to ensure that mitigation measures for the regulatory requirements are incorporated into our contract documents early in the design process. The trenchless and open-cut drainage crossings will be designed per the standard requirements of a Section 404 permits. To assist with getting the CEQA/NEPA process completed in a timely manner, we are proposing to hold bi-weekly coordination meetings so that the consultant has necessary information on the impacts during construction and long-term impacts of operation and maintenance of the pipe and pump station facilities.




**Neuralia Ave looking north to California City Boulevard. Pipeline would be on the east side of the road shoulder.**

### TASK 3.1.06 - RECOMMENDATIONS FOR POTHOLING LOCATIONS

At the completion of Task 2.4- Utility Search/Coordination effort with public and private utility stakeholders, our Team will identify locations along the alignment where existing utilities should be field located by a potholing contractor (contracted by the Authority) to confirm or revise the depth and parameters of existing utilities shown in record drawings. Once the locations of existing and planned utilities have been compiled, our AutoCAD production staff will incorporate them into our 30% design plan and profile drawings. We will provide the Authority with a copy of the proposed pothole locations on the 30% design plans for future reference.

### TASK 3.1.07 - PREPARE FINAL GEOTECHNICAL REPORTS

Our Team will prepare separate stand-alone geotechnical reports for the pipeline, pump stations, the trenchless crossings, and the blending reservoir at the Ridgecrest Heights Tank facility to facilitate multiple bid packages for the project. The soils design criteria that will be covered in each geotechnical report is described in Task 2.5.

### TASK 3.1.08 - REVISE EOPCC

Our cost estimating team will prepare a Class 3 EOPCC (per AACE) to the revised quantities and the anticipated materials and equipment costs from the manufacturers at the completion of 30% design progress.

### TASK 3.1.09 - REVISE CONSTRUCTION SCHEDULE

Our Team will revise the construction schedule prepared at the preliminary design submittal level. The construction schedule will be revised to account for the 30% design progress, our updates from coordination with the Authority's Environmental Consultant and the Authority's ROW Consultant, permitting agencies for crossing encroachment permits, and procurement time periods from material and equipment manufacturers.

#### DELIVERABLES

- 30% Design Plans
- TM summarizing the hydraulic analysis for pump station and pipelines.
- TM summarizing transient analysis for pump station and pipelines
- TM summarizing pipe design calculation effort
- TM summarizing required pipeline facilities
- TM summarizing blending tank design for Ridgecrest Height Tank Facility
- TM summarizing the mechanical process and pump selection for pump stations
- TM summarizing electrical system equipment requirements
- TM summarizing instrumentation and control requirements
- TM summarizing corrosion assessment and mitigation
- Outline and narrative of the technical specifications required
- TM summarizing preliminary permitting requirements
- Proposed potholing locations shown on 30% Design Plans
- Final Geotechnical Reports for the pipeline design, pump station design, pipe crossings, and blending reservoir at Ridgecrest Heights Tank Facility
- 30% design level EOPCC
- 30% design level Construction Schedule

## TASK 3.2 60% SUBMITTAL

Our Team will provide a response to the Authority's comments to the 30% design submittal and incorporate them into the 60% submittal, which will include plans and specifications from each pertinent discipline. Provost & Pritchard is committed to meeting the March 2024 deadline to provide the Environmental Consultant with the 60% design package to further the CEQA/NEPA process.

### TASK 3.2.01 - POTHOLING OF EXISTING UTILITIES

As part of the 60% design level plans a potholing contractor will field locate and identify existing utilities along the alignment. Based on Addendum No. 1, received on January 16,2023, it is our understanding that the Authority will directly contract with a potholing contractor to perform the work. We estimate that the contractor will perform up to 100 potholes along the alignment, with the majority being in the developed reaches between the starting point at California City Boulevard and Redwood Boulevard and the northern limit of California City along Neuralia Road. The remainder of the potholing efforts will likely be focused on utilities parallel to or crossing the northern portion of Neuralia Avenue, Red-Rock Randsburg Road, Hwy 395, China Lake Boulevard, and the UPRR crossings.

It is our assumption that our surveyor would mark out the pothole locations prior to the potholing effort, and the Authority's potholing contractor will provide the location, depth, and diameter of the utility and thickness of pavement, where applicable. Our team will coordinate the potholing effort within the city limits of California City with City public works staff since most of the potholing effort will be along this segment of the alignment.

Provost & Pritchard staff will review utility pothole data and report from the potholing contractor and incorporate pothole data into plans and adjust proposed profile accordingly.

### TASK 3.2.02 - CATHODIC PROTECTION SYSTEM DESIGN

Our sub-consultant, R F Yeager Engineering, will prepare a cathodic protection system design for the pipeline, utilizing the testing for sulfates, chlorides, and soil resistivity performed by SEI. A cathodic protection design will also be prepared to mitigate for corrosion at each pump station forebay storage facility and the blending tank at the Ridgecrest Heights Tank Facility.

### TASK 3.2.03 - COMPLETE PROJECT DESCRIPTION FOR CEQA/NEPA PROCESS

Our Team will prepare a detailed project description to support the CEQA/NEPA effort. This description will include a detailed list of the materials that will be required to construct each major facility for the project and the probable construction equipment that will be utilized during each phase of construction. Based on our Team's extensive experience with designing linear pipeline projects, pump stations, and tank facilities, we will provide a description of a potential logistical sequencing of construction activities. The proposed construction sequence will assume that a single contractor has multiple crews, or the project is divided into multiple contract packages. Provost & Pritchard will prepare a construction schedule at this 60% design level, assuming that there are parallel efforts to construct the pipeline, pump stations, and tank facilities. Based on our coordination with SCE, we will prepare a description of sequencing and timing for the construction of new transmission lines and other power infrastructure.

### TASK 3.2.04 - DEVELOP SPECIAL PROVISIONS AND SPECIAL CONDITIONS

The size and complexity of this project will necessitate a clear description of the time constraints and schedule milestones. From our Team's experience and our development of the Alignment Study, our Team has a clear understanding of the construction constraints that the Authority's Contractor(s) will have to work within. Environmental mitigation measures will likely govern the amount of construction activities that can be performed, such as during winter months of desert tortoise hibernation. Our Team will develop special provisions that will minimize the impact to the residents of California City as well as the public that uses Hwy 395 and the county roads daily.



**Redwood Ave at California City Boulevard, looking west. Turnout and metering structure will be constructed here.**

Our Team will consult with Cal Trans and UPRR to set time constraints on crossing their facilities. We will meet with engineering and operations staff from AVEK and IWVWD to develop a shutdown duration and start-up procedure to tie-in the new turnout structure to the existing California City Feeder and the new blending tank facility at Ridgecrest Heights Tank Facility. State and Federal grant funding will likely drive some of the special provisions and sequencing of work that will need to be accounted for in the contract documents. At the completion of the 60% design submittal, we will review the constraints of the state and federal grants secured by the Authority and hold a workshop with the Authority to discuss the special provisions, schedule constraints, and their impact to the sequencing and phasing of project. The goal of the workshop would be to assess the need for multiple bid packages, i.e. one or more contracts for the pipeline, one for the pump stations. We believe that this decision should be made earlier in the design process rather than towards the end.

## TASK 3.2.05 - PREPARE 60% PIPELINE AND BLENDING TANK DESIGN PLANS

Our team will further the pipeline design and blending tank facility at the Ridgecrest Heights Tank facility terminus and include the following:

- Incorporate the potholing information to assist in finalizing the pipeline plan and profile design.
- Incorporate the surge mitigation equipment and pressure reducing equipment required after the final hydraulic and transient analysis on the system is completed.
- Depending on the responsiveness of UPRR, Cal Trans, and the regulatory authorities, we will address the comments from their review and work towards finalizing the trenchless crossing design drawings.
- A final layout of all the required tank appurtenances and yard piping connections to the imported water pipeline and the existing 3.0 MG welded steel tank.
- Design of an emergency basin to blow off stagnant water.
- Our team will be providing 60% design level corrosion mitigation design drawing for both the pipeline and tank facilities.



**Redrock Randsburg Road at Neuralia Road and Hwy 14 Looking southeast. Pipeline would be on east side of road.**

### TASK 3.2.06 - PREPARE 60% PUMPING FACILITY DESIGN

Our Team will progress the pump station layouts, mechanical, structural systems electrical and instrumentation / controls incorporating comments received from IWVGA and include the following:

- Hydraulics and Transient Analysis – Update and finalize the hydraulic and transient analyses to provide the final design directive on sizing the proposed pumping systems, mechanical process piping, and surge mitigation requirements. The system hydraulics and transient analyses will also include conveyance piping sizes and needed surge protection measures such as air relief, stand-pipes or pressure control valving as required for the overall conveyance system.
- Based on the initial pump station floor plans, our Team will update the pump station site plan in regard to comments provided by IWVGA for site equipment arrangements, fencing/security measures, site lighting, vehicle access and site drainage.
- The pump station floor plans including equipment arrangements will be updated in regard to comments provided by IWVGA.
- Pump station mechanical systems including air conditioning/ventilation will be incorporated into the 60% submittal. For the purposes of developing the building mechanical systems, it is assumed that restrooms or potable water supply will not be included as part of this project. Both air conditioning and heating, if required, will be accomplished using electric power supply and no natural (or propane) gas will be used for these facilities.
- Pump station structural design and required plans will be finalized as part of the 60% submittal. These efforts include the structural engineering calculations / design, update of the foundation plan, roof plan, elevations, sections and required schedules. It is assumed that the proposed pump stations will be constructed with shallow spread footings, concrete block walls and built-up metal standing seam roof. Due to the locations of the proposed pump stations, fire hardening will be incorporated into the design with no exposed wood members, all doors and ventilation louvers will be made of steel, and eave or overhangs will be closed to prevent embers from entering the pump station.
- Pump station electrical systems will be updated as part of the 60% submittal efforts upon the completion of the horsepower requirements, and ancillary equipment needs. It is assumed that no permanent standby power will be incorporated into the development of the pump station. An Automatic Transfer Switch (ATS) will be incorporated to provide the ability to operate the pump station with temporary generators.
- Instrumentation / Controls and SCADA systems requirements will be updated as part of the 60% submittal efforts to include Network Architecture Diagrams, Programmable Logic Controller, Panel Layout Diagrams and Draft Control Strategies. Due to the remoteness of the pump station sites it is assumed a wireless (radio) to satellite communication system will be deployed. It is further assumed that the proposed control center will be incorporated into an existing facility or within the pump station located near California City.

### TASK 3.2.07 - PREPARE 60% SPECIFICATIONS

A bid schedule, special provisions in the front-end specifications, and standard technical specifications for each discipline will be updated to a 60% design level.

### TASK 3.2.08 - MATERIAL SUPPLIER COORDINATION

Our Team will maintain regular contact with the manufacturers of material and equipment that will likely have significant lead times, such as MCC panels, pumps, motors, specialized valves, and piping. We will collaborate with pipe manufacturers and pipeline contractors that our Team has worked with in the past to get an accurate timeline to manufacture the pipe and a daily pipe installation rate.

### TASK 3.2.09 - PREPARE WRITTEN RESPONSES TO 30% DESIGN SUBMITTAL REVIEW COMMENTS

Our Team will provide a response to review comments from the key stakeholders of the project. This response letter will contain an itemized list of all comments and responses for the deliverables associated with the 30% submittal, including the draft technical memos.

### TASK 3.2.10 - PREPARE 60% LEVEL EOPCC

Our cost estimating Team will prepare a Class 2 EOPCC in accordance with AACE to account for the revision of quantities and the current materials and equipment costs from the manufacturers at the completion of 60% design progress.

### TASK 3.2.11 - REVISE CONSTRUCTION SCHEDULE

Provost & Pritchard staff will revise the construction schedule prepared at the 30% design submittal level. The revised construction schedule will account for the 60% design progress, our updates from coordination with the Authority's Environmental Consultant and the Authority's ROW Consultant, permitting agencies for crossing encroachment permits, and current information from material and equipment manufacturers. The construction schedule will be revised to account for the time constraints discussed special conditions and special provisions developed in Task 3.2 and the sequencing of work into one or multiple design packages.

#### DELIVERABLES

- 60% design plans
- 60% specifications
- Written responses to the Authority's 30% review comments.
- Written memorandum documenting findings of utility research and potholing efforts.
- TM on final corrosion design recommendations
- Detailed project description by March 2024 for the CEQA\NEPA process.
- Special provisions and special conditions for the IWVGA front-end specifications
- 60% Design Level EOPCC
- 60% Design Level Construction Schedule

## TASK 3.3 90% SUBMITTAL

Staff will provide a response to the Authority's comments to the 60% design submittal and incorporate them into the 90% submittal. To meet the aggressive schedule of having a final bid package by March 2025, our Team will commit to making these drawings and specifications as complete as feasible, incorporating the comments of all the stakeholders into the 90% design submittal. We will provide a narrative for the Authority that summarizes our efforts to obtain permits under our scope of work for this project and provide definition to the Authority on the contractor's responsibility prior to commencing construction. The EOPCC will be revised with current unit costs and refinements to our design.



**Town Of Garlock Looking East On Garlock Road. Proposed alignment is just to the south of the road.**

### TASK 3.3.01 - PREPARE 90% PIPELINE AND BLENDING TANK DESIGN PLANS

Our team will further the design of the pipeline and blending tank facility at the Ridgecrest Heights Tank facility and include the following:

- Finalize the plan and profile drawings to describe the mitigation measures required for existing utilities, the mitigation measures for local, state, and federal regulatory agencies, and delineate the final permanent easements and temporary construction easements,
- Finalize the plans for surge mitigation, pressure reducing equipment, and metering equipment for the blending tank and turnout off of the AVEK California City Feeder.
- Finalize the trenchless crossing design drawings.
- The design of the blending tank and yard piping at the Ridgecrest Heights Tank facility will be furthered to include a final lay out of all of the required tank appurtenances and yard piping connections to the imported water pipeline and the existing 3.0 MG welded steel tank.
- 90% design level corrosion mitigation design drawing for both the pipeline and tank facilities.

### TASK 3.3.02 - PREPARE 90% PUMPING FACILITY DESIGN

Our Team will prepare the pump station layouts, mechanical, structural systems electrical and instrumentation / controls incorporating comments received from IWVGA and include the following:

- **Hydraulics and Transient Analysis** – Update and finalize the hydraulic and transient analyses based on comments received. The Transient Analysis will be further updated, incorporating the operational control philosophy and providing recommendations for pump start-up and shut-down time periods, opening and closing of valve time periods control strategies.
- **Pump Site Plan** – Update and finalize the pump station site plan incorporating review comments.
- Pump Station Floor Plan and Equipment Arrangement – Update and finalize the pump station floor plan, and equipment arrangement incorporating review comments.
- **Pump Station Mechanical Systems** – Update and finalize the pump station mechanical plans incorporating review comments.
- **Pump Station Structural Systems** – Update the general structural elements of the pump station. Prepare and finalize structural calculations for connections, supports, equipment anchorage and appurtenances based on the approval pump station layout and equipment arrangements.
- **Pump Station Electrical Systems** – Update and finalize the pump station electrical systems, conduit routing, conduit schedules and equipment requirements.
- Instrumentation / Controls and SCADA systems requirements will be updated to include review comments.

### TASK 3.3.03 - PREPARE 90% SPECIFICATIONS

The bid schedule, special provisions and special conditions in the front-end specifications, and standard technical specifications for each discipline will be revised to provide more project specific details from the 90% design effort and to incorporate 60% submittal comments from the stake holders and regulatory agencies.

### TASK 3.3.04 - PREPARE WRITTEN RESPONSES TO 60% DESIGN SUBMITTAL REVIEW COMMENTS

Our Team will provide a response to review comments from the key stakeholders of the project. This response letter will contain an itemized list of comments and responses for all the deliverables associated with the 60% submittal.

### TASK 3.3.05 - PREPARE FINAL SUMMARY OF PERMITTING REQUIREMENTS

Our design Team will collaborate with the Authority's Environmental Consultant to prepare a memorandum and matrix itemizing the requirements for the regulatory permits and City, Cal Trans, and UPRR encroachment permits required for the project. It is assumed that the Environmental Consultant will provide details in the memorandum regarding environmental-related permits.

### TASK 3.3.06 - PREPARE 90% LEVEL EOPCC

Our cost estimating team will prepare a Class 1 EOPCC in accordance with AACE to account for the revisions to quantities and for the current materials and equipment costs from the manufacturers at the completion of 90% design progress. The cost estimate will also include the implementation of environmental mitigation measures required by the various regulatory agencies.

### TASK 3.3.07 - PREPARE 90% LEVEL CONSTRUCTION SCHEDULE

Provost & Pritchard staff will revise the construction schedule prepared at the 60% submittal level. The construction schedule will be revised to account for the 90% design progress, our updates from coordination with the Authority's Environmental Consultant and the Authority's ROW C Consultant, permitting agencies for crossing encroachment permits, and current information from material and equipment manufacturers.

#### DELIVERABLES

- 90% Design Drawings 90% Specifications
- Written responses to the Authority's 60% review comments.
- Final Summary of Permitting Requirements.
- 90% Design Level EOPCC
- 90% Design Level Construction Schedule

## TASK 3.4 FINAL SUBMITTAL

### TASK 3.4.01 - 100% FINAL DESIGN DRAWINGS AND SPECIFICATIONS

Staff will prepare a 100% Final Design package that is bid-ready for the Authority. The team will review the prior comments on the plans and specifications and make sure they have been fully resolved.

**Table 3 – Summary of Final Design Drawings**

| Drawing Group | Total Sheets |
|---|---|
| General | 9 |
| Pipeline | 159 |
| Pump Station | 97 |
| Ridgecrest Heights Blending Facility | 22 |
| **Estimated Final Design Sheet Count =** | **287 sheets** |

1. This assumes that the plan and profile scale within the limits of California City are at a 1"=50' scale and outside the city limits are 1"=100' scale.




### TASK 3.4.02 - WRITTEN RESPONSE TO 90% DESIGN SUBMITTAL REVIEW COMMENTS

We will provide the Authority with a written response to the 90% Submittal comments for all deliverables in the 90% submittal package. Early in the effort to prepare the final design package and after 90% submittal comments have been incorporated, we will hold a review workshop with the Authority and other stakeholders as desired to ensure our response has adequately addressed the concerns of the stakeholders. We will also meet with Cal City and Kern County Public Works staff to ensure that all their comments on the design packages have been addressed to their satisfaction. It is anticipated that all concerns have been addressed at earlier design levels through close coordination with these agencies and that this effort will be a confirmation of the plans and specifications meeting their requirements.

### TASK 3.4.03 - PREPARE QA/QC PACKAGE FOR REVIEW

Prior to submitting the final bid package including hard copy, we will provide the Authority with a draft bid package for final review and comment. Internally, Principal engineers at Provost & Pritchard, Stantec, and Dahl Consultants in the pertinent disciplines of this project will perform a rigorous final QA/QC review of our final package, verifying the consistency, completeness, and constructability of the 100% design package. Note that internal QA/QC reviews will have been performed at each design level and that this final review will have built upon these past efforts. These reviews will help reduce the potential for expensive contract change orders during construction. Our Team will address any final comments and prepare a final biddable set of contract documents.

### TASK 3.4.04 - PREPARE 100% CONSTRUCTABILITY REVIEW REPORT

Rick Darnley, Provost & Pritchard's leader of our construction management team along with Wayne Dahl of Dahl and Associates will perform a constructability review of the complete design package and provide our design team with comments before the final design package is submitted to our QA/QC team for final review. Their efforts will be documented in a brief memorandum confirming the constructability of this project. Note that constructability reviews will have been performed at earlier design levels to catch potential issues that may impact the design effort.

### TASK 3.4.05 - PREPARE STATEMENT OF COMPLETENESS LETTER

Along with the delivery of the final bid package to the Authority, our Team will prepare a memorandum stating the completeness of the final design and bid package.

### TASK 3.4.06 - PREPARE 100% DESIGN LEVEL EOPCC

Our cost estimating team will prepare a final Class 1 EOPCC in accordance with AACE to account for the final calculated quantities and for the current materials and equipment costs from the manufacturers at the completion of 100% design progress.

### TASK 3.4.07 - PREPARE 100% DESIGN LEVEL CONSTRUCTION SCHEDULE

Our Team will prepare a final estimated construction to account for the final efforts during the 100% design progress, updates from coordination with the Authority's Environmental Consultant and the Authority's ROW Consultant, permitting agencies for crossing encroachment permits, and any final information from material and equipment manufacturers.

#### DELIVERABLES

- Written responses to the Authority's 90% review comments.
- 100% Final Design Drawings and Specifications
- 100% Constructability Review Report
- Statement of Completeness Letter
- Final EOPCC for bidding purposes.
- Final Construction Schedule
- Six (6) hard copies of the Final Bid package, including PE-stamped full-size plans, PE-stamped specifications, and appendices for the geotechnical reports and pertinent permits.
- One (1) set of reproducible Mylar drawings with Engineer of Record Stamp and Signature
- One (1) Bid set of plans with Engineer of Record Stamp and Signature electronic media copy in AutoCAD and Adobe Acrobat PDF format.

# APPENDIX A
## KEY STAFF RESUMES

# Jeff Eklund

*PE*

Principal Engineer

## Education

- B.S. Civil Engineering,
  California State University, Fresno
- A.S. Engineering,
  Bakersfield College, California

## Registration/Certifications

- Civil Engineer, California #75680

## Affiliations

- American Society of Civil Engineers (ASCE) – Past President

## Areas of Expertise

- Water Supply Studies
- Groundwater Wells
- Groundwater Banking
- Recycled Water Systems
- Water Distribution Systems
- Water Treatment Systems
- Wastewater Treatment Systems
- Wastewater Collection Systems
- Grading & Drainage
- Pump Station Design
- Grant Funding
- Rate Studies

## Professional Summary

Jeff Eklund is a principal engineer and the Bakersfield Director of Operations at Provost & Pritchard with 20 years of experience in the field of civil engineering. He has managed a variety of municipal infrastructure projects in the areas of water supply and distribution, pump stations, transmission pipelines, trenchless pipeline installation, and groundwater wells.

Mr. Eklund managed and designed projects throughout the life of the project, including the conception, funding, planning, environmental compliance, preliminary and final design, permitting, bidding, and construction. He has worked with multiple utility companies, Division of Drinking Water, Southern California Edison, Union Pacific and BNSF Railroads, Caltrans, County of Kern, and other agencies for the design and permitting of facilities.

## Relevant Experience

### Transmission Pipelines

**Agricultural Water Supply System, Newhall Land and Farming Company, Valencia, California, Project Manager –** Mr. Eklund is the project manager for an 8-mile, 18 to 24-inch diameter transmission pipeline system for the Newhall Ranch. The facilities include nine new wells with supervisory control and data acquisition (SCADA) system integration, and connections to multiple farmer turnouts with different pressure zones. Analyses of the system consisted of master planning of the facilities, coordination with the land development staff and consultants, hydraulic analyses utilizing WaterCAD, review of potential water-hammer effects, and design of the well sites. Pipeline materials, thickness, and pipe size were selected based on an economic and longevity analysis. A crossing of Castaic Creek involves a 900-foot horizontal directional drill design, while two 500-foot Highway 126 crossings involved a bored and jacked 24" steel casing. The project has been designed, and approximately one quarter of the pipelines have been installed.

**Domestic Water Pipeline Replacement for Berrenda Mesa Water District, W.M. Lyles, Kern County, California, Project Manager –** Mr. Eklund was responsible for the design of 10 miles of 6-inch and 4-inch water main that delivers water from Lost Hills Utility District to the community of Blackwell's Corner and other agricultural/industrial customers west of Highway 33. This new pipeline replaced an old and corroded steel pipeline that was installed in the 1950s. The project also replaced the existing booster pump station, located near the Lost Hills Utility District's tank site at Holloway Road with a Grundfos package pump system, which also required the modification of the site's complex plumbing layout. Design work consisted of developing a WaterCAD model of the distribution system to properly size the piping and pump station, providing adequate air relief and draining facilities, mitigating the potential for cross connection/contamination, preparing easement documents, and assisting with the consolidation of the water

system with Lost Hills Utility District. The project was successfully performed under a design-build contract with WM Lyles Co. in order to expedite the completion of the project. The pipeline system has now been transferred from Berrenda Mesa Water District's ownership to Lost Hills Utility District.

**Recycled Water Pipeline, Tehachapi Cummings County Water District, Kern County, Project Manager –** Mr. Eklund was the engineer and project manager responsible for an 8-inch diameter, 4-mile long recycled water transmission pipeline to convey treated effluent from the Tehachapi Correctional Institution to the Horse Thief Golf Course in Stallion Springs. Services included topographic surveys, reestablishing easement locations, designing the recycled water facilities, waterhammer analysis and preparation of construction documents.

**Steuber Well, Golden Hills Community Services District, Tehachapi, County of Kern, California, Project Manager** – Mr. Eklund was the project manager for the Antelope Conjunctive Use Project – Steuber Phase for the Golden Hills Community Services District. The scope of work included design and development of construction and bidding documents for the construction of a 690-foot public water supply production well, and the design and development of construction and bidding documents for the construction of 4,100-feet of 14-inch diameter pipeline, 600-feet of 8-inch pipeline, installation of a precast concrete pumphouse, and associated electrical facilities. Electrical service was obtained from SCE which involved a power line extension, easement acquisition, and service installation. Mr. Eklund also provided construction phase services and construction oversight during the construction of the electrical service, well construction, and pipeline improvements.

**Abajo Avenue Transmission Pipeline, Golden Hills Community Services District, Kern County, California, Project Manager –** Mr. Eklund was responsible for the planning and design of a one-mile long, 18-inch water transmission pipeline project that connects two storage tanks improving water system performance. The planning and California Environmental Quality Act (CEQA) portion of the project consisted of the preparation of an initial study and mitigated negative declaration for the project. A right-of-way analysis was conducted at the beginning of the project to determine the pipeline alignment alternatives and potential conflicts with existing utility easements. The project also included the acquisition of pipeline easements along the proposed alignment, including assistance with eminent domain proceedings with one landowner. Design aspects consisted of preparing a WaterCAD model of the distribution system to assist in sizing the pipeline and ensuring that the project objectives would be met. Construction plans, specifications, and a construction cost estimate were prepared in coordination with District staff and the project was advertised for public bid in December 2012. Mr. Eklund coordinated the bidding process and assisted the District with management of the construction contract including construction inspection. The pipeline was completed April 2013 and currently operates in accordance with the design parameters.

**Pipeline Relocations along State Highway 46, Berrenda Mesa Water District, Kern County, California, Project Manager –** Mr. Eklund was responsible for the relocation of existing Berrenda Mesa Water District pipelines crossing State Highway 46 prior to the widening from two lanes to four lanes. The pipeline crossings consisted of 28-inch and 36-inch bored and jacked casings underneath the existing highway. Additionally, the project included the demolition of an existing pumping plant and relocation of an existing standpipe and hydropneumatic tank. Services included topographic surveys, designing the facility relocations, preparation of construction documents, and construction review.

**TCP Mitigation Project, City of Bakersfield Water Resources Department, Bakersfield, California, Principal-In-Charge** – The project consisted of the evaluation of the City's domestic water system to recommend supply and treatment alternatives to mitigate for water quality regulations that went into effect on January 1, 2018. Factors considered included water supply availability, water quality, hydraulics, constructability, and schedule constraints. The recommended alternative to design and construct Granular Activated Carbon treatment systems at 35 well sites was contracted to W.M. Lyles Company and Provost & Pritchard as a progressive design-build project. The project was completed on a fast-track schedule ensuring compliance with the new regulation. Mr. Eklund served as principal-in-charge overseeing all aspects of the project administration, design, and construction support services.

# Jeff Davis

*PE*

Principal Engineer

## Education

- M.S., Water Resources Engineering, Stanford University
- B.S., Environmental and Water Resources Engineering, Vanderbilt University

## Registration/Certifications

- Civil Engineer, California #36337

## Affiliations

- Life Member, American Society of Civil Engineers (ASCE)
- American Water Works Association (AWWA)

## Areas of Expertise

- Water supply planning and management
- Master planning
- Infrastructure planning
- Water transfers and exchanges
- Negotiations with public agencies
- Water Resource Engineering
- Groundwater

## Professional Summary

Jeff Davis is a Principal Engineer at Provost & Pritchard with more than 40 years of water resources engineering experience. For 15 years he served as the General Manager and Chief Engineer for the San Gorgonio Pass Water Agency in Beaumont, CA. He also spent five years as the Director of the Water Resources Institute at California State University, San Bernardino where he developed a regional resource for water agencies and other public agencies by obtaining grants from United States Environmental Protection Agency (EPA) and others. As an engineer with the Metropolitan Water District of Southern California, he was involved in the early stages of design of the Inland Feeder, a 40-mile pipeline from San Bernardino to Hemet.

## Relevant Experience

**East Branch Extension, Phase 2, Mentone, CA –** As General Manager of SGPWA, Mr. Davis worked with a team of engineers to plan, design, and construct Phase 2 of the East Branch Extension, a six mile long, 66-inch diameter pipe under the Santa Ana River from Mentone to Yucaipa. The project included a new pump station and reservoir, the Citrus Pump Station, plus additional pumps at the existing Crafton Hills and Cherry Valley Pump Stations. Total cost: $180 million. The facility was completed in 2018.

**Beaumont Avenue Recharge Facility Pipeline, Beaumont, CA –** As General Manager of SGPWA, Mr. Davis led the effort to plan, design, and construct a new recharge facility with an accompanying two mile long, 24-inch diameter pipeline. The pipeline was designed and constructed in 2016. Total project cost: approximately $10 million.

**Inland Feeder Pipeline Project, San Bernardino, CA –** Mr. Davis was the project engineer on a new 40-mile pipeline from Devil Canyon in San Bernardino to Diamond Valley Reservoir in Hemet. His responsibilities were in the planning phase of the project, narrowing down a series of potential alignments to a single preferred alignment. The pipeline went online in the early 2000's. Approximate cost: $1 billion.

**Water Master Plan, City of Houston, Texas, Project Engineer –** Mr. Davis was the project engineer for a water master plan for the City of Houston. Primary objective was to identify new sources of supply for 50-year planning period, pipeline facilities to convey this water to Houston, and to identify future groundwater and surface water supply sources, along with population and demand projections, financial and institutional constraints.

**South Orange County Area Study Master Plan, Metropolitan Water District, California, Project Engineer –** Mr. Davis developed a master plan for the South Orange County portion of Metropolitan's service area after meeting with stakeholders in the County for several months. The plan included a new tunnel facility under the Cleveland National Forest. The tunnel facility was planned but never constructed.

**Infrastructure Study, San Gorgonio Pass Water Agency, San Bernardino County, California, Project Manager –** While serving as General Manager of the San Gorgonio Pass Water Agency, Mr. Davis instituted an infrastructure master plan to determine how the Agency would serve its retail customers in the future. Primary purpose was to determine what new infrastructure, including pipelines, would be required to move State Water Project water from the western to the eastern portion of the Agency's service area. The work was completed in 2021.

**SWP Extension Project, Lake Silverwood, California** – While serving as General Manager of the San Gorgonio Pass Water agency, Mr. Davis, along with GM's of Desert Water Agency, Coachella Valley Water District, and San Bernardino Valley Municipal Water District, contracted with engineers to plan and perform preliminary design on a proposed conveyance from Lake Silverwood to the Palm Springs area. The project included pipeline reaches, tunnel reaches, pump stations, and hydro generation facilities and was approximately 40 miles long. The preliminary design work was performed and a report completed in 2011. The facility was not constructed.

**Upgrade of Sewer System, City of Port Arthur, Texas, Project Design Engineer –** Mr. Davis supported lead engineer by designing lift stations in an area where infiltration to sanitary system was high for an EPA-funded project. Calculated required flows including infiltration, sized and specified pumps, provided additional engineering support.

## Previous Experience

**San Gorgonio Pass Water Agency, Beaumont, California, General Manager and Chief Engineer –** In this role, Mr. Davis was the Chief Executive Officer of a wholesale water agency serving a rapidly growing region of nearly 100,000 people. His duties included developing and managing a $30 million budget; planning for and meeting current and projected water demands; managing staff and Board of Directors; managing finances; planning for financing of future water supplies; planning, designing, and constructing infrastructure. His accomplishments in this role included Growing reserves to over $50 million while maintaining constant water rate for ten years; constructing a regional recharge facility; negotiating deals to augment supply as area grew and SWP allocations dropped, initiated and organized meetings for Class 8 Contractors to discuss common interests and issues. (2005-2020)

**Water Resources Institute at CSU San Bernardino, California, Director –** As the first Director of newly created institute, Mr. Davis built it into a regional resource for water agencies and other public agencies by obtaining grants from US EPA and others; building and supporting new water-related curriculum programs and finding internships and jobs for students in the water industry. He hired staff; managed budgets; initiated and managed programs; worked with faculty, administration, and outside water agencies. His key accomplishments included creating a series of scholarships by raising funds through honoring local water leaders; introducing students to the water industry where they still have jobs; building water archive rivaling that of UC Berkeley; building bridges to the water industry through initiation and maintenance of partnerships with public water agencies, flood control districts, regulatory agencies, and NGO's. (2000-2005)

**Metropolitan Water District of Southern California, San Bernardino, California, Various Role –** Mr. Davis spent 13 years with the Metropolitan Water District of Southern California in progressively more responsible roles. The role included:

*Advance Planning Branch*—Project engineer on numerous large-scale long-term water supply planning studies for Metropolitan's service area, including the South Orange County area. (1987-1989)

*Mechanical Engineering Branch*—Section Head supervising group of mechanical engineers designing mechanical projects at filtration plants, hydro plants, and pump stations. Responsible for hiring, managing staff, providing quality control and project management support, budgeting, etc. Managed District's overall chemical containment program. (1989-1998)

*Project Management Branch*—Developed project management training for entire Engineering Division, trained younger engineers in how to manage projects, managed various projects from budgeting through completion. (1998-2000)

# Matthew Kemp

*PE*

Principal Engineer

## Education

- M.A. Business Administration, California State University, Fresno
- B.S. Civil Engineering, California State University, Fresno

## Registration/Certifications

- Civil Engineer, California #66088

## Affiliations

- American Water Works Association (AWWA)
- American Public Works Association (APWA)
- American Society of Civil Engineers (ASCE)

## Areas of Expertise

- Water, Sewer & Storm Water Infrastructure
- Transmission Mains
- District Engineering
- Road/Street Design
- Funding Assistance

## Professional Summary

Matthew Kemp is a principal engineer at Provost & Pritchard specializing in municipal water infrastructure. Mr. Kemp has served our public works clients for more than 22 years as a project manager and engineer. He has managed a wide range of water infrastructure projects including transmission mains, distribution system pipe replacements, trenchless pipe installation, water supply wells, storage tanks, booster pump stations and lift station projects.

Mr. Kemp has worked with a wide range of utility companies, railroads and regulatory agencies for utility locating, new utility service, and agency permits which include Division of Drinking Water, Caltrans, Department of Fish and Wildlife, Regional Water Quality Control Board, United States Army Corps of Engineers, Department of Water Resources, Union Pacific and BNSF Railroads, PG&E, and various cities, counties, and irrigation districts. He has experience working with staff at the State Water Resources Control Board, Division of Financial Assistance on projects funded through the Drinking Water and Clean Water State Revolving Fund Programs.

Mr. Kemp has extensive experience working on projects from the early planning stages through construction. He served as district engineer for multiple water systems overseeing capital improvement program development, master planning, rate analysis, regulatory compliance, engineering studies, CEQA/NEPA compliance, grant writing, capital projects, and bidding and construction administration. He has experience providing reports and delivering presentations at public meetings.

## Relevant Experience

### Water

**Friant-Kern Canal Raw Water Pipeline, City of Fresno, California, Design Engineer –** Mr. Kemp was responsible for overseeing design of a 5-mile long, 60-inch diameter raw water pipeline for the City of Fresno Northeast Surface Water Treatment Plant. Selected pipe material for this project was cement mortar lined and coated welded steel pipe. The project included plant piping and controls integration, a crossing under the Big Dry Creek Diversion Channel, and a turnout and meter structure at the Friant-Kern Canal. The pipeline alignment was predominantly located outside roadways in easements across rolling terrain through sensitive biological habitats which required mitigation for various species, including the California Tiger Salamander. Permitting was required from numerous agencies, including the Army Corps of Engineers, the Bureau of Reclamation, California Fish and Wildlife, Friant Users Water Authority, Fresno Metropolitan Flood Control District, the County of Fresno and Garfield Water District. The project included an alignment study, stakeholder outreach, environmental review documents, permitting, right-of-way acquisition, land surveying, utility coordination and potholing, design, construction documents, and engineering services during bidding and construction.

**Kings River Raw Water Pipeline, City of Fresno, California, Project Manager/Engineer –** Provost and Pritchard teamed with Carollo Engineers to provide engineering services 13-mile long, 72-inch diameter raw water pipeline from the Fresno Canal to the City of Fresno's new Southeast Water Treatment Facility (SEWTF). Mr. Kemp served as project manager and engineer of a 4.3-mile segment of the pipeline. Selected pipe material for this project was cement mortar lined and coated welded steel pipe. The scope of work included design of the turnout and meter facility and the upper reach of pipeline located in County of Fresno road right of way. Permitting was required from numerous agencies, including the Fresno Irrigation District, Fresno Metropolitan Flood Control District and the County of Fresno. The project included permitting, utility research and potholing, design, construction documents, and engineering services during bidding and construction. Provost & Pritchard provided daily construction observations services working for the City's program manager/construction management team.

**Bullard and Leonard Avenue Water Transmission Main, City of Clovis, California, Assistant Engineer –** Mr. Kemp was responsible for designing the 2.5-mile water transmission main project east of the City of Clovis. This project provided a transmission main connecting the existing water distribution system to the city's new surface water treatment plant. The facilities constructed included: transmission pipelines ranging from 24 to 42 inches in diameter, air release and vacuum valves, blow-offs, and appurtenant facilities. The bid documents allowed alternative piping materials including: ductile iron pipe, cement mortar lined and coated steel pipe, and concrete cylinder pipe. The work included designing transmission facilities for the various alternatives, preparing construction documents, and coordination with the surface water treatment plant design between the City of Clovis, County of Fresno, and Fresno Irrigation District.

**Seville and Yettem Water System Improvements, Tulare County, California, Project Manager/Engineer –** Mr. Kemp is the project manager and engineer for a $8 million two phase water system improvement project. The Seville and Yettem water systems required improvements due to insufficient water supply, nitrate contamination and distribution system pipe failures. Phase 1 construction in Seville included 2.5 miles of 6 and 8-inch diameter water mains to replace the existing undersized distribution system, 90 new water services with meters to replace inaccessible backyard services with front yard services, and a new 211,000-gallon steel storage tank and booster pump station. Phase 2 includes a 1-mile transmission main (with trenchless installations) in Caltrans road right of way to connect the communities of Yettem and Seville, a new water supply well and transmission main, a new booster pump station at the 150,000-gallon storage tank in Yettem, nitrate blending, and new water meters in Yettem. The scope of work included a hydrogeologic study, property acquisition, public outreach, assistance with governance formation, surveying, geotechnical investigation, and civil and electrical design. A new community services district was formed to take over operation of the consolidated Seville and Yettem water systems as a part of this project. Coordination and permitting was required with the California Division of Drinking Water, Department Fish & Wildlife, Caltrans, Alta Irrigation District, Local Agency Formation Commission, BNSF Railroad, PG&E, SCE, AT&T, and the County of Tulare. The project was funded by the State Water Resources Control Board, Division of Financial Assistance.

**Water System Improvements, Pratt Mutual Water Company, Tulare County, California, Project Manager/Project Engineer –** Mr. Kemp was responsible for the feasibility study and design of a community water system with existing water wells, distribution system and approximately 270 service connections in need of improvements. The existing wells have arsenic concentrations in excess of the current drinking water standards. Primary alternatives considered included installation of a new well employing zone testing and selective screening of well casing, or consolidation with the City of Tulare's water system. The selected alternative included consolidation with the city and replacement of the distribution system. Proposed improvements included 31,800 feet of 8 and 12-inch water mains and 5 railroad and canal ditch crossings installed by bore and jacking steel casing. The project also included coordination and approval from the County of Tulare, City of Tulare, Tulare Irrigation District, Burlington Northern Santa Fe Railroad, the California Department of Public Health, and utility companies. The project was funded by the State Water Resources Control Board.

**Nees Avenue Water Transmission Main, City of Clovis, California, Assistant Engineer –** Mr. Kemp was responsible for designing a 2-mile water transmission pipeline. The pipeline consisted of 18-inch and 24-inch PVC and ductile iron pipe. Tasks included utility and right of way research, coordination with local agencies, alignment and pipe design, and preparation of construction drawings, specifications and estimates.

# Michael McGovern

*PE*

Senior Engineer

## Education

- B.S., Civil Engineering, California Polytechnic State University, San Luis Obispo

## Registration/Certifications

- Civil Engineer, California #61218
- Water Distribution Operator II, California Department of Public Health (CDPH)
- Water Treatment Operator II, CDPH
- Storm Water Pollution Prevention Plan Developer and Practioner (QSD/QSP), California Stormwater Quality Association (CASQA)

## Affiliations

- American Society of Civil Engineers (ASCE), *Southern San Joaquin Branch President (2015-2016)*

## Areas of Expertise

- Water Infrastructure
- Water Transmission Lines
- Pipeline and Pump Station Design
- Construction Management

## Professional Summary

Michael McGovern has over 25 years of experience working on various water infrastructure projects. Mr. McGovern joined Provost & Pritchard Consulting Group in 2022 after 11 years as a Facilities Engineer with Kern County Water Agency. There, Mr. McGovern served as project manager and project engineer in the planning, design, bid, and construction phases of various water infrastructure projects associated with the Agency's canal, water banking, and water treatment and distribution facilities. In addition, Mr. McGovern spent 11 years as a project engineer and project manager with Kennedy/Jenks Consultants on numerous water-related projects.

## Relevant Experience

### Pipeline Design Experience

**North Bakersfield Water Supply Reservoir and Kern River Diversion Facilities, City of Bakersfield, Water Resources Department, Bakersfield, California, Construction Project Coordinator** – This project consisted of the construction of a reinforced concrete turnout structure from the Kern River, a 54-inch RCP double barrel inlet pipeline, and a 15-acre geotextile-lined raw water storage reservoir to divert and store water for a California Water Service microfiltration plant. The project also included a one-mile 36-inch RCP pipeline from the storage reservoir to the Kern County Parks and Recreation's Hart Park canal system.

**Kern Water Bank Recovery Well Collection Pipeline Project, Kern Water Bank Authority, Kern County, California** – Mr. McGovern served as the project engineer to design collection pipelines from the individual recovery wells into the Kern Water Bank Canal.

**Strand Collection Pipeline, Kern Water Bank Authority, Kern County, California** – Mr. McGovern served as the project engineer to design a ½ mile 60-inch HDPE pipeline to collect well water from various recovery wells and deliver it to the earthen-lined Kern Water Bank Canal. Sandy conditions adjacent to the Kern River flood plain created challenging conditions for the design and installation of the pipe.

**Northeast Bakersfield Water System Project, California Water Service Company, Bakersfield, California, Project Engineer** – This project consisted of the design and construction of raw and treated water pipelines to serve the new Northeast Bakersfield Water Treatment Plant. The project included 8,600 feet of 54-inch CML&C steel pipe for the raw water supply to the plant. The treated water pipelines from the plant included 3,000 feet of 54-inch CML&C steel pipe, 6,800 feet of 48-inch CML&C steel pipe, 11,000 feet of 36-inch CML&C steel pipe, 6,000 feet of 18-inch C-900 PVC pipe, and 7,400 feet of 18-inch ductile iron pipe. The project also included feasibility studies to locate the most appropriate connections to the existing California Water Service Company system and multiple phases of work to upgrade the water system to distribute water

from the newly constructed Treatment Plant to new developments in the Northeast Bakersfield area.

**Raw Water Conveyance System to Serve La Paloma Generation Project, West Kern Water District, Kern County, California, Project Engineer** – Mr. McGovern provided design and construction review services for the design of a 5,400 gpm pump station, 700,000 gallon welded steel reservoir, eight miles of 24-inch ductile iron raw water pipeline, 1.5 miles of 6-inch PVC domestic water pipeline and an 1,000 foot deep injection well for the plant's backup to their zero discharge system.

**Olcese Well No. 2 and No. 3 Pipeline Extension, City of Bakersfield, California, Project Engineer** – This project extended the City's groundwater collection pipeline along the levee of the Kern River Canal with an 18-inch PVC pipeline.

**CLWA-Castaic Conduit Connection, Castaic Lake Water Agency, Santa Clarita, California, Project Engineer** – Mr. McGovern was responsible for the design for 350 feet of 42-inch CML&C welded steel pipe from the in open cut in a busy intersection of Newhall Ranch Road, navigating multiple large utilities under the roadway.

**Station 221 A & B, California Water Service Company, Bakersfield, California, Project Engineer** – This project consisted of the construction of a 3,000 gpm pump station including surge tank and related electrical, controls, and emergency power generation.

**Alignment Study for the South Bakersfield Water Treatment Plant Raw Water Pipeline, Water Resources Department, City of Bakersfield, California, Project Engineer** – Mr. McGovern conducted an alignment study and present value analysis to determine the most cost-effective route for approximately five miles of 60-inch raw water pipeline across residential, commercial, and industrial areas to serve the proposed 40 MGD South Bakersfield Water Treatment Plant.

**Looping of the Alessandro Pump Station Suction Header, Western Municipal Water District, Riverside, California, Project Engineer** – This project consisted of a design of a 96-inch cement mortar lined and coated welded steel pipe to interconnect an existing 96-inch pipe finished water pipeline from the Metropolitan Water District of Southern California's Henry Mills Water Treatment Plant to Western Municipal Water District's Alessandro Pump Station. This project was inside the Henry Mills Water Treatment Plant and it was constructed through areas of deteriorated granite. The welded steel pipe was cement mortar lined after it was installed.

**Thomas Bradley International Terminal at LAX International Airport, Los Angeles, California** – Assisted in the design of the potable and fire service water supply systems for the new airport terminal and adjacent facilities from existing connections on congested arterial roads into the airport. This project required extensive coordination to design the water system through new and existing utility corridors.

**Hayfield Extraction Well and Pipeline, Metropolitan Water District of Southern California, Project Engineer** – Assisted in the design of a groundwater recovery well and above grade HDPE pipeline to Metropolitan's Hayfield Pumping Plant facility. This included the use of a submersible well pump typically used in the oil industry.

**Rehabilitation of River Turnout No. 4, Kern County Water Agency, Kern County, California** – Mr. McGovern served as project engineer during design and construction phase to rehabilitate an existing turnout from the Cross Valley Canal to the Kern River. The existing turnout consisted of 180 feet of 54-inch double barrel CMP with 54-inch RCP pipe. This project was challenged with shallow groundwater conditions that required mitigation issues during the installation of the pipe.

# Jeane Hill

*PE*

Senior Engineer

## Education

- B.S. Civil Engineering, Emphasis in Water Resources & Structures, University of California, Irvine

## Registration/Certifications

- Civil Engineer, California #60012

## Affiliations

- American Public Works Association, Executive Board Member
- American Society of Civil Engineers

## Areas of Expertise

- Water Resources
- Water Transmission
- Water Distribution & Storage
- Municipal Water Infrastructure
- Project Management
- Construction Management

## Professional Summary

Jeane Hill is a senior engineer at Provost & Pritchard with over 30 years of experience. She has worked as a consulting engineer for water--related projects including transmission and distribution facilities, pump stations, storage facilities, treatment and disinfection systems, and regulatory compliance. She has led teams in the preparation of feasibility studies and conducted project engineering services including design, bidding, and construction management. Ms. Hill is a skilled project manager, coordinating all aspects of project management including preparing and negotiating professional services contracts, managing the quality and financial performance of projects, and identifying and resolving budget and schedule issues. She works collaboratively with technical teams incorporating expertise from throughout the company, and mentors and trains junior technical staff.

## Relevant Experience

**TCP Mitigation Project for Wells 26, 30, and 33, City of Delano, California, Project Manager** – The project consists of three pairs of Granular-Activated Carbon treatment vessels, new de-chlorination and re-chlorination systems, upgrades to the existing caustic feed system, a new chemical storage building, a new chemical feed building, motor control center replacement, two new booster pumps, a new emergency generator, site work, frontage and street improvements, 7,700 feet of 10-inch to 18-inch PVC raw water pipelines, 1,000 feet of 18-inch PVC treated water pipeline, 1,500 feet of 24-inch RCP and HDPE backwash water disposal pipeline, connections to the well discharge pipelines, electrical and controls.

**North In-Lieu Groundwater Banking Project, Arvin-Edison Water Storage District, Arvin, California, Project Engineer –** The goal of the project was to maximize the use of surface water in-lieu of groundwater pumping, allowing the groundwater basin to recharge naturally over time. Ms. Hill was responsible for the design of bi-directional infrastructure including 9,000 feet of 12-inch to 24-inch plastic irrigation pipe, well connections, water metering facilities, 2,000 feet of 48-inch rubber-gasketed reinforced concrete pipe, 120 feet of 60-inch rubber-gasketed reinforced concrete pipe with 60-inch multi-chordal path transit time flowmeter, 60-inch bi-directional turnout on the South Canal, electrical and controls. She also provided bidding and construction phase services.

**Brimhall Area Pipeline Improvements, Water Resources Department, Bakersfield, California, Project Manager/Engineer –** Ms. Hill was responsible for conducting a feasibility study and design of 1,500 feet of 16-inch PVC water pipeline and 150 feet long jack and bore intersection crossing. Ms. Hill also served as project manager for the final design, bidding, and construction phase services of the pipeline improvements.

**Eastside Water Bank, Antelope Valley-East Kern Water Agency, Palmdale, California, Project Engineer –** This project consisted of the design and construction of bid packages for the $10 million groundwater banking program that provides water supply stabilization

through banking by supplying potable groundwater as an alternative water source. The two packages included design of four 1,800 gpm extraction wells, including site work, discharge piping, well building, electrical and controls; 2,500 feet of 24-inch cement-mortar lined and coated (CML&C) steel pipe; three 2.5-acre recharge basins, access roads, disinfection/pump station building including chlorination system, pump-back facilities, site work, electrical and controls; and one 100,000-gallon welded steel reservoir.

**Water Supply Stabilization Program No. 2, Phase 1, Antelope Valley-East Kern Water Agency, AECOM Technology Corporation, Palmdale, California, Project Engineer** – Ms. Hill provided design services for the construction of four of seven bid packages for the $30 million Phase 1 groundwater banking and blending program that provides both water supply stabilization through banking and compliance with the Stage 2 Disinfectants/Disinfection By-Products Rule for trihalomethanes (TTHM) control by providing potable groundwater as an alternative water supply source. The four packages included design of nine extraction wells including site work, electrical and controls; 1,000 feet of 36-inch, 42-inch, and 48-inch CML&C steel pipe; operations/control building including chlorination system, site work, electrical and controls; and two 4-million-gallon welded steel reservoirs.

**West Kern Water District Conveyance System Improvements, Sunrise Power Company, LLC, Taft, California, Project Engineer –** Ms. Hill served as project engineer for the design and construction of West Kern Water District's distribution system improvements to serve the Sunrise Power Plant. The project consisted of the design and construction of seven bid packages including over 13 miles of 48-inch through 12-inch ductile iron pipe, two 2-million-gallon welded steel reservoirs, three pumping stations, and three groundwater wells. The project ultimately provided an additional 12,000 gpm to the district's distribution facilities. The pump stations included 450 HP electric motors and 600 HP natural gas/liquefied petroleum gas (LPG) engines.

**Pitchess Pipeline Project, Castaic Lake Water Agency, Santa Clarita, California, Project Engineer –** Ms. Hill was responsible for the design and construction of 5,300 feet of 24-inch Cement Mortar Lined & Coated (CML&C) welded steel pipe from the Pitchess Detention Center to Sedona Way, including bore and jack of Castaic Creek and Interstate 5 and open cut of heavily congested The Old Road. Also included in the project were two turnouts with metering facilities.

**Stine Road Finished Water Pipeline, City of Bakersfield, California, Project Engineer –** This project consisted of the design of 5,300 feet of 30-inch pipeline from the proposed 40 MGD South Bakersfield Water Treatment Plant to the City of Bakersfield’s south distribution system.

**Northeast Bakersfield Water Treatment Plant System Upgrades, California Water Service Company, Bakersfield, California, Project Engineer** – This project consisted of the design and construction of water system upgrades for the new Northeast Bakersfield Water Treatment Plant and connections to the existing California Water Service Company system serving new developments in the Northeast Bakersfield area. Ms. Hill served as project engineer for the design and/or construction of the following phases: 1) Raw water pipelines consisting of 8,600 feet of 54-inch CML&C steel pipe; 2) Treated water pipelines consisting of 3,000 feet of 54-inch CML&C steel pipe, 6,800 feet of 48-inch CML&C steel pipe, 11,000 feet of 36-inch CML&C steel pipe, 6,000 feet of 18-inch C-900 PVC pipe, and 7,400 feet of 18-inch ductile iron pipe; 3) Station 223 Improvements including a 2,500 gpm pump station, surge tanks and related electrical, controls, and emergency power generation; 4) Station 222 Reservoir No. 1 consisting of a 745,000-gallon welded steel water storage reservoir and related site work including pipeline, access road, electrical, and controls; 5) Station 210 Reservoir No. 2 consisting of a 700,000-gallon welded steel water storage reservoir and related site work, including pipeline interconnections, electrical and controls; 6) Station 221 L and M Upgrade consisting of an upgrade to an existing pump station from two pumps to four pumps, including surge tank and related electrical, controls, and emergency power generation; 7) Station 221 A and B consisting of a 3,000 gpm pump station including surge tank and related electrical, controls, and emergency power generation.

**1,2,3-TCP Remediation Project, City of Atwater, California, Design Engineer –** Ms. Hill served as project engineer for the Well 18 treatment site located at Joan Faul Park. The treatment system included 3 pairs of 12-feet diameter Granular-Activated Carbon (GAC) treatment vessels, site piping, site civil improvements, backwash water storage tank and disposal pipelines, chlorination system, new pre-fabricated restroom building, trash enclosure, parking lot extension and improvements for ADA-compliance, stormwater BMPs, landscaping improvements, and electrical and controls.

# Nicholas Jacobson

*PE*

Senior Engineer

## Education

- ✓ M.S., Civil Engineering, California State University, Fresno
- ✓ B.S., Business Administration/Accounting, California State University, Long Beach

## Registration/Certifications

- Civil Engineer, California #84909
- National Association of Sewer Service Companies (NASSCO) Pipeline Assessment and Certification Program (PACP) Certification (U-316-07003388)
- Certified Level One Water Loss Audit Validator

## Affiliations

- American Society of Civil Engineers (ASCE), Fresno Branch President
- American Water Works Association

## Areas of Expertise

- Sanitary Sewer Rehabilitation
- Sewer Master Planning
- Water Master Planning
- Water System Permitting
- SB 1263 Compliance
- Recycled Water Master Planning
- Hydraulic Modeling - Innovyze InfoWater/InfoSewer, Innovyze H2O MAP/SWMM Map, Bentley WaterGEMS, Bentley SewerGEMS
- Utility Investigations
- Construction Management
- ArcGIS
- AutoCAD
- Level 1 Water Loss Audit Validation

## Professional Summary

Nicholas Jacobson is a senior engineer with Provost & Pritchard with nearly 12 years of professional experience. Mr. Jacobson's experience includes providing engineering services for the design of numerous potable water projects including the design of pipelines, pump stations, tanks, and water distribution systems as a whole. Mr. Jacobson led the hydraulic evaluation and computerized modeling for the Indian Wells Valley Groundwater Authority (IWVGA) Alignment Study. Mr. Jacobson also has performed hydraulic calculations, generated system curves, and performed computerized hydraulic modeling for numerous other water projects including an 85-mile potable water transmission main and for several large stormwater pump stations.

## Relevant Experience

**Finished Water Pump Station, North Dakota State Water Commission, Dickinson, North Dakota, Staff Engineer** – Mr. Jacobson provided staff engineer support for the design of a finished water pump station that will deliver up to 18 MGD of treated water. The pump station consists of nine pumps, expandable to 12 pumps, that provide water to three pressure zones over an 85-mile pipeline. Responsibilities included the analysis of the existing pipeline to determine a system curve to aid in pump selection for each pump station. **This project was completed while employed at AECOM.*

**North Grasslands Water Conservation and Water Quality Control Project Walter Ditch & Gun Club Road Ditch Improvements, Grasslands Water District, Los Banos, California, Project Engineer** – Mr. Jacobson provided project engineering support for the hydraulic modeling of three pump stations with a total pumping capacity of 75 cubic feet per second. Piping included approximately 3.2 miles of distribution pipe. Hydraulic modeling was performed using Bentley's WaterGEMS. Modeling software was utilized to determine system curves to aid in pump selection for each pump station. **This project was completed while employed at AECOM.*

**Water Master Plan, City of Mendota, California, Project Engineer –** The project involved preparing a water master plan for the City of Mendtoa with an ultimate planning horizon of 15 years. The plan discusses current and projected supplies and demands and provides an assessment for the needs to support growth for the projects anticipated to be constructed within the planning horizon. The final chapters discuss capital improvement needs to maintain operations as the community grows. The Plan was finalized in 2019.

**Bakersfield College Water System Analysis, Kern Community College District, Bakersfield, California, Project Engineer –** Kern Community College District (KCCD) requested that P&P provide an analysis of their existing on campus water distribution system to gain an understanding of the hydraulic limitations of the existing infrastructure and to document needed system improvements to assist in meeting on campus fire flows and also support near term campus expansions that included new buildings for student housing, a gymnasium, and two other campus buildings. KCCD has experienced both low and high water

pressures throughout their campus. P&P installed pressure data logging devices at strategic locations throughout the campus to understand the pressure variations over a week period during April 2022. Using that data a hydraulic model was developed to analyze the system hydraulics. Using the model results, several project alternatives were identified a capital improvement plan was developed as a road map for KCCD to use to support the near term growth of the campus. The studied was finalized in September 2022.

**Interconnection Analysis, Teapot Dome Irrigation District, Porterville, California, Project Engineer –** Teapot Dome Irrigation District and Vandalia Water District requested that P&P provide an analysis of their existing water distribution systems to gain an understanding of the hydraulic limitations of the existing infrastructure and to document needed system improvements to assist in combinging the two unique water systems into one functional water system through emergency interconnections. Both water systems experience water outages and were looking for a way to connect the two systems for their mutual benefit during times of need. A hydraulic model was developed to analyze both system hydraulics independently to identify any existing deficiencies. Then interconnection alternatives were analyzed to understand how best to connect the systems. Ultimately two connection points were identified and analyzed to understand how much water could be conveyed through the proposed interconnections. The studied was finalized in November 2022.

**Ongoing Water Infrastructure Studies, City of Clovis, California, Project Engineer/Project Manager –** Mr. Jacobson provided project management and project engineering support for various water infrastructure studies for the City of Clovis. Studies evaluate both impacts to water supplies and adequacy of existing/proposed infrastructure for developments within the City of Clovis in support of the 2017 Water Master Plan. Work often involves hydraulic modeling to check the ability of the existing and proposed system to deliver fire flow during a maximum day demand scenario. Between 2016 – 2022 we have performed approximately 40 studies.

**Water Master Plan, City of Clovis, California, Project Engineer –** The project involved preparing a water master plan for the City of Clovis with an ultimate planning horizon of more than 60 years and an intermediate planning horizon of 20 years. The plan discusses current and projected supplies and demands including a sustainable approach to water supplies utilizing groundwater, surface water and recycled water. The plan reviews past conservation methods that have been implemented as well as continued conservation methods necessary to meet future demands. The final chapters discuss capital improvement needs to maintain operations as the community grows. The capital improvement plan is presented in two ways: (1) divided based on subareas within the City, and (2) divided on time-based phasing through buildout of the community. The Plan was adopted in summer 2018.

**Recycled Water Master Plan, City of Clovis, California, Project Engineer –** The project included preparing a recycled water master plan that correlates with the City's water and wastewater master plans. The plan includes a discussion of existing and future uses of recycled water by the City, methods to utilize recycled water to be more sustainable and a capital improvement plan to address conveyance and ongoing use of the system. The capital improvement plan is presented through buildout of the City and separated by phases based on anticipated growth within the City over the next 20-years and when new demands will be realized. The plan was adopted in summer 2018.

**TCP Mitigation Project at CSA 14 Belmont Manor, County of Fresno, Fresno, California, Project Manager/Engineer ongoing** – Mr. Jacobson provided project management and project engineering services for the preparation of a feasibility study to evaluate various project alternatives to mitigate against the ongoing TCP issues at CSA 14. Project alternatives evaluated include various ways to connect to the City of Fresno water distribution system and a TCP treatment alternative. Both master service and full consolidation alternatives were evaluated. Ultimately the County, with input from various agency stakeholders and community stakeholders elected to connect to the City of Fresno via a 16-inch water main with a master service connection. The community will keep one existing well to provide a second source in case the transmission main is taken offline. The report was finalized in April 2022.

# Chuck Armstrong

*PE*

Principal Engineer

## Education

- B.S. Civil Engineering, California Polytechnic State University, San Luis Obispo

## Registration/Certifications

- Civil Engineer, Nevada #14959
- Civil Engineer, California #88022

## Affiliations

- American Society of Civil Engineers (ASCE)
- National Society of Professional Engineers (NSPE)
- American Water Works Association (AWWA)
- Nevada Rural Water Association (NRWA)

## Areas of Expertise

- Municipal Infrastructure
- Floodplain Analysis & Planning
- Residential & Commercial Development Planning & Design

## Professional Summary

Chuck Armstrong is a principal engineer at Provost & Pritchard with more than 25 years of experience in the planning and design of engineering projects including water, wastewater, drainage, and flood control structures, as well as commercial and residential development infrastructure. Mr. Armstrong's responsibilities have included overseeing design engineers and drafters, preparing plans and specifications, and performing quality control reviews and third-party reviews for municipalities. He has served as a private consultant and project manager for infrastructure projects ranging in construction costs of several thousand dollars up to $200 million, and team size from one person to over 20 within multiple disciplines.

## Relevant Experience

### National Parks/Federal

**Valley Integrated Utility Master Plan Improvements – Phase 2B, U.S. Department of Interior, National Park Service, Yosemite National Park, California, Senior Engineer/Project Manager –** Mr. Armstrong was the senior engineer and project manager for this project that included the installation of replacement underground utility corridors for water, sewer, and electrical to this historic housing area in the Yosemite Village area of Yosemite Valley. The second phase of the integrated utility master plan implementation included the installation of replacement underground utility corridors for water, sewer, communication, and electrical to the North Pines Campground where there was a lift station located below grade. It also included demolition of a 1960s-era lift station on the confluence of Tenaya Creek and Merced River. The project included a value analysis of several alternatives, design documents, and cost estimating.

### Municipal Water

**Atwater 1,2,3-TCP Design Build, Atwater, California, Project Manager –** Mr. Armstrong served as project manager overseeing design, and construction support services for 16,420 lineal feet of underground raw and treated water transmission lines. The overall project consisted of the evaluation of the City's domestic water system to recommend supply and treatment alternatives to mitigate for water quality regulations that went into effect on January 1, 2018. Factors considered included water supply availability, water quality, hydraulics, constructability, and schedule constraints. The recommended alternative to design and construct Granular Activated Carbon treatment systems at 7 well sites was contracted to W.M. Lyles Company and Provost & Pritchard as a progressive design-build project. The project was completed on a fast-track schedule ensuring compliance with the new regulation.

**Techite Line Replacement Project, Tuolumne Utilities District, Sonora, California, Project Manager –** Mr. Armstrong was the project manager for the Tuolumne Utilities District's project to replace existing Techite water lines, laterals and meters in Tuolumne County near Sonora. The project involved replacement of existing water lines consisting of approximately 9,000 linear feet of 8-inch line approximately 16 water service laterals throughout the project area. The project also included phasing plans plus preparation of an Engineers Opinion of Probable Construction Costs and assistance throughout the bidding and construction phases.

**Idaho Street Waterline Replacement, City of Los Banos, Los Banos, California, Senior Engineer –** Mr. Armstrong was the senior engineer and quality control reviewer for the Idaho Street Waterline Replacement project. The project included design and preparation of the Plans, Specifications & Estimate for replacing approximately 1300 feet of existing 4-inch waterline in Idaho Street between I Street and L Street with a new 8-inch waterline to increase flows in the area. The existing 4-inch waterline were abandoned in place. Additionally, residential service laterals and water valves were replaced. The project will include the removal and replacement of sidewalk, curb and gutter and asphalt above the proposed underground improvements. Mr. Armstrong also reviewed and approved contractor submittals once the contract was awarded.

**Iowa Street Waterline Replacement, City of Los Banos, Los Banos, California, Senior Engineer –** Mr. Armstrong was the senior engineer and quality control reviewer for the Iowa Street Waterline Replacement project. The project included design and preparation of the Plans, Specifications & Estimate for the installation of approximately 940 linear feet of 8-inch water line on Iowa Street from L Street to J Street to increase flows and distribution in the area. The new line in Iowa Street was connected to an existing 6-inch line at J Street and a 10-inch line at L Street. Residential service laterals and water valves were replaced. Mr. Armstrong also reviewed and approved contractor submittals once the contract was awarded.

**Strengthen & Replace Water Lines La Loma Neighborhood, City of Modesto, California, Project Engineer –** Mr. Armstrong was the project engineer for the City of Modesto's project to strengthen and replace the water lines in the La Loma neighborhood. The existing water distribution system in the La Loma Neighborhood consisted of old and undersized steel mains, ranging in size from 4" to 12" in diameter, and are prone to leaking and low pressure. The project replaced and/or add approximately 15,329 lineal feet of aged existing water mains within the neighborhood.

## Water Resources

**Urban Water Management Plan, City of Los Banos, Merced County, CA** – Project Engineer responsible for updating an Urban Water Management Plan for the City of Ripon in Stanislaus County. Responsibilities included collecting and evaluating water supply and demand data, documenting demand management measures, and establishing long-term conservation goals. The plan required significant revisions since it had not been updated in over ten years.

**California Aqueduct Reverse Flow Project, Santa Clara Valley Water District, Los Banos, California, Principal Engineer –**The project proposed the use of four temporary pump stations to be installed at four check structures and one bypass siphon at the Dos Amigos pumping plant along the California Aqueduct. The project would provide approximately 105 cfs of capacity to reverse the flow of the aqueduct to serve the Santa Clara Valley Water district. It is expected that the pump stations would be operational from approximately September through December 2015 should drought conditions continue to limit the State Water Project allocation. Mr. Armstrong evaluated the system hydraulics of the turnout structures and appurtenances to determine the hydraulic capacities and limitations. Based on these findings, he worked within the client and design team to develop conceptual drawings, performance specifications and bid documents for the reverse flow bypasses.

# Adam A. Ojeda

*PE, QSD/QSP*

Senior Engineer

## Education

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

## Registration/Certifications

- Civil Engineer, California #79842
- Qualified SWPPP Developer & Practitioner #25383

## Continuing Education

- U.S. CAD Civil 3D Workshop, 2017
- State Water Resources Control Board Floodplain Administrator Workshop, 2018
- Caltrans Resident Engineer Academy, 2019
- Caltrans Federal Aid Series, 2018-2020
- Caltrans Labor Compliance Workshop, 2018
- Caltrans Pavement Management Workshop, 2019
- Caltrans Easements & Right of Way Workshop, 2019
- Caltrans Procurement Workshop, 2018

## Affiliations

- American Society of Civil Engineers

## Areas of Expertise

- Grading design
- Drainage design
- Utility design and coordination
- Roadway design
- Grant procurements and administration
- Caltrans standards and grants
- Land development and subdivisions
- FEMA floodplain requirements
- Construction management
- Project management

## Professional Summary

Adam Ojeda is a registered Professional Engineer with Provost & Pritchard with more than 15 years of experience working on Capital Improvement Projects for private and public clients. He has been involved in all aspects of such projects beginning at the initial planning stages into design, permitting, bidding, contracting, construction management and observation, through project closeout. He also is the former City Engineer and Community Development Director for the City of Arvin, and in that role, he also became familiar with how projects are initiated and managed as a representative of a City. In these roles he was responsible for issuing encroachment permits and oversaw the issuance of building and other types of permits including utility companies. In these roles, he was responsible for coordinating with utility companies for approvals and permits from those companies and authorities having jurisdiction for capital improvement projects. He also reported regularly to the City Council, Planning Commission, City Manager, and Community Development Director until he assumed that role for the city.

## Relevant Experience

**Walnut Street Extension, City of Arvin, Arvin, California, City Engineer** – Arvin wished to extend Walnut Street to create a new area that could be developed as a "Downtown District". This project involved significant planning, design work including street plans for 0.25 mile of road and construction management duties. This project also included significant coordination and permitting with CalTrans, PG&E, SoCal Gas, and other utilities in the area with a major trenchless crossing under State Route 223.

**Franklin Street Rehabilitation, City of Arvin, Arvin, California, City Engineer** – Arvin solicited and procured CDBG funds to replace its most notoriously damaged road. After procurement, Adam oversaw the development of detailed street plans which were reviewed extensively by other City staff, granting agency, and utility companies. Project is slated to begin construction in early 2023. Adam helped to identify a significant issue with the water district lines which were determined to be too shallow and needed to be raised before this project could move forward. Although this did delay the construction start, it saved the City from significant construction delay and financial ramifications with identification during design.

**Sycamore Street Drainage Project, City of Arvin, Arvin, California, City Engineer** – Arvin procured Proposition 84 IRWMP funds for this project to address areas of significant annual flooding along Sycamore Road due to poor drainage design in previous years. Adam oversaw the design, bidding, and construction phases of the project which included over 8,000 linear feet of drainage pipe up to 42 inches and the construction of a six-acre basin. Several unique right-of-way issues were identified during the project and Adam worked with landowners who were

identified as being illegally within the dedicated City Right-of-Way. Once completed during the rainy season in 2019, the areas in question have yet to flood again.

**Residential Site Development, DR Horton, Various Cities, California** – Since coming to Provost & Pritchard, Adam has worked extensively with DR Horton on various housing projects in the cities of Bakersfield, Hanford, Tulare, and Visalia. Adam has acted as a project manager taking projects from the initial planning stages and typically involve creation of tract maps, improvement plans, utility coordination, and construction support for housing tracts ranging from 50 to several hundred homes.

**Indian Wells Valley GA Pipeline Alignment Study, Ridgecrest, California**– Identified potentially affected utilities and other Authorities Having Jurisdiction along three proposed approximate 50 mile water pipeline alignments. Reached out to each stakeholder to identify existing easement and right-of-way rights, existence of assets in the area of proposed alignments, requirements to cross or collocate within their easements and right-of-way, and to determine each agency's process for permitting and approving a preferred final alignment. Compiled all relevant information received from stakeholders, and provided to the project team to help to arrive at a single preferred alignment which was presented to the Indian Wells Valley Groundwater Authority.

## PREVIOUS EXPERIENCE

**City Engineer and Community Development Director, City of Arvin** – City Engineer and Community Development Director for the City of Arvin in Kern County, CA. Oversaw Capital Improvement Program and budget and regularly reported to City Manager and Council. Established detailed digital file management system. Managed Community Development Department staff and consultants. Developed new permitting processes and conducted site plan reviews for commercial, manufacturing, and residential developments. Established a comprehensive Floodplain Management Program as required by the Federal Emergency Management Agency (FEMA). Developed development agreements and subdivision agreements for housing tracts and worked with City Surveyor on land division applications including tract maps and lot mergers. Assisted other city staff in the procurement and management of various grants to fund CIP projects. Performed construction management and administrator duties on various CIP projects on behalf of the city.

**DeWalt Corporation, Bakersfield, California, Civil Engineer** – Provided project management, civil design, and planning services for various clients ranging from housing developers to commercial developers for projects of various sizes. Served as Contract City Engineer for City of Arvin.

**QK, Inc., Bakersfield, California, Senior Associate Civil Engineer** – Contract Assistant City Engineer for City of Arvin.

**TranSystems, Oakland, California, Civil Engineer and Construction Manager** – Prepared design drawings with AutoCAD, Civil 3D, MicroStation, and CivilStorm. Performed permitting and coordination with clients, subconsultants, and public agencies including the Federal Aviation Administration, Federal Rail Authority, Army Corps of Engineers, Department of Fish and Wildlife, and CalTrans. Responsible for design engineering for site layout, utilities, storm drainage and management, pavement, and roadway. Prepared project specifications and engineer's estimates including quantity takeoffs. Provided bid phase services including contractor selection, followed by construction administration and observation, schedule maintenance and progress payments.

# Kevin Berryhill

*PE*

Principal Engineer

## Education

- M.S. Mechanical Engineering, California State University, Long Beach
- B.S. Mechanical Engineering, California Polytechnic State University, San Luis Obispo

## Registration/Certifications

- Civil Engineer, California #70415
- Mechanical Engineer, California #32762

## Affiliations

- American Water Works Association (AWWA)

## Areas of Expertise

- Water Treatment
- Water Quality
- Pumping Stations
- Water Distribution & Storage
- Municipal Infrastructure

## Professional Summary

Kevin Berryhill is a principal engineer at Provost & Pritchard with nearly 25 years of engineering experience. Mr. Berryhill is experienced in the evaluation of water quality and the selection and design of water treatment processes. He has experience in feasibility and pre-design studies, design and preparation of plans, specifications and cost estimates, permitting, pilot studies, and construction support. His experience includes conventional and membrane surface water treatment; wellhead treatment projects involving the removal of volatile organic chemicals (VOC), synthetic organic chemicals (SOC), natural organic matter (NOM), disinfection byproducts, nitrate, perchlorate, iron, manganese, arsenic, hydrogen sulfide, carbon dioxide ($CO_2$), radon, uranium, and color; and disinfection improvement projects.

Mr. Berryhill also has extensive experience in the design of water storage and pumping stations. His experience includes time spent as a research and development engineer for a centrifugal pump company. He has designed pumping stations utilizing vertical turbine, horizontal end suction, horizontal split case, vertical in-line, vertical multi-stage, submersible, and progressive cavity pumps. He has designed facilities incorporating bolted steel, welded steel, and prestressed concrete water storage reservoirs.

## Relevant Experience

**TCP Wellhead Treatment Project, City of Bakersfield, California, Principal-in-Charge –** Mr. Berryhill served as the principal-in-charge, overseeing the evaluation of treatment alternatives and design of GAC treatment plants at 35 drinking water wells. In order to meet the tight timelines involved, the project was executed as a progressive design build project with W.M. Lyles and separated into three phases. Major project components consisted of 52 GAC treatment vessel systems, two backwash holding tanks, 13 off-site backwash disposal pipelines, two off-site co-treatment transmission pipelines, 5 standby power generators, the addition of 8 variable frequency drives to well pumps, conversion of an agricultural irrigation well to a domestic well, conversion of eighteen well pumps from oil to water lubrication, 24 SCADA upgrades, and upgraded reinforced driveways.

**TCP Wellhead Treatment Project, City of Atwater, California, Principal-in-Charge –** Mr. Berryhill served as the design principal-in-charge, overseeing the design team on a Design/Build project to treat seven wells for TCP. The project included 5 treatment plants as large as 5,800 gpm, and design of over one-dozen pipelines with a combined length of nearly 3 miles. Plans and specifications for all improvements were completed within six months of notice to proceed.

**CBK-53 Arsenic Removal, City of Bakersfield Water Resources, Bakersfield, California, Treatment Design Lead –** The City's groundwater well CBK-53 has had some historical spikes of arsenic above the maximum contaminant level. The well is an essential facility, so the City hired Provost & Pritchard to design a wellhead treatment

system for arsenic reduction. The project consists of one pair of steel treatment vessels and adsorption media; carbonic acid pH adjustment system and shade structure; bypass and blending piping, valves, and flowmeter; manifold piping; raw and treated waterlines; backwash water disposal pipeline; electrical and controls.

**Wellhead Treatment Evaluation, City of Ceres, Ceres, California, Project Manager –** The City has four drinking water wells that have been impacted by iron, manganese, and arsenic. This project consisted of preparing a Wellhead Treatment Predesign Report evaluating treatment alternatives for each of the wells and oversight of pilot testing of the recommended treatment systems. Treatment of the wells is complicated by the small size of the well sites.

**Arsenic Removal Treatment Design, Armona Community Services District, Armona, California, Project Manager –** This project consisted of design of a 1,000-gpm wellhead treatment plant for the removal of arsenic, color, aluminum, sulfide, ammonia, and disinfection byproduct precursors. The scope of the project included a new water supply well, raw water buffering tank, iron-assisted coagulation filtration treatment plant, 0.75 million gallon finished water storage tank, backwash equalization/thickening tank, sludge drying beds, and high service pumping station.

**Lerdo Justice Facility Water and Wastewater Improvements Project, County of Kern, Bakersfield, California, Technical Lead –** The County of Kern constructed a new 822-bed jail at an existing Sheriff's Office detention campus. This project consists of evaluating and designing water and wastewater infrastructure improvements required to accommodate the expanded campus population. Mr. Berryhill was responsible for evaluating and designing water system improvements including new supply wells, sulfide removal treatment, a 1.25-million-gallon water storage tank, a 3,500-gpm high pressure fire pump, a high service pumping station, and water distribution system improvements. The source water for the project is believed to have the highest sulfide levels of any source in the nation. These high sulfide levels necessitated the use of an innovative hydrogen peroxide oxidation treatment process.

**South Upper Truckee Well No. 3, South Lake Tahoe, California, Project Manager –** This project consisted of the pre-design and design of a 1,400 gpm domestic water supply well facility including a deep-bubble aeration treatment plant for the removal of carbon dioxide and radon. New facilities included a submersible well pump, deep bubble aerators, chemical feed systems, post-aeration booster pump, standby generator, controls, and a building to house the equipment. The entire facility was designed to resemble a private residence.

**Bass Lake Uranium Treatment Plant, Bass Lake, California, Project Engineer –** Bass Lake's School Road Well produces water with uranium concentrations more than four times the MCL. Mr. Berryhill assisted Bass Lake with design and permitting of a uranium removal water treatment plant. This facility was one of the first treatment plants in California to use the proprietary uranium removal treatment process.

**Well No. 13 Wellhead Treatment Plant Design, City of Paramount, California, Project Manager –** This project consisted of the design of a new 3,000 gpm wellhead treatment plant for the removal of manganese, hydrogen sulfide, and arsenic from an existing well source. Mr. Berryhill's responsibilities included establishing a pilot testing program, treatment process selection, preparing construction plans, specifications, engineer's estimate and operations plan, and construction support.

**PFAS and TCP Treatment Evaluation and Design, Camrosa Water District, Camarillo, California –** Mr. Berryhill served as Project Manager for a Treatment Feasibility Study and design of a PFAS and 1,2,3-trichloropropane removal plant for Camrosa Water District. In addition to those two contaminants, the water at the site has very high hardness, nitrate, and hexavalent chromium. The selected treatment process included GAC, carbon dioxide and sodium hydroxide chemical addition, and a backwash water management system to reclaim the water into the District's non-potable water distribution system. Mr. Berryhill also oversaw pilot testing of GAC prior to design of the treatment plant.

# Matthew Barnes

*PE*

Senior Engineer

## Education

- B.S. Civil Engineering,
  California State University, Fresno

## Registration/Certifications

- Civil Engineer, California #79145

## Affiliations

- American Society of Civil Engineers (ASCE)

## Areas of Expertise

- Site-Civil
- Municipal Infrastructure
- Land Development
- Project Management
- Grading
- Storm Drainage
- Water Systems
- Roadway/Pavement Design & Rehabilitation Improvements
- Regulatory Compliance
- Hydrologic & Hydraulic Analyses
- ADA Compliance

## Professional Summary

Matthew Barnes is a senior engineer at Provost & Pritchard with 18 years of experience in an engineering environment. His experience includes the management and design of site-civil, municipal infrastructure and land development projects including design-build projects. Mr. Barnes has experience with site development, grading, drainage, sewers, storm drains, water systems, pavement, retaining walls, traffic engineering, roadways, curb and gutter, roadway rehabilitation, striping plans, walkways and ADA compliance.

## Relevant Experience

**Montecito Bank & Trust, SRK Architects, Montecito, California, Project Manager –** This project consists of parking lot pavement rehabilitation and ADA walkway path upgrades for a bank branch located in Montecito, California. This project is currently being permitted.

**California Community Foundation, SRK Architects, Los Angeles, California, Project Manager** – This project consists of exterior ADA walkway path upgrades and concrete flatwork. This project is currently under construction.

**Center Point Industrial Park – Phase I, CapRock Acquisitions LLC, Visalia, California, Project Manager –** This project is a 1.1M-SF warehouse situated on 62-acres in northwest Visalia. Mr. Barnes has been responsible for project management, client coordination, agency reviews and project planning. Provost & Pritchard's scope includes: ALTA, boundary and topographic surveying; site design; traffic studies; grading; drainage system including 18-acre-feet of underground storage chambers; asphalt and concrete pavement design; wet utility design to service project; off-site roadway improvements and full traffic signalization. This project is completed and currently being occupied and operated by the tenant.

**Center Point Industrial Park – Phase II, CapRock Acquisitions LLC, Visalia, California, Project Manager –** This project consists of two (2) 1.3M-SF warehouse situated on approximately 140-acres in northwest Visalia. Mr. Barnes has been responsible for project management, client coordination, agency reviews and project planning. Provost & Pritchard's scope includes: ALTA, boundary and topographic surveying; site design; traffic studies; grading; drainage system; asphalt and concrete pavement design; wet utility design to service project; signage and striping, off-site roadway improvements and full traffic signalization. The first building for this project is currently under construction.

Transit Center at CSU Bakersfield, Golden Empire Transit District
**City of Bakersfield, California, Project Manager –** This project consisted of converting existing landscaping located along Don Hart Drive West on CSU Bakersfield campus into a six (6) bus bay transit center. Project features included, extensive concrete flatwork (portions of which were highly decorative), grading, drainage, ADA compliance, utility

relocations and foundations. Provost & Pritchard completed the design and approval portions of the project, including DSA and State Fire Marshall approvals. Provost & Pritchard also provided construction services in collaboration with the Project Architect (RNL Design now STANTEC), the project is now complete and operational.

**Don Hart Drive West Road Rehab at CSU Bakersfield, Golden Empire Transit District, City of Bakersfield, California, Project Manager** – Mr. Barnes has provided civil design services for the rehabilitation of the existing Don Hart Drive West Roadway, and the project is anticipated to be constructed in 2019. This project will incorporate the full-depth-reclamation (FDR) method, in order to re-purpose existing roadway materials in place.

**Kern County Justice Facility, County of Kern, Bakersfield, California, Project Engineer –** This was a design-build project which Mr. Barnes was involved with client coordination, agency review and approval, and project planning for. Mr. Barnes also designed the grading, drainage, wet utilities, pavement, curb and gutter, striping and signage for the facility.

**Delano Domestic Violence Shelter, City of Delano, California, Project Engineer –** Mr. Barnes designed and prepared site grading plan, parking lot paving and striping plans, and wet utility improvement plans.

**Loop Road Improvements, California State University, Bakersfield, Bakersfield, California, Project Engineer –** Mr. Barnes prepared grading, paving and striping plans, and storm drain improvements for Loop Road adjacent to the new dormitory at the California State University, Bakersfield campus.

**GET Bus Wash Project, Golden Empire Transit District, City of Bakersfield, California, Project Manager –** This project consists of a new bus wash equipment, pre-fabricated metal building, underground backwash storage tanks, concrete flatwork and electrical upgrades. This project is currently under construction.

**GET Maintenance Shops and Paint Booth Project, Golden Empire Transit District, City of Bakersfield, California, Project Manager** – This project consists of a new bus painting booth equipment, two (2) pre-fabricated metal buildings, concrete pavement and flatwork, and electrical upgrades. This project is currently in design.

**Delano CNG Station Upgrades, City of Delano, California, Project Manager –** This project consists of removal and replacement of outdated CNG equipment with a new CNG compressor, filling station, tubing, valves and other appurtenances.

**Wellhead Treatment Project, Water Resources Department, City of Bakersfield, California, Design Team Manager –** This project consisted of evaluating approximately 40 wells in the City of Bakersfield's domestic water system and recommending a treatment alternative to mitigate new water quality regulations that go into effect January 1, 2018. Mr. Barnes oversaw the design team for the 35 wells selected in the recommended alternative for the site-civil and piping improvements. Improvements included: GAC treatment systems; on-site and off-site piping; backwash disposal lines; site improvements and grading; retaining walls; fencing improvements; driveways and roadway improvements.

**1,2,3-TCP Remediation Project, City of Atwater, California, Design Engineer –** Mr. Barnes served as a project engineer for the Well 18 treatment site located at Joan Faul Park. The treatment system included 3 pairs of 12-feet diameter Granular-Activated Carbon (GAC) treatment vessels, site piping, site civil improvements, backwash water storage tank and disposal pipelines, chlorination system, new pre-fabricated restroom building, trash enclosure, parking lot extension and improvements for ADA-compliance, stormwater BMPs, landscaping improvements, and electrical and controls.

# Rick Darnley

## Construction Services Manager

### Education

- General Education, Fresno City College, California
- Primavera Project Management P3ecSoftware Training Course
- Primavera Expedition Professional Training Course

### Registration/Certifications

- Medic First Aid Training Programs
- OSHA Construction Safety & Health Training, 10-Hour Course
- Competent Person, Trench and Excavation Standards

### Affiliations

- American Public Works Association (APWA)
- American Council of Engineering Companies (ACEC)

### Areas of Expertise

- Program/Construction Management
- Pre-Construction Services
- Cost Estimating
- CPM Scheduling
- Value Engineering
- Bidability/Constructability Reviews
- Reinforced Concrete
- Reinforced Masonry
- Welding
- Site Safety/OSHA Compliance
- QA/QC Programs
- Caltrans Standard Specifications
- California Building Codes
- Pipeline Construction
- Schools, Hospitals & Public Works
- Utility Relocations

## Professional Summary

Rick Darnley has over 42 years of experience in construction management, quality control, and coordination of large projects with critical schedules to meet. His expertise includes healthcare, education, and public works facilities, which require project tracking, contract review, contract budgeting, cost estimates, schedule reviews, quality assurance/quality control, and technical services. Many of the projects have been performed in accordance with requirements established by agencies such as the Federal Aviation Administration (FAA), Federal Railroad Administration (FRA), Department of Health Care Access and Information (HCAI), and Division of State Architecture (DSA) as well as California Administrative Code Standards.

Additionally, Mr. Darnley performs constructability reviews on many of Provost and Pritchard's municipal projects. His experience helps identify potential challenges so they can be mitigated ahead of time.

## Relevant Experience

**Water System Improvements – Phase I, Pixley Utilities District, Pixley, California, Principal Construction Manager** – Mr. Darnley provided staff oversight during inspection services on the 1st phase of construction of water system improvements along with the installation of a new domestic well and a 0.7 MGD gallon storage tank. Installation included the construction of over 3,000 ft of 12" water main, and the installation, and startup of a new water storage tank and related booster pumps.

**Water Treatment Project – Phase 1, Tranquility Irrigation District, Fresno County California, Principal Construction Manager –** Mr. Darnley provided staff oversight during the inspections for the installation of approximately 1-mile of 12" water main from a new set of wells to the District's tank site. The work involved inspecting and testing of the new line and modifying the inlet piping to the tank to accommodate the new line.

**Southwest Groundwater Banking Facility, Fresno Irrigation District, Fresno County, California, Principal Construction Manager –** Mr. Darnley provided staff oversight of inspection services for the recently completed Southwest Groundwater Banking Project for the Fresno Irrigation District. The project, which spans over 100 acres, will provide much needed water storage in the region and provide for sustainable management of surface and groundwater. The design of the project included a hydraulic analysis of 3.5 miles of canal system including an alternative analysis of increasing capacities to 200 cfs by replacing county road culverts, private culverts, widening/raising/deepening of the channel as well as providing flow measurement at key locations. A 20-acre regulation reservoir with a 200 cfs inlet weir structure as well as distribution structures within the basins and an earthen distribution channel were also constructed. The project was funded by approximately $4M of state and federal grants which included a Integrated Regional Water Management Plan (IRWMP) Implementation

Proposition 84 Grant from the State Water Board and a WaterSMART grant through the USBR.

**Gary R. Serrato Intertie Facility, Fresno Irrigation District, Fresno County, California, Principal Construction Manager –** Mr. Darnley provided staff oversight during construction inspection services for the Gary R. Serrato Intertie Facility, formerly called the Gould Canal to Friant-Kern Canal Intertie Project. The project included the installation of a 200 cfs pump station to discharge water into the Friant-Kern Canal where the Gould Canal intersects. The pump station is expandable to an ultimate design of 300 cfs and 1,000 hp total. The project also included engineering design, CEQA/NEPA documents, and securing all the necessary permits with the Bureau of Reclamation and Friant Water Authority within a seven-month time frame.

**Emergency Department Addition Project, Kaweah Health, Visalia, California, Senior Project Manager –** Mr. Darnley's role as the owner's representative on this expansion project was reviewing RFIs and applications for payments, coordinating owner furnished items, coordinating the contractor activities with hospital staff to minimize disruption, and providing recommendations to Kaweah Health facilities planning director regarding project issues.

**Recharge Fresno Program, City of Fresno, California, Principal Construction Manager –** Mr. Darnley has been providing and overseeing cost estimate services to the project on behalf of the design team Blair, Church and Flynn Consulting Engineers. He has prepared and reviewed multiple construction cost estimates based on the information contained in the 90% set of plans and specifications, verified material supplier costs and labor estimates regarding various products to be installed on the projects. These cost estimates ranged between $3 million and $40 million.

**Well No. 3 Water Treatment Plant Design, Armona Community Services District, Armona, California, Principal Construction Manager** – Mr. Darnley served as the principal construction manager overseeing field staff during the construction of Well No. 3, 750,000-gallon bolted steel storage tank, and the associated arsenic-removal water treatment plant and offsite improvements. The work included providing support to field staff reviewing RFI's, submittals, monthly pay requests and assistance on-site during field inspections.

**Mill Creek Culvert Alignment Project, Kaweah Health, Visalia, California, Senior Project Manager/Owner's Representative –** Mr. Darnley's role as the owner's representative on this $1.9 million project involved bidding separate contracts for the building demolition and the construction of the Mill Creek Culvert Realignment project. His responsibilities included design oversight management, preparing the front-end bid documents, preparing bid advertisement, facilitating the bid openings, issuing Notice to Proceed letter to the low bidder, reviewing cost estimates, and negotiating change orders. He was also responsible for conducting weekly construction meetings, reviewing requests for information (RFI) and applications for payments, coordinating the contractor activities with hospital staff to minimize disruption, and providing recommendations to Kaweah Health facilities planning director regarding project issues.

**T-3 Water Storage & Treatment Facility, Lennar, Inc./City of Fresno, Fresno, California, Senior Project Manager –** As the senior project manager, Mr. Darnley served as the owner's representative on this $13.6 million water storage and treatment facility. The scope of work involved reviewing cost estimates and negotiating change orders, participating in weekly construction meetings, and reviewing RFIs, monthly schedules, change orders and progress payments. The project consisted of site grading, paving, landscaping, CMU fencing, operations/equipment building, chemical storage area, packaged filter system, transfer station, raw water pumping station, raw water backflow pumping station, wash water equalization basin, screening structure, sludge dumpster, screw press, plate settler, reclaim pumping station, GAC system, backwash water and storage tank, 3 million gallon finished water storage tank, underground piping, underground electrical, emergency generator, primary electrical transformers and associated mechanical and electrical equipment and controls. One significant project challenge that he handled for the client was working with the residential neighborhood and keeping them informed of the project activities to ensure good communication to the neighbors.

# Tim Odom

*PLS*

Project Surveyor

## Education

- B.S. Geomatics Engineering, California State University, Fresno

## Registration/Certifications

- Professional Land Surveyor, California #8468
- Professional Land Surveyor, Oregon #87035
- Professional Land Surveyor, Arizona #58260
- Professional Land Surveyor, Nevada #23017
- Professional Land Surveyor, Washington #52086
- Professional Land Surveyor, New Mexico #25338
- Professional Land Surveyor, Idaho #20909
- FAA Remote Pilot, SUAS Rating, Cert. #4384797

## Affiliations

- California Land Surveyors Association

## Areas of Expertise

- Topographic Surveys
- High-Definition Surveys/Laser Scanning
- ALTA Surveys
- Boundary Surveys
- Construction Staking

## PROFESSIONAL SUMMARY

Tim Odom has over 18 years of experience in the surveying-engineering, mapping, and geographic information system (GIS) fields. His responsibilities have included planning and execution of geodetic and conventional control surveys, ALTA surveys, topographic surveys, boundary analysis/legal descriptions, subdivision mapping, and construction staking. Additionally, Mr. Odom has experience with conventional surveying methods, global positioning system (GPS) surveying, and remote sensing. Mr. Odom is experienced at working on and managing projects throughout the Western United States, in urban, suburban, agricultural, and wilderness environments.

## RELEVANT EXPERIENCE

**New Wastewater Treatment Plant, City of Ridgecrest, California, Project Surveyor –** Mr. Odom is providing surveying services for the design and construction of a new wastewater treatment plant in the City of Ridgecrest. Project tasks include performing topographic and boundary surveys at the existing treatment plant and at alternative treatment sites within the City of Ridgecrest and Naval Air Weapons Station China Lake, and along existing sewer lines and easements through NAWS China Lake.

**Water Conservation Plant Upgrades & Pump Station, City of Visalia, California, Project Surveyor –** Mr. Odom provided surveying services for the design of more than 8 miles of distribution pipeline for the reuse of tertiary treated effluent from the City of Visalia Water Conservation Plant. Topographic and boundary surveys were performed, and documents were prepared for the acquisition of easements. The pipeline included bore-and-jack crossings of the Union Pacific Railroad, State Route 99, and State Route 198, for which Mr. Odom provided survey monitoring during boring operations per Railroad and State encroachment permit requirements.

**Friant Kern Canal Middle Reach Capacity Correction Project, Friant Water Authority, Tulare County, California, Project Surveyor –** Mr. Odom directed boundary surveys along a 30-mile stretch of the Friant-Kern Canal to resolve the limits of the existing Federal right-of-way and prepared legal descriptions, plats, and appraisal exhibits for the acquisition of 39 parcels as a part of this project to design canal improvements to counteract the effects of regional ground subsidence. At the outset of the project, Mr. Odom met with project staff, BLM staff, and the Chief Cadastral Surveyor for California to verify survey methods and standards for document preparation. The legal descriptions and plats prepared by Mr. Odom have been reviewed and approved by US Bureau of Reclamation Staff. In this ongoing project Provost & Pritchard is also providing staking along the proposed right-of-way line to aid in discussions between the engineers, appraisers, landowners, USBR, and the Friant Water Authority, and supplemental topographic surveys as needed for the completion of design documents.

**South Canal Improvement Project, Arvin-Edison Water Storage District, Kern County, California, Party Chief/Survey Project Manager/Draftsman –** The first phase of this project involved planning and executing a geodetic control network encompassing a large area of Kern County and performing adjustment calculations. The second phase involved executing a design topographic survey of more than eight miles of canal improvements, including pumping stations, check structures, and siphons, coordinating conventional surveying, GPS surveying, and aerial surveying (by a consultant). Mr. Odom's responsibilities included coordination of several survey crews, managing all of the data collected, and drafting the deliverable topography and surface. Project challenges included the merger of a massive amount of aerial and conventional survey data, in order to create an existing ground surface model used in the redesign of the canal.

**Water Supply Well, Transmission Main and Storage Tank, Richgrove Community Services District, Tulare County, California, Project Surveyor–** Mr. Odom provided survey services for the design and construction of a water supply well, transmission main, and water storage tank for the Richgrove Community Services District. The project included a test well, production well, hydropneumatic tank, over three miles of water transmission pipeline, several jack and bore crossings of railroads and County roadways, and a 275,000-gallon water storage tank with booster pumping facilities.

**Wolverton Water Improvements Project, Sequoia National Park, California, Project Surveyor –**Mr. Odom provided topographic and utility surveys in and around the Giant Forest, Wolverton, Lodgepole, and Wuksachi areas of Sequoia National Park, including the retracement and survey of approximately three miles of buried water lines, topographic surveying at several buried and above-ground water tank sites, and topographic surveying of a 1.5-mile long corridor along the Generals Highway for the design of a new water line. Throughout the project, Mr. Odom worked closely with park maintenance staff to locate and document buried facilities that ran through relatively undeveloped areas of the park. Mr. Odom then provided construction surveying services, including construction staking for approximately two miles of new water line, a new well and building, and a new chlorine dosing station. The construction portion of this project was completed in a narrow timeframe within the off-peak season so that construction traffic and noise would not affect park visitors.

**Cow Creek Wastewater System Rehabilitation, Death Valley National Park, California, Project Surveyor –** Mr. Odom served as the project surveyor in support of the analysis of an existing wastewater system serving a staff residential area in Death Valley National Park and the design of system improvements. Mr. Odom completed a topographic survey of over two miles of wastewater pipeline and appurtenances, along with roadway improvements and other utilities in the area. A detailed inventory of pipe size, material, and depth was prepared to assist in the analysis of the existing system and for the prioritization of improvements.

**Lerdo Justice Facility Water and Wastewater Improvements, County of Kern, California, Project Surveyor –** Mr. Odom provided surveying services for the design of an expansion and improvements to the wastewater treatment facilities and water facilities at the Lerdo Campus in Kern County in order to accommodate a new jail facility. Mr. Odom provided control for an aerial topographic survey as well as supplemental field surveys to identify and locate existing water and wastewater facilities.

Water Main Replacement and Meter Installation Project, Lake of the Woods Mutual Water Company, Kern/Los Angeles County, California, Project Surveyor – Mr. Odom was responsible for topographic and boundary surveying in support of the design of improvements to the water supply and distribution systems in the community of Lake of the Woods. Surveys covered approximately 5 miles of distribution system pipelines throughout the community and 3.5 miles of supply pipelines from mountain springs through rough terrain.

Well 5 Drilling, Equipping, and Pipeline Project, Buttonwillow County Water District, Kern County, California, Surveying Manager – Mr. Odom provided boundary and topographic surveys for the design of a new water well and 3,500 feet of 8-inch and 10-inch PVC water transmission main in the community of Buttonwillow, prepared legal descriptions and exhibits for several easements needed to construct the project, and provided construction surveying for the drilling of the well and the placement of the buildings, equipment, and pipelines.

# Philip Slater

## Senior GIS Specialist

### Education

- B.A., Geography/Cartography, Minor in Geographic Information Systems
  California State University Northridge
- A.A., Liberal Studies,
  Moorpark College, Moorpark, California

### Registration/Certifications

- Geographic Information Systems, California State University, Northridge
- Basic Geographic Information Systems,
  Ventura College
- Agricultural Geographic Information Systems, Ventura College
- Certified California Naturalist
- Wilderness First Aid (WFA), AED, CPR
- Eagle Scout

### Areas of Expertise

- Geographic Information Systems (GIS)
- GIS Consulting
- GIS Training
- ArcGIS Desktop/ArcGIS Pro
- Remote Data Collection Techniques
- SWRCB Rules and Regulations

## Professional Summary

Philip Slater is a Senior GIS Specialist at Provost & Pritchard with than more than 13 years of GIS experience. He is experienced in providing GIS services to a variety of clients, including managing, updating and analysis tasks for five Central Valley cities. He also helped design and pioneer an enterprise GIS system at the largest private landholder in the state of California spanning over 270,000 acres.

## Relevant Experience

### Municipal

**Master Plan Design Map Exhibits, Malaga Community Water District, Fresno, California, GIS Lead –** Mr. Slater lead and created the GIS data, an online map viewer and field data collection tools as well as created all project map exhibits including 3 multi-page map series.

**Master Plan Design Map Exhibits, Malaga Community Water District, Fresno, California, GIS Lead –** Mr. Slater designed and created GIS data and accurately mapped all aspects of the sewer and water master plan for Malaga CWD.

**Pinedale CWD Water Meter Project, Pinedale CWD, Fresno, California, GIS Lead –** Mr. Slater designed, created, imported, and mapped Pinedale's residential meters for replacement or installation with all relevant attribute information. Accurately display in a multipage map book and provide a working list of meters for staff as well as provide an esri online solution for use.

**City of Mendota Water Meter Replacement, City of Mendota, Mendota, California, GIS Lead –** Mr. Slater designed, migrated and maintained a field data collection for staff to collect water meter locations on sight using industry standard field data collection techniques. QA/QC collected data and support field users and staff during collection process. Display collected data in a multipage map book for field use and online for internal staff use.

**Manage GIS for the City of Mendota, City of Mendota, Mendota, California, GIS Lead –** Mr. Slater designed, migrated and maintained the city's ArcGIS online for internal city use and field data collection. Create, verify, and migrate data from external sources to web maps and applications for staff use.

### Planning

**General Plan Update, City of Fowler, California, GIS Lead -** Mr. Slater lead the GIS work required for the comprehensive update to the City's General Plan, including creating and editing data as well as performing complex analysis.

**On-Going GIS, City of Fowler, California, GIS Lead -** Mr. Slater creates permit request map exhibits on an as needed basis for the City.

**Traffic Calming and Safety Enhancement Plan, City of Parlier, California, GIS Lead** - Mr. Slater produced the GIS work required to analyze the project area and produced map exhibits and posters required for the project.

**On-Going GIS, City of Madera, California, GIS Lead** - Mr. Slater assists with permit request map exhibits on an as needed basis for the City as well as parcel related research.

**Liberty Groves Specific Plan, County of Madera, California, GIS Lead** - Mr. Slater lead, created, edited and performed advanced GIS analysis techniques on data GIS data based on parcels for the Liberty Groves Project as well as oversight of all map exhibits required for the project.

**Zoning and Subdivision Ordinance Updates, City of Fowler, California, GIS Lead** - Mr. Slater lead, created, edited, and performed advanced GIS analysis techniques on data based on project requirements.

### Prop 218/GSA

**On-going Mapping Requests, South Kings GSA, California, GIS Tech-** Mr. Slater created, edited, and performed advanced GIS analysis techniques on data based on project requirements.

**Project Map Requests for Prop 218, Pixley ID, Pixley, California, GIS Tech**- Mr. Slater created, edited, and performed advanced GIS spatial analysis techniques on data based on project requirements.

**On-going Mapping Requests for Prop 218, Lower Tule, California, GIS Tech**- Mr. Slater created, edited, and performed advanced GIS analysis techniques on data based on project requirements.

**Project Map Requests for Prop 218. East Turlock Subbasin GSA, Turlock, California, GIS Tech**- Mr. Slater created, edited, and performed advanced GIS spatial analysis techniques and parcel editing techniques on GIS data based on project requirements.

**On-going Mapping Requests, MAGSA Groundwater Basin, California, GIS Tech**- Mr. Slater created, edited, and performed advanced GIS analysis techniques on spatial data and edited parcel data based on project requirements

## Previous Experience

**Tejon Ranch Company, Kern County, California, Water Diversions Manager –** Mr. Slater installed, setup and maintained electronic monitoring equipment for 13 stream diversion permit sites located across Tejon Ranch; collected, compiled and submitted electronic data to the California State Water Resources Control Board (SWRCB); managed Stream Diversion project budget, invoices, negotiated vendor contracts and collaborated with consultants to meet SWRCB requirements, standards and deadlines.

**Tejon Ranch Company, Kern County, California, GIS/IT Specialist –** Mr. Slater researched, designed and implemented an Enterprise GIS Environment utilizing Esri's ArcGIS Server technologies for use company-wide; tested, installed, configured and maintained Windows Server technologies in a virtual environment; designed, created, maintained, managed and backup numerous Microsoft SQL databases in a GIS environment; monitored performance, integrity and security of database for use company-wide; provided GPS technical support company-wide including data collection, mapping, software maintenance and implementation of GPS data policies and procedures; provided technical support for hardware, software, licensing and GIS/GPS mobile solutions for GIS Department and company-wide; created map exhibits for use throughout the company; plot, print and mount exhibits on an as needed basis; imported, created and analyzed data in a GIS environment for use in SQL environment; researched property lines and APN data as requested; imported and converted AutoCAD data into GIS data for analysis or exhibits; managed, updated and troubleshot multiple workstations, servers and mobile devices. (2007-2017)



# Joseph (Joe) Long PE

Conveyance Systems Project Manager
31 years of experience · Irvine, California

Joe has 31 years of experience in planning and engineering consulting for publicly owned water infrastructure. His expertise includes the planning and design of hydraulic structures, sanitary sewer collection systems, water conveyance facilities, sanitary lift stations, water pumping facilities and groundwater augmentation facilities (water banks). Joe provided master planning of linear infrastructure on projects focused on water and wastewater systems, hydraulic modeling for both pressure and gravity flow systems, transient surge mitigation measures to be incorporated into pumping facilities, and pump/lift station engineering services to several water districts, public utilities districts, and municipalities throughout Southern California.

## EDUCATION

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

## REGISTRATIONS

Professional Engineer #C54329, State of California

## PROJECT EXPERIENCE

High Desert Water Bank, Antelope Valley | East Kern Water Agency | Antelope Valley, California | Project Manager/Project Technical Lead

Joe is responsible for the overall design and implementation of a new Groundwater Storage Project located in the western portion of the Antelope Valley. The project consists of a1,200-acre parcel providing 800 acres of groundwater recharge facilities, 350 acres of environmental set-aside lands, approximately five miles of large-diameter pipeline, 27 groundwater recovery wells with lifts exceeding 600 feet, a 200-cfs capacity pumping plant and a 250-cfs capacity California Aqueduct – East Branch turn-out structure. Ultimately, the project will include SCADA and a control system to remotely operate the turn-in and measurement structures to each recharging basin. The project also included coordination and approvals with the California Department of Water Resources to allow the construction of the new turn-out structure. The project team consisted of four prime-subconsultants providing hydrogeology investigations, geotechnical investigations, and design support services.

Morena Pump Station and Conveyance System | City of San Diego | San Diego, California | Project Manager

Joe managed the multi-disciplined engineering teams for the planning and design of 11 miles of 48-inch-diameter sewer force main, 11 miles of 30-inch-diameter gravity brine return line, and a new/replacement potable water transmission main along Morena Boulevard. Planning services included hydraulic and surge analyses and pipeline transient analysis as well as evaluation of odor control approaches. Other project elements include design for a pump station with a maximum 37.7 MGD capacity, odor control system, and sewer diversion/influent conveyance facility. Services incorporate a preliminary design report and final design and construction packaging for the pipelines and pump station.

Orange Park Acres Well No. 1 Headworks and Booster Pumping Facilities | Orange, California | Project Manager

Joe assisted in design and construction support for a new 2,100-GPM municipal water well, booster-pump station, groundwater quality treatment system, and chloramine injection system. The project is one of the primary water sources for the Orange Park Acres service area and included the design of a well pump and booster pump building; a chemical storage and feed system building, a motor control room, two VFD booster pumps, a clear-well basin (located directly under the booster pump building), a fire suppression system within the chemical storage building, and an automated ingress/egress system in order to meet local fire department requirements. The chemical storage components included a 2,000-gallon sodium hypochlorite storage tankage and a 200-gallon refrigerated aqueous ammonia storage system. Due to nearby residences, a noise propagation study was performed, and sound suppression mitigation measures were incorporated.

Eastwood Multi-Zone Recycled Water Pump Station | Irvine Ranch Water District (IRWD) | Irvine, California | Technical Lead

Joe prepared a preliminary design report and construction drawings for the Multi-Zone Recycled Water Pump Station, which will serve as the terminal pumping facility serving three pressure zones and terminal pump station for the future Syphon Canyon Reservoir. The pump station will contain 12 variable frequency drive pumps, surge mitigation, and standby power generation. Planning and engineering services included site development, building architecture, structural engineering, hydraulic analyses, electrical, and I&C engineering and landscaping. The ultimate capacity of the pump station is 48-mgd with a total dynamic head of approximately 300 feet.

Morena Pump Station and Conveyance System | City of San Diego Public Utilities Department | San Diego, California | Project Manager

Joe was responsible for the design coordination and implementation of the Sanitary Sewer Pump Station with peak flow capacity of 35 MGD, vapor phase odor control system, liquid phase high purity oxygen injection system, solids screening, mechanical, structural, electrical, and I&C systems. The project included the development of PDR, construction documents, specifications, and opinion of construction costs.

Lake Forest Zone B to C Recycled Water Pump Station | IRWD | Irvine, California | Project Manager

Joe was responsible for the design of a new recycled water pumping station that included five variable-speed drive-controlled pumps delivering flows into a closed circuit water distribution system. The project included the design of the electrical and controls systems along with a new pumping station 30-feet-wide by 80-feet-long. Consideration of noise and aesthetics was required due to the location of the project adjacent to existing office buildings. The project also included demolition of an existing pump station, an existing well and wellhead equipment.

Groundwater Recharge Facilities, Burris/Lincoln Basin Reconfiguration Project | Orange County Water District | Fountain Valley, California | Project Technical Lead/Project Manager

Joe was responsible for the redevelopment of the existing Burris Pit and Lincoln basin to improve percolation rates and provide additional operational flexibility within the overall water recharge complex. The initial basins provided significant storage capacities, but due to the underlying geotechnical conditions, direct recharge into the deep storage aquifer was hampered by a relatively thin layer of impermeable clay soils. This project reconfigured the basins, removed the majority of the clay underlayment, redeveloped the project areas with river sands and coarser materials to enhance groundwater recharge, and developed desilting basins for sediment control of the water supply being delivered off the Santa Ana River. The project also included the development of a new delivery canal, control gates structures, and SCADA control for operations.

Stockdale West Water Bank Wellhead Equipping | IRWD | Bakersfield, California | Project Manager/Project Engineer

Joe was responsible for the design and implementation of three new water recovery wells. The project consisted of the design of three constant speed vertical turbine well pumps operating at a depth of 650 feet below ground surface and having a minimum flow capacity of 2,800 GPM each, 7,500 linear feet of 24-inch-diameter discharge headers, turn-in structure to the Rosedale Intake Canal, new electrical service, site development, and automated security surveillance system. In order to address the 200 feet of potential vertical fluctuations in the groundwater elevations, this project used automated flow control valves to induce back-pressure onto the pumps during periods of high groundwater elevations

Syphon Reservoir Interim Outlet Facilities | IRWD | Irvine, California | Principal-in-Charge

Joe oversaw the development and implementation of a filtration and disinfection system to integrate the existing Syphon Reservoir outlet facilities into the IRWD Zone A recycled water system. The project included the design of a rotating screen system, a sodium hypochlorite injection system, and SCADA control systems.

Santa Ana Delhi Urban Water Recovery Unit | City of Santa Ana | Newport Beach, California | Project Manager

Joe was responsible for the initial planning and final design of a new urban water recovery system. The project included the design of an inline channel diversion structure, a primary and secondary grit and debris removal chamber, and return flow pumping facilities. The effluent from the facility is being conveyed to OCSD Plant 1 and will ultimately be incorporated into the GWRS reuse program.

Reservoir Management Systems | IRWD | Irvine, California | Project Manager/Project Engineer

Joe was responsible for the development of this project that included the design and implementation of the Chloramine Disinfection Feed System, Chemical Storage Systems, and associated masonry Chemical Storage Buildings. The project provides for disinfection booster facilities in the outlying areas IRWD's service area to mitigate potential nitrification issues within existing water storage tank reservoirs. The project also included the development of an in-tank mixing system to replace the existing Severn/Trent mixers. The mixing system incorporated a remote circulation pump, in-vortex chemical injection, metering pumps, and in-tank mixers.

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# Constantino Senon PE

Technical Review (Pump Station)
56 years of experience · Bellevue, Washington

Tino has 56 years of experience, over 45 of which have been at Stantec. He was chief mechanical engineer and currently Stantec's Global Pump Systems Technical Leader. Tino has designed pump stations more than two million horsepower over the past years working for the firm. Using his wealth of experience on numerous pump station projects, Tino has worked on projects from concept to startup and held multiple responsibilities as design engineer, project engineer, resident engineer in construction, value engineering reviewer and startup engineer for pumping stations and treatment plants.

Tino is the principal author of Stantec's Best Practice Guide for Pumping Systems and has been an active member of Hydraulic Institute Standards for over 20 years. In addition, he is the principal author of Drinking Water Pump Station Design and Operation for Energy Efficiency Guidebook published by Water Research Foundation, 2015.

## EDUCATION

BS/BSc, Mechanical Engineering, Central Philippines University, Iloilo City, 1967

## REGISTRATIONS

Professional Engineer #17274, State of California

Professional Engineer #75574PE, State of Oregon

Professional Engineer #121262, State of Texas

## PROJECT EXPERIENCE

Prairie Waters Project Conveyance System | City of Aurora | Aurora, Colorado | Pump Station Task Leader

Tino was a task pump station leader during the planning, design, and construction phase services for this project involving construction of a $150 million raw water conveyance system. This project was an integral part of the complete Prairie Waters Project—a $750 million raw water conveyance and treatment project. Tino was responsible for establishing alternatives, design criteria development, and providing periodic reviews during design, bidding services, and construction.

Lake Powell to St. George Pipeline Project | State of Utah Division of Water Resources | Lake Powell to St. George, Utah | Pumping Station Task Leader

Tino was responsible for establishing design criteria, preparing an alternative comparison, and providing continuous quality control for the design of a 100 mgd lake intake and booster raw water pumping stations. The Lake Powell intake pump station consisted of 6-vertical turbine pumps installed in a twin vertical wet well shaft extending 400 feet below ground. Each pump is rated 25 mgd. Water is then pumped to a series of three booster pump stations, discharging to a high point in the pipeline 50 miles from Lake Powell. Water then flows by gravity to St. George through a series of hydroelectric plants to recover energy. Tino served as pump stations task leader supporting the final sitting, preparing preliminary engineering drawings, and National Environmental Policy Act (NEPA) compliance activities for the Lake Powell Pipeline project. The project encompasses over 950,000 linear feet (180 miles) of 69-inch piping, up to 10 pumping stations with capacity of up to 100 mgd, and energy recovery facilities with annual energy recovery potential of up to 300 GW.

Aqueduct C Pumping Stations 1C and 2C | Southern Nevada Water Authority | Las Vegas, Nevada | Project Engineer

Tino served as project engineer for the design and engineering services during construction of the Aqueduct C treated water pump stations (1C and 2C - 45,000 hp, 220 mgd). He designed the forebay volume and suction configuration and performed system hydraulic calculations and pump selection. This project was the first of the multiple pump station projects SNWA implemented. Tino developed the pre-design report and supervised a multi-discipline design team, and provided engineering support services during construction. Tino and his team prepared a pump station design guide for successive stations to be built in the SNWA system. The team designed the new Aqueduct C project to operate in conjunction with the existing Aqueducts A and B to increase capacity from 400 to 600 mgd.

Collection and Pump Station System Upgrade | City of San Francisco Public Utility Department | San Francisco, California | Pump Station Design Senior Adviser

Tino served as pump station design senior adviser and quality reviewer. He provided technical guidance and performed periodic review of pump station expansion and the new raw sewer storage tunnel dewatering pump station project.

Highland Pump Station | Yorba Linda Water District | Yorba Linda, California | Process Design Engineer

A new 18,000 gpm pump station was designed to distribute more groundwater into the District's distribution system. The new pump station had to be constructed without interrupting the existing pump station. The pump station operates continuously and is a critical facility for delivery of groundwater to about half of Yorba Linda Water District's service area. The new pump station design included three electric motor pumps and two natural gas powered engine pumps. The pumps were located in a new building that included sound attenuation to meet City noise ordinances. The project included planning and design for new communications and telemetry for the pump station. An existing power generator was included in the project design for continuous power supply if needed. Stantec coordinated permitting with SCE for parallel power generation. The pump station included a new surge control system to protect the downstream system from pressure surges. Construction sequencing was carefully considered to ensure the facilities could be constructed without impacting the operation of the existing pump station. The final design was completed in nine months and on-schedule.

Southern Delivery System | Colorado Springs Utilities | Colorado Springs, Colorado | Pump Station Senior Adviser

Colorado Springs Utilities implemented 78-MGD water conveyance project consisting of three pump stations, pipeline, and a water treatment plant. Tino was originally assigned as a pump station design and construction specialist, but the client requested that he extend his services from design review to factory inspection, construction inspection, and energy optimization adviser.

South River and North Notomas Pump Station | Sacramento Regional County Sanitation District | Sacramento County, California | Mechanical Discipline Director/Pump Station Design Specialist

As a member of the Program Management Team, Tino managed a group of design consultants and pump station design specialists. The project included design and construction of gravity interceptors, two pump stations, and gravity mains. In addition, he served as pump station design specialist for the design and construction of the two largest pump stations in the Sacramento Regional County Sanitation District system (the South River Pump Station at 221 mgd and the New Natomas Pump Station at 168 mgd).

SDS Pipeline and Pump Station Project | Colorado Springs Utilities | Colorado Springs, Colorado | Senior Pump Station Advisor and Quality Reviewer

Stantec provided program management service to Colorado Springs Utilities. Tino provided technical advice and performed periodic review to the team pertaining to pump station design. The project consisted of conveyance pipeline, three vertical turbine type pump stations and a water treatment plant design for 100 mgd. During construction, the client asked Tino to provide extended services from manufacturing factory inspection, field inspection, startup, and commissioning and energy optimization.

Pump Station Rehabilitation Manager | City of Los Angeles Wastewater Program Management | Los Angeles, California | Technical Manager

The $5 billion citywide wastewater improvement and expansion program included expansion of the Hyperion WWTP to full secondary and solids handling/energy recovery systems, improvements to LA/Glendale, Tillman, and Terminal Island WWTPs, large sewer interceptor rehabilitation and expansion, and rehabilitation of 55 sewer pump stations. Tino was responsible for developing project implementation guidelines and standard construction specifications, updating the City's sewer design manual, developing the City's pumping station design manual, managing the development of the City's Master Specification and Program Implementation Guidelines, conducting project management training seminars, and serving as project coordinator for the raw sewer pumping station rehabilitation and expansions. He also provided technical assistance and guidance to city engineering staff and other consultants during the design of the raw sewage pumping stations to implement consistent design and reliability criteria throughout all of the pumping stations. Tino further assisted with the design of Dakota PS and reviewed the design for the pumping stations in the harbor area.

Lower Tualatin Pump Station | Clean Water Services | Tualatin, Oregon | Mechanical Quality Reviewer

CWS implemented a project to design and construct a new 22-MGD raw sewage pump station. The pump station was to replace the existing river crossing siphon, lifting flow from the existing gravity sewer and discharging it to the gravity sewer interceptor near the wastewater treatment plant. Tino was responsible for quality reviews and providing direction on pump station design criteria. Stantec prepared a dynamic flow simulation study to optimize the pump station capacity of 22 MGD and establish the exceedence flow where the pumps should operate 90% of the time during the near-term planning period. The pumps were sized for the exceedence flow and head near the best efficiency point. The pump station infrastructure was also designed for an ultimate flow of 28 MGD by replacing the pump impellers. A total of five submersible pumps, 135 HP each with variable frequency drive were used.



# Michael Georgalas PE

Fluid Transient Analyst
28 years of experience · Tucson, Arizona

Mike has extensive experience in conducting fluid transient analysis studies, as well as mitigation design for both existing and new water and wastewater systems. He represents a unique blend of practical design and computer simulation expertise. With more than 25 years of experience in conducting modeling assignments and water, and wastewater conveyance system design, Mike's proposed solutions are practical and constructible. He has completed more than 140 hydraulic transient (water hammer) projects at locations throughout North America. These projects included analyzing existing and proposed systems to quantify the magnitude of potential pressures that could be experienced under various transient inducing events and recommending measures to eliminate, or mitigate, the transient pressures. Potential mitigation measures can include both operational and design recommendations. Operational measures include recommending the sequencing and timing of pump start-ups and shut-downs, as well as recommending times for valve closures. Design recommendations include assisting in determining the type and pressure class of pipe to be used in a project, specifying appropriate check, air release, vacuum, surge anticipating, pressure relief, and combination valves, and sizing air chambers. Mike has constructed transient models using Pipe 2010: Surge by KYPipe, AFT Impulse by Applied Flow Technology, InfoSurge by Innovyze, and HAMMER by Bentley Systems.

## EDUCATION

BS, Civil Engineering, University of Arizona, Tucson, Arizona, 1991

## REGISTRATIONS

Professional Engineer #33988, State of Arizona

Professional Engineer #12231961-2202, State of Utah

Professional Engineer #PE-19391, State of Hawaii

Professional Engineer #028959, State of Nevada

Professional Engineer #25245, State of New Mexico

## PROJECT EXPERIENCE

Master Plan | City of Columbus | Columbus, Ohio | Transient Analyst

Stantec assisted the City of Columbus with updates to their existing hydraulic distribution model and worked with the City of Columbus to develop and update portions of their CIP Master Planning. Stantec is completing a hydraulic transient analysis on four of the city's pump stations, the largest of which has a 90 MGD capacity, to determine transient pressures within the service districts served by each pump station. Mike is leading the transient analysis effort which includes preparation of a hydraulic transient analysis modeling plan. The modeling plan indicated the skeletonization of the water transmission and distribution system performed to construct the model for the hydraulic transient analysis, the boundary conditions to be used in the analysis, listed the performance criteria for the system, indicated the equipment settings to be used in the model, identified flow scenarios to be modeled, and identified the transient analysis scenarios that will be completed.

Joliet Alternative Water Source Program (AWSP) Preliminary Engineering | City of Joliet | Joliet, Illinois | Transient Analyst

The AWSP involves planning, design, and construction of a new water source for the City of Joliet. The new water source will be from Lake Michigan and water will be purchased from the City of Chicago's Southwest Pumping Station site. The AWSP includes planning pumping facilities and transmission mains to convey up to 106 MGD of finished water to the City of Joliet and partnering communities. These facilities include the High Service Pump Station (HSPS) at the Chicago Connection Facilities site, two intermediate pump stations (IPS) with standpipes, and approximately 260,000 feet of 66-inch to 24-inch transmission main. Mike completed a hydraulic transient analysis to identify surge mitigation measures needed at the HSPS. Initial transient analysis results identified the air chamber volume required to maintain 20 psi within the transmission main after a power failure at the HSPS was not practical given site constraints. Factors driving the very large air chamber volume included the minimum 20 psi surge pressure requirement and the high point in the transmission main profile. The revised alignment, along with reducing the minimum allowable transient pressure after a pump trip event from 20 psi to 0 psi and adjusting the location of the first IPS, reduced the air chamber volume required at the HSPS from 580,000 gallons to 122,000 gallons, which the site could accommodate.

Safe Pipeline Entry Evaluation for Regional Water System | San Francisco Public Utilities Commission (SFPUC) | San Francisco, California | Hydraulics Lead

Between 2021 and 2026, SFPUC plans to remove from service approximately 30 segments of transmission pipelines in the Regional Water System (RWS) between the Irvington Portal in Fremont and the City Distribution Division system. Services provided included estimating potential surge pressures at the isolation points of the pipeline segments and assessing whether the calculated potential surge pressures are less than the rated capacity of the isolation valves. Mike completed the hydraulic transient analysis for outages in the Bay Division portion of the RWS, which consists of 60-inch to 126-inch diameter pipelines, using Innovyze InfoSurge transient analysis software.

Friant-Kern Canal (KFC) Middle Reach Capacity Correction Project Phase 1: Teapot Dome Replacement Pump Station | Friant Water Authority | Linday, California | Transient Analyst

This project reestablishes minimum and maximum canal water surface elevations that are higher than the current typical operational water surface elevations in the existing FKC. The irrigation district's distribution systems served by the existing FKC Middle Reach have likely subsided different amounts over time than the FKC. It was determined to replace these existing pump stations with new pump stations designed to operate within the new canal's hydraulic conditions. Mike evaluated hydraulic transient conditions at the existing and replacement Teapot Dome PS and recommended surge mitigation measures that resulted in transient pressures along the existing 33-inch reinforced concrete pipe pipeline that are similar to existing conditions. Recommendations included installing an air chamber at the replacement Teapot Dome PS with a minimum volume of 15,261 gallons, evaluating the condition of the existing 20,000 gallon air chamber and the possibility of relocating and rehabilitating the air chamber to use at the replacement PS, and installing non-slam check valves at the replacement Teapot Dome PS.

Rosemont Well Water Distribution System (WFDS) and Fresh Water Delivery System (FWDS) | Rosemont Copper | Sahuarita, Arizona | Hydraulics Lead

Mike completed hydraulic and transient analyses for water system to deliver a continuous supply of operating water to the Rosemont Copper Mine. Hydraulic analysis was used to determine booster station pump head requirements, limits of steel and HDPE piping, and where to change dimension ratio of HDPE pipe. The transient analysis included recommending installation of 4,000-gallon surge tanks at each of the pump stations to prevent the occurrence of column separation and limit maximum pressure to less than 450 psi within the pipeline reaches.

Contract C1528 Rome 2745 Reservoir, 2975 Zone Pumping Station, and 2975-2680 Zone PRV | Las Vegas Valley Water District | Las Vegas, Nevada | Transient Analysis Senior Review

This project includes the construction of the Rome 2745 Zone Reservoir, the Rome 2975 Zone Pumping Station (PS), the 2975-2860 Zone Pressure Reducing Valve (PRV) station, and a groundwater production well. The PS has a 28-million gallon per day (MGD) capacity, transfers water from the 2745 Pressure Zone to the existing Elkhorn 2975 Zone Reservoir, and includes with five constant speed 600 hp pumps. A hydraulic transient analysis was performed to determine the possible pressure transients and recommend mitigation measures at the PS. The initial design included 20" ball valves on the pump discharge laterals that would function as both pump control valves as well as check valves and an air chamber connected to the pump station discharge header. However, closing the pump control valves quickly enough after a power failure event at the PS was challenging due to the rapid reversal of the water column from the air chamber. Michael reviewed the transient analysis and recommended the installation of non-slam check valves on the pump discharge laterals in addition to the pump control valves, reviewing distribution system transient pressures, and using a throttled air chamber to limit the maximum transient pressures within the distribution system to 105 psi. A throttled air chamber freely allows flow out of the air chamber but restricts flow into the air chamber. Final recommendations included installing a 24,000 gallon throttled air chamber at the pump station, using a normal opening and closing time of 53 seconds for the pump control valves, and installing non-slam check valves along with the pump control valves on the pump discharge laterals.

Water Resource Centralization Project (WRCP) | Parker Water and Sanitation District | Parker, Colorado | Hydraulics Lead

Mike performed hydraulic and transient analyses related to the design of facilities and infrastructure to centralize treatment operations at two locations. Hydraulic and transient analyses were performed for two groundwater raw water conveyance systems, as well as a finished water conveyance system, to determine the size and pressure class of system piping, pump head requirements, and recommended surge mitigation measures. The finished water conveyance system included modeling a 5.5-MGD pumping station, a 12-MGD booster pumping station, and 25,000 linear feet of 36-inch transmission main. Recommendations comprised installation of a 3,000-gallon surge tank on the discharge of the 5.5-MGD pumping station and a 3,000-gallon suction/5,000-gallon discharge surge tanks at the 12-MGD booster pumping station.



# Tim Ayvaz PE

Senior Mechanical Engineer
22 years of experience · Denver, Colorado

As one of Stantec's accomplished pump station project leaders, Tim brings 22 years of engineering and design management experience. His unique blend of previous work experience with a pump manufacturer gives him a high-level understanding of pump construction, performance and installation requirements. Tim has led complex and technically challenging pump station projects design projects.

## EDUCATION

MBA, University of Houston, Central Campus, Houston, TX, 2007

BS, Mechanical Engineering, Texas A&M University, College Station, TX, 1998

## CERTIFICATIONS & TRAINING

Water Hammer Modeling, Applied Flow Technology (AFT), Denver, Colorado, 2017

## REGISTRATIONS

Professional Engineer #130889, Texas Board of Professional Engineers and Land Surveyors, 2018-2022

Professional Engineer #32022, California Board for Professional Engineers, Land Surveyors, and Geologists, 2002 to Present

Registered Engineer #40139, Colorado Department of Regulatory Agencies, 2006-2021

## PROJECT EXPERIENCE

NAWS - Snake Creek Pumping Plant Pipeline and Modifications | Houston Engineering, Inc | Coleharbor, North Dakota | Project Technical Lead

Tim served as the project technical lead for the design of a 24.5 MGD pump station rehab at an existing United States Bureau of Reclamation, lake intake pumping facility. The project involved removal of an existing 8,000 axial flow pump and replacing it with four high pressure (TDH of 510 ft) vertical turbine pumps to convey water to a WTP 15 miles away. Tim was responsible for ensuring the design team followed the overall design process, and he was also responsible for the overall quality of the design. The pumping station included many challenges related to space constraints of working in an existing building that was 50 years old. During the detailed design, Tim applied his technical expertise to various design elements of the pump station including pump sizing, selection and layout.

Ralston Raw Water Pump Station and Pipeline | City of Arvada | Arvada, Colorado | Project Technical Lead

Tim served as the Project Technical Lead for the design of a new 12 MGD raw water pump station for the City of Arvada, Colorado with an extremely aggressive design and construction schedule. Tim was responsible for the overall quality of the design and guiding the design team through the detailed design process. Tim sized the pumps and surge suppression system for the pump station. The station included four 200 HP Horizontal Split Case Pumps and a 3000 gallons surge suppression pressure vessel. Tim also facilitated an equipment selection workshop with the Client to provide the best value equipment selection.

PAR 1312 - Lift Station Fixed Asset Replacement | Metro Wastewater Reclamation District | Denver, Colorado | Project Technical Lead

Tim served as the project technical lead for the design of a 24 MGD wastewater lift station, and we responsible for ensuring the design team followed the overall design process. Tim was also responsible for the overall quality of the design. The lift station included may challenges, including construction in a floodway, high ground water and a requirement that the existing lift station needed to remain in service and operational throughout the design, construction and commissioning. During the detailed design, Tim applied his technical expertise to various design elements of the pump station including pump sizing and selection. Tim also facilitated an equipment selection workshop to provide the best value to the Client.

Prairie Waters Project | City of Aurora | Aurora, Colorado | Senior Mechanical Engineer

Stantec provided planning, design and engineering services during construction for five of the 12 design packages on the $160M, 50-MGD raw water delivery system, that included 34 miles of 60-in-diameter welded steel raw water conveyance piping, more than 11 miles of potable water piping with diameters up to 60-in and 18 trenchless crossings (pipeline tunnels) with casing diameters up to 84 in. Stantec also provided startup/ commission services and provided systems-wide integration and optimization to integrate into Aurora Water's existing water system. Additionally, Stantec engaged in several data gathering activities, including geotechnical investigations; surveying, mapping, and utility identification; and environmental review. The project involved 3 pump stations utilizing 1,250 HP horizontal split-case type pumps to convey 50 MGD raw water in a 32-mile pipeline from a South Platte River diversion to a terminal reservoir and water purification facility. As senior mechanical engineer, Tim developed mechanical construction documents including drawings and specifications.

East Baton Rouge South WWTP Trickling Filter Effluent Pump Station | City/Parish of East Baton Rouge | Baton Rouge, Louisiana | Project Mechanical Engineer

Tim developed mechanical construction documents associated with a 10-vertical turbine pump station at the Baton Rouge Treatment Plant. His responsibilities included sizing of pumps, piping, wet well layout, and working with vendors during the bidding and procurement phases. The project included a new recirculation pump station with electrical building capable of handling a flow of 119 MGD, effluent pipelines, yard piping and structures for final settling tank influent interconnectivity, and installation of a second chamber trickling filter effluent pump station with a range of 15 MGD to 119 MGD capacity.

Neighborhood Oriented Sewer Improvement Program | City of Houston, TX | Houston, Texas | Task Manager

Tim performed field inspections at 60 lift stations, verified station hydraulics, performed condition assessments, and completed scoping capital improvement projects. He then managed a team of engineers to inspect 220 lift stations. Inspections included a comprehensive pump performance test to establish pump and system curve hydraulics, mechanical evaluation of piping and valves, visual observation of upstream and downstream collection systems, and analysis of each station's performance during wet weather events. Conclusions from the inspection were used to develop capital improvement projects for the City of Houston's Public Works Department.

Weir Floway Pumps (OEM) | Weir Floway Pumps | Fresno, California | Project Engineer

Tim’s responsibilities include working with clients and their specifications to accurately size vertical turbine pumps and develop equipment cost estimates to supply pumps, develop bill of materials and fabrication drawings, worked with manufacturing to resolve an issues that occurred during fabrication, personally reviewed and signed off on pump factory acceptance criteria. Additional accomplishments include: development of excel based datasheet to reduce the time required for the Sales Department to provide quotations; selected to represent engineering, and provide engineering input at the weekly quality control meetings



# Sean Neprud PE, LEED AP

Process and Mechanical Project Engineer
20 years of experience · Pasadena, California

Sean is a mechanical engineer with 20 years of experience in water and wastewater treatment, mechanical electrical and plumbing (MEP), and decorative water features. He brings 13 years of experience servicing the water and utilities sector in the Western US, and several years of experience engineering and managing decorative water feature projects internationally. Sean is also knowledgeable on a variety of infrastructure elements, including pumping and piping systems, emergency power generators, compressed air, fire protection, electrical power distribution systems, chemical storage and delivery, control systems, and instrumentation. As a project manager, he is experienced in all stages of traditional and creative engineering projects, including engineering, construction management and coordination, production, startup and commissioning, and project closeout.

## EDUCATION

BA Studio Art, University of California, Santa Cruz, Santa Cruz, California, 2000

BS Engineering, University Of California, Berkeley, Berkeley, California, 2003

## REGISTRATIONS

Professional Engineer #M 33458, California Board for Professional Engineers, Land Surveyors, and Geologists

LEED Accredited Professional, Green Building Certification Institute

## PROJECT EXPERIENCE

Friant-Kern Canal Middle Reach Capacity and Subsidence Correction Project | Friant Water Authority & U.S. Bureau of Reclamation | Bakersfield, California | Process Mechanical Engineer

Sean was lead mechanical engineer for five irrigation pump stations with pumps varying in size from 250 horsepower vertical turbine pumps to 10 horsepower mixed-flow pumps. The total combined capacity of the pump stations is over 66 MGD and the total combined Horsepower is 1,300 HP. The purpose of this project was to correct loss of capacity due to subsidence in the ground levels, and the design incorporated ways to accommodate for future subsidence that may occur in the area. The pump stations also include an air over water surge tank for surge mitigation and mechanical travelling screens.

Yosemite Valley Pump Station Upgrade | National Park Service | Yosemite, California | Mechanical Engineer

Sean performed mechanical engineering for sewer pump stations and a backup emergency power generator at Yosemite Village, Curry Village, and Housekeeping Camp in Yosemite Valley. The pump stations consisted of submersible non-clog sewage pumps ranging in size from 40 horsepower to 5 horsepower, and also included sewage grinders and odor control. These lift stations pump through over a mile and a half of force main and convey over half of the sewage flow through Yosemite Valley.

San Fernando Basin Groundwater Remediation, Design-Build | Los Angeles Department of Water & Power | Los Angeles, California | Process Mechanical Engineer

Sean was a mechanical lead for remediation and modifications of 17 groundwater pumping stations. He served as the mechanical process engineer for two treatment sites that use Granular Activated Carbon filtration and UV/Advanced Oxidation Process treatment for groundwater. The project includes large GAC filtration pressure vessels, pre-treatment mechanical filters, and ultraviolet reactors. Sean was heavily involved in designing several pump stations at the two sites, including a waste pump system and a recirculation system for processing water. This design work also included mechanical modifications at 17 groundwater pumping sites. Sean also worked directly on chemical storage and delivery systems for peroxide, ammonia, and fluoride. During the Construction phase of the project, Sean was the primary Engineering contact and technical coordinator for Engineering Services during the construction of the two facilities.

Chlorine Storage and Scrubbing Facility Retrofit | Calleguas Municipal Water District | Thousand Oaks, California | Project Engineer and Mechanical Engineer

Sean was responsible for the retrofit of a chlorine storage and emergency scrubbing system at a water treatment facility. As project engineer, Sean provided project coordination, on-time delivery of project deliverables, and coordination of services through project completion. As mechanical engineer, he designed a dry-media chlorine scrubbing system to replace an existing wet chlorine scrubber that included forced air systems, ventilation, and emergency containment systems for a chlorine storage facility.

Delhi Pump Station Flow Meter Calibration | City of Santa Ana | Newport Beach, California | Process Mechanical Engineer

Sean developed a plan to test and calibrate the flow meter at a wet weather storm water diversion pump station using a volumetric approach to measuring and verifying the performance of the pump station. He coordinated with the City of Newport Beach and other consultants to execute the pump station testing and data acquisition, and oversaw all field work. Sean performed the calculations and error analysis required to show that the pump station and flow meter operated as required.

Jamieson Canyon Water Treatment Plant Improvements | City of Napa | Napa, California | Mechanical Engineer and Construction Coordinator

This $38 million project expanded an existing water treatment plant. Sean engineered plant water and emergency fire pump stations, building mechanical and plumbing systems, laboratory facilities, and process facilities for ozone treatment. He was the lead coordinator of the engineering services provided during construction, including cross-discipline coordination, shop drawing, RFI review, and record drawing production.

City of Santa Ana PFAS Water Treatment Plant Well No. 40 | Orange County Water District | Santa Ana, California | Process Mechanical Engineer

Sean was the process mechanical engineer for a well booster pump and PFAS treatment system that used ion exchange pressure vessels to remove contaminants. This project also included the design of a pre-treatment cartridge filtration and mechanical modifications to an existing groundwater well pump station.

City of Santa Ana PFAS Water Treatment Plant Well 38 | Orange County Water District | Santa Ana, California | Process Mechanical Engineer

Sean was the process mechanical engineer for a well booster pump station and PFAS treatment system that used ion exchange pressure vessels to remove contaminants. This project also included the design of a pre-treatment cartridge filtration, mechanical modifications to an existing groundwater well pump station, and a hypochlorite generation and feed chemical system.

Long Beach Municipal Urban Stormwater Treatment | City of Long Beach | Long Beach, California | Process Mechanical Engineer

Sean was the lead process mechanical engineer for this treatment facility for urban runoff stormwater. This project included mechanical engineering for the installation of Continuous Ultra Filtration (CUF) and photo-catalytic treatment equipment. In addition to those treatment systems, the project includes booster pumps and a treated water pump station, media filters, and chemical storage and dosing equipment.

Chambers Creek Regional Wastewater Treatment Plant Expansion | Pierce County | Tacoma, Washington | Mechanical Engineer

Sean performed mechanical engineering for a 45 MGD Wastewater facility. This work included for process and non-process areas, including ventilation and other utility services for process mechanical wastewater equipment.

The Vortex at Jewel Changi Airport | Changi Airport | Singapore | Mechanical and Electrical Engineering

Sean engineered the mechanical, electrical, and instrumentation systems for a 10,000 gallon per minute indoor waterfall architectural feature. The design included five pump stations with mechanical piping systems coordinated with an intricate Architectural structure. Sean provided mechanical and electrical engineering services for all pumping plants, water feature controls, lighting, and electrical services for the equipment.



# Savvas Savvas PE, LEED AP

Building and Mechanical Lead
36 years of experience · Cleveland, Ohio

Savvas has 36 years of experience in HVAC/plumbing/fire protection system design for commercial and industrial facilities. He has designed building mechanical services for water and wastewater treatment plants, hospitals, hotels, and high-rise buildings, with responsibilities encompassing 3D building mechanical modeling, value engineering, feasibility studies, energy modeling and analysis, and energy conservation studies. As a discipline lead, Savvas also performs quality assurance reviews for Stantec's building mechanical services discipline (BMSD) designs, provides oversight of discipline standards, maintains practice guides, and coordinates software licensing. He is responsible for the control of the BMSD's intellectual property, design tools, and software applications, including the coordination of advancement and staff training.

## EDUCATION

BS/BSc, Mechanical Engineering, Southern Illinois University, 1982

MS, Mechanical Engineering, Fairleigh Dickinson University, Teaneck, New Jersey, 1985

## REGISTRATIONS

Professional Engineer #88293, Texas

Professional Engineer #88293, Ohio

LEED Accredited Professional, U.S. Green Building Council

## PROJECT EXPERIENCE

Long Beach Municipal Urban Stormwater Treatment (LB MUST) | City of Long Beach | Long Beach, California | Discipline Lead

Savvas led the design of the building mechanical services for the LB-MUST. The LB-MUST is a an ambitious, comprehensive, and innovative project that will intercept non-stormwater runoff and a percentage of the first-flush storm flows generated within the City of Long Beach urban watershed prior to discharging to existing storm drain outfalls flowing into the Los Angeles River. The City of Long Beach is a highly-urbanized municipality and the dry weather and stormwater runoff generated within the City of Long Beach is collected through a complex system of underground storm drains, through which approximately 75% of the entire city watershed areas (12,634 acres) discharge to the LA River. The proposed LB-MUST facility will assist in the compliance with the MS4 permit requirements and potentially provide the opportunity as a source for alternative water supply in the future. The intercepted flows from different locations within the city urban watersheds will be collected and diverted to a centralized downstream advanced treatment facility and storage pond.

Corona Del Mar Water Treatment Plant Phase II Upgrades and Modifications | City of Goleta | Goleta, California | Supervising Engineer

Savvas served as Supervising Engineer and oversaw construction and QA/QC of the HVAC, plumbing, and fire protection system for the Corona del Mar Water Treatment Plant Upgrades and Modifications Project. This project involved 13,200 square feet of vertical construction for design-build upgrades and modifications to a 35-year-old, 36-MGD water treatment plant. Work included a multi-purpose, 9,100-square-foot laboratory/administration-office/control building (targeting LEED®-Gold certification); a maintenance building; a generator building; and demolition and construction of a new chemical building.

Aurora Conveyance System Pump Station | City of Aurora | Aurora, Colorado | Lead HVAC Engineer

Savvas completed the design in 3D for three pump stations and a maintenance facility. The design included sustainable HVAC systems with evaporative cooling with gas fired heat for the pump stations, and refrigerant cooling systems with gas fired heat for the electrical and control rooms. The design also included direct digital temperature controls, plumbing, and fire protection. Each pump station has 9,000 square feet of floor area and is 50 feet high. The maintenance facility has 8,000 square feet of floor area and is 20 feet high.

Utah Lake Pump Station Replacement Project | City of Salt Lake City | Salt Lake City, Utah | Lead Mechanical Engineer

The new station was designed to pump up to 769 CFS of water from Utah Lake to the Jordan River to meet downstream water user needs. Stantec performed the structural, building mechanical, process mechanical and architectural design, computer modeling of the hydraulics, and the cost estimating. The HVAC design included evaporative cooling for the pump station, gas fired heat, and indoor self-contained air conditioning systems for the electrical room. The plumbing design included potable water design for the pump station and bathroom.

Lake Oswego Water Treatment Plant | City of Portland | Portland, Oregon | Lead Mechanical Engineer

Savvas led the design of building mechanical services for multiple new facilities at the Lake Oswego Water Treatment Plant. The HVAC design included a central geothermal system using plant water as the heat sink, with hydronic heat pumps for the cooling and heating needs of the plant. This system is estimated to generate energy savings and an associated greenhouse gas emission reduction of up to 35%. Classified areas where continuous ventilation is required were provided with energy recovery ventilators to reduce energy cost and pollution to the environment by up to 30%. A building management system provides operational energy savings to the extent of 20% and maintenance savings up to 25% while also enhancing indoor air quality and providing critical alarms.

Point of the Mountain Water Treatment Plant | City of Draper | Draper, Utah | Lead Mechanical Engineer

Savvas provided design for the air conditioning, hydronic heating system, ventilation, dehumidification, building management system, plumbing, and fire protection for an operations facility, a maintenance facility, a chemical building, a filter complex, flocculation basins, an ozone building, a pretreatment building, and a UV building.

Applied Medical Technologies Headquarters | Applied Medical Technologies | Brecksville, Ohio | Lead Mechanical Engineer

Savvas served as the lead mechanical engineer for the design of the HVAC systems for the AMT building. The facility is a 110,000 sf medical equipment manufacturing facility, and includes clean rooms, medical equipment manufacturing areas, warehouse areas, office areas, conference rooms, exercise areas, and server rooms. The HVAC equipment are using the variable refrigerant flow technology, which is estimated to generate energy savings and associated greenhouse gas (GHG) emission reduction to the extent of 15-20%. The manufacturing areas are designed to maintain 35% RH, and 70 °F at all times, and are provided with desiccant dehumidifiers, and 100% outside air conditioning units. The facility has been provided with a building management system that enhances indoor air quality, provides critical alarms and remedial actions, and provides operational energy savings to the extent of 15 - 20% and maintenance savings up to 25%.

North Shore Terminal Reservoir–Phase I | City of Salt Lake City | Salt Lake City, Utah | Lead Mechanical Engineer

Stantec completed the preliminary design and provided the final design for a new reservoir and a chlorine booster/maintenance building. The HVAC design included air conditioning for the office/storage area, heating/ventilation for a chemical room, and heating and ventilation for a generator room. The plumbing design included potable water, emergency showers design and sanitary drain design.

Hartford Water Pollution Control Facility | City of Harford | Hartford, Connecticut | Design Engineer

Savvas was the engineer for the design of the HVAC, plumbing, and fire protection system for the Air Pollution Control Upgrade Project at Hartford Water Pollution Control Facility. The project included heating and ventilation of explosive areas and temperature controls.

Afghanistan Infrastructure Needs Program | USAID | Afghanistan | Lead Mechanical Engineer

Savvas served as the lead building mechanical services Engineer for the design of the HVAC, and Plumbing systems for multiple government facilities in Afghanistan. The Afghanistan Infrastructure and Rehabilitation Program (IRP) are funded by the United States Agency for International Development (USAID) and are being implemented over a period of five years in partnership with the Islamic Republic of Afghanistan and the Afghan people.The program's overall aim is to spur Afghanistan’s economic recovery and political stability through the reconstruction, rehabilitation and development of important physical infrastructure throughout the country. IRP marks a new phase in the implementation of infrastructure projects in Afghanistan. In addition to physical infrastructure development, it includes institutional and capacity building components directed to strengthening the private and public sectors The design included hot water system for heating, natural ventilation, for cooling, solar panel domestic hot water generation, septic system for waste water treatment, rain water cistern collection system for irrigation, and well water UV disinfection.



# Nadarajan Sankaran PE

SCADA Design Package Lead
11 years of experience · Irvine, California

Nadarajan (Sanki) brings 11 years of experience for both design and construction of electrical, instrumentation and control (E, I&C) and supervisory control and data acquisition (SCADA) systems. He has provided effective engineering solutions for water and wastewater treatment plants, oil & gas, and mining sectors using both PLC and DCS platforms in the US and internationally. He has developed smart P&ID's, network architecture diagrams, loop diagrams and technical specifications including control philosophies, instrumentation data sheets and instrument schedules in addition to single line diagrams, control schematics, electrical plans and electrical specifications. Additionally, he has both Allen Bradley PLC and HMI programming, redundant SCADA server and historian data configuration experience.

## EDUCATION

BA, Business, University of Melbourne, Melbourne, Australia, 2009

MBS, Electrical Engineering, University of Melbourne, Melbourne, Australia, 2001

## REGISTRATIONS

Professional Engineer #0053254, Colorado

## PROJECT EXPERIENCE

Greeley Water Pollution Control Facility Blower Replacement | City of Greeley | Greeley, Colorado | Lead I&C Engineer

Sanki led the I&C design and commissioning of the upgrade of an existing aeration system to include an optimized automated control approach. Design included the integration of three new high-speed turbo (HST) blowers through the development of a consolidated control strategy for blower operation, while upgrading the end-of-life Allen-Bradley PLC hardware. Sanki witnessed factory acceptance testing of both hardware and software control system components and was solely responsible for on-site startup and commissioning, performing installation verification walk-downs, loop checks, process start-up and PID tuning, and operator training. Controlled processes included three 300-HP HST blowers, three K-Turbo blowers, two multistage blower skids, and four aeration basins.

Support Facilities Upgrade | City of Denver | Denver, Colorado | Lead I&C Engineer

Sanki was lead I&C engineer on the upgrade of the existing facility network infrastructure, including three facility buildings, and installing a new redundant data center. Design included upgrading the fiber network infrastructure to support a ring topology, coordinating the decommissioning of the existing data center and fiber network through detailed construction sequencing documents. Sanki developed the electrical cable tray layouts/isometrics, cable schedules, electrical plan drawings, and electrical specifications. He also designed a new CCTV intercom and access control system with integration into the plant-wide network.

Mesa Water Treatment Plant Upgrades Program Phase I | Colorado Springs Utilities | Colorado Springs, Colorado | Lead I&C Engineer

Sanki created P&IDs, specifications, instrument lists, network diagrams, datasheets, and technical memorandums, in addition managing and coordinating drawing production resources. Controlled processes included rapid mixing, flocculation, sedimentation, and chemical and polymer systems. The control system was exclusively based on the Rockwell product line, including Allen Bradley smart MCCs, Logix controllers, FactoryTalk HMI, and OSI PI historian with Ethernet/IP profibus field network.

Long Beach Municipal Urban Stormwater Treatment (LB MUST) | City of Long Beach | Long Beach, California | Lead I&C Engineer

Sanki recovered and reviewed vendor (Purifics) PLC and HMI programs for application according to the contract requirements. He incorporated network re-design changes to reflect the pre-procured vendor package and provided technical recommendations to the City to pursue actions for vendor contract non-conformance.

San Fernando Basin Groundwater Remediation Project | Los Angeles Department of Water & Power | Los Angeles, California | Lead I&C Engineer

Sanki is the lead I&C engineer on the Progressive Design Build (PDB) team for two treatment facilities within the San Fernando Basins (SFB). The facilities will treat contaminated groundwater from the Tujunga (TJ) and Rinaldi-Toluca (RT) Well Fields. The controlled processes include self-cleaning strainers, UV-AOP, Granular Activated Carbon (GAC), hydrogen peroxide, drain pumping station, liquid ammonium sulfate, and hydrofluorosilicic acid chemical systems.

Nuisance Struvite and Dewaterability Improvements PAR 1280 | Metro Wastewater Reclamation District | Denver, Colorado | Lead I&C Engineer

Sanki is leading the design of an AirPrex™ pre-dewatering phosphorus recovery system to sequester and recover phosphorus as struvite. The process reduces the phosphorus load recycled to the head of the plant, facilitating controlled precipitation of struvite to reduce the potential for nuisance accumulation within pipelines, and improve biosolids dewatering. Phase I included the pre-procurement of vendor blower and classifier packages and associated instrumentation. Phase II integrates the pre-procured packages to the existing DCS. Controlled processes include recovery reactor, aeration system, anti-foam, and magnesium chloride storage and dosing systems.

Sidestream Nutrient Removal Project PAR 1237 | Metro Wastewater Reclamation District | Denver, Colorado | Lead I&C Engineer

Sanki was lead I&C engineer on the upgrade of an existing facility involving enhanced biological phosphorus removal (EBPR) and de-ammonification (DMX) treatment. He created P&IDs and coordinated vendor designs, specifications, instrument lists, network diagrams, datasheets, and technical memoranda. Controlled processes included ANITAMox DMX reactors, EBPR, and chemical systems. Facility controls used an ABB DCS control system.

Cerro Verde Wastewater Treatment Plant | Freeport-McMoRan Inc. | Arequipa, Peru | I&C Envineer

Sanki was I&C engineer on the design and construction of a green-field treatment plant design consisting of two separate plant sites (Cerro Verde and Enlozada). The plant facilities were designed to treat predicted plant flow rates from 17 MGD to 108 MGD. Sanki coordinated and reviewed vendor packages, and created wiring diagrams, I/O lists, alarm lists, instrument index, and datasheets. He also provided on-site construction support, responding to RFIs and pre-commissioning activities, including loop testing and fieldbus communication check-outs. Sanki was part of the supervisory team during plant start-up and commissioning. Controlled processes included headworks facilities, lift stations, primary and secondary clarification, trickling filters, aeration basins, and solids handling facilities.

WTF Asia Pacific LNG | Origin Energy | Brisbane, Australia | Electrical and I&C Engineer

Sanki was involved in the detail design of the electrical and instrumentation aspects of two 40-MLd water treatment facilities for a Coal Seam Gas Extraction Plant. He assisted in the creation of P&IDs, instrument cable schedule, instrument index, cause and effect matrix, and datasheets. Sanki was responsible for the mass creation of wiring diagrams using AVEVA instrumentation software; attended FATs for switchrooms and Yokogawa DCS cabinets; and provided on-site construction support, performing construction verification walk downs and commissioning support. Sanki also designed electrical load schedules, cable schedules, and cable block diagrams. Controlled processes included microfiltration, ion exchange softening, reverse osmosis, brine reservoir management, and IX silica removal. Controls were based on the Yokogawa DCS offering.

Sustainable Water Infrastructure | City of Santa Monica, CA | Santa Monica, California | Owner's Representative I&C Engineer

Friant-Kern Canal (FKC) Middle Rach Capacity Correction Project Phase 1-Pump Station | Friant Water Authority | Bakersfield, California | Lead I&C Engineer

Sanki is leading the I&C effort on the new pump station design across five remote sites that draw water from the FKC via turnout structures. Each site consists of licensed Ethernet-based 900MHz radios and Schneider SCADApack PLCs that communicate back to a central base station. Sanki developed RFP language for the Authority-required contractors/suppliers (including the radio supplier, integrator, PLC supplier) and final contract plans and specifications. Controlled processes include cast-in-place concrete wet well with integrated traveling water screen, and a combination of constant and variable speed pumps.

32nd Booster Pump Station | Long Beach Water Department | Long Beach, California | Lead I&C Engineer

Sanki performed preliminary analysis of the existing legacy 9600 baud serial radio network with recommendations to upgrade to an Ethernet-based 900 MHz licensed radio system. Telemetry infrastructure included Microwave Data System (MDS) 900 MHz licensed radio network, Schneider Electric M340 processors, and an AVEVA (WonderWare) InTouch SCADA System. Sanki used peer-to-peer communications to network critical flow and pressure and pumping parameters to remotely monitor and control pump station operation.

CCWRF 12kV Backup Generator Control Circuit Improvements | Inland Empire Utilities Agency | Chino, California | Lead I&C Engineer

Sanki is upgrading the existing, relay-based Automatic Transfer Control system to a new, redundant PLC-based control system according to IEUA's Engineering Design Guidelines, while addressing Agency stakeholder concerns.



# Bruce Wong PE, PMP, ENV SP

Electrical Lead
18 years of experience · Pasadena, California

Bruce brings 18 years of experience in design of power and control systems for numerous process configurations, including water/wastewater treatment plants. His design expertise includes chemical delivery/containments systems, low-, medium-, and high-voltage power generation/distribution, hydropower generation, high-voltage sub station design, and indoor/outdoor lighting design. Recently, Bruce assisted in the detailed design of two processes for a 16-MGD water recycling plant in the pacific northwest. In Southern California, Bruce has most recently worked with the City of South Pasadena and the Metropolitan Water District of Southern California.

## EDUCATION

M.S. (Engineering Management), Cal Poly Pomona, Pomona, California, 2009

B.S. (Electrical Engineering), UCLA, Westwood, California, 2003

MBA, Cal Poly Pomona, Pomona, California, 2014

M.S. (Electrical Engineering), Cal Poly Pomona, Pomona, California, 2007

## REGISTRATIONS

Professional Engineer #E 18415, State of California

Professional Engineer #28468, State of Nevada

Professional Engineer #26166, State of New Mexico

Project Management Professional (PMP)® #1494856, Project Management Institute

## PROJECT EXPERIENCE

3-62: Westminster Boulevard Force Main Replacement Design | Orange County Sanitation District | Orange County, California | Electrical Engineer

Bruce served as the lead electrical engineer for the preliminary design of the rehabilitation of seal beach station. He designed the electrical room and generator room. Bruce sized the generator and fuel tank. He performed the design using AutoCAD and generated several electrical drawings including single line diagram, electrical room layout, and generator room layout.

Grand Avenue Well Equipping | Three Valleys Municipal Water District | Claremont, California | Electrical Engineer

Bruce worked as the electrical engineer adding the Manual Transfer Switch and POSILOCK connection box for the portable generator. The project consisted of adding electrical equipment (manual transfer switch, PSILOCK connection box, and sizing the portable suitable generator) and instrumentation equipment. He was responsible for coordinating with a subconsultant to update as-builts of the electrical drawings. Bruce assisted in reviewing shop drawings and answering RFIs. The project is currently in the construction phase.

16 MGD Industrial Water Recycling Facility | Client Confidential | Portland, Oregon | Assistant Project Engineer

Bruce assisted the on-site lead electrical engineer with the electrical design of the two processes for an industrial water recycling facility. The project was delivered through a design-build procurement method and Bruce helped develop single line diagrams, confirm cable/conductor sizes, review shop drawings, and answer RFIs.

Eielson Air Force Base Water Treatment Plant | Air Force Civil Engineering Center | Eielson, Alaska | Electrical Engineer

Bruce designed the electrical system for expansion of water treatment plant. The electrical site plan, single line diagram, control schematic, panelboard schedule, and equipment elevation were created using Micro station.

Treatment Plant No. 2, Headworks Modification Project | Orange County Sanitation District | Fountain Valley, California | Lead Electrical Engineer

Bruce designed power distribution system for additional separation gate and sump pump system. He assisted in the development of single line diagrams, confirming cable/conductor sizes, creating a cable/conduit schedule, reviewing shop drawings, and answering RFIs. The project is currently in the construction phase.

Plant No. 1 and 2 Consolidated Demo and Utility Improvements | Orange County Sanitation District | Orange County, California | Electrical Engineer

Bruce assisted with the design of lighting plan and lighting schedule for this project. In addition, he performed the final back check on the electrical and I&C drawings. Bruce reviewed the submittals and shop drawings, and answered RFIs.

Long Beach Municipal Urban Stormwater Treatment | City of Long Beach | Long Beach, California | Lead Electrical Engineer

Bruce helped develop single line diagrams, the electrical site, control diagram, confirmed cable/conductor sizes, reviewed shop drawings, and answered RFIs. The project is currently in the construction phase.

Bogert Trail Sewer Lift Station | City of Palm Springs | Palm Springs, California | Lead Electrical Engineer

Bruce designed the distribution power system for the lift station. The project consisted of designing the main service pedestal with utility meter and main breakers and power panel, surge protective device, and step down transformer. A panelboard schedule, light fixture schedule, and conduit schedule were created.

Unit 8 Second Gap Connection Pipeline | City of Los Angeles, Department of Water and Power | Los Angeles, California | Lead Electrical Engineer

Bruce served as the lead electrical engineer for the design of the Pipeline Project. He designed the new 240/120V power distribution system for valve position transmitter, flow meter, exhaust fan, intrusion alarm, and lighting.

Transmission and Distribution Substations | Confidential Client | Pomona, California | Cost Estimator

Bruce worked at SCE Pomona Campus interpreting transmission & distribution substation project plans and drawings and translating completed estimates into reports. He also prepared interest expense and depreciation calculations, and other internal output reports based on existing estimates to close out projects.

Digester Gas Augmentation Fog Inlet Modifications | City of Las Vegas | Las Vegas, Nevada | Lead Electrical Engineer

Bruce redesigned the power distribution system by adding two additional pump with power protection. The designed is performed using Micro Station and electrical site plan, single line diagram, control schematic, conduit development, and conduit schedule were created.

Water Treatment Plant Mods ISC Kodiak | US Coast Guard | Kodiak, Alaska | Lead Electrical Engineer

Bruce performed electrical design on the Soda Ash System. In addition, he re-designed the power distribution system for the 559 pump house and N23 treatment plant.

City of Santa Ana Well 40 | Orange County Water District | Santa Ana, California | Electrical Engineer

Bruce worked as the electrical engineer adding the Automatic Transfer Switch (ATS), emergency standby generator, and soft starter for the booster pump. The project consists of adding electrical equipment (automatic transfer switch, sizing the emergency standby generator, and soft starter) and instrumentation equipment. He was responsible for coordinating with a subconsultant to update as-builts of the electrical drawings. Bruce assisted in reviewing shop drawings and answering RFIs. The project is currently in the construction phase.

City of Santa Ana Well 38 | Orange County Water District | Santa Ana, California | Electrical Engineer

Bruce worked as the electrical engineer for re-design of the electrical distribution system. It included replacing the switchboard, motor control center, VFDs, and adding onsite hypochlorite generation system and soft starter for booster pump. The project consisted of developing the electrical site plan, one line diagram, grounding plan, conduit & cable schedule, duct bank design, and control diagram.

Graves Reservoir Replacement Project | City of South Pasadena | San Marino, California | Lead Project Electrical Engineer

Bruce designed electrical system for Graves reservoir replacement project. The projected was completed by using AutoCAD and the electrical site plan, single line diagram, and conduit schedule were generated for this project. Bruce also coordinated with Southern California Edison (SCE) for upgrading existing power service.



# Simon Lin Ph.D., PE, SE

Civil/Structural Engineering Team Lead
19 years of experience · Pasadena, California

With 19 years of national and international experience as a civil/structural engineer, Simon has a strong structural analysis background with hands-on structural design and project management experience. His professional expertise includes water delivery facilities, earthquake engineering, seismic retrofit and design, and applications of advanced technologies.

## EDUCATION

Bachelor of Science, Northwestern Polytechnic University, Engineering Mechanics (Aerospace), Xi'an, China, 1989

Master of Science, Mechanical Engineering, Fuzhou University, China, 1992

Doctor of Philosophy, Civil/Structural Engineering, University of California, Irvine, Irvine, California, 2003

## REGISTRATIONS

Disaster Service Worker (DSW) Volunteer #SAP 64451, State of California

Licensed Structural Engineer #S5911, State of California

Registered Civil Engineer #C73920, State of California

## PROJECT EXPERIENCE

San Fernando Groundwater Remediation Project Tujunga Central Treatment Facility and North Hollywood Central Treatment Facility | Los Angeles Department of Water & Power | North Hollywood & Tujunga, California | Structural Engineer Lead /SEOR
Simon is involved in the progressive design build project for two treatment facilities within the San Fernando Basin, including Tujunga site and North Hollywood site. Both sites are similar and consist of a UV AOP building, Granular Activated Carbon (GAC) vessels, peroxide facility, pretreatment and back wash waste tank. Simon is leading design and constructability for all structural-related components and providing expert recommendations to the project team and the Department's considering a reasonable construction cost.

Seal Beach Pumping Upgrade and Rehabilitation Project No.3-62 | Orange County Sanitation District | Seal Beach, California | Lead Structural Engineer
Simon worked on this project as lead structural engineer. This project included the rehabilitation of the Seal Beach pump station and Westminster Boulevard force main replacement.

Los Angeles River and Arroyo Seco Low Flow Diversion Project (TOS-14) | Los Angeles Bureau of Engineering | Los Angeles, California | Structural Engineer Lead/EOR
Simon is involved in the LABOE project of five low flow diversion system. The project will divert dry-weather flow from prioritized stormwater outfalls to sanitary sewers for treatment at Hyperion Water Reclamation Plant. Project construction consists of storm drain diversion structures with weirs and pipelines, trash collection maintenance holes, pump stations, discharge pipes, pressurized pipes, valve and meter vaults, and power supplies for pump stations. Simon oversees structural design and repair, as well as constructability for all structural components of system.

Basins 2 and 3 Collection System Improvements | City of San Mateo | San Mateo, California | Structural Engineer
Simon has been working this project as one of key structural engineers. The improvements in Basins 2 & 3 of collection system include: Install a new minimum 4.2 MG in-system flow equalization storage facility, including associated pumping and odor control; Upgrade /expand 3 existing pump stations, including expansion of the firm pumping capacity to meet peak wet weather flows, rehabilitation of wet wells, and upgrading of piping and electrical systems; Install approximately 6 miles of new parallel and upsized gravity sewers and force mains, ranging in size from 8inches to 48 inches, and provide rehabilitation of some force mains.

Santa Monica Sustainable Water Infrastructure Project (SWIP) | City of Santa Monica | Santa Monica, California | Lead Structural Peer Reviewer
Simon is involved in the large progressive design build project of SWIP for the City of Santa Monica. The project includes four key components as follows: Santa Monica Urban Runoff Recycling Facility upgrades for reverse osmosis and ultra-violet treatment system; Memorial Park stormwater harvesting system; Civic Center stormwater harvesting system; and the advanced water treatment facility. Simon's role is to review the structural design and constructability for all structural related components, and also provide expert recommendations to the design team and the City considering a reasonable construction cost.

World Logistics Center Project – Pump/Lift Stations and Reservoir Design | Moreno Valley, California | Structural Lead
Simon is working at all related structural design, including one 2.5MG steel reservoir and pump/lift station building.

Palmdale Regional Water Augmentation Program – Advanced Water Treatment Demonstration Facility Building | Palmdale, California | Structural Lead
Simon has been working on the pre-engineered steel building for demo facility, and as well as all related structural design.

Structural Assessment of Activated Sludge Selectors and Aeration Basins | Valley Sanitary District | Indio, California | Lead Structural Engineer
Simon served as a lead structural engineer for this project that included structural assessments of the existing Activated Sludge Selectors and Aeration Basins. A condition assessment, using visual observations and non-destructive testing, was performed for the existing concrete basins (selectors, aeration basins), safety railing, and concrete bridge above aeration tanks. The final technical memorandum summarizes the findings and recommendations, as well as an AACE concept level cost estimate for the recommended repair approach.

Seismic Retrofit, Water Quality Control Plant | City of Simi Valley | Principal Structural Engineer
Simon was responsible for this seismic retrofit design of six, 1970s-era buildings located at the Water Quality Control Plant. Each structure required seismic upgrades to provide adequate masonry wall anchorage to the flexible wood roof diaphragm and to provide a complete load path to distribute wall forces into the roof diaphragms. Coordination of demolition, architectural ceiling repairs, and other nonstructural components were provided to help the City prepare a general contractor RFP for the proposed upgrades.

Structural Evaluation El Estero Wastewater Treatment Plant | City of Santa Barbara | Santa Barbara, California | Project Manager
Simon addressed structural and corrosion engineering assessment and evaluation of the existing 1970s-era concrete process structures, support, and maintenance buildings as part of an overall asset management plan (19 concrete structures in total). The assessment included concrete condition, seismic evaluation, corrosion considerations, expected serviceability and performance, and recommendations for repairs and upgrades. A detailed report prioritized repairs and made recommendations for future improvements as part of an overall capital improvement plan. The report aids the City to allocate funds for future improvements and maintenance.

On-Call Consulting Services for PFAS Treatment Systems Design | Orange County Water District | Santa Ana, California | QA/QC Structural
Simon is conducting QA/QC for all structural design elements for four wellhead treatment sites for the City of Santa Ana. Work includes preliminary design, final design, bid phase support, engineering services during construction, and part time inspection services. Sites include Well 40 currently in construction, Well 38 finishing final design, Well 31 in predesign, and Wells 27 and 28 in preliminary design.

Replacement of Steel Water Tanks at Thousand Trails Idyllwild RV Preserve | Idyllwild, California | Principal Structural Engineer
Simon worked as the principal structural engineer for this project. The structural scope of services is to design a new water tank to replace the existing 125,000-gallon water tank at Thousand Trails Idyllwild RV Preserve, including: 1) Develop water tank design loading criteria and coordinate with water tank manufacture; 2) Review the structural design of steel water tank per codes; 3) Check the existing concrete pad for new tank anchorage and develop new anchorage detail to the existing pad; 4) Provide the structural drawings/ calculations to Riverside County for permits; 5) Work with the contractor during construction to answer RFIs and verify the installation is in conformance with the plans.

Condition Assessment of Water Facilities | Casitas Municipal Water District | Oak View, California | Structural Lead
Simon was involved in the as-built condition assessment of 16 reservoir tanks and pump station sites. He oversaw the structural assessment of existing tanks and structural elements, as well as providing the retrofit schemes for any deficient elements to maintain operation for another 10 years.

Ojai Wastewater Treatment Plant Nutrient TMDL – Dentification Filters | Ojai Valley Sanitary District | Ojai, California | Structural Engineering Lead/Structural EOR
Simon is leading structural engineering from the initial project stage through to the 100% design submittal. This project consists of adding one new denitrification filter structure and new chemical tank area, and the modifications of one existing flocculation basin, four existing denitrification filter structures, and two existing oxidation ditches. One new electrical room is being added to the chemical building to expand electrical equipment.

Energy Services Treatment Plant, Design-Build | Valley Sanitary District | Indio, California | Lead Structural Engineer/Structural EOR
Simon is the lead structural engineer for this progressive design-build project to design and build plant improvements to the District's Wastewater Treatment Plant. The project includes existing effluent channel extension and Grit chamber, Digester tank, DAFT tank, Electrical steel building, and equipment pads and canopies.

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# Cole Warrick PE

Civil Lead
6 years of experience · Chandler, Arizona

Cole is a professional engineer with six years of progressive experience in preparing project specific specifications, drawings, cost estimates, and permitting for civil, mechanical, electrical, and instrumentation disciplines in municipal water and wastewater improvement projects. He is well-versed in project management and prepares design services proposals, fee adjustment requests, and monthly billing progress reports.

## EDUCATION

BS, Civil Engineering, California State Polytechnic University, Pomona, 2017

## REGISTRATIONS

Professional Engineer #93488, California

## PROJECT EXPERIENCE

High Desert Water Bank | Antelope Valley East Kern Water Agency | Antelope Valley, California | Project Coordinator/Project Engineer

The High Desert Water Bank project consists of the preliminary design, final design, and construction of approximately 900 acres of flood protected and unprotected water recharge basins; five miles of conveyance piping ranging from 96-inches to 12-inches in diameter; a 250 cubic feet per second capacity turnout/turn-in facility on the East Branch of the California Aqueduct; and a well field consisting of 27 groundwater recovery wells.

As the project coordinator, Cole is responsible for facilitating communications between various disciplines and departments within Stantec, Stantec's subconsultant's, and the Antelope Valley-East Kern Water Agency. His duties include tracking project and task schedules; documenting project decisions and action items; documenting project meetings; packaging deliverables; distributing and delegating tasks; and tracking overall project status.

As a project engineer, Cole is responsible for the development of multiple preliminary design reports; site access evaluation; detail development; preparation of final design drawings; preparation of project technical specifications; preparation of the opinion of probable construction cost; providing bid support services; and reviewing and responding to construction submittals and RFIs.

Lake Forest Zone B to C Recycled Water Pump Station | Irvine Ranch Water District | Irvine, California | Project Engineer

Cole prepared the construction drawings and assisted in the preparation of technical specifications for the destruction of Well No. 5 to make room for the Lake Forest Zone B to C Recycled Water Pump Station. Cole also gathered record drawings and utility information, calculated the system curve, selected pumps for alternative pumping scenarios, designed the building mechanical layout, designed the site grading and control, designed the yard piping, and evaluated site and building access. The pump station converts Zone C from an open system floating on the Upper Oso Reservoir to a close loop system. The flow range of the pump station is 0 to 1,700 GPM. Estimated construction cost is $4.5 million.

1050-Zone Secondary Feed Pump Station and Transmission Main | Moulton Niguel Water District | Laguna Niguel, California | Project Engineer

Cole was responsible for collecting existing utility information, oversight of the hydraulic modeling development, preliminary design and selection of the packaged pumping system and high capacity fire flow pump, preliminary design of the conveyance facilities, and preliminary design of the on-site facilities. As part of the preliminary design efforts, Cole reviewed the current codes and regulations of the stakeholder agencies to determine the project's permitting and regulatory compliance requirements. Permitting requirements included encroachment and grading permits from the City of Laguna Niguel, site defensibility review and fuel modification plan review from the Fire Authority, and new stationary generator operation permits from the Air Quality Management District.

42-Inch Phase 4 and 5 Magic Mountain Pipeline Extension | Santa Clarita Valley Water Agency | Santa Clarita, California | Project Engineer

Cole designed 5,500 linear feet of 42” potable water main, the isolation valve vaults mechanical layout, client correspondence, DDW crossings exception permit applications, specification preparation, drawing preparation, and construction cost estimates for this project. He performed calculations to determine the minimum steel cylinder thickness requirements, blow-off requirements, and air-vac requirements. The scope of this project included design services for the 42-inch potable water main, isolation valve vaults, vault electrical and instrumentation, a 24” and 30” lateral for future emergency connections, and cathodic test stations.

The pipeline extension consisted of approximately 5,500 linear feet of 42” welded steel pipe CML&C, 200 linear feet of 24” welded steel pipe CML&C, 200 linear feet of 30” welded steel pipe CML&C, two 18 feet deep cast-in-place 20 feet by 11 feet concrete isolation valve vaults, one 18 feet deep 20 foot by 20 foot isolation valve vault, one precast isolation valve vault, and 60 utility crossings along Magic Mountain Parkway. The total construction cost for the pipeline extension was $6 million.

### On-Call PFAS Treatment System Designs | Orange County Water District | Santa Ana, California | Project Civil Engineer

The On-Call PFAS Treatment System Designs consists of the preliminary design, final design, and construction phase support services for wellhead ion exchange treatment facilities at four City of Santa Ana well locations. As the project civil engineer, Cole has been responsible for the preliminary and final design of welded steel yard piping, ductile iron potable water laterals, site grading and paving, and equipment layouts. His duties include distributing and delegating tasks; tracking overall project status; development of preliminary design reports; calculating various design parameters; the preparation of final design drawings; preparation of project technical specifications; preparation of the opinion of probable construction cost; providing bid support services; and reviewing and responding to construction submittals and RFIs.

### Regional Treatment Plant Miscellaneous Improvements 2017 Final Design | South Orange County Wastewater Authority | Laguna Niguel, California | Associate Engineer

Cole produced specifications and drawings for the replacement of Dissolved Air Flotation pressurization piping and equipment, polymer mixing and metering equipment, progressive cavity scums pumps, primary scum collection troughs and skimmers, Primary Gallery ventilation equipment and ducting, instrumentation upgrades, and electrical upgrades. He performed preliminary pump sizing and selection for centrifugal DAF pressurization pumps, preliminary pump sizing and selection of primary scum pumps, static pressure calculations for supply and exhaust ventilation, as well as evaluated the classification of the Primary Pump Gallery per the NFPA 820. Built in 1982, the Plant had identified this equipment as needing replacement and/or improvements. The estimated construction cost for the Plant’s miscellaneous improvements was $3 million.

### Water Reclamation Plant 7 PLC Replacements | Coachella Valley Water District | Indio, California | Associate Engineer

Cole designed nine field PLCs, the Master PLC, 2 LCPs, and the redundant Fiber Optic network. He also performed field investigations, updated piping and instrumentation diagrams with as-built information, reviewed submittals and RFIs, and managed client correspondence. He performed HVAC unit sizing for all outdoor individual programmable logic controllers (PLCs) enclosures, UPS unit sizing for all PLCs, and control circuit raceway sizing. Treatment processes at the District’s Plant 7 are controlled by individual PLCs. The existing PLCs were outdated and were inadequately documented.

The project replaced this equipment and performed an extensive field investigation to document the existing conditions prior to construction. The scope of work included assessing the control system, identifying the existing as-built conditions, identifying exactly what input/output was terminated in each PLC and where all the wiring within each PLC cabinet originated from and terminated at, as well as assessing the existing fiber optic network to determine the necessary steps to connect all the new PLCs to the fiber optic network through ethernet. The estimated construction cost for the project is $2.6 million.



# Don Crone

Cost Estimating
47 years of experience · Boise, Idaho

Don has 47 years of experience in the engineering and construction industry. His extensive experience includes project planning, estimating, contracts, allocation of labor and equipment resources, scheduling, budgeting, and overall project execution. Don's process for cost estimation includes site visits, reviewing local labor rates, developing equipment rates, and obtaining material prices and subcontractor quotes. The estimate is then developed by crew base estimating by performing quantity takeoffs and applying reasonable production rates for the crews. The estimates are prepared with direct cost and indirect cost with markup and appropriate contingencies added. These estimates are prepared to an AACE Class 2 estimate level. Over the course of Don's career, he has served as a surveyor, office engineer, field engineer, project engineer, estimator, project manager, operations manager, and Vice President of Operations of a top 10 ENR construction company. The last position made Don responsible for the financial viability of five area offices in the United States as well as construction groups.

## EDUCATION

BS Civil Engineering, Tri State University, Angola, Indiana, 1975

## REGISTRATIONS

Registered Civil Engineer #3456, State of Wyoming, retired

Registered Civil Engineer #13810, Commonwealth of Kentucky, Retired

Registered Civil Engineer #14604, State of Maryland, Retired

## PROJECT EXPERIENCE

Lake Mead Intake No. 3 Pumping Station | Southern Nevada Water Authority | Henderson, Nevada | Principal Estimator/Scheduler

Don was the cost estimator and scheduler for this project, which consisted of civil work including mass excavation and grading of the new pump station with 22,390-foot pumps, surge chamber and a 50-foot diameter surge tank, site and yard, site utilities, access road, and view beams. Underground civil work included a 26-foot inside diameter concrete lined shaft 390 feet deep, and construction of a fore bay cavern. Tunneling consisted of approximately 2,200 feet of modified horseshoe tunnel 14 feet wide by 16 feet high, including tunnels connecting to the fore bay and 300 feet of connector tunnel. Pumping station work consisted of vertical turbine pumps and motors, ancillary systems such a HVAC and plumbing, the pumping station building, and raw-water 84-inch discharge pipelines.

Crystal Springs/San Andreas Transmission System Upgrade | San Francisco Public Utilities Commission (SFPUC) | San Mateo, California | Cost Estimator

Don provided cost estimating and scheduling for the construction of a new pump station consisting of a building 165 feet by 55 feet with four 2500HP pumps. The modifications of four outlet towers, all towers require under water demolition and construction of multilevel outlets at each tower, while maintaining water service with the existing pump station and pipelines. The project also includes the rehab and new construction of a 60in steel pipeline, and reconstruction of inlets and outlets at Crystal Springs Dam.

Calaveras Dam Replacement | San Francisco Public Utilities Commission | California | Principal Estimator / Scheduler

Don provided cost estimating and scheduling for the Calaveras Dam Replacement. The project involves the replacement of the existing Calaveras Dam with a new earth fill dam consisting of 4,000,000 cubic yards of zoned embankment to be constructed from borrow sources and project excavations. Excavations involve dam foundation, 1,800,000 cubic yards and 2,300,000 cubic yards of spillway excavation. The project also will consist of the construction of a new outlet works and a concrete spillway with 49,000 cubic yards of concrete.

Lake Mead Intake No. 2 Connection and Modification | Southern Nevada Water Authority | Henderson, Nevada | Principal Estimator/Scheduler

Don provided cost estimating and scheduling for the Lake Mead Intake No. 2 Connection and Modification. The project consisted of the construction of a 22-foot-diameter concrete-lined shaft, 377 vertical feet, with the installation of a gate and electrical driven gate hoist, electrical equipment, and controls. Tunneling consisted of 536 lineal feet of modified horseshoe tunnel 14 feet wide by 16 feet high. Chemical feed lines installed in IPS-2 existing tunnel and shaft and installation of electrical and control systems.

Bay Division Pipeline #5 East Bay Reaches | SFPUC | San Francisco, California | Cost Estimator/Scheduler

Don provided cost estimating and scheduling for this project, which involved construction of seven miles of buried 72-inch welded steel water conveyance pipeline from the Irvington tunnel portal to Newark valve house. The pipeline will be constructed adjacent to existing Pipeline Number 2 and within the established 80 to 120-foot right of way. The project also includes four single-story control buildings, six utility vaults, 11 trench less crossings, and five water turnouts.

Iowa Hill Hydropower Project | Sacramento Municipal Utility District | Placer County, California | Principal Estimator

Don preformed a feasibility estimate for an $800 million pump storage project consisting of a 2,100 acre foot to a 6,500 acre foot upper reservoir, intake shaft, power tunnel, under-ground powerhouse and tailrace tunnels. The power generation was comprised of combinations different size upper reservoirs and power generation from two 125MW Units to two 200MW Units.

Folsom Dam Spillway Project | Joint Federal Project, USACE, Department of Interior Bureau of Reclamation | Folsom, California | Construction Specialist/Scheduler

Don performed scheduling and phasing tasks for the spillway construction and recommendations on construction work packages and staging considerations The project consists of civil work including mass excavation and construction of a new control structure and new spillway at Folsom Dam in Folsom, CA. The concrete spillway will be constructed to control flows associated with 100-200 year flood events. Six submerged Tainter gates will be installed at the control structure to accomplish this.

American River Pump Station | USBR | Mid-Pacific Region | Principal Estimator

Don prepared feasibility cost estimates for preliminary designs through construction package for final designs. The project involved a 225-cubic-foot second pump station with a fish-screened inlet for pumping water out of the canyon; about 1,700 feet of 72-inch-diameter steel discharge pipeline from the pump station to the previously constructed Auburn Ravine Tunnel; a river diversion structure designed to provide recreational whitewater boating and fish passage; closure of the Auburn Dam Bypass Tunnel; American River ecosystem restoration for the half mile that was dewatered for dam construction; and recreational facilities, including access road improvements and public parking lot.

Bay Division Pipeline-Alameda Siphon | SFPUC | San Francisco, California | Principal Estimator/Scheduler

Don provided cost estimating and scheduling for the Alameda Siphon. The project involved construction of 2,800 feet of 66-inch welded steel pipe, with a 550-foot tunnel and two 12-inch pipes and a 48-inch overflow for 1,500 feet. The pipes were installed in the same trench. The project also included three valve vaults and a chemical mixing structure.

River Valve Outlet System (RVOS) Rehabilitation and Operation Oroville Dam | California Department of Water Resources | Oroville, California | Senior Estimator/Construction Specialist

Don performed cost estimates and schedules for the construction of several alternate studies for replacement of the low level outlet and also redesigned systems of the low level outlet.

CWP 800 North Aqueduct Extension Project | Central Utah Water Conservancy District | Vinegard, Utah | Senior Estimator

Don prepared the engineers estimate for the Central Utah Water Conservancy from a bid set of drawings and specifications. The project consisted of the construction of a 36 inch and 48 inch welded steel pipeline, and a 16in ductile iron pipe line, to include vaults and turnouts.

Bay Division Pipeline #5 Peninsula Reaches | SFPUC | San Francisco, California | Cost Estimator/Scheduler

Don provided cost estimating and scheduling for this project, which involved construction of 9 miles of buried 60-inch welded steel water conveyance pipeline from the Ravenswood valve house to the Pulgas tunnel portal. The pipeline will be constructed adjacent to existing Pipeline Number 2 and within the established 80- to 120-foot right of way. The project also includes two single-story control buildings, valve vaults, venture meter vault, eight pipe-jacked crossings, and 25 water turnouts.

# Wayne C. Dahl, PE, PLS

President, Dahl Consultants, Inc.

**EDUCATION**

Course Work Hydrology, Arizona State University, 1989
BS Civil Engineering, North Dakota State University, 1979

**REGISTRATION**

Professional Civil Engineer – AZ, 22183; CA, C45611; ND, 7053; TX, 117749
Land Surveyor, CA, L 6602

**BACKGROUND**

*Mr. Dahl has over 40 years of experience in planning, design, and construction management of large civil engineering water resources projects including water banking, water conveyance, and water storage facilities. He has expertise in the design and construction of water distribution systems; hydrology and drainage projects; canals, channels, pipelines, and pump stations; reservoir design; and bridges and roadways for which he has served as the engineer of record for well over $1B of constructed infrastructure. Mr. Dahl is experienced in all phases of project and program implementation, including planning, analysis, design, plans and specifications, costing, bidding, and construction management.*

**EXPERIENCE**

**Oasis In-Lieu Recharge Project, Coachella Valley Water District, California, Project Manager. CVWD Project Manager – Dan Charlton, (760) 398-2651**

Currently serving as Project Manager and Engineer of Record for this project which will expand CVWD's irrigation system in the Oasis Area to supply up to about 30,000 acre-feet of water per year. The Oasis area, presently in agricultural use and irrigated with groundwater supplied by individual wells, will be converted to surface water. The project involves upgrading and expanding the current irrigation system.

**Highway 86 Transmission Main Extension and Pump Station, Coachella Valley Water District, California, Project Manager. CVWD Project Manager – Dan Ruiz, (760) 398-2651**

Mr. Dahl is serving as Project Manager for this project. Dahl took over the Highway 86 Transmission Main Extension and Pump Station Project, which has been completed to various levels of design by another design consultant. Using the previous consultant's work to the extent practicable in order to efficiently complete the project, Dahl provided services for final design and preparation of contract bid documents. Project elements included a booster station and 7 miles of 30-inch diameter transmission main. Dahl is currently providing design services during construction.

**High Desert Water Bank Water Project, Antelope Valley-East Kern Water Agency, California, Design Team Lead.** The High Desert Water Bank (HDWB) is a partnership between AVEK and MWD to increase existing groundwater supplies that will be available for use during dry-year events or as augmented water are required by the project stakeholders. The HDWB is planned to provide approximately 70,000 acre-feet on an annual basis of new groundwater storage with a maximum of 280,000 acre-feet of ultimate storage. The project includes 322 acres of environmental set-aside land in support of habitat sustainability, 825 acres of recharge facilities, 96 cfs, 1000 hp pump station, conveyance pipelines varying, and recovery wells. The water delivery to the site will be accomplished with a 250 cfs turnout/turn-in facility connecting to the California Aqueduct, East Branch. Mr. Dahl led the design for

the 250 cfs turnout from the California Aqueduct (engineer of record) including coordination with DWR. His responsibilities also include oversight of the overall design effort for the project.

**Transfer-Bethany Pipeline Project, Contra Costa Water District, California, Project Manager.** The Transfer-Bethany Pipeline Project is part of the Phase 2 Los Vaquero Expansion program. The project will convey a maximum of 300 cfs through an 8-mile long, 90-inch diameter pipeline that begins at the District's existing Transfer Facility and terminates at a turn-in to the California Aqueduct downstream of the Banks Pumping Plant at Milepost 3.4. Water conveyed to the California Aqueduct will be used for delivery to South Bay water agencies, wildlife refuges, and other south of Delta Central Valley Project contractors. Mr. Dahl's responsibilities include obtaining approval from DWR for the design of the 300 cfs turn-in structure to the California Aqueduct, control building, and a meter vault.

**Whitewater Groundwater Replenishment Facility Intake Structures and Diversion Channels Design, Coachella Valley Water District, California, Project Manager. CVWD Project Manager – Dan Charlton, (760) 398-2651.**

Mr. Dahl served as the Project Manager and Engineer of Record for the Whitewater Project. The Project consists of a single intake/sluicing structure to deliver water from the Whitewater River into the recharge facility, two diversion structures within the facility, 12,000 feet of an 800 and 400 cfs capacity conveyance channel, and the replacement of two new intake facilities at Ponds 1 and 10.

**Coachella Canal Water Conveyance System Relocation - SilverRock, Coachella Valley Water District, California, Project Manager. CVWD Project Manager – Dan Charlton, (760) 398-2651.**

Mr. Dahl served as the Project Manager and Engineer of Record for the SilverRock Conveyance Project. The project involved designing and evaluating two alternatives to repair the restricted flow through the Coachella Canal near the SilverRock Resort. The alternatives included a 108-inch diameter pipeline or a canal reconstruction. As the selected alternative, design was completed for canal reconstruction.

**Mid Valley Pipeline, Coachella Valley Water District, California, Project Manager. CVWD Project Manager – Patti Reyes, (760) 398-2651**

Mr. Dahl served as project manager and engineer of record for the design and construction management of the Mid-Valley Pipeline Project. The Mid Valley Pipeline Project will deliver 35,000 acre-ft of canal water to the WRP10 for blending with reclaimed wastewater for golf course irrigation. The principal components of the project include: 100 cfs enclosed pumping plant and intake structure at the Coachella Canal; 35,000 linear feet of 54-inch diameter pipeline along the Coachella Valley Stormwater Channel between Fred Waring and the new WRP10 terminal structure; and lined open reservoirs at Water Recycling Plant 10 (WRP10).

**East Branch Enlargement Evaluation, State Water Contractors, California, Project Manager.**

Mr. Dahl led the hydraulics review related to analyzing the cause of capacity problems in the existing East Branch of the California Aqueduct. The work was performed as part of an assignment from the State Water Contractors to review the need and direction for an East Branch Enlargement Project.

# Susan Fox, PE

## Project Engineer

**EDUCATION**

BS Civil Engineering / Engineering Management, University of the Pacific, 2005

**REGISTRATION**

Professional Civil Engineer, CA, C73998

**BACKGROUND**

*Susan Fox is a registered engineer with over 15 years of experience in planning, design, and construction support of water resources projects with a focus in pipelines, canals, regulating reservoirs/tanks, pump/booster plants, pump station rehabilitation and improvements, and groundwater banking facilities. Ms. Fox's experience includes preparation of design plans and specifications, coordination of design activities, construction support, and the preparation of feasibility studies, design reports, and grant applications.*

**EXPERIENCE**

**Oasis In-Lieu Recharge Project, Coachella Valley Water District, California, Project Engineer.** Currently serving as Project Engineer and Engineer of Record for this project which will expand CVWD's irrigation system in the Oasis Area to supply up to about 32,000 acre-feet of water per year. The Oasis area, presently in agricultural use and irrigated with groundwater supplied by individual wells, will be converted to surface water. The project includes 18 miles of pipeline that varies from 12 inches to 72 inches, five regulating/storage reservoirs, four new pump stations with a total combined design capacity of 120 cfs, and two replacement pump stations.

**Highway 86 Transmission Main Extension and Pump Station, Coachella Valley Water District, California, Project Engineer.** Project engineer for a 30-inch diameter transmission pipeline and booster station. Dahl took over the Highway 86 Transmission Main Extension and Pump Station Project, which has been completed to various levels of design by another design consultant. Using the previous consultant's work to the extent practicable in order to efficiently complete the project, Dahl provided services for final design and preparation of contract bid documents. Project elements included a booster station and 7 miles of 30-inch diameter transmission main. Dahl is currently providing design services during construction.

**High Desert Water Bank Water Project, Antelope Valley-East Kern Water Agency, California, Project Engineer.** The High Desert Water Bank (HDWB) is a partnership between AVEK and MWD to increase existing groundwater supplies that will be available for use during dry-year events or as augmented water are required by the project stakeholders. The HDWB is planned to provide approximately 70,000 acre-feet on an annual basis of new groundwater storage with a maximum of 280,000 acre-feet of ultimate storage. The project includes 322 acres of environmental set-aside land in support of habitat sustainability, 825 acres of recharge facilities, 96 cfs, 1000 hp pump station, conveyance pipelines, and recovery wells. The water delivery to the site will be accomplished with a 250 cfs turnout/turn-in facility

connecting to the California Aqueduct, East Branch. Ms. Fox's responsibilities include the design of the 250 cfs turnout/turn-in facility and the 96 cfs, 1000 hp pump station.

**Transfer-Bethany Pipeline Project, Contra Costa Water District, California, Project Engineer.** The Transfer-Bethany Pipeline Project is part of the Phase 2 Los Vaquero Expansion program. The project will convey a maximum of 300 cfs through an 8-mile long, 90-inch diameter pipeline that begins at the District's existing Transfer Facility and terminates at a turn-in to the California Aqueduct downstream of the Banks Pumping Plant at Milepost 3.4. Water conveyed to the California Aqueduct will be used for delivery to South Bay water agencies, wildlife refuges, and other south of Delta Central Valley Project contractors. Ms. Fox's responsibilities include the design of the 300 cfs turn-in structure to the California Aqueduct, control building, and a meter vault.

**Pump Station 4 Replacement Project, Banta-Carbona Irrigation District, Tracy, California, Project Engineer.** Ms. Fox served as the Project Engineer and Engineer of Record for Banta-Carbona Irrigation District's (BCID) Pump Station 4 Replacement Project. She provided existing system analysis, hydraulic analysis, cost estimating, and preparation of bid documents. Project facilities included a new wet well structure, control building, outlet structure, pumps and motors, and steel pump discharge piping. The pump station is being equipped for a capacity of 185 cfs; however, the wet well structure was designed to accommodate for an increased capacity of 400 cfs.

**Banta-Carbona Pumping Plant 5 Expansion, Banta-Carbona Irrigation District, California, Civil Engineer.** As part of the District's Lift Canal Rehabilitation Project, a new Pump Station 5 was designed and constructed in front of the old facility to provide more reliable pumping capacity to the Delta Mendota Canal. The pump station has 9 bays and is designed to have flexible capacity of up to 540 cfs.

**Thomas E. Levy Groundwater Replenishment Facility, Coachella Valley Water District, California, Civil Engineer.** Activities included civil site plan and yard piping layout, pipeline alignment and sizing, layout of pump station building, design of canned pump configuration, pump selection, and mechanical piping and valve design and selection. Additional duties included preparation of final design plans and specifications, project team coordination, attending client meetings, permitting, and bid and construction support activities. This project includes a pump station that conveys water to the existing pilot recharge facility and the ultimate recharge facilities, located on the upstream side of Dike No. 4 north of Avenue 62.

**Calloway Canal to Lerdo Canal Intertie, North Kern Water Storage District, California, Civil Engineer.** Duties included preparation of final design plans and specifications, project team coordination, hydraulic calculations, civil site plan, design of wetwell configuration, pump selection, mechanical piping and valve design and selection, and bid and construction support activities. This one-mile long, 96-inch diameter reinforced concrete pressure pipeline included a crossing of the Friant-Kern Canal and a 400 cfs, 3,800 horsepower pumping plant.

# John Dahl

## CFO/Secretary/Treasurer, Dahl Consultants, Inc.

**EDUCATION**

B.S., Business Administration, North Dakota State University, 1979

**BACKGROUND**

*Mr. Dahl has over 35 years of experience in construction management of pipelines, pumping plants, canals, levees, fish screens, spreading basins, regulating reservoirs, water treatment plants, and water wells. His responsibilities include preparing specifications, cost estimating, constructability review of drawings during design, reviewing contractor bid documents, project coordination with clients and contractors, construction quality assurance, construction cost control and scheduling, and preparing monthly progress payments and reports. He is also responsible for preparing operation and maintenance manuals, record drawings, and final reports of construction.*

**EXPERIENCE**

**Oasis In-Lieu Recharge Project, Coachella Valley Water District, California.** Mr. Dahl provided cost estimating and constructability review for this project. This project will expand CVWD's irrigation system in the Oasis Area to supply up to about 30,000 acre-feet of water per year. The Oasis area, presently in agricultural use and irrigated with groundwater supplied by individual wells, will be converted to surface water. The project involves upgrading and expanding the current irrigation system.

**Highway 86 Transmission Main Extension and Pump Station, Coachella Valley Water District, California.** Mr. Dahl is providing construction support services for this project. Dahl took over the Highway 86 Transmission Main Extension and Pump Station Project, which has been completed to various levels of design by another design consultant. Using the previous consultant's work to the extent practicable in order to efficiently complete the project, Dahl provided services for final design and preparation of contract bid documents. Project elements included a booster station and 7 miles of 30-inch diameter transmission main.

**Pumping Plant 5 Wet Well, Banta-Carbona Irrigation District, Tracy, California.** The project consisted of the construction of a 9-bay pumping plant wet well.

**Pipeline Replacement Project, Banta-Carbona Irrigation District, California.** The project consisted of replacing a 48-inch diameter steel pipeline with a 72-inch diameter steel pipeline. The pipeline's capacity is 200 cfs, and included three District turnouts of varying capacities.

**Calloway Canal to Lerdo Canal Intertie, North Kern Water Storage District, Kern County, California.** The project consisted of the construction of a 3,800 hp pumping plant, and the installation of 5,400 lf of 96-inch diameter reinforced concrete pressure pipe.

**P565 Distribution System, Semitropic Water Storage District, Kern County, California.** The project consisted of a 1,450-horsepower canal-side pumping plant, a 775-horsepower booster pumping plant, and 14 miles of pipelines, ranging from 66 to 15 inches in diameter.

**P1030 Distribution System, Semitropic Water Storage District, Kern County, California.** The project consisted of approximately one mile of concrete-lined canal, a 950-horsepower pumping plant, and 14.5 miles of pipelines, ranging from 57 to 15 inches in diameter.

**Coachella Canal Lining Project, Coachella Valley Water District, California.** The project consisted of constructing approximately 36 miles of concrete lined canal, which included constructing six check structures and 26 inverted siphon crossings.

**Baseline Feeder Extension South Pipeline, San Bernardino Valley Municipal Water District, San Bernardino, California.** The project consisted of approximately 4.75 miles of 78-inch diameter steel pipeline.

**Fish Screen Project, Banta-Carbona Irrigation District, Tracy, California.** The project provides screening for salmon, steelhead and delta smelt on a 250 cfs diversion from the San Joaquin River. The facility is a 110-foot long "V" screen configuration with a 75-horsepower helical centrifugal bypass pump and a 1,300-foot long by 24-inch diameter fish bypass pipeline. The project included a sediment control system, mechanical screen cleaners, and an automated trash rake for the inlet trash rack.

**P384 Distribution System, Semitropic Water Storage District, Kern County, California.** The project consisted of a 2,700-horsepower canal-side pumping plant, a 700-horsepower booster pumping plant, and 22 miles of pipelines, ranging from 78 to 15 inches in diameter.

**Intertie Pipeline Project, Arvin-Edison Water Storage District, Kern County, California.** The project consisted of a turnout structure on the California Aqueduct, 4.5 miles of 84-inch diameter pipeline, three tunneled crossings of state and interstate highways, and a 1,800-horsepower pumping plant.

**Regulating Reservoir Project, Arvin-Edison Water Storage District, Kern County, California.** The project consisted of a reservoir with a 200 acre-foot capacity, and included a pumping plant with related control equipment.

**Rehabilitation of the Cecil Avenue Pipeline, Rag Gulch Water District, Kern County, California.** The project consisted of replacing asphaltic lining with cement mortar for 4.5 miles of 30-inch diameter steel pipeline.

**B230 Distribution System, Semitropic Water Storage District, Kern County, California.** The project consisted of a 1,925-horsepower canal-side pumping plant, a 1,000-horsepower booster pumping plant, and 25 miles of pipelines, ranging from 72 to 17 inches in diameter.

**Semitropic/Shafter-Wasco Interconnection Pipeline and Pumping Plant Project, Kern County, California.** The project consisted of 3.5 miles of 36-inch-diameter pipeline and an 875-horsepower pumping plant.

**Penstock and Aqueduct Turnout Project, Semitropic Water Storage District, Kern County, California.** The project consisted of a turnout on the California Aqueduct, 2 miles of 78-inch-diameter steel pipeline, and a 2,400-horsepower pumping plant.

**Various Agricultural Irrigation Projects, Central Arizona.** Projects included concrete-lined canals, pipelines, and pumping plants that were constructed by Maricopa-Stanfield, Central Arizona, and New Magma Irrigation and Drainage Districts.

BENNETT trenchless engineers

# Kathryn Wallin



Kathryn Wallin is a Senior Scientist for Bennett Trenchless Engineers. Ms. Wallin has been involved with trenchless design since 2005 and has provided design and construction management services on projects using horizontal directional drilling, microtunneling, pipe ramming, guided boring, and earth pressure balance pipe jacking. Ms. Wallin has cultivated relationships with owners, engineers, permitting agencies, contractors, and manufacturers within the field of trenchless technology to improve the standard of practice in the field. Ms. Wallin's technical duties include preparing construction cost estimates and construction schedules, technical specifications, detail drawings; performing design calculations; and conducting preliminary design tasks, including review of geotechnical information, alternative alignment evaluations, and alternative construction method evaluations.

***EDUCATION***

*MS, Molecular Biology, 2001*
*UC Berkeley*

*BS, Chemistry, 1999*
*Case Western Reserve Univ.*

***MEMBERSHIPS***

*North American Society for Trenchless Technology, Member Since 2005*

*Western Chapter of NASTT, Chair (2020-2022) Board of Directors*

**EXPERIENCE**

Santa Clara Valley Water District
**Cross Valley Pipeline Extension Project (2020- 2022)**

*Reference: Ann Meyer, SCVWD, 408.613.1978*

Ms. Wallin provided trenchless design services as a subconsultant to Kennedy Jenks for an auger-bore crossing of UPRR. The 205-foot crossing installed 54-inch steel casing for a 36-inch raw water pipeline. Challenges on the project included mitigating risks associated with gravel lenses, selection of appropriate mitigation measures to limit risk of settlement to the UPRR tracks, constrained work areas on both sides of the crossing, and limiting traffic impacts to a major commuter corridor. Ms. Wallin provided trenchless feasibility analysis, trenchless specifications, trenchless drawing edits, settlement analysis, and cost and schedule estimates. Ms. Wallin also provided full-time specialty construction inspection for the tunneling activities.

Biggs - West Gridley Water District
**Gray Lodge Wildlife Area Water Supply Project (2019- 2022)**

*Reference: Danny Kerns, Provost & Pritchard, 866.776.6200 x 233*

Ms. Wallin provided trenchless design services as a subconsultant to Provost & Pritchard for twin microtunneled crossings of UPRR. The 90-foot crossings installed 72-inch steel pipe for surface irrigation water transmission. Challenges on the project included constrained work areas in an environmentally sensitive area, selection of appropriate trenchless methods to limit risk of settlement to the UPRR tracks, and coordination with UPRR to receive a casing waiver for a low pressure pipeline. Ms. Wallin provided trenchless feasibility analysis, tunneling specifications, trenchless drawing edits, settlement analysis, and preliminary cost estimates.

City of Vista, CA
**V-1 West Vista Way (2014-2020)**

*Reference: Alfred Pedroza, City of Vista, 760.643.5409*

As a subconsultant to Gannett Flemming, BTE provided trenchless design services for the microtunneled installation of approximately 500 feet of 15-inch gravity sewer. Challenges included restricted work areas, avoiding conflicts with Caltrans ROW, and limiting impacts to businesses and residents. Ground conditions were full-face sandstone (Santiago Formation) Ms. Wallin assisted with the feasibility analysis, suggested alternative alignments, provided edits to the trenchless components of the drawings, and provided cost and schedule estimates on the project.

BENNETT trenchless engineers

Ross Valley Sanitation District
**Gravity Sewer Improvements Butterfield/Meadowcroft-Arroyo (2018-2019)**

*Reference: Jill Barnes, Ross Valley Sanitation District, 415.905.0680*

Ms. Wallin provided trenchless design review and construction management services for two pilot-tube guided auger bore crossings in a residential neighborhood of San Anselmo, CA. The project consisted of 220-foot and 260-feet long drives for installation of 18-inch VCP sanitary sewer. Challenges on the project included tight grade tolerances, presence of full-face rock, interface between rock and overlying soil, constrained work areas with overhead utilities, minimizing impacts to residents and traffic along a heavily travelled corridor, and a very constrained construction window. Ms. Wallin provided design optimization input to increase constructability of the trenchless components and developed the contractor pre-qualification package. Ms. Wallin provided submittal review, responded to RFIs and provided full-time on-site construction inspection for the trenchless components.

Caltrans
**MSN C2 Utility Relocation Project (2018-2019)**

*Reference: Yousra Tilden, BKF Engineers, 650.482.6402*

As the trenchless subconsultant for BKF Engineers, Ms. Wallin provided trenchless design assistance to relocate three existing utilities under a Highway 101 embankment in Petaluma, CA due to future highway widening. Pilot tube guided auger boring was used to install 250 ft of 36- and 42-in steel casing for a 24-in sanitary sewer and 33-in water line respectively. HDD was used to install 280 ft of 10-in FPVC casing for a 6-in force main. Challenges on the project included constrained work areas, mitigating impacts to Caltrans ROW and SMART rail lines, and sequencing of trenchless work with various utility owners in the same construction easement. Ms. Wallin evaluated feasible construction methods, conducted pullback and pipe stress calculations for the HDD bore, recommended alignment alternatives, and provided design edits.

Stanford University
**Golf Course Lake Water Replacement (2018)**

*Reference: Brian E Schultze, Stanford, 650.714.1385*

Ms. Wallin provided trenchless design services for the HDD installation of 950 feet of DR18 24-inch FPVCP for raw water conveyance beneath the Stanford Golf Course. Challenges on the project included minimizing risk of hydrofracture and transition of the bore between dense clayey sand near surface to sandstone at the bottom of the alignment. Ms. Wallin provided an analysis of feasible trenchless construction methods, drafted technical specifications, developed the HDD alignment to mitigate risks, reviewed contractor submittals, and provided on-site construction inspection.

North Marin Water District
**Recycled Water Expansion Project (2016- 2017)**

*Reference: Carmela Chandrasekera, NMWD, 415.897.4133 ext 8903*

BTE provided trenchless design services for 281 ft of pilot tube guided auger boring beneath Highway 101 in Novato, CA. The 24-in steel casing was installed for 16-in DR14 PVC water pipe. Challenges included minimizing impacts to the businesses and neighborhoods near the shafts, threading the needle between multiple subsurface structures, and selection of pipe elevation to minimize settlement risk beneath Caltrans ROW. Ms. Wallin provided feasibility analysis, technical specifications, drawing edits, provided technical assistance acquiring the Caltrans Encroachment permit, performed settlement analysis, and reviewed construction submittals.

LA Dept. of Water & Power
**Griffith Park South Water Recycling Project (2013-2017)**

*Reference: Ruwanka Purasinghe, LADWP, 213.367.1747*

BTE served as a trenchless subconsultant to GeoPentech on the design of a highly challenging 2,800-foot long, 12-inch diameter, steel re-use water pipeline, installed using HDD within Griffith Park in Los Angeles. The pipeline connects a new water tank near Glendale Peak to the southeast portion of the park with over 600 feet of elevation difference. Additional project challenges include complex bedrock geology, and highly constrained work and pipe layout areas. Ms. Wallin provided on-site construction inspection services during all phases of the HDD operations.

BENNETT trenchless engineers

# Matthew Wallin



Matthew Wallin has been involved in trenchless design and construction management since 2000. With an emphasis on geotechnical considerations, his experience includes the design and implementation of trenchless technology construction, geotechnical analysis and design, construction management and inspection, and trenchless technology consulting expert services. Specific focus is applied to new pipeline construction using horizontal directional drilling (HDD), auger boring, pilot-tube guided methods, pipe ramming, open-shield pipejacking, microtunneling, and conventional tunneling. He has provided claims evaluation and consulting expert services on disputes involving HDD, microtunneling, pipe reaming, utility strikes, and geotechnical differing site conditions. He has authored or co-authored over 20 technical papers on various aspects of trenchless technology, tunneling, and geotechnical engineering, and currently serves as Chair of the Board of Directors for the North American Society for Trenchless Technologies (NASTT) where he actively participates in trenchless industry education through NASTT's Good Practices Guidelines courses, taught throughout the US and Canada.

***EDUCATION***

*BS, Civil Engineering, 2000*
*Case Western Reserve Univ.*

*BS, Civil Engineering, 1999*
*Case Western Reserve Univ.*

***MEMBERSHIPS***

*North American Society for Trenchless Technology,*
*-Member Since 2001*
*- Chair: Board of Directors ('23-'24)*

***PE LICENSES***

*California (65002)*
*Texas (106732)*
*Utah (11735959-2202)*

**EXPERIENCE**

City of San Diego
**Murphy Canyon Trunk Sewer Rehab Project (2019-Present)**

*Reference: John Harris, Michael Baker Int., 959.614.5016*

Mr. Wallin is providing trenchless consulting services to Michael Baker Int. related to the construction of three tunneled segments of new 15- and 30-inch diameter gravity sewer in San Diego, CA. The trenchless segments include 1,800 feet, 850 feet, and 350 feet each of open-face tunneling with rib and lagging or liner plate support. Additionally, the project includes three deep shaft excavations (55 feet, 65 feet, and 75 feet deep, respectively) for the purpose of building new manholes along existing segments of deep gravity sewers. Ground conditions along the project consisted of alluvial clay, silt, and sand overlying Friars Formation bedrock, including potential cobbles and boulders. BTE provided review of the geotechnical information along the trenchless alignments and authored a geotechnical baseline report (GBR) for the trenchless segments. BTE also provided technical specifications to support Michael Baker's design of the tunneled segments.

Placer County Water Agency
**Hayford Siphon Replacement Project (2019-Present)**

*Reference: Mike Vasquez, EKI, 650.292.9112*

Mr. Wallin served as the trenchless sub-consultant to Infrastructure Engineering Corporation (IEC) on the replacement of an existing water main crossing of CA State Highway 163, near Balboa Park in San Diego, CA. The trenchless work included a 1,700-foot long crossing of the state highway with a 24-inch ID water main. The highway is located at the bottom of an approximately 100-foot deep canyon, with the entry and exit points located at the top of the canyon on either side. Additionally, the entry point is located within a sensitive portion of Balboa Park, and the exit and pipe staging location is crowded with single-family homes, both a Boy and Girl Scout facility, and a middle school. Extensive logistical and sequencing efforts were necessary to reduce disruption within both the neighborhood and Balboa Park. Mr. Wallin served as the project manager and project engineer for the trenchless design of the HDD crossing. Mr. Wallin was responsible for providing preliminary and final design recommendations on the trenchless crossing, providing design drawings and specifications for the trenchless portions of the work, and performing calculations related to the trenchless construction.

Padre Dam Municipal Water Dist
**Eastern Service Area – 20" Discharge Pipeline (2015-2018)**

*Reference: Michael Hindle, PDMWD, 619.258.4635*

Mr. Wallin served as the trenchless subconsultant to Michael Baker International for the design of a 350-foot crossing of Interstate 8 in Lakeside, CA. Mr. Wallin served as the trenchless project manager/engineer and was responsible for performing the trenchless alternatives analysis, producing technical specifications and trenchless drawings details, as well as cost and schedule estimates, and submittal review services. BTE specified open-shield pipejacking for the installation of 48" steel pipe to serve as casing for the 20" water line. Alternative excavation head options were allowed including use of a Robbins SBU-M. Ground conditions at the site consisted of weak granodiorite rock with floating, boulder-sized corestones of granitic rock with strengths as much as 10 times that of the surrounding material. BTE helped to establish contractual baseline ground conditions to be used for bidding purposes and for resolution of any DSC claims. During construction the contractor proposed to use auger boring methods in lieu of the specified method. When the conventional auger boring methods ran into difficulties with the corestones, the equipment was augmented with a Robbins SBU-A to complete the work. The baseline statements regarding anticipated conditions within the granodiorite were successfully used to resolve the contractor's subsequent DSC claim.

City of San Diego
**Upas Street Pipeline Replacement Project (2012- 2016)**

*Reference: Aric Gnesa, IEC, 858.413.2400, ext 220*

Mr. Wallin served as the trenchless sub-consultant to Infrastructure Engineering Corporation (IEC) on the replacement of an existing water main crossing of CA State Highway 163, near Balboa Park in San Diego, CA. The trenchless work included a 1,700-foot long crossing of the state highway with a 24-inch ID water main. The highway is located at the bottom of an approximately 100-foot deep canyon, with the entry and exit points located at the top of the canyon on either side. Additionally, the entry point is located within a sensitive portion of Balboa Park, and the exit and pipe staging location is crowded with single-family homes, both a Boy and Girl Scout facility, and a middle school. Extensive logistical and sequencing efforts were necessary to reduce disruption within both the neighborhood and Balboa Park. Mr. Wallin served as the project manager and project engineer for the trenchless design of the HDD crossing. Mr. Wallin was responsible for providing preliminary and final design recommendations on the trenchless crossing, providing design drawings and specifications for the trenchless portions of the work, and performing calculations related to the trenchless construction.

City of Stockton
**Delta Water Supply Project (2007 - 2010)**

*Reference: Robert Granberg, City of Stockton, 209.401.0439*

Mr. Wallin, as the trenchless subconsultant to CDM, provided trenchless design of seven trenchless crossings for raw and treated water pipelines, including multiple UPRR and levee crossings, for this large water supply project. BTE was responsible for leading the trenchless design effort, evaluating alternative trenchless construction methods and alignment options, preparing trenchless cost estimates and schedules, performing supporting calculations for all trenchless work, providing shaft locations and tunnel profiles, as well as preparing the technical specifications for the trenchless construction. Microtunneling was selected as the trenchless installation method for most of the crossings due to saturated ground conditions. The total footage of trenchless construction was over 3,100 feet, and the individual drive lengths ranged from 150 to 1,000 feet. Tunnel diameters varied from 48" to 84" to house 36" to 54" water pipelines. The two longest crossings (each > 900') were required to pass beneath large, levee-supported canals (Bishop Cut and Honker Cut) associated with the San Joaquin River Delta. The designs for these trenchless crossings required specialized design evaluations and mitigation measures, such as fully watertight shoring, subsurface settlement monitoring, and shaft collars rising up the 100-year flood elevation. BTE and CDM coordinated extensively with the local reclamation districts to ensure the safety and stability of the levees during construction. Mr. Wallin served as Senior Project Engineer.

# ON MAN LAU, P.E., G.E.
# ENGINEERING MANAGER

**EDUCATION:**
California Polytechnic State University, San Luis Obispo:
B.S., Civil and Environmental Engineering, 1992
California Polytechnic State University, San Luis Obispo:
M.S., Civil and Environmental Engineering, 1994

**REGISTRATION:**
Registered Civil Engineer, C057398 - California, September 1997
Registered Geotechnical Engineer, GE2644 – California, January 2004

**PROFESSIONAL HISTORY:**

Feb. 2022-Present

Soils Engineering, Inc., Bakersfield, CA

1994-2022

BSK Associates, Bakersfield, CA

**PROFESSIONAL BACKGROUND:**
Mr. Lau has more than 30 years of experience in geotechnical engineering, soils/earthwork observation and testing, and construction materials testing and inspection. His areas of expertise include investigations for foundations, seismic hazards, slope stability, liquefaction analyses, drainage studies, footing foundation designs, settlement evaluations, pavement designs, slab-on-grade design, drilled pier design and construction, pile driving design and construction, expansive soils, corrosive soils, excavation stability, shoring, compaction requirements and volumetric calculations.

His projects have included water and wastewater facilities, pipelines, canals, bridges, roadways and highways, schools, hospitals, parks, multi-story buildings, commercial office complexes, airports, energy sites, dams, retaining walls, manufacturing plants, and police/fire/prison sites. Mr. Lau has performed and managed geotechnical engineering and construction materials testing projects in Kern, Tulare, Kings and Fresno counties, and Owens Valley, Antelope Valley, and the Mojave Desert regions of California.

Recent projects on which Mr. Lau managed and supervised the materials testing and special inspections include:

| | |
|---|---|
| Fresno Recharge | Client: City of Fresno |
| Highway 204 and Chester Avenue Seismic Retrofit | Client: Caltrans |
| Warthan Creek Bridge | Client: County of Kern |
| Pedestrian/Bike Path | Client: City of Bakersfield |

# ROBERT J. BECKER P.G., C.E.G., QSD/QSP
# GEOLOGICAL & ENVIRONMENTAL DIVISION MANAGER

**EDUCATION:**
Oregon State University B.S. Geology, 1981

**LICENSES:**
Registered Geologist, No. 5076, 1991 - California
Registered Geologist, No. G1428 - Oregon
Certified Engineering Geologist, No. 2238, 2001 - California
Qualified SWPPP Developer (QSD) & Practitioner (QSP)

**HEALTH & SAFETY TRAINING:**
40-Hour OSHA 29 CFR 1910.120, 07/89
8-Hour OSHA Annual Refresher
8-Hour OSHA Supervisor Training
Passport – Oilfield Hazard Awareness
Chevron Person Leading Work (PLW)

**PROFESSIONAL HISTORY:**

1996-Present
Soils Engineering, Inc., Bakersfield, CA., Environmental & Geologic Division Manager

1990-1996
Smith Environmental Tech Corp., Bakersfield, CA, District Manager/Project Manager

1989-1990
Anania Geologic Engineering, Monrovia, CA, Project Geologist

1987-1989
Epoch Well Logging, Bakersfield, CA, Geologist/Mudlogger

1986-1987
Core Laboratories, Denver, CO, Lab Technician

1981-1986
Exploration Services, Inc. & Geoservices, Inc., Geologist/Mudlogger, Denver, CO

**PROFESSIONAL BACKGROUND:**
Mr. Becker has more than 30 years of experience in environmental assessment and remediation, geologic investigations, and geotechnical investigations. His areas of expertise include investigations for environmental contamination (Phase 1 & Phase 2 Environmental Site Assessments), soil and groundwater sampling and remediation (soil vapor extraction, excavation and disposal, excavation and capping), soil gas surveys, oil well investigations, geologic hazard studies, seismic hazard investigations, earthquake fault investigations, GPR surveys, slope stability, liquefaction analyses and settlement evaluations, SWPPP and SPCC plans. Experienced with regulatory agencies such as the Department of Toxic Substances Control (DTSC), Regional Water Quality Control Board (RWQCB) and County & City agencies.

His projects have included water and wastewater facilities, recycling and dairy facilities, pipelines, numerous existing and proposed school sites, hospitals, parks, commercial office and retail complexes, residential tracts, energy sites (power plants, oil fields, wind and solar farms), dams, manufacturing plants, and police/fire/prison sites. Mr. Becker has performed and managed environmental and geologic engineering projects in Kern, Tulare, Kings, Santa Barbara, San Bernardino, Los Angeles and Fresno counties, and Owens Valley, Antelope Valley, and the Mojave Desert regions of California.

Soils Engineering Inc.

Recent projects on which Mr. Becker managed and supervised the environmental or geologic investigations include:

| | |
|---|---|
| Career Technical Education & Training Center | Client: Kern High School District |
| Proposed School Sites (2) | Client: Panama-Buena Vista Union School District |
| Assessments & Pipeline Removal Projects | Client: Bolthouse Properties |
| Residential Tract Remediation | Client: Woodbridge Pacific |

**PROFESSIONAL AFFILIATIONS**
American Association of Petroleum Geologists
National Groundwater Association

# Richard F. Yeager Jr., PE

Principal Corrosion Engineer

Richard F. (Rick) Yeager Jr. is a California Registered Civil Engineer and a NACE Int'l Certified Cathodic Protection Specialist with a broad background in corrosion engineering, inspections, and construction support services. Mr. Yeager has extensive experience in water and wastewater corrosion control and cathodic protection system designs, corrosivity assessments, pipe and coating materials of construction, and inspection and monitoring of installed piping systems. Additionally, Mr. Yeager has provided construction inspection services for projects that have included pipelines, water reservoirs, treatments plants, and roadways.

## Project Experience:

**As-Needed Corrosion Engineering Services & Annual Surveys**

Provide Cathodic Protection Data Collection/Analysis and Performance testing of installed pipelines and reservoirs. To include monitoring, testing and troubleshooting all existing corrosion control facilities for corrosion. Performing coating assessments on process facilities, water treatment plants, and buried piping systems. Then assessing system damage and evaluating cathodic protection system performance and identifying repair or refurbishment requirements. A summary report listing all observations, conclusions, and recommendations is submitted at the completion of each annual survey.

- **Ramona Municipal Water District**
- **Olivenhain Municipal Water District**
- **Santa Fe Irrigation District**
- **Leucadia Wastewater District**
- **Otay Water District**
- **San Dieguito Water District**
- **City of San Diego**
- **Padre Dam Municipal Water District**
- **Vallecitos Water District**

**Corrosion Control Evaluation and CP Design**

Responsible for designing new and retrofit cathodic protection systems for buried metallic pipelines and aboveground water storage tanks. Designs, galvanic anode and impressed current, take into account soil conditions, coating options, power availability and other parameters in order to achieve the most cost effective means of long term corrosion protection in accordance with nationally accepted standards.

- **City of San Diego- Morena Pump Station & Conveyance System**
- **City of San Diego- Tierra Santa Pump Station & pipeline**
- **City of San Diego- 69th & Mohawk Pump Station**
- **City of San Diego- 30th St Pipeline Replacement**
- **City of San Diego- Pacific Beach Pipeline**

## YEARS OF EXPERIENCE

24

## YEARS WITH FIRM

17

## EDUCATION

B.S., Civil Engineering, California Polytechnic State University, 1997

National Association of Corrosion Engineers (NACE Int'l)

- Basic Corrosion Course, 1997
- CP Design I, 1999
- Cathodic Protection Certification Training, 2001

## CERTIFICATIONS

California Professional Civil Engineer No. C70686

NACE Int'l:

- Cathodic Protection Specialist No. 6321

Confined Space Entrant/Attendee

Certified DVBE/SBE Firm
(CA Dept. of General Services)

Certified SLBE/ELBE Firm
(City of San Diego)

SCOOP Certified Firm (SDCWA)



1016 Broadway, Ste. A, El Cajon, CA 92021
Phone: 619.312.0195

- **City of San Diego- North City Water Reclamation Facility**
- **City of San Diego- North City Pure Water Facility Expansion**
- **City of San Diego- Sloane PRS CP Design**
- **City of San Diego- Cielo & Woodman PS CP**
- **City of San Diego- Otay 2nd PL Phase I**
- **City of San Diego- Del Mar Heights PL ICCP Design**
- **City of San Diego- Sewer PS 79 CP Design and CSS**
- **City of San Diego- I-15 DAR/City 66: PL CP Design**
- **City of San Diego- Cal Trans I-905 Crossing CP Design**
- **City of San Diego- Upas Street Pipeline CP Design**
- **City of San Diego- Otay Mesa Trunk Sewer Casing CP Design**
- **City of San Diego- Torrey Santa Fe Road Pipeline**
- **Padre Dam Municipal Water District- ESA Secondary Connection**
- **Eastern Municipal Water District- Cactus II Feeder TM CP Design**
- **Eastern Municipal Water District- Menifee Valley Reservoir**
- **City of Inglewood- Inglewood Pipeline Assessment**
- **City of Inglewood- Sanford TP Corrosion Assessment**
- **City of Orlando, FL- Orlando Reuse Pipelines**
- **Orange County Water District- GWR Pipeline**
- **Eastern Municipal Water District- Desalter pipelines Phase II**
- **Eastern Municipal Water District- Reach 16-2 RW Pipeline**
- **Eastern Municipal Water District- Nuevo Road I-215 Pipeline**
- **Eastern Municipal Water District- Well 57 Pump Coating Inspection & CP Design**
- **Padre Dam Municipal Water District- Sky Ranch Pipeline, PS and Reservoir CP Design**
- **Las Vegas, NV- Nellis Air Force Base Visiting Quarters, Maintenance building, and Headquarters Building**
- **Irvine Ranch Water District- Zone 3 Reservoir CP**
- **Otay Water District- 680/944 Pipeline**
- **City of Del Mar- 21st St & 7th St Pump Station Cathodic Protection**
- **Leucadia Wastewater District- B2, B3, L1, L2 FM CP Repairs**
- **County of San Diego- Harbison Canyon SLS Corrosion Assessment**
- **Eastern Municipal Water District- Bridge RW Pipeline CP Design**
- **Vista Irrigation District- HP Tank CP Design**
- **Lake Havasu City- BS 1C CP Design**
- **Otay Water District- Heritage Rd PRS CP**
- **LVVWD- Reservoir 3665 CP Design**
- **Helix Water District- 36-inch CML&C Pipeline CP**
- **MNWD- Regional LS FM Replacement CP**
- **SMWD- Reservoir CP System and Anode Well Survey**
- **Eastern Municipal Water District- AMR North Goetz Rd CP**
- **Coachella Valley Water District- Salton Sea SCH PS and PL CP**

## PROFESSIONAL AFFILIATIONS

National Association of Corrosion Engineers (NACE Int'l)

- San Diego Section Chairman, 2002-2003
- San Diego Section Trustee, 2003-2006
- NACE Int'l Policy Committee 2006-2018
- NACE Int'l Policy Chair 2012-2015
- NACE Int'l Policy Past Chair 2015-2018

American Society of Civil Engineers (ASCE)

More Experience Available Upon Request



1016 Broadway, Ste. A, El Cajon, CA 92021
Phone: 619.312.0195

# Randy J. Geving, PE

Senior Corrosion Engineer

Randy Geving has over thirty five years of corrosion engineering experience in the water, wastewater, and oil & gas industries. Mr. Geving is a Registered Professional Corrosion Engineer and has served as engineering manager and lead project corrosion engineer for numerous water infrastructure projects. He has extensive experience in the design and installation of cathodic protection systems, condition assessment of metallic pipelines and concrete reinforced structures, metallic component failure analysis, and metallurgical materials selection for hydro processing and water/wastewater facilities.

## Project Experience:

**Failure Analysis / Condition Assessment**

Responsible for assessing condition and/or cause of failure of pipelines, tanks, steel reinforced concrete and other components. The analysis consists of field inspections and tests ranging from ultrasonic thickness measurements, pit depth readings, soil analysis, and cathodic protection measurements, and coating assessment. All test data, observations, conclusions and recommendations to prevent future failures are provided to the client in a report.

- **Coachella Valley Water District - Corrosion Assessment Of Ductile Iron Water Main**
- **City of San Diego - 31 Potable Water Pipelines**
- **City Of Oceanside - Morro Hills No. 2 Reservoir**
- **Jurupa Community Services District – 18-Inch Steel Force Main**
- **City of San Diego – Programmatic Sewer Force Main**
- **City Of San Diego - North City To San Vicente Pipeline**
- **City of Vista - Buena Vista Pump Station/Jefferson Street Bridge**
- **Eastern Municipal Water District - TVRWRF Rotary Drum**
- **Goleta Water District - El Camino Well Downhole**

**Corrosion Program Management/Program Review**

Responsible for defining, implementing and maintaining Municipality cathodic protection programs. Work includes reviewing and evaluating all existing corrosion control facilities for both piping and reservoirs, as well as defining and prioritizing future corrosion protection and monitoring needs to preserve the integrity of the systems.

- **Olivenhain Municipal Water District**
- **Leucadia Wastewater District**
- **Otay Water District**
- **Ramona Municipal Water District**
- **San Dieguito Water District**
- **Santa Fe Irrigation**
- **Vallecitos Water District**
- **Rainbow Municipal Water District**
- **City of Sunnyvale**
- **Santa Margarita Water District**

**Cathodic Protection Data Collection/Analysis/Corrosion Support**

Responsible for conducting data collection and analysis of new and existing

## YEARS OF EXPERIENCE

36

## YEARS WITH FIRM

15

## EDUCATION

B.S., Metallurgical Engineering, California Polytechnic State University, San Luis Obispo, 1987

Association for Materials Protection and Performance (AMPP formerly NACE Int'l)

- Cathodic Protection Theory

## CERTIFICATIONS

California Registered Corrosion Engineer No. CR-1060

AMPP:

- CIP Level 1, No. 28714

Confined Space Entrant/Attendee

## PROFESSIONAL AFFILIATIONS

Association for Materials Protection and Performance (AMPP formerly NACE Int'l)



1016 Broadway, Suite A, El Cajon, CA 92021
Phone: 619.312.0195

cathodic protection systems on buried metallic pipelines and steel storage tanks. Newly installed facilities are inspected and tested to ensure compliance with project design documents. Testing on existing facilities identifies areas which require remedial measure in order to achieve or maintain the desired level of corrosion protection. Follow-up testing is often required to troubleshoot areas of low protection. This testing includes electrical continuity testing and stray current interference testing along selected reaches of pipeline.

- **City of Oceanside - Guajome Reservoir Waterproofing Project**
- **City of Oceanside - Mesa Drive 24-inch Pipeline**
- **City of San Diego - Catalina Standpipe Replacement Project**
- **City of San Diego - Cathodic Protection of Critical Mains Project**
- **City of San Diego - Pacific Highlands Ranch PR Station**

**Cathodic Protection Design**

Responsible for designing new and retrofit cathodic protection systems for buried metallic pipelines and aboveground water storage tanks. Designs, galvanic anode and impressed current, take into account soil conditions, coating options, power availability and other parameters in order to achieve the most cost effective means of long term corrosion protection in accordance with nationally accepted standards.

- **South Coast Water District - Submersible Pump Cathodic Protection Design**
- **City of San Diego - NCW Reclamation Plant Expansion**
- **City of San Diego - City Pure Water Facility**
- **City of San Juan Capistrano - Calle Pinon Pressure Reducing Station Replacement Project**
- **Olivenhain Municipal Water District – Rancho Santa Fe Road Cathodic Protection Retrofit**

**Corrosivity Assessment**

Conduct in-situ corrosion assessments along pipeline alignment or project site to determine aggressiveness of soil to buried metallic utilities. Assess stray current interference risk from foreign utilities. Review project geotechnical data, including soil sample analysis data pertaining to soluble salt content, pH and resistivity. Provide client with summary report which includes all pertinent data, conclusions and recommendations in order to minimize the risk of future leaks on utilities due to external corrosion.

- **Coachella Valley Water District – North Shore Water Main**
- **Coachella Valley Water District – Reservoir 4602-2**
- **City of San Diego – North City Pure Water Facility Expansion**
- **City of San Diego – Otay 2nd Pipeline Phase 1, 2, and 3**
- **City of San Diego – Cielo and Woodman Pump Station**
- **City of Corona – Home Gardens Water Transmission Pipeline**
- **City of Ontario/Upland - Pipeline Project**
- **City of Poway – Liguori Reservoir**
- **Jurupa Community Services District - 24-inch Force Main Project**

**Thermal Resistivity Assessment**

Testing is conducted in the field or in a laboratory from samples of soil varying densities and moisture contents. Testing is conducted in general accordance with the standard method ASTM D5334-08 which calculates thermal resistivity by monitoring the dissipation of heat from a line heat source. Data and conclusions are provided to the client is a summary technical memo.

- **Solar Gen II Project**
- **Imperial Valley Solar Company 2 - Solar Farm project**
- **Imperial Irrigation District - Highline Substation project**
- **Dixieland Solar East & West Project**

More Experience Available Upon



1016 Broadway, Suite A, El Cajon, CA 92021
Phone: 619.312.0195

# APPENDIX B
## ADDENDUM NO. 1

Indian Wells Valley Groundwater Authority
100 W. California Avenue
Ridgecrest, CA 93555

Addendum No. 1

Thursday, January 12, 2023

Prepared by:
STETSON ENGINEERS, INC.

---

## BIDDER'S CERTIFICATION

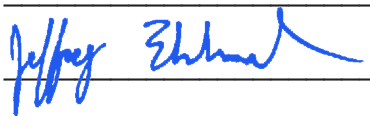
I acknowledge receipt of the foregoing Addendum No. 1 and accept all conditions contained herein.

Dated: January 25, 2023

Company: Provost & Pritchard Consulting Group

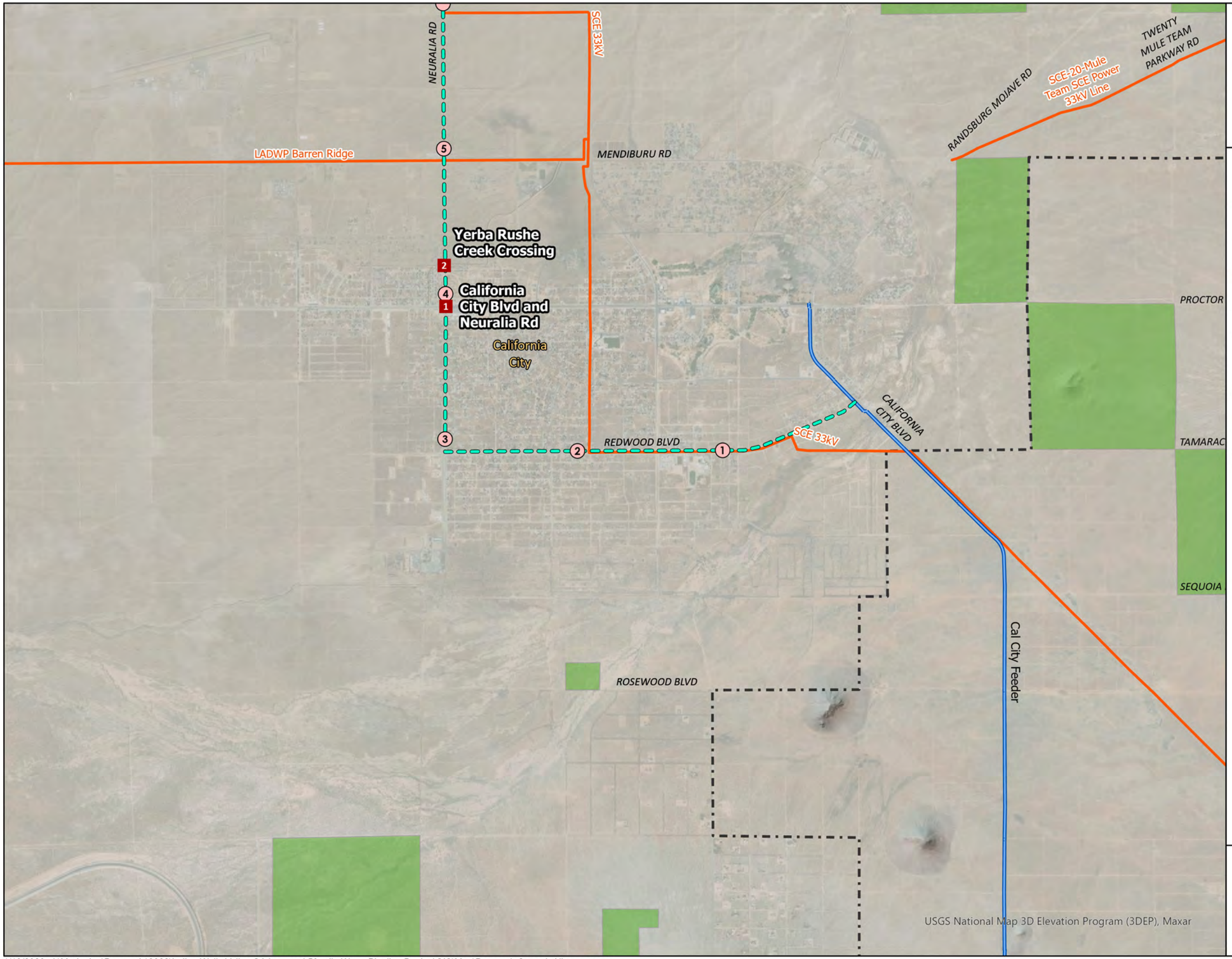
Bidder: Jeff Eklund, PE

Title: Director of Operations/Principal-in-Charge

Signature: 

**THIS FORM MUST BE COMPLETED AND SUBMITTED WITH PROPOSAL**

# ATTACHMENT A
## CENTRAL ALIGNMENT MAP BOOK




# Indian Wells Valley GA

## Central Alignment

Map Book

*Page: 1*

- Mile Marker
- Central Alignment
- Cal City Feeder Pipeline
- Electric Transmission Line

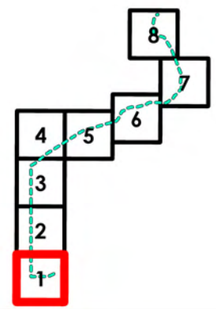
***Anticipated Trenchless Crossings***

***Likely Method***

- Auger Boring/MT

***Boundaries***

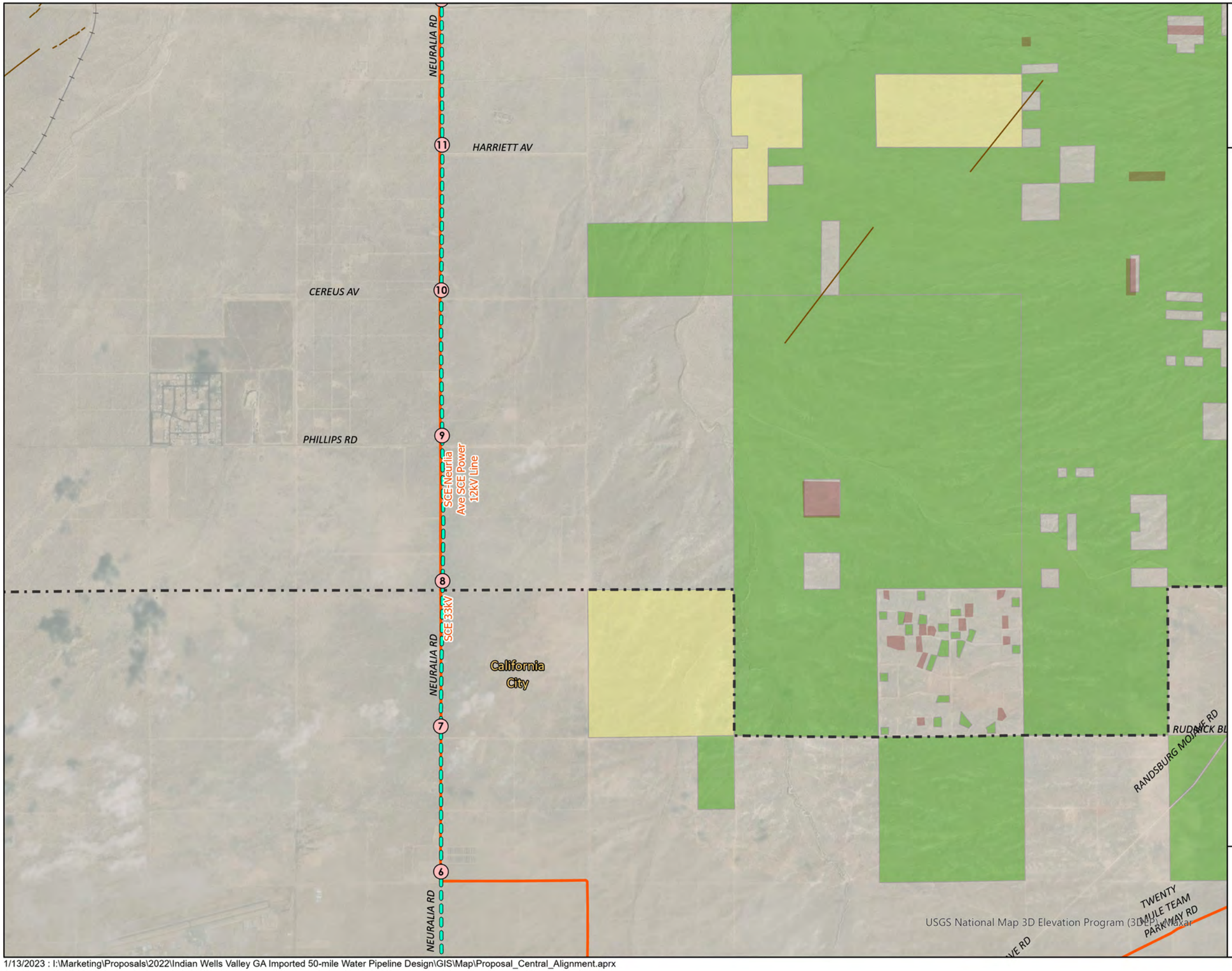
- US Bureau of Land Management
- City Limits




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Miles

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# Indian Wells Valley GA

## Central Alignment

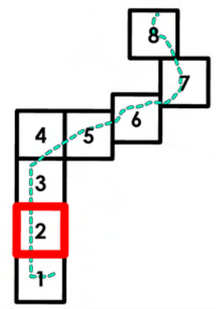
Map Book

*Page: 2*

- Mile Marker
- Central Alignment
- Fault Lines
- Electric Transmission Line
- Rail Line

***Boundaries***

- CA Dept. of Fish & Wildlife
- US Bureau of Land Management
- Conservation Easements
- City Limits




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# Indian Wells Valley GA

Central Alignment

Map Book

*Page: 3*

Wash 1 (Near Hwy 14)

Wash 2 (NW of Cantil)

UPRR Crossing

Rancho Seco Drainage

JAWBONE CANYON RD

ROGERS RD

VALLEY RD

CANTIL RD

NORTON RD

PAPPAS RD

LAKE RD

MUNSEY RD

ANNE AV

NEURALIA RD

REDROCK RANDSBURG RD

SCE-Red Rock-Randsburg Rd 33kV Line

LADWP 230kV

LADWP 500kV DC

SCE 33kV

Pappas Rd SCE 33kV Lines

SCE-Neurlia Ave SCE Power 12kV Line

USGS National Map 3D Elevation Program (3DEP), Maxar

- Mile Marker
- Central Alignment
- Fault Lines
- Electric Transmission Line
- Highway
- Rail Line

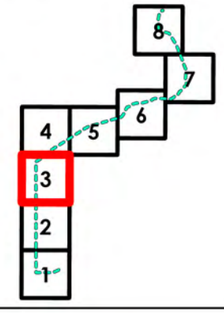
***Anticipated Trenchless Crossings***

***Likely Method***

- HDD
- Auger Boring/MT

***Boundaries***

- CA Dept. of Fish & Wildlife
- CA Dept. of Parks & Recreation
- US Bureau of Land Management
- Conservation Easements




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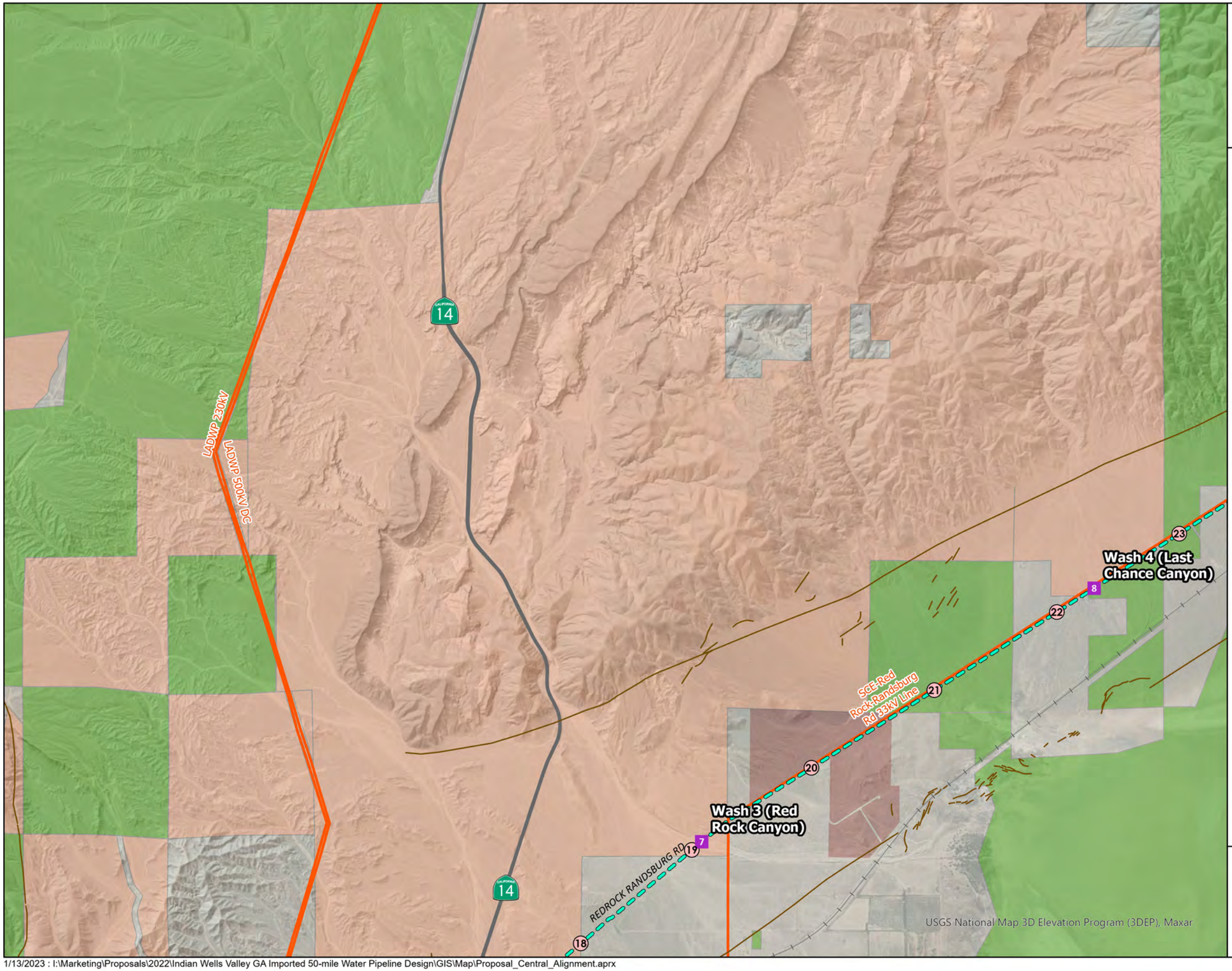
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# Indian Wells Valley GA

## Central Alignment

Map Book

*Page: 4*




- Mile Marker
- Central Alignment
- Fault Lines
- Electric Transmission Line
- Highway
- Rail Line

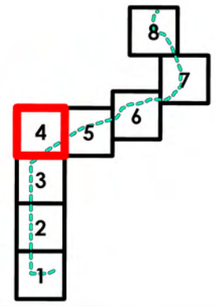
***Anticipated Trenchless Crossings***

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***Boundaries***

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- US Bureau of Land Management
- Conservation Easements




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# Indian Wells Valley GA

Central Alignment

Map Book

*Page: 5*

Mile Marker

Central Alignment

Fault Lines

Rail Line

***Anticipated Trenchless Crossings***

***Likely Method***

HDD

***Boundaries***

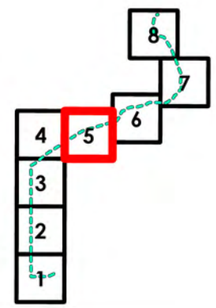
CA Dept. of Fish & Wildlife

CA Dept. of Parks & Recreation

US Bureau of Land Management

Tortoise Critical Habitat

Conservation Easements




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SCE-Red Rock-Randsburg Rd 33kV Line

Union Pacific Railroad

Wash 4 (Last Chance Canyon)

USGS National Map 3D Elevation Program (3DEP), Maxar

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# Indian Wells Valley GA

Central Alignment

Map Book

*Page: 6*

Wash 5 (Goler Gulch)

GARLOCK RD

GOLER RD

SCE 220kV

SCE 115kV

SCE-Red Rock-Randsburg Rd 33kV Line

Mile Marker

Central Alignment

Fault Lines

Electric Transmission Line

Rail Line

***Anticipated Trenchless Crossings***

***Likely Method***

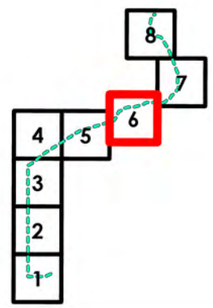
HDD

***Boundaries***

CA Dept. of Fish & Wildlife

US Bureau of Land Management

Tortoise Critical Habitat




USGS National Map 3D Elevation Program (3DEP); Maxar

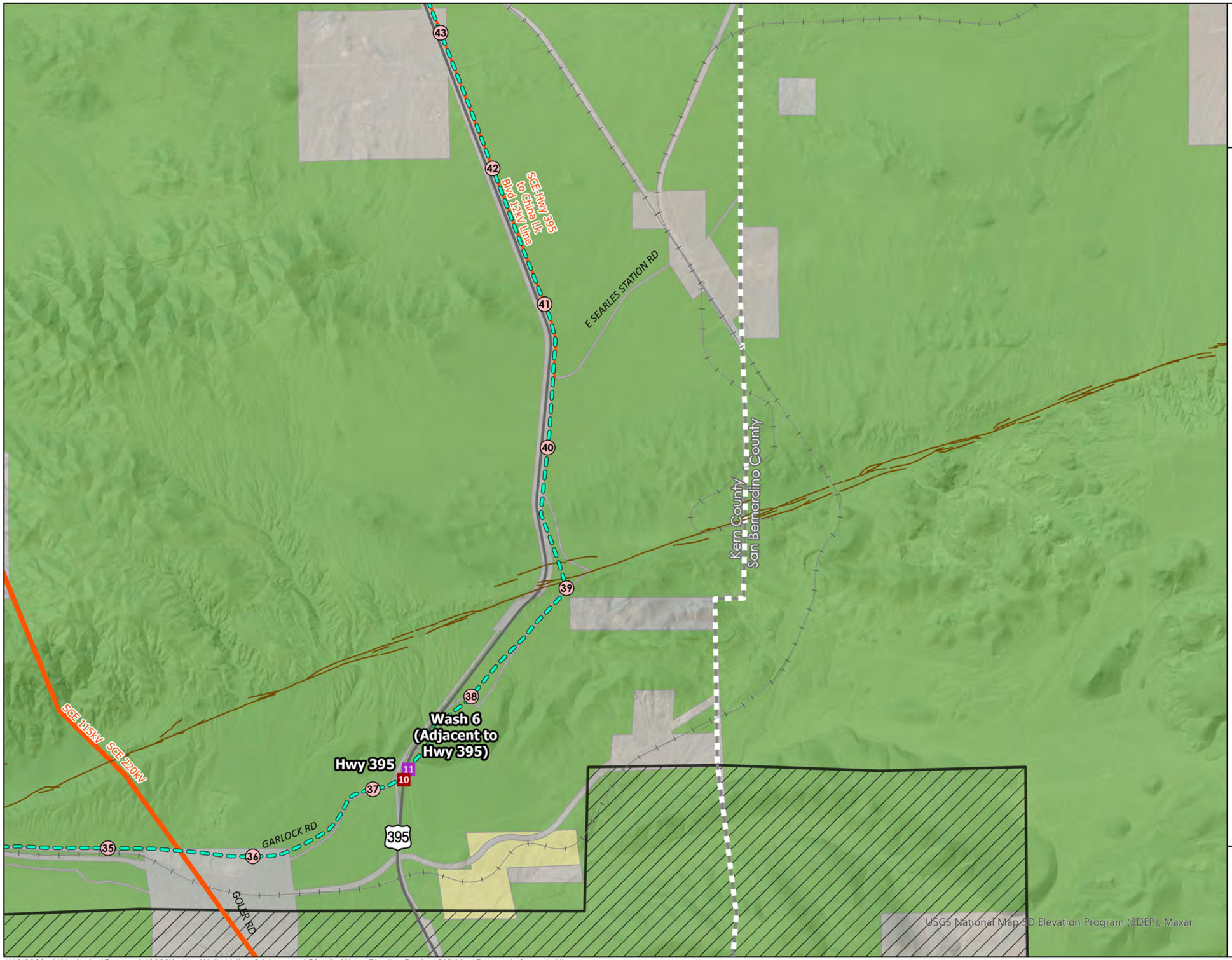
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# Indian Wells Valley GA

Central Alignment

Map Book

*Page: 7*

- Mile Marker
- Central Alignment
- Fault Lines
- Electric Transmission Line
- Highway
- Rail Line
- County Boundary

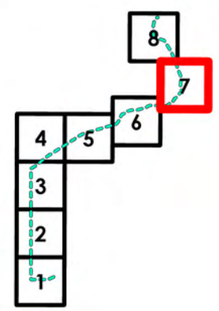
***Anticipated Trenchless Crossings***

***Likely Method***

- HDD
- Auger Boring/MT

***Boundaries***

- CA Dept. of Fish & Wildlife
- US Bureau of Land Management
- Tortoise Critical Habitat

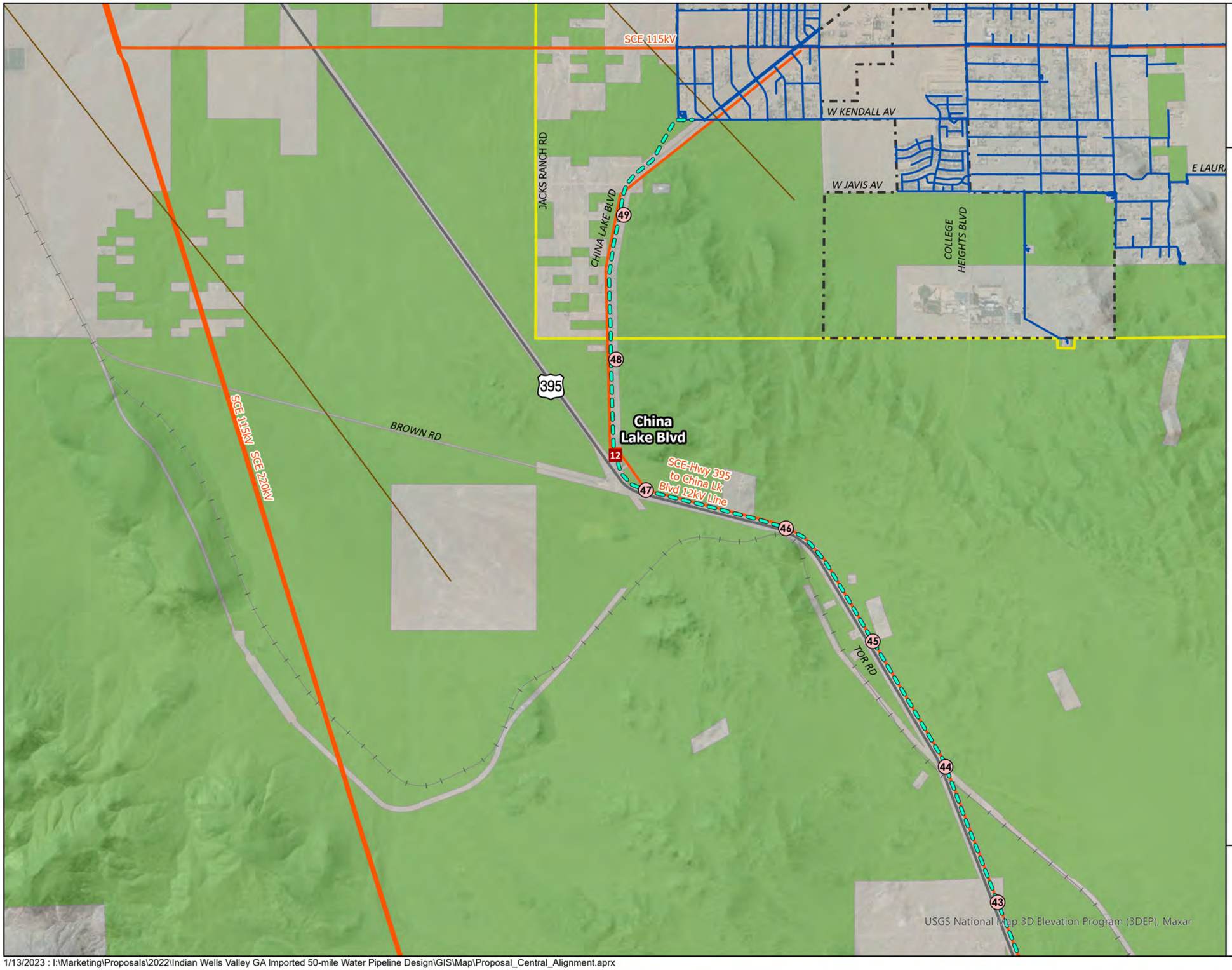



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# Indian Wells Valley GA

## Central Alignment

Map Book

*Page: 8*

- Mile Marker
- Central Alignment
- Water Main
- Fault Lines
- Electric Transmission Line
- Highway
- Rail Line

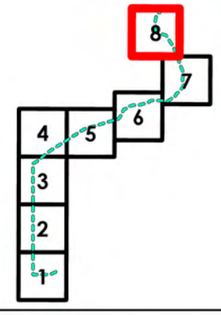
***Anticipated Trenchless Crossings***

***Likely Method***

- Auger Boring/MT

***Boundaries***

- US Bureau of Land Management
- Indian Wells Valley W.D.
- City Limits




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# ATTACHMENT B
## METHOD OF SERVICE APPLICATION

Print Form

# REQUEST FOR METHOD-OF-SERVICE STUDY

Your Method-of-Service Study request will be processed after this form is completed in its entirety and returned to Southern California Edison (SCE) along with required deposits. SCE's guidelines for Electric Service Requirements (ESR) are available on SCE's website at http://www.sce.com/AboutSCE/Regulatory/distributionmanuals/esr.htm

## CUSTOMER INFORMATION

CUSTOMER NAME: _____ PHONE NO: _____

FACILITY LOCATION/ADDRESS: _____ FAX NO: _____

CITY: _____ ZIP CODE: _____ COUNTY: _____

MAILING/BILLING ADDRESS: _____ ZIP CODE: _____

CITY: _____ STATE: _____

CONTACT PERSON: _____ PHONE NO: _____

TITLE: _____ FAX NO: _____

ADDRESS (if different from above): _____ E-MAIL: _____

CITY: _____ STATE: _____ ZIP CODE: _____

ALTERNATE CONTACT PERSON: _____ PHONE NO: _____

TITLE: _____ FAX NO: _____

ADDRESS (if different from above): _____ E-MAIL: _____

CITY: _____ STATE: _____ ZIP CODE: _____

**Application is for:** ◯ NEW FACILITY
◯ EXISTING FACILITY

Please describe the reason for the request (Provide separate attachment if needed) : _____

_____

_____

If existing, does SCE need to move or remove existing facilities to accommodate this project? ◯ YES ◯ NO

Describe facilities to be moved or removed: _____

_____

**PROJECT STATUS:** ☐ Conceptual ☐ PEA Development ☐ Draft EIR/EIS Review ☐ Final EIR/EIS Review ☐ Construction

**CUSTOMER IN-SERVICE AND OPERATING DATE:** _____

## FACILITIES INFORMATION

**TYPE OF BUSINESS:** _____

Provide facility configuration and layout: _____

**TYPE OF SERVICE:**

Desired voltage? ☐ Primary (12 kV or 16 kV) ☐ Sub-transmission (66 kV or 115 kV) ☐ Transmission (220 kV)

Do you require redundancy? ◯ YES ◯ NO

Do you require back-up service? ◯ YES ◯ NO Please specify: _____

Does customer desire SCE to install distribution facilities beyond the metering point? ◯ YES ◯ NO

# REQUEST FOR METHOD-OF-SERVICE STUDY

## FACILITIES INFORMATIONS Cont...

**TRANSFORMER DATA (if applicable):**

New required transformer will be provided by: ◯ SCE ◯ Customer

Transformer Manufacturer: _____

Transformer Rated Voltage: _____HV _____LV

Transformer Impedance: _____% on _____kVA _____Base

Transformer Type: _____Single Phase _____Three Phase Size: _____kVA

If Three Phase:

Primary:_____kV _____Delta _____Wye _____Wye Grounded

Secondary:_____kV _____Delta _____Wye _____Wye Grounded

**ELECTRICAL LOAD:**

Our facilities will be designed based on the load information provided; therefore, accuracy is essential. Please indicate connected loads in terms of kVA, kW, HP and Tons. Provide one (1) load summary for each point of service. Attach additional sheets as needed.

General Power: _____kVA

Heat Pumps: _____kVA

Auxiliary Strip Heating:_____kW

Process Heating:_____kW

Water Heating: _____kW

Lighting: _____kW

Air Conditioning:_____Tons

Refrigeration: _____kW

Cooking: _____kW

Other: _____kW, kVA, HP, Tons

Abnormal Loads (i.e., Spot Welders, Elevators, Pulsing Loads, etc.): _____

Expected Net Maximum Load (per premise): _____ kW _____kVAR

Load Factor (Ex. 8hrs/day, 365/Yr): _____

Projected Load for the next 1-10 years *(Provide attachment if needed)*: _____

Power Factor: _____(If not enough data given, under SCE Rule 2 p.f. will be assumed as 0.9)

**MOTOR INFORMATION:**

LARGEST MOTOR: _____HP (COMPLETE SECTION BELOW FOR ALL MOTORS > 50 hp)

Note: Please ensure **all** HP motor loads are included in lists above. Do not include redundant motors such as back up motors for sewage plants.

| Motor | HP | Quantity | Starting Frequency | NEMA Code | Motor Starting Type |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

# REQUEST FOR METHOD-OF-SERVICE STUDY

## FACILITIES INFORMATION Cont...

**GENERATION INFORMATION:**

Is there any type of generation equipment to be installed? ◯ YES ◯ NO If yes, specify total generation: _____

Will generation parallel with SCE? ◯ YES ◯ NO

*If yes, you must apply separately through appropriate program. Please contact the designated contact person at SCE Grid Interconnection at SCE at (626) 302-1771.

## REQUIRED INFORMATION

Enclosed copy of site electrical one-line showing the configuration of all the major Facility equipment. This one-line diagram must be signed and stamped by a licensed Professional Engineer.

Is Electrical One-Line Diagram Enclosed? ◯ YES ◯ NO

Enclosed copy of any site documentation that indicates the precise physical location of the proposed Facility (e.g., google map or other diagram or documentation).

Is Location Map Enclosed? ◯ YES ◯ NO

Enclosed copy of the load forecast data that documents the existing, 5 year and 10 year load projected load growth.

Is Load Forecast Data Enclosed? ◯ YES ◯ NO

Enclosed copy of any site documentation that describes the facilities electrical configuration and layout.

Is Plot Plan Enclosed? ◯ YES ◯ NO

Enclosed copies of schematic drawings for all protection and control circuits that will interface with SCE. (if applicable)

Are Schematic Drawing Enclosed? ◯ YES ◯ NO

**APPLICANT SIGNATURE:**

I hereby certify that, to the best of my knowledge, all the information provided in this Method-of-Service Request is true and correct.

Applicant's Signature: _____ Date: _____

**Submit Application Package to:**

Designated Person: Lynette Aquino
Southern California Edison
Customer Interconnection/Method-of-Service Group
3 Innovation Way, Pomona, CA 91768
Office: (909) 274-1718
Fax: (909) 274-3212
E-mail: MOS-AF@sce.com

**SCE USE ONLY**

| | |
|---|---|
| ☐ MOS | ☐ Feasibility |
| ☐ SIS | ☐ Equipment Evaluation |
| ☐ Facility | ☐ Engineering & Design |

# Exhibit I
# Customer
# Electrical One-Line Diagram

# Exhibit II
# Customer Location Map

# Exhibit III
# Customer
# Load Forecast Data

# Exhibit IV
# Customer
# Plot Plan

# Exhibit V
# Other Customer
# Schematics Drawing

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**www.provostandpritchard.com** • info@ppeng.com

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IWVGA Board Meeting
February 8, 2023

# Resolution 02-23
# Authorize Award of Contract to Provost and Pritchard Consulting Group for Design Services for the Imported Water Pipeline



1

## Background – Project Funding

- April 28, 2022: IWVGA was awarded $7.6 million in grant funding from the California Budget Act of 2021 Sustainable Groundwater Management Grant Program SGMA Implementation Round 1 grant solicitation (SGMA-IP)
  - SGMA-IP funding will be used the IWVGA's Imported Water Interconnection Project
    - Design
    - Environmental Compliance
    - Right-of-Way Acquisition
    - Other permitting and coordination with partnering agencies
  - Work under the grant must be completed by March 31, 2025.
    - An inquiry is being made to DWR regarding the possibility of extending the deadline
- Staff is expecting some of the cost of the development of Imported Water Interconnection Project to be covered by the USACE Planning Assistance to States Program.

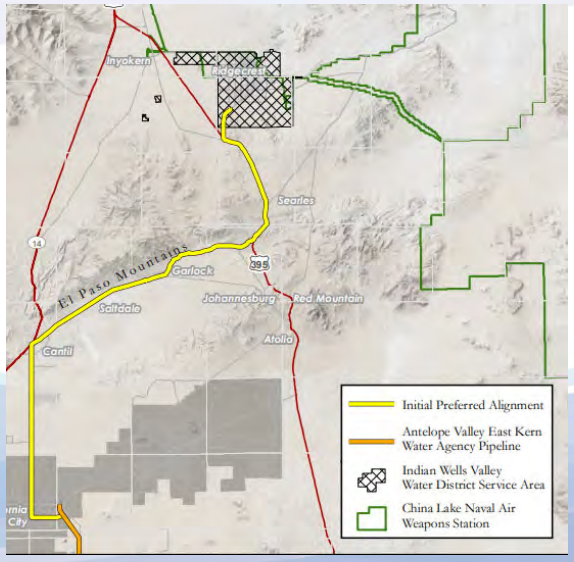
IWVGA
INDIAN WELLS VALLEY GROUNDWATER AUTHORITY

DEPARTMENT OF WATER RESOURCES
STATE OF CALIFORNIA



2

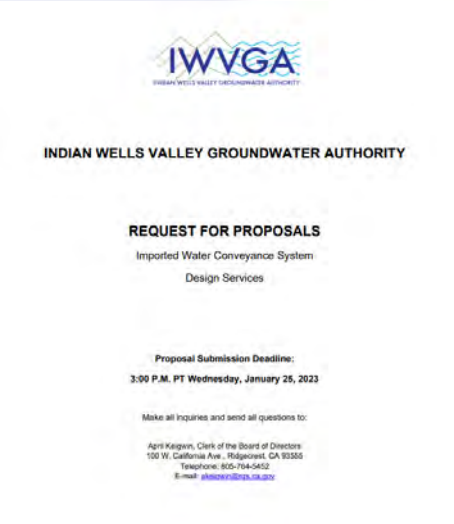
## Background – Alignment Study




- July 22, 2022: The Board authorized an agreement with Provost & Pritchard Consulting Group ("P&P" or "Provost & Pritchard") to perform an alignment study
- November 9, 2022 Board meeting: Provost & Pritchard presented three initially potential alignments
- December 6, 2022: A joint public meeting of the PAC and TAC was held to present screening criteria and preliminary weighting factors for committee and public discussion.
- December 14, 2022 Board meeting: The Board adopted the Resolution No. 11-22 which:
  - Approved the Central Alignment for further Environmental, Right-of-Way, and Design review for consideration for the Imported Water Interconnection Project and,
  - Authorized the General Manager to issue Requests for Proposals for Right-of-Way Acquisition Services, Environmental Documents (NEPA/CEQA) and Permitting Services, and Conveyance System Design Services for the Imported Water Interconnection Project



## Background – Request for Proposals



IWVGA

INDIAN WELLS VALLEY GROUNDWATER AUTHORITY

REQUEST FOR PROPOSALS

Imported Water Conveyance System

Design Services

Proposal Submission Deadline:

3:00 P.M. PT Wednesday, January 25, 2023

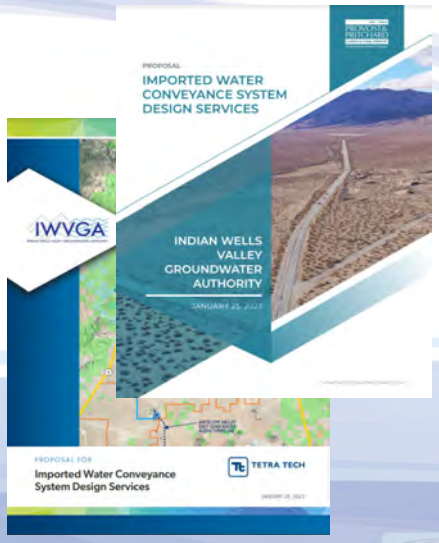
Make all inquiries and send all questions to:

April Keigwin, Clerk of the Board of Directors
100 W. California Ave., Ridgecrest, CA 93555
Telephone: 805-764-5402
E-mail: akeigwin@inyo.ca.gov

- December 14, 2022: The Board approved the release of Requests for Proposals (RFP) for Design, Environmental, and Right-of-Way Consultants
  - December 19, 2022: The RFP's were advertised online, including the IWVGA website
  - January 16, 2023: Staff responded to all Pre-Proposal Questions from Respondents
  - January 25, 2023: Proposals for each RFP were due
- Staff formed a Review Committee to review all Proposals for the selection of Consultants for each RFP
  - January 30, 2023: The Review committee discussed the proposals

## Proposals

- Received Proposals from:
  - Provost and Pritchard Consulting Group
  - Tetra Tech
- The Review Committee agreed that the Proposal that best addressed the RFP was submitted by Provost and Pritchard Consulting Group
- Provost and Pritchard Consulting Group
  - Proposed Budget: $6,440,000
  - Anticipated Work Complete Date: January 2025






## Scope of Work - Overview

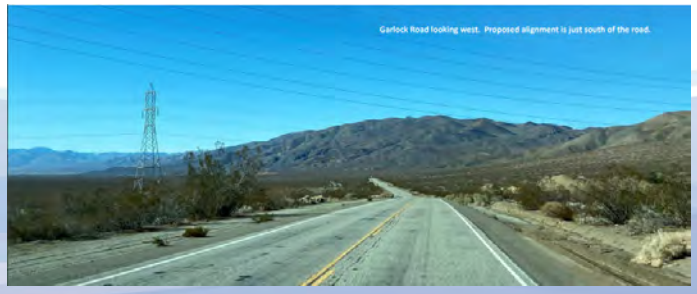
- The design services include:
  - conducting surveying, geotechnical, and utility research
  - developing a preliminary design report
  - design of pipelines, pump stations, reservoirs, and associated facilities
- Some of the challenges to be addressed include:
  - Traversing sensitive lands and significant topographic changes
  - The lack of available existing power capacity near several of the proposed pump station facilities; and
  - Environmental and regulatory requirements related to land-use, sensitive habitat, use of public lands, and permitting through differing regulatory/ resources agencies.



# Scope of Work – Tasks 1 through 2

- **TASK 1 PROJECT MANAGEMENT**
  - TASK 1.1 KICKOFF MEETING
  - TASK 1.2 COORDINATION MEETINGS
  - TASK 1.3 GENERAL PROJECT MANAGEMENT

  DELIVERABLES
    - Monthly progress reports
    - Meeting notes
    - Bi-weekly progress reports
    - Presentations




- **TASK 2 PRELIMINARY DESIGN**
  - TASK 2.1 COORDINATION
  - TASK 2.2 ENVIRONMENTAL AND ROW CONSULTANT COORDINATION
  - TASK 2.3 SURVEYING
  - TASK 2.4 UTILITY RESEARCH/COORDINATION
  - TASK 2.5 GEOTECHNICAL SERVICES
  - TASK 2.7 PERMITS
  - TASK 2.8 PRELIMINARY DESIGN REPORT

  DELIVERABLES
    - TM on Preliminary System Hydraulics-Pump Station and Pipeline
    - TM on Pipe Optimization and Refinement
    - TM on Sub-regional Power Availability and Coordination with SCE
    - TM Pipeline Crossing-Trenchless and Open-cut
    - Draft Preliminary Design Report
    - Preliminary Design Drawings
    - Preliminary design level EOPCC
    - Preliminary design level Construction Schedule.



# Scope of Work – Task 3

- **TASK 3 FINAL DESIGN**
  - **TASK 3.1 30% SUBMITTAL**

    DELIVERABLES
    - 30% Design Plans
    - Technical Memorandums (TM) summarizing:
      - the hydraulic analysis for pump station and pipelines.
      - transient analysis for pump station and pipelines
      - pipe design calculation effort
      - required pipeline facilities
      - blending tank design for Ridgecrest Height Tank Facility
      - the mechanical process and pump selection for pump stations
      - electrical system equipment and instrumentation and control requirements
      - corrosion assessment and mitigation
      - preliminary permitting requirements
    - Outline and narrative of the technical specifications required
    - Proposed potholing locations shown on 30% Design Plan
    - Final Geotechnical Reports for the pipeline design, pump station design, pipe crossings, and blending reservoir at Ridgecrest Heights Tank Facility
    - 30% design level EOPCC
    - 30% design level Construction Schedule
  - **TASK 3.2 60% SUBMITTAL**

    DELIVERABLES
    - 60% design plans
    - 60% specifications
    - Written responses to the Authority's 30% review comments.
    - Written memorandum documenting findings of utility research and potholing efforts.
    - TM on final corrosion design recommendations
    - Detailed project description by March 2024 for the CEQA\NEPA process.
    - Special provisions and special conditions for the IWVGA front-end specifications
    - 60% Design Level EOPCC
    - 60% Design Level Construction Schedule

## Scope of Work – Task 3 (CONT.)

- **TASK 3 FINAL DESIGN**
  - **TASK 3.3 90% SUBMITTAL**
    DELIVERABLES
    - 90% Design Drawings 90% Specifications
    - Written responses to the Authority's 60% review comments.
    - Final Summary of Permitting Requirements.
    - 90% Design Level EOPCC
    - 90% Design Level Construction Schedule



  - **TASK 3.4 FINAL SUBMITTAL**
    DELIVERABLES
    - Written responses to the Authority's 90% review comments.
    - 100% Final Design Drawings and Specifications
    - 100% Constructability Review Report
    - Statement of Completeness Letter
    - Final EOPCC for bidding purposes.
    - Final Construction Schedule
    - Six (6) hard copies of the Final Bid package, including PE-stamped full-size plans, PE-stamped specifications, and appendices for the geotechnical reports and pertinent permits.
    - One (1) set of reproducible Mylar drawings with Engineer of Record Stamp and Signature
    - One (1) Bid set of plans with Engineer of Record Stamp and Signature electronic media copy in AutoCAD and Adobe Acrobat PDF format.



## Scope of Work – Optional Tasks

**OPTIONAL TASKS INCLUDED IN THE SCOPE OF WORK**

- Hydrologic and Scour Analysis
  - Includes:
    - Up to ten drainage channels, as required by BLM
    - A full hydrologic analysis of each drainage sub-watershed, if required

- Water Quality Bench Testing Analysis and Mitigation
  - In order to ensure that AVEK water and IWVWD water are compatible
  - Includes:
    - Testing water from each of the eleven wells that feed AVEK's Rosamond Water Treatment Plant and each of the four that feed IWVWD's Ridgecrest Heights Tank
    - Testing water from each of these two facilities monthly for a year for standard Title 22 constituents
  - Deliverable: Technical memo summarizing this effort and making recommendations for any treatment process that may be required along the alignment or at the delivery point.

## Budget

- Total Estimated Fee:
  - Not-to-Exceed: $6,440,000

- Environmental Coordination Reduction included in Total Estimated Fee
  - Reduced coordination fees due to Provost and Pritchard also being recommended for the Award of Contract for CEQA/NEPA and Permit Documentation Services
  - Reduction of $40,000

| Task | | Total Fee |
|---|---|---|
| **TASK 1 - PROJECT MANAGEMENT** | Unit Rate: | |
| 1.1 | Kickoff Meeting | $15,102 |
| 1.2 | Coordination Meetings | $260,057 |
| 1.3 | General Project Management | $307,378 |
| | Task units | |
| | Task Total $ | $582,537 |
| **TASK 2 - PRELIMINARY DESIGN** | | |
| 2.1 | Coordination | $63,986 |
| 2.2 | Environ. & ROW Consultant Coord. | $29,626 |
| 2.3 | Surveying | $120,824 |
| 2.4 | Utility Research/Coordination | $45,118 |
| 2.5 | Geotechnical Services | $728,525 |
| 2.6 | Corrosion Analysis and Engineering | $44,253 |
| 2.7 | Permits | $49,010 |
| 2.8 | Preliminary Design Report | $470,671 |
| | Task units | |
| | Task Total $ | $1,552,011 |
| **TASK 3 - FINAL DESIGN** | | |
| 3.1 | 30% Submittal | $1,179,957 |
| 3.2 | 60% Submittal | $1,274,205 |
| 3.3 | 90% Submittal | $866,406 |
| 3.4 | 100% Final Submittal | $714,502 |
| | Task units | |
| | Task Total $ | $4,035,070 |
| **TASK 4 - Optional Tasks** | | |
| 4.1 | Scour Analysis of BLM Drainage Crossings | $147,936 |
| 4.2 | Water Quality Bench Testing for AVEK and IWVWD Water Sources | $164,653 |
| | Task units | |
| | Task Total $ | $312,589 |
| | **Project Total units** | |
| | **Project Total $** | $6,480,000 |
| | Environmental Coordination Reduction | ($40,000) |
| | Total Estimated Fee: | $6,440,000 |



## Action(s) Required By the Board

Staff recommends the Board adopt
Resolution No. 02-23 to Authorize
Award of Contract to Provost and Pritchard Consulting Group
for Design Services
for the Imported Water Pipeline

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# IWVGA ADMINISTRATIVE OFFICE

***STAFF REPORT***

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**TO:** IWVGA Board Members **DATE: February 8, 2023**

**FROM:** IWVGA Staff

**SUBJECT:** **Agenda Item 13 – Resolution 03-23 to Authorize Award of Contract to Overland, Pacific and Cutler, LLC for Right-of-Way and Parcel Acquisition Services for the Imported Water Pipeline**

## BACKGROUND AND DISCUSSION

On April 28, 2022, the IWVGA was provided notice of award of $7.6 million in grant funding from the California Budget Act of 2021 Sustainable Groundwater Management Grant Program SGMA Implementation Round 1 grant solicitation (SGMA-IP). The grant funding will be primarily used for additional planning for the IWVGA's Imported Water Interconnection Project including design, environmental compliance, right-of-way acquisition, and other permitting and coordination with partnering agencies. A grant funding agreement between the IWVGA and the California Department of Water Resources (DWR) was executed on August 12, 2022. Work under the grant must be completed by March 31, 2025. The original estimated schedule for completion of the design, environmental compliance, right-of-way acquisition, and permitting extended beyond March 2025, in part due to the need for information and approvals from federal and state agencies. An inquiry is being made to DWR regarding the possibility of extending the deadline for completion of work under the grant.

In addition to the SGMA-IP Grant, Staff is expecting some of the cost of the development of Imported Water Interconnection Project to be covered by the USACE Planning Assistance to States Program.

On July 22, 2022, the Board authorized an agreement with Provost & Pritchard Consulting Group ("P&P" or "Provost & Pritchard") to perform an alignment study for the proposed imported water pipeline. Provost & Pritchard presented three initially potential alignments for the imported water pipeline at the November 9, 2022 Board meeting. A joint public meeting of the PAC and TAC was held December 6, 2022 to present screening criteria and preliminary weighting factors for committee and public discussion.

Following presentation of the results of the alternative alignment screening process at the December 14, 2022 Board meeting, the Board adopted Resolution No. 11-22 which; (1) approved the Central Alignment for further Environmental, Right-of-Way, and Design review for consideration for the Imported Water Interconnection Project and, (2) authorized the General Manager to issue Requests for Proposals for Right-of-Way Acquisition Services, Environmental Documents (NEPA/CEQA) and Permitting Services, and Conveyance System Design Services

for the Imported Water Interconnection Project.

A Request for Proposals (RFP) for Imported Water Conveyance System Right-of-Way and Parcel Acquisition Services was advertised online to solicit proposals from qualified firms for imported water conveyance system design services on December 19, 2022. The right-of-way and parcel acquisition services include appraisals, negotiations of terms and fees, tracking of parcels and acquisition efforts, coordination with the engineering design team, title and escrow services, and right-of-way acquisition, for pipelines and pump stations, reservoirs, and associated facilities for the Imported Water Interconnection Project.

On January 4, 2023, the IWVGA hosted a pre-proposal meeting where interested parties were presented information on the RFP's purpose, the scope of work, and the schedule. The IWVGA received questions regarding the RFP and posted responses to the questions on the IWVGA's website as Addendum 1 to the RFP. Staff responded to all Pre-Proposal Questions from Respondents by January 16, 2023. On January 25, 2023, the IWVGA received proposals from Epic Land Solutions, Inc.; Monument; and, Overland, Pacific and Cutler, LLC. (OPC). A staff review committee met via conference call on January 30, 2023 to discuss the proposals. The committee agreed the proposal that best addressed the RFP was submitted by OPC.

OPC's proposal has a total budget of $413,590.00. A Contract Services Agreement by and between the IWVGA and OPC has been prepared and is included in your Board packet.

Also included on the Board meeting agenda today are Agenda Item 12 for the Board to consider the adoption of Resolution No. 02-23 to Authorize Award of Contract for Design Services for the Imported Water Pipeline and Agenda Item 14 for the Board to consider the adoption of Resolution No. 4-23 to Authorize Award of Contract for CEQA/NEPA Documents and Permit Documentation Services for the Imported Water Pipeline. The sum of the Not-to-Exceed amounts included in the Contract Services Agreements is $7,867,312.00, which exceeds the $7.6 million available from the SGMA-IP Grant. As mentioned above, Staff is expecting some of the cost of the development of Imported Water Interconnection Project to be covered by the USACE Planning Assistance to States Program. The IWVGA is also continuing to look for additional funding opportunities. The contracts will be administered on a task-order basis. Staff will determine whether sufficient funds are available before issuing each task order.

## ACTION(S) REQUIRED BY THE BOARD

Staff recommends the Board adopt the attached Resolution No. 03-23 to Authorize Award of Contract, subject to approval as to form by legal counsel, to OPC for Right-of-Way and Parcel Acquisition Services for the Imported Water Pipeline.

**BEFORE THE BOARD OF DIRECTORS OF THE INDIAN WELLS VALLEY GROUNDWATER AUTHORITY**

**In the matter of:** **Resolution No. 03-23**

**AWARD OF CONTRACT TO OVERLAND, PACIFIC AND CUTLER, LLC FOR RIGHT-OF-WAY AND PARCEL ACQUISITION SERVICES FOR THE IMPORTED WATER PIPELINE**

**I, _____, Clerk of the Board of Directors for the Indian Wells Valley Groundwater Authority, do certify that the following resolution, on motion of Director _____, seconded by Director _____, was duly passed and adopted by the Board of Directors at an official meeting this ____ day of _____, 2023, by the following vote:**

**AYES:**

**NOES:**

**ABSENT:**

_____
Clerk of the Board of Directors
Indian Wells Valley Groundwater Authority

**THE BOARD OF DIRECTORS OF INDIAN WELLS VALLEY GROUNDWATER AUTHORITY RESOLVES AS FOLLOWS:**

Section 1. **WHEREAS:**

(a) The Authority was awarded $7.6 million in grant funding from the California Budget Act of 2021 Sustainable Groundwater Management Grant Program SGMA Implementation Round 1 grant solicitation (SGMA-IP) for additional planning for the Authority's imported water interconnection project (Project).

(b) All work under the SGMA-IP grant must be completed by March 31, 2025.

(c) On December 14, 2022, the Board adopted Resolution 11-22 which; (1) approved the Central Alignment for further Environmental, Right-of-Way, and Design review for consideration for the Imported Water Interconnection Project and, (2) authorized the General Manager to issue Requests for Proposals for Right-of-Way Acquisition Services, Environmental Documents (NEPA/CEQA) and Permitting Services, and Conveyance System Design Services for the Imported Water Interconnection Project.

(d) A Request for Proposals (RFP) for Imported Water Conveyance System Right-of-Way and Parcel Acquisition Services was advertised online to solicit proposals from qualified firms for imported water conveyance system design services on December 19, 2022.

(e) On January 25, 2023, the IWVGA received proposals from Epic Land Solutions, Inc.; Monument; and, Overland, Pacific and Cutler, LLC. (OPC). A staff review committee met via conference call on January 30, 2023 to discuss the proposals. The committee agreed the proposal that best addressed the RFP was submitted by OPC.

Section 2. **THEREFORE IT IS RESOLVED** by the Board of Directors of the Indian Wells Valley Groundwater Authority, as follows:

1. This Board finds that recited facts are true and that it has the jurisdiction to consider, approve, and adopt this Resolution.

2. The General Manager or his/her designee is authorized to execute a contract services agreement with OPC for right-of-way and parcel acquisition services in the form approved by the General Counsel and in an amount not to exceed $ 413,590.

**PASSED, APPROVED, AND ADOPTED**, by the Indian Wells Valley Groundwater Authority this ____ day of _____, 2023.

SIGNED:

_____
President of the Board of Directors

ATTEST:

_____

# CONTRACT SERVICES AGREEMENT

**By and Between**

**Indian Wells Valley Groundwater Authority**

**and**

**Overland, Pacific, and Cutler, LLC**

**for Imported Water Conveyance System Right-Of-Way Acquisition Services**

**AGREEMENT FOR CONTRACT SERVICES**
**BETWEEN THE INDIAN WELLS VALLEY GROUNDWATER AUTHORITY**

**AND**

**OVERLAND, PACIFIC, AND CUTLER, LLC**

**FOR**

**IMPORTED WATER CONVEYANCE SYSTEM**

**RIGHT-OF-WAY ACQUISITION SERVICES**

THIS AGREEMENT FOR CONTRACT SERVICES (herein "Agreement") is made and entered into this ____ day of _____, 2023 by and between the Indian Wells Valley Groundwater Authority, ("Authority") and Overland, Pacific, and Cutler, LLC ("Contractor"). Authority and Contractor may be referred to, individually or collectively, as "Party" or "Parties."

## RECITALS

A. Whereas, The Authority has recently secured a SGMA-Implementation grant funding opportunity through DWR for planning and design-level activities intended to bring new imported water supplies into the Basin. ;

B. Whereas, on December 19, 2022 the Authority released a Request for Proposals ("RFP") for right-of-way acquisition services for an imported water conveyance system.

C. Whereas, Contractor responded to the RFP and Authority and Contractor desire to enter into this Agreement for the completion of design services.

## OPERATIVE PROVISIONS

NOW, THEREFORE, in consideration of the mutual promises and covenants made by the Parties and contained herein and other consideration, the value and adequacy of which are hereby acknowledged, the parties agree as follows:

## ARTICLE 1. SERVICES OF CONTRACTOR/CONSULTANT

### 1.1 Scope of Services.

In compliance with all terms and conditions of this Agreement, the Contractor shall provide those services specified in the "Scope of Work" in its proposal or bid, which shall be incorporated herein by this reference as though fully set forth herein as Exhibit "A," which may be referred to herein as the "services" or "work" hereunder. In the event of any inconsistency between the terms of such proposal and this Agreement, the terms of this Agreement shall govern. As a material inducement to the Authority entering into this Agreement, Contractor represents and warrants that it has the qualifications, experience, and facilities necessary to

properly perform the services required under this Agreement in a thorough, competent, and professional manner, and is experienced in performing the work and services contemplated herein. Contractor shall at all times faithfully, competently and to the best of its ability, experience and talent, perform all services described herein. Contractor covenants that it shall follow the highest professional standards in performing the work and services required hereunder and that all materials will be both of good quality as well as fit for the purpose intended. For purposes of this Agreement, the phrase "highest professional standards" shall mean those standards of practice recognized by one or more first-class firms performing similar work under similar circumstances.

### 1.2 Compliance with Law.

Contractor shall keep itself informed concerning, and shall render all services hereunder in accordance with, all ordinances, resolutions, statutes, rules, and regulations of the Authority and any Federal, State or local governmental entity having jurisdiction in effect at the time service is rendered.

### 1.3 Licenses, Permits, Fees and Assessments.

Contractor shall obtain at its sole cost and expense such licenses, permits and approvals as may be required by law for the performance of the services required by this Agreement. Contractor shall have the sole obligation to pay for any fees, assessments and taxes, plus applicable penalties and interest, which may be imposed by law and arise from or are necessary for the Contractor's performance of the services required by this Agreement, and shall indemnify, defend and hold harmless Authority, its officers, employees or agents of Authority, against any such fees, assessments, taxes, penalties or interest levied, assessed or imposed against Authority hereunder.

### 1.4 Familiarity with Work.

By executing this Agreement, Contractor warrants that Contractor (i) has thoroughly investigated and considered the scope of services to be performed, (ii) has carefully considered how the services should be performed, and (iii) fully understands the facilities, difficulties and restrictions attending performance of the services under this Agreement. If the services involve work upon any site, Contractor warrants that Contractor has or will investigate the site and is or will be fully acquainted with the conditions there existing, prior to commencement of services hereunder. Should the Contractor discover any latent or unknown conditions, which will materially affect the performance of the services hereunder, Contractor shall immediately inform the Authority of such fact and shall not proceed except at Contractor's risk until written instructions are received from the Water Resource Manager.

### 1.5 Care of Work.

The Contractor shall adopt reasonable methods during the life of the Agreement to furnish continuous protection to the work, and the equipment, materials, papers, documents, plans, studies and/or other components thereof to prevent losses or damages, and shall be

responsible for all such damages, to persons or property, until acceptance of the work by Authority, except such losses or damages as may be caused by Authority's own negligence.

### 1.6 Further Responsibilities of Parties.

Both parties agree to use reasonable care and diligence to perform their respective obligations under this Agreement. Both parties agree to act in good faith to execute all instruments, prepare all documents and take all actions as may be reasonably necessary to carry out the purposes of this Agreement. Unless hereafter specified, neither party shall be responsible for the service of the other.

## ARTICLE 2. COMPENSATION AND METHOD OF PAYMENT.

### 2.1 Contract Sum.

Subject to any limitations set forth in this Agreement, Authority agrees to pay Contractor the amounts specified in the "Fee Schedule" included in Exhibit "A" and incorporated herein by this reference. The total compensation, including reimbursement for actual expenses, shall not exceed Four Hundred Thirteen Thousand, Five Hundred and Ninety Dollars ($413,590.00) (the "Contract Sum").

### 2.2 Method of Compensation.

The method of compensation may include: (i) a lump sum payment upon completion; (ii) payment in accordance with specified tasks or the percentage of completion of the services, less contract retention; (iii) payment for time and materials based upon the Contractor's rates as specified in the Schedule of Compensation, provided that (a) time estimates are provided for the performance of sub tasks, (b) contract retention is maintained, and (c) the Contract Sum is not exceeded; or (iv) such other methods as may be specified in the Schedule of Compensation.

### 2.3 Reimbursable Expenses.

Compensation may include reimbursement for actual and necessary expenditures for reproduction costs, telephone expenses, and travel expenses approved by the Water Resource Manager in advance, or actual subcontractor expenses of an approved subcontractor pursuant to Section 4.5, and only if specified in the Schedule of Compensation. The Contract Sum shall include the attendance of Contractor at all project meetings reasonably deemed necessary by the Authority. Coordination of the performance of the work with Authority is a critical component of the services. If Contractor is required to attend additional meetings to facilitate such coordination, Contractor shall not be entitled to any additional compensation for attending said meetings.

### 2.4 Invoices.

Each month Contractor shall furnish to Authority an original invoice for all work performed and expenses incurred during the preceding month in a form approved by Authority. By submitting an invoice for payment under this Agreement, Contractor is certifying compliance

with all provisions of the Agreement. The invoice shall contain all information specified in Exhibit "B", and shall detail charges for all necessary and actual expenses by the following categories: labor (by sub-category), travel, materials, equipment, supplies, and sub-contractor contracts. Sub-contractor charges shall also be detailed by such categories. Contractor shall not invoice Authority for any duplicate services performed by more than one person.

Authority shall independently review each invoice submitted by the Contractor to determine whether the work performed and expenses incurred are in compliance with the provisions of this Agreement. Except as to any charges for work performed or expenses incurred by Contractor which are disputed by Authority, or as provided in Section 7.3, Authority will use its best efforts to cause Contractor to be paid within forty-five (45) days of receipt of Contractor's correct and undisputed invoice; however, Contractor acknowledges and agrees that due to Authority warrant run procedures, the Authority cannot guarantee that payment will occur within this time period. In the event any charges or expenses are disputed by Authority, the original invoice shall be returned by Authority to Contractor for correction and resubmission. Review and payment by Authority for any invoice provided by the Contractor shall not constitute a waiver of any rights or remedies provided herein or any applicable law.

### 2.5 Waiver.

Payment to Contractor for work performed pursuant to this Agreement shall not be deemed to waive any defects in work performed by Contractor.

## ARTICLE 3. PERFORMANCE SCHEDULE

### 3.1 Time of Essence.

Time is of the essence in the performance of this Agreement.

### 3.2 Schedule of Performance.

Contractor shall commence the services pursuant to this Agreement upon receipt of a written notice to proceed and shall perform all services within the time period(s) established in the "Schedule" included in Exhibit "A" and incorporated herein by this reference. When requested by the Contractor, extensions to the time period(s) specified in the Schedule may be approved in writing by the Water Resource Manager but not exceeding one hundred eighty (180) days cumulatively.

### 3.3 Force Majeure.

The time period(s) specified in the Schedule of Performance for performance of the services rendered pursuant to this Agreement shall be extended because of any delays due to unforeseeable causes beyond the control and without the fault or negligence of the Contractor, including, but not restricted to, acts of God or of the public enemy, unusually severe weather, fires, earthquakes, floods, epidemics, quarantine restrictions, riots, strikes, freight embargoes, wars, litigation, and/or acts of any governmental agency, including the Authority, if the Contractor shall within ten (10) days of the commencement of such delay notify the Water

Resource Manager in writing of the causes of the delay. The Water Resource Manager shall ascertain the facts and the extent of delay, and extend the time for performing the services for the period of the enforced delay when and if in the judgment of the Water Resource Manager such delay is justified. The Water Resource Manager's determination shall be final and conclusive upon the parties to this Agreement. In no event shall Contractor be entitled to recover damages against the Authority for any delay in the performance of this Agreement, however caused, Contractor's sole remedy being extension of the Agreement pursuant to this Section.

### 3.4 Term.

Unless earlier terminated in accordance with Article 7 of this Agreement, this Agreement shall continue in full force and effect until completion of the services but not exceeding one (1) year from the date hereof, except as otherwise provided in the Schedule (Exhibit "A").

## ARTICLE 4. COORDINATION OF WORK

### 4.1 Representatives and Personnel of Contractor.

The following principals of Contractor ("Principals") are hereby designated as being the principals and representatives of Contractor authorized to act in its behalf with respect to the work specified herein and make all decisions in connection therewith:

| | |
|---|---|
| April Harvey, SR/WA | Senior Program Manager |
| Donald M. Anderson, SR/WA | Senior Project Manager |

It is expressly understood that the experience, knowledge, capability and reputation of the foregoing principals were a substantial inducement for Authority to enter into this Agreement. Therefore, the foregoing principals shall be responsible during the term of this Agreement for directing all activities of Contractor and devoting sufficient time to personally supervise the services hereunder. All personnel of Contractor, and any authorized agents, shall at all times be under the exclusive direction and control of the Principals. For purposes of this Agreement, the foregoing Principals may not be replaced nor may their responsibilities be substantially reduced by Contractor without the express written approval of Authority. Additionally, Contractor shall utilize only competent personnel to perform services pursuant to this Agreement. Contractor shall make every reasonable effort to maintain the stability and continuity of Contractor's staff and subcontractors, if any, assigned to perform the services required under this Agreement. Contractor shall notify Authority of any changes in Contractor's staff and subcontractors, if any, assigned to perform the services required under this Agreement, prior to and during any such performance.

### 4.2 Status of Contractor.

Contractor shall have no authority to bind Authority in any manner, or to incur any obligation, debt or liability of any kind on behalf of or against Authority, whether by contract or otherwise, unless such authority is expressly conferred under this Agreement or is otherwise

expressly conferred in writing by Authority. Contractor shall not at any time or in any manner represent that Contractor or any of Contractor's officers, employees, or agents are in any manner officials, officers, employees or agents of Authority. Neither Contractor, nor any of Contractor's officers, employees or agents, shall obtain any rights to retirement, health care or any other benefits which may otherwise accrue to Authority's employees. Contractor expressly waives any claim Contractor may have to any such rights.

### 4.3 Water Resource Manager.

The Water Resource Manager shall be such person as may be designated by the Authority. It shall be the Contractor's responsibility to assure that the Water Resource Manager is kept informed of the progress of the performance of the services and the Contractor shall refer any decisions which must be made by Authority to the Water Resource Manager. Unless otherwise specified herein, any approval of Authority required hereunder shall mean the approval of the Water Resource Manager. The Water Resource Manager shall have authority, if specified in writing by the Authority Manager, to sign all documents on behalf of the Authority required hereunder to carry out the terms of this Agreement.

### 4.4 Independent Contractor.

Neither the Authority nor any of its employees shall have any control over the manner, mode or means by which Contractor, its agents or employees, perform the services required herein, except as otherwise set forth herein. Authority shall have no voice in the selection, discharge, supervision or control of Contractor's employees, servants, representatives or agents, or in fixing their number, compensation or hours of service. Contractor shall perform all services required herein as an independent contractor of Authority and shall remain at all times as to Authority a wholly independent contractor with only such obligations as are consistent with that role. Contractor shall not at any time or in any manner represent that it or any of its agents or employees are agents or employees of Authority. Authority shall not in any way or for any purpose become or be deemed to be a partner of Contractor in its business or otherwise or a joint venturer or a member of any joint enterprise with Contractor.

### 4.5 Prohibition Against Subcontracting or Assignment.

The experience, knowledge, capability and reputation of Contractor, its principals and employees were a substantial inducement for the Authority to enter into this Agreement. Therefore, Contractor shall not contract with any other entity to perform in whole or in part the services required hereunder without the express written approval of the Authority. In addition, neither this Agreement nor any interest herein may be transferred, assigned, conveyed, hypothecated or encumbered voluntarily or by operation of law, whether for the benefit of creditors or otherwise, without the prior written approval of Authority. Transfers restricted hereunder shall include the transfer to any person or group of persons acting in concert of more than twenty five percent (25%) of the present ownership and/or control of Contractor, taking all transfers into account on a cumulative basis. In the event of any such unapproved transfer, including any bankruptcy proceeding, this Agreement shall be void. No approved transfer shall release the Contractor or any surety of Contractor of any liability hereunder without the express consent of Authority.

## ARTICLE 5. INSURANCE AND INDEMNIFICATION

### 5.1 Insurance Coverages.

Without limiting Contractor's indemnification of Authority, and prior to commencement of any services under this Agreement, Contractor shall obtain, provide and maintain at its own expense during the term of this Agreement, policies of insurance of the type and amounts described below and in a form satisfactory to Authority.

(a) General liability insurance. Contractor shall maintain commercial general liability insurance with coverage at least as broad as Insurance Services Office form CG 00 01, in an amount not less than $2,000,000 per occurrence, $4,000,000 general aggregate, for bodily injury, personal injury, and property damage. The policy must include contractual liability that has not been amended. Any endorsement restricting standard ISO "insured contract" language will not be accepted.

(b) Automobile liability insurance. Contractor shall maintain automobile insurance at least as broad as Insurance Services Office form CA 00 01 covering bodily injury and property damage for all activities of the Contractor arising out of or in connection with Services to be performed under this Agreement, including coverage for any owned, hired, non-owned or rented vehicles, in an amount not less than $1,000,000 combined single limit for each accident.

(c) Professional liability (errors & omissions) insurance. Contractor shall maintain professional liability insurance that covers the Services to be performed in connection with this Agreement, in the minimum amount of $1,000,000 per claim and in the aggregate. Any policy inception date, continuity date, or retroactive date must be before the effective date of this Agreement and Contractor agrees to maintain continuous coverage through a period no less than three (3) years after completion of the services required by this Agreement.

(d) Workers' compensation insurance. Contractor shall maintain Workers' Compensation Insurance (Statutory Limits) and Employer's Liability Insurance (with limits of at least $1,000,000).

(e) Subcontractors. Contractor shall include all subcontractors as insureds under its policies or shall furnish separate certificates and certified endorsements for each subcontractor. All coverages for subcontractors shall include all of the requirements stated herein.

### 5.2 General Insurance Requirements.

(a) Proof of insurance. Contractor shall provide certificates of insurance to Authority as evidence of the insurance coverage required herein, along with a waiver of subrogation endorsement for workers' compensation. Insurance certificates and endorsements must be approved by the Authority prior to commencement of performance. Current certification of insurance shall be kept on file with Authority at all times during the term of this Agreement.

Authority reserves the right to require complete, certified copies of all required insurance policies, at any time.

(b) Duration of coverage. Contractor shall procure and maintain for the duration of this Agreement insurance against claims for injuries to persons or damages to property, which may arise from or in connection with the performance of the Services hereunder by Contractor, its agents, representatives, employees or subcontractors.

(c) Primary/noncontributing. Coverage provided by Contractor shall be primary and any insurance or self-insurance procured or maintained by Authority shall not be required to contribute with it. The limits of insurance required herein may be satisfied by a combination of primary and umbrella or excess insurance. Any umbrella or excess insurance shall contain or be endorsed to contain a provision that such coverage shall also apply on a primary and non-contributory basis for the benefit of Authority before the Authority's own insurance or self-insurance shall be called upon to protect it as a named insured.

(d) Authority's rights of enforcement. In the event any policy of insurance required under this Agreement does not comply with these specifications or is canceled and not replaced, Authority has the right but not the duty to obtain the insurance it deems necessary and any premium paid by Authority will be promptly reimbursed by Contractor or Authority will withhold amounts sufficient to pay premium from Contractor payments. In the alternative, Authority may cancel this Agreement.

(e) Acceptable insurers. All insurance policies shall be issued by an insurance company currently authorized by the Insurance Commissioner to transact business of insurance or that is on the List of Approved Surplus Line Insurers in the State of California, with an assigned policyholders' Rating of A- (or higher) and Financial Size Category Class VI (or larger) in accordance with the latest edition of Best's Key Rating Guide, unless otherwise approved by the Authority.

(f) Waiver of subrogation. All insurance coverage maintained or procured pursuant to this agreement shall be endorsed to waive subrogation against Authority, its member agencies, elected or appointed officers, agents, officials, employees and volunteers or shall specifically allow Contractor or others providing insurance evidence in compliance with these specifications to waive their right of recovery prior to a loss. Contractor hereby waives its own right of recovery against Authority, and shall require similar written express waivers and insurance clauses from each of its subcontractors.

(g) Enforcement of contract provisions (non-estoppel). Contractor acknowledges and agrees that any actual or alleged failure on the part of the Authority to inform Contractor of non-compliance with any requirement imposes no additional obligations on the Authority nor does it waive any rights hereunder.

(h) Requirements not limiting. Requirements of specific coverage features or limits contained in this section are not intended as a limitation on coverage, limits or other requirements, or a waiver of any coverage normally provided by any insurance. Specific reference to a given coverage feature is for purposes of clarification only as it pertains to a given

issue and is not intended by any party or insured to be all inclusive, or to the exclusion of other coverage, or a waiver of any type. If the Contractor maintains higher limits than the minimums shown above, the Authority requires and shall be entitled to coverage for the higher limits maintained by the Contractor. Any available insurance proceeds in excess of the specified minimum limits of insurance and coverage shall be available to the Authority.

(i) Notice of cancellation. Contractor agrees to oblige its insurance agent or broker and insurers to provide to Authority with a thirty (30) day notice of cancellation (except for nonpayment for which a ten (10) day notice is required) or nonrenewal of coverage for each required coverage.

(j) Additional insured status. General liability policies shall provide or be endorsed to provide that Authority and its officers, officials, employees, and agents, and volunteers shall be additional insureds under such policies. This provision shall also apply to any excess/umbrella liability policies.

(k) Prohibition of undisclosed coverage limitations. None of the coverages required herein will be in compliance with these requirements if they include any limiting endorsement of any kind that has not been first submitted to Authority and approved of in writing.

(l) Separation of insureds. A severability of interests provision must apply for all additional insureds ensuring that Contractor's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the insurer's limits of liability. The policy(ies) shall not contain any cross-liability exclusions.

(m) Pass through clause. Contractor agrees to ensure that its subcontractors, subcontractors, and any other party involved with the project who is brought onto or involved in the project by Contractor, provide the same minimum insurance coverage and endorsements required of Contractor. Contractor agrees to monitor and review all such coverage and assumes all responsibility for ensuring that such coverage is provided in conformity with the requirements of this section. Contractor agrees that upon request, all agreements with Contractors, subcontractors, and others engaged in the project will be submitted to Authority for review.

(n) Authority's right to revise specifications. The Authority reserves the right at any time during the term of the contract to change the amounts and types of insurance required by giving the Contractor ninety (90) days advance written notice of such change. If such change results in substantial additional cost to the Contractor, the Authority and Contractor may renegotiate Contractor's compensation.

(o) Self-insured retentions. Any self-insured retentions must be declared to and approved by Authority. Authority reserves the right to require that self-insured retentions be eliminated, lowered, or replaced by a deductible. Self-insurance will not be considered to comply with these specifications unless approved by Authority.

(p) Timely notice of claims. Contractor shall give Authority prompt and timely notice of claims made or suits instituted that arise out of or result from Contractor's

performance under this Agreement, and that involve or may involve coverage under any of the required liability policies.

(q) Additional insurance. Contractor shall also procure and maintain, at its own cost and expense, any additional kinds of insurance, which in its own judgment may be necessary for its proper protection and prosecution of the work.

**5.3 Indemnification.**

To the full extent permitted by law, Contractor agrees to indemnify, defend and hold harmless the Authority, its member agencies, its officers, employees and agents ("Indemnified Parties") against, and will hold and save them and each of them harmless from, any and all actions, either judicial, administrative, arbitration or regulatory claims, damages to persons or property, losses, costs, penalties, obligations, errors, omissions or liabilities whether actual or threatened (herein "claims or liabilities") that may be asserted or claimed by any person, firm or entity arising out of or in connection with the negligent performance of the work, operations or activities provided herein of Contractor, its officers, employees, agents, subcontractors, or invitees, or any individual or entity for which Contractor is legally liable ("indemnitors"), or arising from Contractor's or indemnitors' reckless or willful misconduct, or arising from Contractor's or indemnitors' negligent performance of or failure to perform any term, provision, covenant or condition of this Agreement, and in connection therewith:

(a) Contractor will defend any action or actions filed in connection with any of said claims or liabilities and will pay all costs and expenses, including legal costs and attorneys' fees incurred in connection therewith;

(b) Contractor will promptly pay any judgment rendered against the Authority, its officers, agents or employees for any such claims or liabilities arising out of or in connection with the negligent performance of or failure to perform such work, operations or activities of Contractor hereunder; and Contractor agrees to save and hold the Authority, its officers, agents, and employees harmless therefrom;

(c) In the event the Authority, its officers, agents or employees is made a party to any action or proceeding filed or prosecuted against Contractor for such damages or other claims arising out of or in connection with the negligent performance of or failure to perform the work, operation or activities of Contractor hereunder, Contractor agrees to pay to the Authority, its member agencies, its officers, agents or employees, any and all costs and expenses incurred by the Authority, its officers, agents or employees in such action or proceeding, including but not limited to, legal costs and attorneys' fees.

Contractor shall incorporate similar indemnity agreements with its subcontractors and if it fails to do so Contractor shall be fully responsible to indemnify Authority hereunder therefore, and failure of Authority to monitor compliance with these provisions shall not be a waiver hereof. This indemnification includes claims or liabilities arising from any negligent or wrongful act, error or omission, or reckless or willful misconduct of Contractor in the performance of professional services hereunder. The provisions of this Section do not apply to claims or

liabilities occurring as a result of Authority's sole negligence or willful acts or omissions, but, to the fullest extent permitted by law, shall apply to claims and liabilities resulting in part from Authority's negligence, except that design professionals' indemnity hereunder shall be limited to claims and liabilities arising out of the negligence, recklessness or willful misconduct of the design professional. The indemnity obligation shall be binding on successors and assigns of Contractor and shall survive termination of this Agreement.

## ARTICLE 6. RECORDS, REPORTS, AND RELEASE OF INFORMATION

### 6.1 Records.

Contractor shall keep, and require subcontractors to keep, such ledgers, books of accounts, invoices, vouchers, canceled checks, reports, studies or other documents relating to the disbursements charged to Authority and services performed hereunder (the "books and records"), as shall be necessary to perform the services required by this Agreement and enable the Water Resource Manager to evaluate the performance of such services. Any and all such documents shall be maintained in accordance with generally accepted accounting principles and shall be complete and detailed. The Water Resource Manager shall have full and free access to such books and records at all times during normal business hours of Authority, including the right to inspect, copy, audit and make records and transcripts from such records. Such records shall be maintained for a period of three (3) years following completion of the services hereunder, and the Authority shall have access to such records in the event any audit is required. In the event of dissolution of Contractor's business, custody of the books and records may be given to Authority, and access shall be provided by Contractor's successor in interest. Notwithstanding the above, the Contractor shall fully cooperate with the Authority in providing access to the books and records if a public records request is made and disclosure is required by law including but not limited to the California Public Records Act.

### 6.2 Reports.

Contractor shall periodically prepare and submit to the Water Resource Manager such reports concerning the performance of the services required by this Agreement as the Water Resource Manager shall require. Contractor hereby acknowledges that the Authority is greatly concerned about the cost of work and services to be performed pursuant to this Agreement. For this reason, Contractor agrees that if Contractor becomes aware of any facts, circumstances, techniques, or events that may or will materially increase or decrease the cost of the work or services contemplated herein or, if Contractor is providing design services, the cost of the project being designed, Contractor shall promptly notify the Water Resource Manager of said fact, circumstance, technique or event and the estimated increased or decreased cost related thereto and, if Contractor is providing design services, the estimated increased or decreased cost estimate for the project being designed.

### 6.3 Ownership of Documents.

All drawings, specifications, maps, designs, photographs, studies, surveys, data, notes, computer files, reports, records, documents and other materials (the "documents and materials") prepared by Contractor, its employees, subcontractors and agents in the performance of this

Agreement shall be the property of Authority and shall be delivered to Authority upon request of the Water Resource Manager or upon the termination of this Agreement, and Contractor shall have no claim for further employment or additional compensation as a result of the exercise by Authority of its full rights of ownership use, reuse, or assignment of the documents and materials hereunder. Any use, reuse or assignment of such completed documents for other projects and/or use of uncompleted documents without specific written authorization by the Contractor will be at the Authority's sole risk and without liability to Contractor, and Contractor's guarantee and warranties shall not extend to such use, reuse or assignment. Contractor may retain copies of such documents for its own use. Contractor shall have the right to use the concepts embodied therein. All subcontractors shall provide for assignment to Authority of any documents or materials prepared by them, and in the event Contractor fails to secure such assignment, Contractor shall indemnify Authority for all damages resulting therefrom. Moreover, Contractor with respect to any documents and materials that may qualify as "works made for hire" as defined in 17 U.S.C. § 101, such documents and materials are hereby deemed "works made for hire" for the Authority.

**6.4 Confidentiality and Release of Information.**

(a) All information gained or work product produced by Contractor in performance of this Agreement shall be considered confidential, unless such information is in the public domain or already known to Contractor. Contractor shall not release or disclose any such information or work product to persons or entities other than Authority without prior written authorization from the Water Resource Manager.

(b) Contractor, its officers, employees, agents or subcontractors, shall not, without prior written authorization from the Water Resource Manager or unless requested by the Authority Attorney, voluntarily provide documents, declarations, letters of support, testimony at depositions, response to interrogatories or other information concerning the work performed under this Agreement. Response to a subpoena or court order shall not be considered "voluntary" provided Contractor gives Authority notice of such court order or subpoena.

(c) If Contractor, or any officer, employee, agent or subcontractor of Contractor, provides any information or work product in violation of this Agreement, then Authority shall have the right to reimbursement and indemnity from Contractor for any damages, costs and fees, including attorney's fees, caused by or incurred as a result of Contractor's conduct.

(d) Contractor shall promptly notify Authority should Contractor, its officers, employees, agents or subcontractors be served with any summons, complaint, subpoena, notice of deposition, request for documents, interrogatories, request for admissions or other discovery request, court order or subpoena from any party regarding this Agreement and the work performed there under. Authority retains the right, but has no obligation, to represent Contractor or be present at any deposition, hearing or similar proceeding. Contractor agrees to cooperate fully with Authority and to provide Authority with the opportunity to review any response to discovery requests provided by Contractor. However, this right to review any such response does not imply or mean the right by Authority to control, direct, or rewrite said response.

## ARTICLE 7. ENFORCEMENT OF AGREEMENT AND TERMINATION

### 7.1 California Law.

This Agreement shall be interpreted, construed and governed both as to validity and to performance of the parties in accordance with the laws of the State of California. Legal actions concerning any dispute, claim or matter arising out of or in relation to this Agreement shall be instituted in the Superior Court of the County of Kern, State of California, or any other appropriate court in such county, and Contractor covenants and agrees to submit to the personal jurisdiction of such court in the event of such action. In the event of litigation in a U.S. District Court, venue shall lie exclusively in the Eastern District of California, in the City of Fresno, State of California.

### 7.2 Disputes; Default.

In the event that Contractor is in default under the terms of this Agreement, the Authority shall not have any obligation or duty to continue compensating Contractor for any work performed after the date of default. Instead, the Authority may give notice to Contractor of the default and the reasons for the default. The notice shall include the timeframe in which Contractor may cure the default. This timeframe is presumptively thirty (30) days, but may be extended, though not reduced, if circumstances warrant. During the period of time that Contractor is in default, the Authority shall hold all invoices and shall, when the default is cured, proceed with payment on the invoices. In the alternative, the Authority may, in its sole discretion, elect to pay some or all of the outstanding invoices during the period of default. If Contractor does not cure the default, the Authority may take necessary steps to terminate this Agreement under this Article. Any failure on the part of the Authority to give notice of the Contractor's default shall not be deemed to result in a waiver of the Authority's legal rights or any rights arising out of any provision of this Agreement.

### 7.3 Retention of Funds.

Contractor hereby authorizes Authority to deduct from any amount payable to Contractor (whether or not arising out of this Agreement) (i) any amounts the payment of which may be in dispute hereunder or which are necessary to compensate Authority for any losses, costs, liabilities, or damages suffered by Authority, and (ii) all amounts for which Authority may be liable to third parties, by reason of Contractor's acts or omissions in performing or failing to perform Contractor's obligation under this Agreement. In the event that any claim is made by a third party, the amount or validity of which is disputed by Contractor, or any indebtedness shall exist which shall appear to be the basis for a claim of lien, Authority may withhold from any payment due, without liability for interest because of such withholding, an amount sufficient to cover such claim. The failure of Authority to exercise such right to deduct or to withhold shall not, however, affect the obligations of the Contractor to insure, indemnify, and protect Authority as elsewhere provided herein.

### 7.4 Waiver.

Waiver by any party to this Agreement of any term, condition, or covenant of this Agreement shall not constitute a waiver of any other term, condition, or covenant. Waiver by any party of any breach of the provisions of this Agreement shall not constitute a waiver of any other provision or a waiver of any subsequent breach or violation of any provision of this Agreement. Acceptance by Authority of any work or services by Contractor shall not constitute a waiver of any of the provisions of this Agreement. No delay or omission in the exercise of any right or remedy by a non-defaulting party on any default shall impair such right or remedy or be construed as a waiver. Any waiver by either party of any default must be in writing and shall not be a waiver of any other default concerning the same or any other provision of this Agreement.

### 7.5 Rights and Remedies are Cumulative.

Except with respect to rights and remedies expressly declared to be exclusive in this Agreement, the rights and remedies of the parties are cumulative and the exercise by either party of one or more of such rights or remedies shall not preclude the exercise by it, at the same or different times, of any other rights or remedies for the same default or any other default by the other party.

### 7.6 Legal Action.

In addition to any other rights or remedies, either party may take legal action, in law or in equity, to cure, correct or remedy any default, to recover damages for any default, to compel specific performance of this Agreement, to obtain declaratory or injunctive relief, or to obtain any other remedy consistent with the purposes of this Agreement. Notwithstanding any contrary provision herein, Contractor shall file a statutory claim pursuant to Government Code Sections 905 et seq. and 910 et seq., in order to pursue a legal action under this Agreement.

### 7.7 Termination Prior to Expiration of Term.

This Section shall govern any termination of this Contract except as specifically provided in the following Section for termination for cause. The Authority reserves the right to terminate this Contract at any time, with or without cause, upon thirty (30) days' written notice to Contractor, except that where termination is due to the fault of the Contractor, the period of notice may be such shorter time as may be determined by the Water Resource Manager. In addition, the Contractor reserves the right to terminate this Contract at any time, with or without cause, upon sixty (60) days' written notice to Authority, except that where termination is due to the fault of the Authority, the period of notice may be such shorter time as the Contractor may determine. Upon receipt of any notice of termination, Contractor shall immediately cease all services hereunder except such as may be specifically approved by the Water Resource Manager. Except where the Contractor has initiated termination, the Contractor shall be entitled to compensation for all services rendered prior to the effective date of the notice of termination and for any services authorized by the Water Resource Manager thereafter in accordance with the Schedule of Compensation or such as may be approved by the Water Resource Manager, except as provided in Section 7.3. In the event the Contractor has initiated termination, the Contractor shall be entitled to compensation only for the reasonable value of the work product actually

produced hereunder. In the event of termination without cause pursuant to this Section, the terminating party need not provide the non-terminating party with the opportunity to cure pursuant to Section 7.2.

### 7.8 Termination for Default of Contractor.

If termination is due to the failure of the Contractor to fulfill its obligations under this Agreement, Authority may, after compliance with the provisions of Section 7.2, take over the work and prosecute the same to completion by contract or otherwise, and the Contractor shall be liable to the extent that the total cost for completion of the services required hereunder exceeds the compensation herein stipulated (provided that the Authority shall use reasonable efforts to mitigate such damages), and Authority may withhold any payments to the Contractor for the purpose of set-off or partial payment of the amounts owed the Authority as previously stated.

### 7.9 Attorneys' Fees.

If either party to this Agreement is required to initiate or defend or made a party to any action or proceeding in any way connected with this Agreement, the prevailing party in such action or proceeding, in addition to any other relief which may be granted, whether legal or equitable, shall be entitled to reasonable attorney's fees. Attorney's fees shall include attorney's fees on any appeal, and in addition a party entitled to attorney's fees shall be entitled to all other reasonable costs for investigating such action, taking depositions and discovery and all other necessary costs the court allows which are incurred in such litigation. All such fees shall be deemed to have accrued on commencement of such action and shall be enforceable whether or not such action is prosecuted to judgment.

## ARTICLE 8. AUTHORITY OFFICERS AND EMPLOYEES: NON-DISCRIMINATION

### 8.1 Non-liability of Authority Officers and Employees.

No officer or employee of the Authority shall be personally liable to the Contractor, or any successor in interest, in the event of any default or breach by the Authority or for any amount which may become due to the Contractor or to its successor, or for breach of any obligation of the terms of this Agreement.

### 8.2 Conflict of Interest.

Contractor covenants that neither it, nor any officer or principal of its firm, has or shall acquire any interest, directly or indirectly, which would conflict in any manner with the interests of Authority or which would in any way hinder Contractor's performance of services under this Agreement. Contractor further covenants that in the performance of this Agreement, no person having any such interest shall be employed by it as an officer, employee, agent or subcontractor without the express written consent of the Water Resource Manager. Contractor agrees to at all times avoid conflicts of interest or the appearance of any conflicts of interest with the interests of Authority in the performance of this Agreement.

No officer or employee of the Authority shall have any financial interest, direct or indirect, in this Agreement nor shall any such officer or employee participate in any decision relating to the Agreement which affects her/his financial interest or the financial interest of any corporation, partnership or association in which (s)he is, directly or indirectly, interested, in violation of any State statute or regulation. The Contractor warrants that it has not paid or given and will not pay or give any third party any money or other consideration for obtaining this Agreement.

### 8.3 Covenant Against Discrimination.

Contractor covenants that, by and for itself, its heirs, executors, assigns, and all persons claiming under or through them, that there shall be no discrimination against or segregation of, any person or group of persons on account of race, color, creed, religion, sex, gender, sexual orientation, marital status, national origin, ancestry or other protected class in the performance of this Agreement. Contractor shall take affirmative action to insure that applicants are employed and that employees are treated during employment without regard to their race, color, creed, religion, sex, gender, sexual orientation, marital status, national origin, ancestry or other protected class.

### 8.4 Unauthorized Aliens.

Contractor hereby promises and agrees to comply with all of the provisions of the Federal Immigration and Nationality Act, 8 U.S.C. § 1101 *et seq.*, as amended, and in connection therewith, shall not employ unauthorized aliens as defined therein. Should Contractor so employ such unauthorized aliens for the performance of work and/or services covered by this Agreement, and should any liability or sanctions be imposed against Authority for such use of unauthorized aliens, Contractor hereby agrees to and shall reimburse Authority for the cost of all such liabilities or sanctions imposed, together with any and all costs, including attorneys' fees, incurred by Authority.

## ARTICLE 9. MISCELLANEOUS PROVISIONS

### 9.1 Notices.

Any notice, demand, request, document, consent, approval, or communication either party desires or is required to give to the other party or any other person shall be in writing and either served personally or sent by prepaid, first-class mail, in the case of the Authority, to the attention of the Water Resource Manager (with her/his name and Authority title), Indian Wells Valley Groundwater Authority, 100 West California Avenue, Ridgecrest California 93555 and in the case of the Contractor, to the person(s) at the address designated on the execution page of this Agreement. Either party may change its address by notifying the other party of the change of address in writing. Notice shall be deemed communicated at the time personally delivered or in seventy-two (72) hours from the time of mailing if mailed as provided in this Section.

### 9.2 Interpretation.

The terms of this Agreement shall be construed in accordance with the meaning of the language used and shall not be construed for or against either party by reason of the authorship of this Agreement or any other rule of construction which might otherwise apply.

### 9.3 Counterparts.

This Agreement may be executed in counterparts, each of which shall be deemed to be an original, and such counterparts shall constitute one and the same instrument.

### 9.4 Integration; Amendment.

This Agreement including the attachments hereto is the entire, complete and exclusive expression of the understanding of the parties. It is understood that there are no oral agreements between the parties hereto affecting this Agreement and this Agreement supersedes and cancels any and all previous negotiations, arrangements, agreements and understandings, if any, between the parties, and none shall be used to interpret this Agreement. No amendment to or modification of this Agreement shall be valid unless made in writing and approved by the Contractor and by the Authority Council. The parties agree that this requirement for written modifications cannot be waived and that any attempted waiver shall be void.

### 9.5 Severability.

In the event that any one or more of the phrases, sentences, clauses, paragraphs, or sections contained in this Agreement shall be declared invalid or unenforceable by a valid judgment or decree of a court of competent jurisdiction, such invalidity or unenforceability shall not affect any of the remaining phrases, sentences, clauses, paragraphs, or sections of this Agreement which are hereby declared as severable and shall be interpreted to carry out the intent of the parties hereunder unless the invalid provision is so material that its invalidity deprives either party of the basic benefit of their bargain or renders this Agreement meaningless.

### 9.6 Warranty & Representation of Non-Collusion.

No official, officer, or employee of Authority has any financial interest, direct or indirect, in this Agreement, nor shall any official, officer, or employee of Authority participate in any decision relating to this Agreement which may affect his/her financial interest or the financial interest of any corporation, partnership, or association in which (s)he is directly or indirectly interested, or in violation of any corporation, partnership, or association in which (s)he is directly or indirectly interested, or in violation of any State or municipal statute or regulation. The determination of "financial interest" shall be consistent with State law and shall not include interests found to be "remote" or "noninterests" pursuant to Government Code Sections 1091 or 1091.5. Contractor warrants and represents that it has not paid or given, and will not pay or give, to any third party including, but not limited to, any Authority official, officer, or employee, any money, consideration, or other thing of value as a result or consequence of obtaining or being awarded any agreement. Contractor further warrants and represents that (s)he/it has not engaged in any act(s), omission(s), or other conduct or collusion that would result in the payment of any

money, consideration, or other thing of value to any third party including, but not limited to, any Authority official, officer, or employee, as a result of consequence of obtaining or being awarded any agreement. Contractor is aware of and understands that any such act(s), omission(s) or other conduct resulting in such payment of money, consideration, or other thing of value will render this Agreement void and of no force or effect.

Contractor's Authorized Initials _____

**9.7 Corporate Authority.**

The persons executing this Agreement on behalf of the parties hereto warrant that (i) such party is duly organized and existing, (ii) they are duly authorized to execute and deliver this Agreement on behalf of said party, (iii) by so executing this Agreement, such party is formally bound to the provisions of this Agreement, and (iv) that entering into this Agreement does not violate any provision of any other Agreement to which said party is bound. This Agreement shall be binding upon the heirs, executors, administrators, successors and assigns of the parties.

**[SIGNATURES ON FOLLOWING PAGE]**

**IN WITNESS WHEREOF**, the parties hereto have executed this Agreement on the date and year first-above written.

**AUTHORITY:**

Indian Wells Valley Groundwater Authority

_____
Carol Thomas-Keefer, Acting General Manager

**APPROVED AS TO FORM:**
ALESHIRE & WYNDER, LLP

_____
Keith Lemieux, Board Counsel

**CONTRACTOR:**

Overland, Pacific, and Cutler, LLC

By:_____
Name: _____
Title:_____

By:_____
Name: _____
Title:_____

Address:1800 30th Street, Suite 280
Bakersfield, CA 93301

**Two corporate officer signatures required when Contractor is a corporation, with one signature required from each of the following groups: 1) Chairman of the Board, President or any Vice President; and 2) Secretary, any Assistant Secretary, Chief Financial Officer or any Assistant Treasurer. CONTRACTOR'S SIGNATURES SHALL BE DULY NOTARIZED, AND APPROPRIATE ATTESTATIONS SHALL BE INCLUDED AS MAY BE REQUIRED BY THE BYLAWS, ARTICLES OF INCORPORATION, OR OTHER RULES OR REGULATIONS APPLICABLE TO CONTRACTOR'S BUSINESS ENTITY.**

# CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy or validity of that document.

STATE OF CALIFORNIA

COUNTY OF KERN

On _____, 2023 before me, _____, personally appeared _____, proved to me on the basis of satisfactory evidence to be the person(s) whose names(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature: _____

**OPTIONAL**

Though the data below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent reattachment of this form

**CAPAAUTHORITY CLAIMED BY SIGNER**

☐ INDIVIDUAL
☐ CORPORATE OFFICER

_____
TITLE(S)

☐ PARTNER(S) ☐ LIMITED
☐ GENERAL
☐ ATTORNEY-IN-FACT
☐ TRUSTEE(S)
☐ GUARDIAN/CONSERVATOR
☐ OTHER_____

_____

**SIGNER IS REPRESENTING:**
(NAME OF PERSON(S) OR ENTITY(IES))

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**DESCRIPTION OF ATTACHED DOCUMENT**

_____
TITLE OR TYPE OF DOCUMENT

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NUMBER OF PAGES

_____
DATE OF DOCUMENT

_____
SIGNER(S) OTHER THAN NAMED ABOVE

# CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy or validity of that document.

STATE OF CALIFORNIA

COUNTY OF KERN

On _____, 2023 before me, _____, personally appeared _____, proved to me on the basis of satisfactory evidence to be the person(s) whose names(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature: _____

**OPTIONAL**

Though the data below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent reattachment of this form.

**CAPAAUTHORITY CLAIMED BY SIGNER**

☐ INDIVIDUAL
☐ CORPORATE OFFICER

_____
TITLE(S)

☐ PARTNER(S) ☐ LIMITED
☐ GENERAL
☐ ATTORNEY-IN-FACT
☐ TRUSTEE(S)
☐ GUARDIAN/CONSERVATOR
☐ OTHER_____

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**SIGNER IS REPRESENTING:**
(NAME OF PERSON(S) OR ENTITY(IES))

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**DESCRIPTION OF ATTACHED DOCUMENT**

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TITLE OR TYPE OF DOCUMENT

_____
NUMBER OF PAGES

_____
DATE OF DOCUMENT

_____
SIGNER(S) OTHER THAN NAMED ABOVE

# EXHIBIT "A"

## Contractor's Proposal

# EXHIBIT "B"

## Invoice Sample

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# Imported Water Pipeline Right-of-Way & Parcel Acquisition Services

## Indian Wells Valley Groundwater Authority

REVISED FEBRUARY 3, 2023
PROPOSAL VALID FOR 90 DAYS




OPC Senior Program Manager



April Harvey, SR/WA
Senior Program Manager
Office: 562.304.2000
Direct : 213.793.4885
E : AHarvey@OPCservices.com


OPC
A Division of TranSystems

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OPC
A Division of TranSystems

CELEBRATING 43 Years 1980-2023

February 3, 2023

Ms. April Keigwin
Clerk of the Board of Directors
100 W. California Ave.
Ridgecrest, CA 93555

Submitted via Email: akeigwin@rgs.ca.gov

**1. INTRODUCTION**
**RE: REQUEST FOR PROPOSALS - IMPORTED WATER PIPELINE RIGHT-OF-WAY AND PARCEL ACQUISITION SERVICES**

Dear Ms. Keigwin:

To help sustain groundwater supply and prevent overdraft in the Indian Wells Valley Groundwater Basin, the Indian Wells Valley Groundwater Authority (IWVGA) is planning to construct a conveyance pipeline and associated infrastructure to import and store water. The proposed Imported Water Pipeline Project (Project) is an ambitious undertaking that will span approximately 50 miles, from California City in the south to a site adjacent to the existing Indian Wells Valley Water District Ridgecrest Heights Water Tank in Ridgecrest. The IWVGA has secured California Department of Water Resources (DWR) grant funding for the Project's pre-construction activities, including environmental documentation, design engineering, and right of way (ROW) services. This grant is set to expire in March of 2025.

To meet the goals of the Project, the IWVGA and its Groundwater Supply Plan (GSP) consultant Stetson Engineers will require careful stewardship of funds, close collaboration with its consultants, and diligent management of critical paths to keep on schedule.

This is where OPC comes in. **Overland, Pacific & Cutler, LLC (OPC)**, a wholly-owned subsidiary of **TranSystems Corporation**, has specialized in ROW and parcel acquisition services for public infrastructure projects for 43 years. As described herein, the OPC team is the best fit for IWVGA due to our:

- *Extensive knowledge of the local Kern County real estate market, pipeline and utility protocols, and applicable guidelines for ROW acquisition and related permitting*
- *Proven programmatic approach for on-time ROW delivery on large linear corridor projects, including water conveyance, electrical transmission, roadways, highways, rail, and bridges*
- *Advanced parcel tracking and file management platform to help IWVGA easily monitor ROW progress along the 50-mile Project corridor*
- *Comprehensive Project team ready to start immediately, guided by the expert leadership of* ***Senior Program Manager April Harvey, SR/WA***
- *Value-added capabilities available as needed, such as utility coordination, grant application management, remote sensing, and GIS management through our broader TranSystems parent company*

As highlighted in **Section 4**, OPC has worked extensively throughout Kern County and the Mojave Desert. Our team has provided ROW services directly for local clients like County of Kern Public Works, City of Bakersfield, City of Lancaster, City of Palmdale, Los Angeles Department of Water and Power (LADWP), Southern California Edison (SCE), San Bernardino County Transportation Authority, and the California High Speed Rail Authority.

OPC understands ROW and related permitting issues for pipeline projects. As a long-time land services consultant to Sempra Utilities (including Southern California Gas Company and San Diego Gas & Electric), OPC has worked extensively on pipeline projects, including subsurface rights and title research, easement acquisition, and utility coordination.

Beyond our long-term service contracts for these gas utilities, OPC has also worked on numerous water pipeline and conveyance projects. Beyond this experience, OPC has worked with numerous water and irrigation districts throughout California, such as Golden State Water Company, DWR, LADWP, Glendale Department of Water & Power, Long Beach Water Department, South County Water District, Alameda County Water District, San Diego County Water Authority, Sacramento Suburban Water District, South Placer County Municipal Utility District, Contra Costa County Water District, Santa Clara Valley Water District, and many others. OPC and our appraisal subconsultant **Bender Rosenthal, Inc. (BRI)** have been working together to provide Friant Water Authority with ROW services on the Friant-Kern Canal Middle Reach Capacity Correction Project. Our team is responsible for appraisal, parcel acquisition, and utility coordination in support of improvements to a 33-mile segment of the Central Valley water supply canal that is subsiding in part due to groundwater overdraft.

Major pipeline corridors like the Project require careful tracking and management of ROW data. OPC has a built-for-purpose ROW data management platform called ProjectOne® that enables our entire team (including authorized client and consultant staff) to view real-time updates of ROW progress so that

Our Senior Program Manager for this scope of work is ***April Harvey, SR/WA***, who heads OPC's Energy & Utilities ROW practice. As a member of the American Association of Professional Landmen and Chapter 1 President of the International Right of Way Association (IRWA), April is a recognized expert in ROW acquisition, permitting, and utility coordination for major pipeline projects. A veteran of the ROW industry for 27 years, April recently joined OPC this month. As such, she has the availability to commit the time and attention to the Project that a pipeline of this magnitude demands.

Many of OPC's dedicated ROW staff have served in similar ROW positions for State and local agencies. These staff include former City of Bakersfield, County of Kern, and Caltrans Central Region ROW management. Their in-depth understanding of these agencies' perspectives will help us advance the ROW schedule and advise on permitting critical paths.

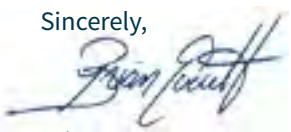
Backing our ROW experience is our comprehensive engineering capability through our parent company TranSystems Corporation. Should the need arise for additional expertise in areas such as GIS, utility coordination, permitting, or grant writing, among others, OPC can readily bring in our TranSystems colleagues. Unlike the other ROW firms that the IWVGA may be considering for the Project, OPC has in-house engineers, designers, surveyors, and GIS specialists to readily work with our ROW specialists as one team. Furthermore, our familiarity with engineering, environmental sciences, and permitting allows us to understand better how our ROW scope impacts the other Project consultants. By selecting OPC, IWVGA also gets the expertise of our 1,500-strong professional and technical personnel across all of TranSystems' offices.

On top of the qualifications, experience, and approach that we have laid out in our proposal, the OPC team recognizes that the Project demands a commitment to meeting the time constraints of the grant. This starts with selection of IWVGA's ROW consultant. To help the selection committee easily evaluate our proposal, we have included linked navigation tabs on the right side of our electronic submittal. Links will take the reader to the section by clicking to aid in reading.

The signatory below is authorized by OPC, a wholly-owned division of TranSystems Corporation, to bind the firm to the proposal. OPC is willing to accept terms and conditions set forth in the Request for Proposal (RFP). In preparing our proposal, OPC and our subconsultant team have carefully reviewed the RFP and Addendum 1. Acknowledgement of our receipt of Addendum 1 is provided immediately after this introduction letter. Our proposal will be valid for a term of 90 days following the date of submittal.

If you have any questions on our proposal, please contact ***April Harvey, SR/WA*** , the OPC Senior Program Manager for the Project, at AHarvey@OPCservices.com or 213.793.4885. We look forward to working with IWVGA to meet the grant deadline on this critical water pipeline to protect the sensitive groundwater resources of Indian Wells Valley!

Sincerely,



Brian Everett
President
**OPC**

Indian Wells Valley Groundwater Authority
100 W. California Avenue
Ridgecrest, CA 93555

Addendum No. 1

Friday, January 13, 2023

Prepared by:
STETSON ENGINEERS, INC.

---

## BIDDER'S CERTIFICATION

I acknowledge receipt of the foregoing Addendum No. 1 and accept all conditions contained herein.

Dated: January 24, 2023

Company: Overland, Pacific & Cutler, LLC

Bidder: Brian Everett

Title: President

Signature: 

**THIS FORM MUST BE COMPLETED AND SUBMITTED WITH PROPOSAL**

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# 2. Proposing Firm

## PRIMARY CONSULTANT OVERVIEW




*Since 1980, OPC has been a leader in professional right of way services for public infrastructure clients.*

**SIZE:** Overland, Pacific & Cutler, LLC (OPC) is one of the largest firms in the US specializing in ROW services for public infrastructure. With 120 staff in 11 major offices, we have the size and strength to make the Imported Water Pipeline Project a success.

**LOCATION:** OPC has 11 major ROW offices across the US, including our main office in Long Beach, California. Our primary execution office for the Project will be our main Long Beach office, located at the address shown below.

**Overland, Pacific & Cutler, LLC**
**5000 Airport Plaza Drive, Suite 250**
**Long Beach, CA 90815**
**ph : 562.304.2000 | fx : 562.304.2020**
**opcservices.com**

**CAPACITY:** With 120 staff dedicated to our ROW practice, OPC has the capacity to deliver all aspects of the ROW scope for the Project. For the past four decades, we have managed thousands of similar projects, providing expert right of way project management, parcel acquisition and negotiation services, relocation services, escrow services, utility coordination, and special studies for public agencies throughout California.

**TYPE OF FIRM:** Overland, Pacific & Cutler, LLC is a limited liability corporation. OPC is a licensed State of California Corporate Real Estate Broker (02056390) holding all necessary licenses required to perform the work. Our assigned acquisition staff hold California Real Estate licenses.

**YEAR ESTABLISHED:** OPC was founded in 1980.

**ORGANIZATION AND MANAGEMENT:** As of October 2022, Overland, Pacific & Cutler, LLC is a wholly-owned company of TranSystems Corporation. TranSystems is a national engineering, architectural, planning and construction solutions firm. Founded in 1966, TranSystems is headquartered in Kansas City, MO with 1,500 staff in over 50 US offices.

**AREAS OF EXPERTISE:**
As a turnkey ROW services company, OPC's comprehensive areas of ROW expertise include:

- Feasibility & Cost Studies
- Title Research
- Valuation
- Acquisition
- Relocation
- Utility Coordination
- Property Management
- Brokerage Services
- Staff Augmentation

## SUBCONSULTANT OVERVIEW

APPRAISAL SUBCONTRACTOR

# Bender Rosenthal, Inc.

Bender Rosenthal, Inc. (BRI) was founded in 1997 as a California S Corporation. The firm specializes in right of way project management and planning, real estate appraisal, real property acquisition, residential and business relocation, property management and land services.

With a deep bench of professionals spread over those disciplines and over 25 years of service delivery for public sector clients, BRI has the experience and staffing capacity to provide comprehensive for the IWVGA Imported Water Pipeline Project.

BRI's appraisal team includes eight (8) California Certified General Real Estate Appraisers, five (5) of whom earned the MAI designation from the Appraisal Institute. In addition, BRI has two (2) appraisal reviewers with the prestigious AI-GRS designation.

**SUBCONSULTANT ENTITY NAME**

Bender Rosenthal, Inc.

**MAILING ADDRESS**

2825 Watt Avenue, Suite 200

Sacramento, CA 95821

**TELEPHONE / FAX**

916.978.4900 | fax : 562.304.2020

**EMAIL**

n.miranda@benderrosenthal.com

**AREA OF EXPERTISE**

ROW Appraisal and Valuation Services

BRI BENDER ROSENTHAL INCORPORATED

## RESPONSIBILITY OF PRIMARY CONSULTANT AND SUBCONTRACTORS

The roles on the OPC team are as follows

| Team Member | Responsibilities | Role |
|---|---|---|
| OPC | Primary Project ROW Consultant | Primary Consultant |
| BRI | Fee Appraisal and Appraisal Reports | Subconsultant to OPC |

OPC and BRI have a history of working together on major ROW programs like this. Our teaming experience includes California High Speed Rail, Sacramento Area Flood Control Agency, and San Bernardino County Transportation Authority projects.

We have most recently worked together on the Friant Water Authority Friant-Kern Canal Middle Reach Subsidence Correction Project in Kern and Tulare Counties. The project involves canal rehabilitation and construction of a parallel canal throughout a 33-mile long portion of the existing canal, focusing on the areas most impacted most by subsidence. BRI is in charge of the ROW program, including appraisal and acquisition for over 150 parcels impacted by the project. Most parcels within this corridor are agricultural parcels, containing established crops and orchards, and some of the parcels may be bisected, impacting irrigation systems, and affecting crop production. Under BRI's direction, OPC is providing utility coordination services.

Our proven teaming relationship will ensure reliable results and seamless subcontracting over the course of the Project.

# 2. Project Personnel

## STAFFING OVERVIEW

*OPC is proud to be one of the largest firms specializing in ROW and real estate services focused on public infrastructure. Our highlighted key personnel have extensive pipeline, water, and utility ROW experience to provide the IWVGA with the real estate expertise needed to keep the Project on track.*

The following list of key individuals will be assigned to this contract. Their qualifications, disciplines, and degree of commitment are provided on the next two pages. Per the contract terms will not permit substitution of lead personnel without prior written approval by IWVGA.

| Staff Member | Role | Availability |
|---|---|---|
| April Harvey, SR/WA | Senior Program Manager / Primary Contact | 75% |
| Donald M. Anderson, SR/WA | Senior Project Manager / Alternate Contact | 50% |
| Rand Cantrell | Senior Title Analyst | 50% |
| Skip Carleton, Jr., PLS | Professional Land Surveyor / Survey Manager | 60% |
| Kelly Dewitt | Acquisition Manager | 50% |

Highlighting the experience of our team and key personnel, OPC is actively involved in the advancement of the right of way profession on local and international levels through our memberships in the International Right of Way Association (IRWA). Our professionals include licensed real estate salespersons and brokers, designated Senior Right of Way (SR/WA) Professionals, and designated Right of Way Negotiations certified (R/W-NAC), Relocation Assistance certified (R/W-RAC) and Right of Way Uniform Act certified (R/W-URAC) Professionals. Our deep team of ROW specialists and subconsultants will comply with applicable Federal, State and local regulations concerning Project requirements.



**120** OPC staff specializing in ROW services

A clear advantage to the IWVGA in selecting OPC is our existing labor capacity to commit to the Project. With current and ongoing Kern County ROW projects, we have a local team ready to mobilize in the field as well as meet with IWVGA and its stakeholders whenever we are needed. Furthermore, as a division of TranSystems, OPC ives the IWVGA access to the expertise of 1,500 engineering and support staff.

## KEY PERSONNEL

OPC's primary objective is to provide IWVGA with responsive, collaborative, and comprehensive ROW services. Beyond the key staff highlighted below, the OPC team has the depth of resources to handle any unforeseen Project ROW issues projects. *Refer to Appendix. Copies of licenses are available upon request.*



### April Harvey, SR/WA
Senior Program Manager / Primary Point of Contact

27 Years of Experience
**CA DRE Salesperson #01279596**

April Harvey is an enthusiastic ROW leader with real-world, practical project insight. As Senior Program Manager, she will attend meetings with the Design and Environmental Consultants, IWVGA and its stakeholders, along with internal OPC project meetings. A ROW veteran with over 25 years of experience, her background covers both field and management roles for ROW acquisition, eminent domain, utility management, title / rights research, and project support. That experience includes work as an employee at a privately held pipeline company for 13 years and another six (6) years as a contractor for a publicly held pipeline company. As a result, she has worked with relevant stakeholder agencies for the Project, including Caltrans, US Bureau of Land Management (BLM), Union Pacific Railroad (UPRR), and County of Kern, among others. In these roles, she has negotiated franchise agreements with agencies, including drafting staff reports and resolutions for approximately 43 agencies in the State of California and attending the requisite public hearings. Among these agencies is Kern County, with whom she worked on anode well installations, road construction, and franchise agreement negotiations. In addition, Ms. Harvey has extensive experience in obtaining temporary construction permits, preparing notices and permits, reviewing title, and providing escrow coordination. A consummate professional, April is a member of the American Association of Professional Landmen (AAPL), a designated Senior Right of Way professional through IRWA. and the current IRWA Chapter 1 President.

***Key Projects:*** Crimson Midstream ROW Management of 1,800 Miles of Pipeline in California and 800 Miles in Louisiana, Sempra Utilities / Southern California Gas On-Call Land Services Projects, San Diego Gas & Electric On-Call ROW Land Services, Los Angeles County Sanitation Palmdale Reclamation Project



### Donald M. Anderson, SR/WA
Alternate Senior Project Manager

40 Years of Experience

As a public servant, title examiner, and real estate professional, Donald's relevant background is extensive. Prior to joining OPC in 2020, Don worked for the County of Kern and beforehand, served as the Real Property Manager for the City of Bakersfield. In these roles, he was involved in the implementation of the MBHCP. During his tenure, Don oversaw the real estate programs for transformation of the metropolitan Bakersfield area and its transportation infrastructure, including the $1.3 billion Thomas Road Improvement Program. Before embarking on a long career in public infrastructure management, Don worked as a landman for Fuller Oil and as a Title Officer for Ticor Title Insurance. Like April, he is a designated Senior Right of Way professional through IRWA.

***Key Projects:*** City of Bakersfield Thomas Road Improvement Program (TRIP), City of Bakersfield Centennial Corridor Project, Kern County South Shafter Sewer Improvement, Kern County SR-46 Widening Four-Lane Segment 4B, Metropolitan Bakersfield Habitat Conservation Plan



Rand Cantrell
Senior Title Analyst

40 Years of Experience
**AAPL Registered Land Professional**

As a Senior Title Analyst working on numerous pipeline and water conveyance projects, Rand will work with April, Donald, and the Design Consultant to identify and research Project ROW needs. Rand is an expert in detailed prior rights research, including for chains of title, mineral and subsurface rights, and land rights. His work includes mineral and water title reports (including abstracts) and identification of mineral, riparian, and water ownerships. His 40 years of experience lends itself to conducting research within title plants and coordinating with title companies to document complicated chains of titles. He is a Registered Land Professional with AAPL.

***Key Projects:*** Contra Costa County Water District Contra Costa Canal Transfers, DWR CalWaterFix Mineral Rights, Metropolitan Bakersfield Habitat Conservation Plan, San Diego Gas & Electric On-Call ROW Land Services

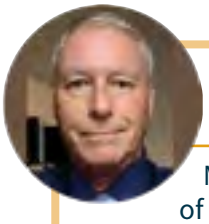


Skip Carleton, Jr., PLS
Survey Manager

50 Years of Experience
**CA Professional Land Surveyor #6594**

A Kern County resident, Skip will work with the Design Consultant and their survey team to prepare accurate ROW exhibits and maps needed for franchise agreements and parcel acquisition. As OPC's Survey Manager, Skip will be responsible for preparing appraisal exhibits. For nearly 50 years, Skip has worked throughout the western US on water, wastewater, and linear corridor projects. He is intimately familiar with the requirements and standards of Kern County and Caltrans.

***Key Projects:*** City of Bakersfield TRIP 24th Street Improvements and Centennial Corridor Project, Contra Costa County Water District Contra Costa Canal Transfers, San Bernardino County Transportation Authority (SBCTA) Title and ROW Engineering Services for Various Roadway and Rail Projects, City of Glendale Department of Water and Power Right of Way Exhibit and Mapping Services



Kelly Dewitt
Acquisition Manager

36 Years of Experience
**CA DRE Salesperson #00928779**

Mr. Kelly Dewitt will be handling day-to-day management of field activities for all easements, rights of entry, or part take acquisitions for the Project. He brings over 35 years of real estate experience and is knowledgeable of municipal, Caltrans, and Federal procedures and regulations. Kelly routinely works with all of the staff named on the proposed OPC team. He is responsible for managing ROW acquisitions throughout Southern California managing the acquisition team shown on the organization chart on the next page. He is also skilled in negotiations with commercial owners and tenants.

***Key Projects:*** City of Palmdale Avenue S-8 & 40th St. East Roundabout, Palmdale Water District Reservoir Site & Pure Water Facilities, City of Lancaster Pedestrian Gap Closure and Measure M & R Projects, City of Bakersfield Centennial Corridor Project, City of Rancho Cucamonga Etiwanda Grade Separation, SBCTA I-10 Express Lanes and West Valley Connnector Segment 1 ROW Contracts, Long Beach Water District Acquisitions and Relocations



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## ORGANIZATION

The OPC team depicted here will work to ensure timely completion of our team's activities to keep ROW tasks off of the critical path timeline.

Resumes are provided in the **Appendix** for all staff in ***green italics***.

### PRIMARY CONTACT



***April Harvey, SR/WA, Sr. Program Manager***

IWVGA
INDIAN WELLS VALLEY GROUNDWATER AUTHORITY

***OPC's team of passionate problem solvers shown here is all-in and ready to serve IWVGA and its selected consultant team to make the Imported Water Pipeline Project a success!***

As Senior Program Manager over OPC's Energy and Utilities group, ***April Harvey, SR/WA*** will direct all ROW tasks as proposed. She is a consummate professional with over 20 years in ROW, the majority of which has been focused on pipeline projects.

Like all of the OPC team, April is driven to serve. As the IWVGA's primary point of contact, she will be available from Day One for practical, actionable advice to advance the Project's ROW needs.

In case of an unforeseen issue, April is supported by Senior Project Manager, ***Donald Anderson, SR/WA***. As a long-time local Bakersfield resident and civil servant, he will be available to respond quickly to any on-site or in-person needs as they arise.

### PROJECT MANAGEMENT RESOURCES



***Donald M. Anderson, SR/WA, Sr. Project Manager***



***Mia Garcia, Project Controls Manager***

OPC Project Controls Analysts

**TITLE RESEARCH & ROW IDENTIFICATION**

*Rand Cantrell, Sr. Title Analyst*
*Donald M. Anderson, SR/WA, Sr. Project Manager*

**Kent Hagen, Senior Utility Coordinator**

**ROW MAPPING & EXHIBITS**

*Skip Carleton, Jr., PLS, Survey Manager*

**Chris Cano, CAD Designer**

**ROE NEGOTIATION & PARCEL ACQUISITION**

*Kelly Dewitt, Acquisition Manager*

**Jon Tovar, Senior Agent**
**Corey Nelson, RWP, RWA-TN, Senior Agent**
**Katie Quick, Senior Agent**
**Roger Hamel, Acquisition Agent**
**Ariel Corral, Acquisition Agent**

**APPRAISAL**

*Andrew P. Nierenberg, Appraisal Manager*
*Adam Bursch, MAI, Appraisal Vice President, BRI*
*David Houghton, MAI, Lead Appraiser, BRI*

**ESCROW COORDINATION**

**Inez Garcia, Escrow & Project Controls Analyst**

# 4. References, Related Experience & Examples of Work

*For 43 years, OPC has served public agencies across California with timely, effective real property services to protect our state's precious water resources.*

As the table below outlines, the OPC team brings to IWVGA demonstrated knowledge and experience on similar projects. References and examples of work starred below are provided on the following pages. Additional references, including previous references for our new Senior Program Manager April Harvey, are available upon request.

| Project Name | Agency | ROW Research | Parcel Acquisition | Water Supply | Conveyance / Pipelines | Kern County | High Desert |
|---|---|---|---|---|---|---|---|
| 1 Metropolitan Bakersfield Habitat Conservation Plan | MBHCP Implementation Trust Group | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| 2 SR-46 Widening Four-Lane Segment 4B | Kern County Public Works | | ✓ | | | ✓ | |
| 3 South Shafter Sewer Improvement | Kern County Public Works | | ✓ | | ✓ | ✓ | |
| 4 Avenue S-8 and 40th Street East Roundabout | City of Palmdale | | ✓ | | | | ✓ |
| 5 Contra Costa Canal Transfer Project | Contra Costa County Water District | ✓ | | ✓ | ✓ | | |
| 6 Measure M and R Projects | City of Lancaster | | ✓ | | | | ✓ |
| CalWaterFix Mineral Rights Research | DWR | ✓ | | ✓ | ✓ | | |
| Reservoir Site and Pure Water Facilities ROW | Palmdale Water District | | ✓ | ✓ | | | ✓ |
| Pedestrian Gap Closure Improvements ROW | City of Lancaster | | ✓ | | | | ✓ |
| Various Pipeline Land Services | Sempra Utilities | ✓ | ✓ | | ✓ | ✓ | ✓ |
| Friant-Kern Canal Middle Reach Subsidence Project | Friant Water Authority | ✓ | | ✓ | ✓ | ✓ | |
| River Supply Conduit Improvement Upper Reach Unit 7 | LADWP | ✓ | ✓ | ✓ | ✓ | | |
| Sweetwater Pipeline 3 Relining Project | San Diego County Water Authority | | ✓ | ✓ | ✓ | | |
| Barren Ridge Renewable Transmission Project | LADWP | ✓ | ✓ | | | ✓ | ✓ |
| Tehachapi Renewable Transmission Project | SCE | ✓ | ✓ | | | ✓ | ✓ |

REFERENCE 1

# Metropolitan Bakersfield Habitat Conservation Plan

As Bakersfield continues to grow, it has become imperative to offset development with provisions for habitat conservation. The ITG was formed as a joint powers authority between the City and Kern County with stewardship from the California Department of Fish and Wildlife to protect the threatened, endangered, and sensitive wildlife in the Kern River Valley. The conservation plan is funded by urban development mitigation fees collected.

10.Project Description: OPC is working with the ITG to provide title research and title transfer for removal of expired oil and gas leases and outstanding liens from property titles, and compile and prepare packages for transfer of title to the State. Our work include analysis of property title information, mineral rights, and ownerships on all proposed properties to identify leaseholds that qualify for the plan. Based on this analysis, OPC will then recommends the purchase and transfer of proposed properties to the State.

OPC staff, including Donald Anderson and Corey Nelson evaluate the condition of title, including liens, encumbrances,severed mineral rights, and mineral leases, to qualify the properties as acceptable for conveyance to the State for habitat mitigation. We also are working with a local petroleum geologist for mineral remoteness opinions when necessary.

**CONTACT NAME, TITLE**

Christopher Boyle, Trust Chair / City of Bakersfield Development Services Director

**AGENCY**

Metropolitan Bakersfield Habitat Conservation Plan Implementation Trust Group (ITG)

**ADDRESS**

1715 Chester Ave., Bakersfield, CA 93301

**PHONE & EMAIL**

661.326.3754, Devpln@bakersfieldcity.us

**LOCATION**

Kern County, CA

**WORK PERFORMED**

Title research and rights transfer services (2021 – 2023, ongoing)

**RESULTS**

Currently on parcels for transfer to the State.

**TEAM MEMBERS & RESPONSIBILITIES**

Donald M. Anderson, Senior Project Manager

Rand Cantrell, Senior Title Analyst

Corey Nelson, Senior Agent



REFERENCE 2

# County of Kern, SR-46 Widening Four-Lane Segment 4B

:SR-46 through Lost Hills was such a dangerous highway, it was dubbed "Blood Alley". The 5.3-mile section of the highway is being widened from a two-lane highway to a four-lane highway to ensure the safety of drivers going through the corridor. The project is federally funded with Caltrans oversight. Funding source included Federal Better Utilizing Investments to Leverage Development (BUILD) Transportation Grant

To complete the project, OPC was selected to provide full-scale ROW project planning and management, ROW engineering, acquisition site mitigation planning, acquisitions/negotiations, relocation assistance services, and title and escrow coordination for 42 partial acquisitions (including agriculture, commercial, billboards, and residential parcels, along with one (1) commercial relocation. As a part of our role as prime ROW consultant, OPC also managed appraisal, review appraisal, fixtures and equipment (F&E) appraisal, goodwill appraisal, well valuation, and oil and gas appraisal subconsultants during the length of the project.

11.Project Outcome: Originally, the County was brought in to complete the ROW acquisition because Caltrans could not meet the funding deadline. When OPC was hired as the County's ROW consultant, the funding of $17,500,000 was at risk of being lost. Through OPC's work, we were able to save the funding, and Segment 4B was successfully certified on July 2, 2020 followed by Segment 4C on August 25, 2022.

**CONTACT NAME, TITLE**

Samuel Lux, PE, Public Works Director

**AGENCY**

Kern County Public Works

**ADDRESS**

2700 "M" Street, 4th Floor, Bakersfield, CA 93301

**PHONE & EMAIL**

661.862.8858, LuxS@kerncounty.com

**LOCATION**

Kern County, CA

**WORK PERFORMED**

ROW Services and Parcel Acquisition (2019 – 2020)

**RESULTS**

Completed on-time and within budget

**TEAM MEMBERS & RESPONSIBILITIES**

Donald Anderson, Sr. Project Manager

Mia Garcia, Project Controls Manager



REFERENCE 3

# County of Kern, South Shafter Sewer Improvement

Kern County plans to replace the existing septic system for six residential communities with a complete full-gravity sewer collection system. The County is concerned that the current outdated septic system may leech into the groundwater, potentially contaminating the drinking water.

Construction of the new full-gravity sewer collection system will require acquisition of approximately 35 easements and two (2) fee simple parcels. Under our on-call ROW services contract, OPC was selected by Kern County to order PTRs, coordinate appraisals, conduct acquisition negotiations, and coordinate escrow for the impacted parcels.

In addition to residential parcels, many of the properties involve almond orchards and other agriculture operations. OPC selected local American Socitey of Farm Managers and Rural Appraisers (ASFMRA) member Merriman Hurst & Associates to conduct appraisals.

The project has been on hold due to design issues.

**CONTACT NAME, TITLE**

Michael Dillenbeck, Public Works Manager

**AGENCY**

Kern County Public Works Department

**ADDRESS**

2700 “M” Street, 4th Floor, Bakersfield, CA 93301

**PHONE & EMAIL**

661.862.8913, DillenbeckM@kerncounty.com

**LOCATION**

Shafter, CA

**WORK PERFORMED**

ROW Services and Parcel Acquisition (2021 – 2022)

**RESULTS**

This project is currently on hold as of May 2022 due to engineering design changes.

**TEAM MEMBERS & RESPONSIBILITIES**

Donald Anderson, Sr. Project Manager

Mia Garcia, Project Controls Manager

REFERENCE 4

# Avenue S-8 and 40th Street East Roundabout Project

Avenue S-8 and 40th Street East Roundabout Project is one of 71 Street Improvement Projects listed in the City of Palmdale's 2018 Ten-Year Capital Improvement Plan. This project will convert an existing two-way stop to a roundabout at the intersection of Avenue S-8 and 40th Street East, enhancing bicycle and vehicular flow. In order to complete the project, the City needs to acquire roadway, slope, and temporary construction easements.

OPC was selected to provide appraisal coordination, acquisition services, escrow and title coordination, and right of way certification services for nine (9) legal larger parcels; one (1) full acquisition and eight (8) partial acquisitions. The properties included vacant land, a parcel owned by the Palmdale Water District with an abandoned water tank, and single family residences.

This project demonstrates our acquisition team's familiarity with the local High Desert real estate market as well as their recent negotiation experience with a local water district.

**CONTACT NAME, TITLE**

David Wu, PE, Public Works Project Manager

**AGENCY**

City of Palmdale

**ADDRESS**

38300 Sierra Highway #A, Palmdale, CA 93550

**PHONE & EMAIL**

661.267.5324, dwu@cityofpalmdale.org

**LOCATION**

Palmdale, CA

**WORK PERFORMED**

ROW and Parcel Acquisition (2021 - 2022)

**RESULTS**

Completed on-time and within budget

**TEAM MEMBERS & RESPONSIBILITIES**

Kelly Dewitt, Project Manager

Katie Quick, Senior Acquisition Agent

Inez Garcia, Escrow Coordinator

Mia Garcia, Project Controls Manager

REFERENCE 5

# Contra Costa Canal Transfer Project

OPC assisted CCWD in its title transfer of US Bureau of Reclamation (USBR) property for the entirety of the Contra Costa Canal, including canals, reservoirs, wasteways, laterals, access roads, and electric transmission line.

OPC staff performed a review of approximately 350 acquisition records, assembled the 26-page Quitclaim exhibit, assembled a GIS map of the properties, documented gaps and anomalies, located documents to resolve anomalies, and identified title insurance options for insuring Contra Costa Canal facilities and real property interests. OPC worked with the USBR, County Recorder, and East Bay Municipal Utility District to obtain additional documentation to resolve portions of canal which could not be accounted for. The project was completed on time and within budget.

**CONTACT NAME, TITLE**

Dino Angelosante, Real Property Agent

**AGENCY**

Contra Costa County Water District (CCWD)

**ADDRESS**

1331 Concord Avenue, Concord, CA 94520

**PHONE & EMAIL**

925.688.8162, DAngelosante@ccwater.com

**LOCATION**

Martinez, CA

**WORK PERFORMED**

Title research and mapping (2020)

**RESULTS**

Completed on-time and within budget

**TEAM MEMBERS & RESPONSIBILITIES**

Rand Cantrell, Senior Title Analyst

Skip Carleton, Jr., Survey Manager

REFERENCE 6

# City of Lancaster Measure M and R Projects

The City of Lancaster is improving five interchanges as a result of receiving SR 138 (SR 14) Measure R Highway 'Equity' Funds from Los Angeles METRO. The funds will be used to improve operational capacity at five interchanges (Avenue G, Avenue J, Avenue K, Avenue L, and Avenue M) and surrounding local streets, eliminating congestion, improving mobility between freeway and local streets, enhancing safety and improving way-finding.

As part of the Measure R Interchange Projects, OPC was the ROW subconsultant working with Kimley Horn to provide real estate services for the Avenue K Interchange project. OPC handled project management, real estate appraisal coordination, acquisition/negotiation, and escrow coordination for five parcels as a result in a road easement. Four (4) parcels are commercial properties, including an office, restaurant, retail, and a service station. The other property is a street dedication.

The City of Lancaster is improving the intersection between Avenue J and 22nd Street West as a part of SR 138/14 Interchange Project. As a subconsultant to Kimley Horn as a part of PS&E activities, OPC is providing all ROW services. OPC completed project management, appraisal coordination, acquisition/negotiation, and escrow coordination for the full take/right of way acquisition of four (4) vacant parcels.

OPC completed our ROW work on time and within budget. OPC has received praise from our engineering partner and City on our work as we continue to provide similar services on the Lancaster Health District project, Pedestrian Gap Closures, and other roadway improvements across the City.

**CONTACT NAME, TITLE**

Mike Livingston, Senior Construction Manager

**AGENCY**

City of Lancaster

**ADDRESS**

44933 Fern Avenue, Lancaster, CA 93534,

**PHONE & EMAIL**

661.723.6227,

mlivingston@cityoflancasterca.org

**LOCATION**

Lancaster, CA

**WORK PERFORMED**

ROW and Parcel Acquisition (2020 – 2021)

**RESULTS**

Completed on-time and within budget

**TEAM MEMBERS & RESPONSIBILITIES**

Kelly Dewitt, Project Manager

Katie Quick, Senior Acquisition Agent

Inez Garcia, Escrow Coordinator

Mia Garcia, Project Controls Manager

# 5. Financial Capacity

OPC has the financial strength and stability to fulfill the services needed on the Project for the length of the contract. As a wholly-owned division of TranSystems, OPC has ample resources to assure the IWVGA of continuity of service as we grow. OPC has no bankruptcy, pending litigation, planned office closures, impending mergers, or other planned financial transactions that may impede ability to complete the Project.

We can accept the terms and conditions of the proposed contract.

*"It has been a pleasure working with OPC. They are professional, responsible, diligent, dependable, knowledgeable, and timely!"*

**- Los Angeles Department of Water and Power**

# 6. Schedule

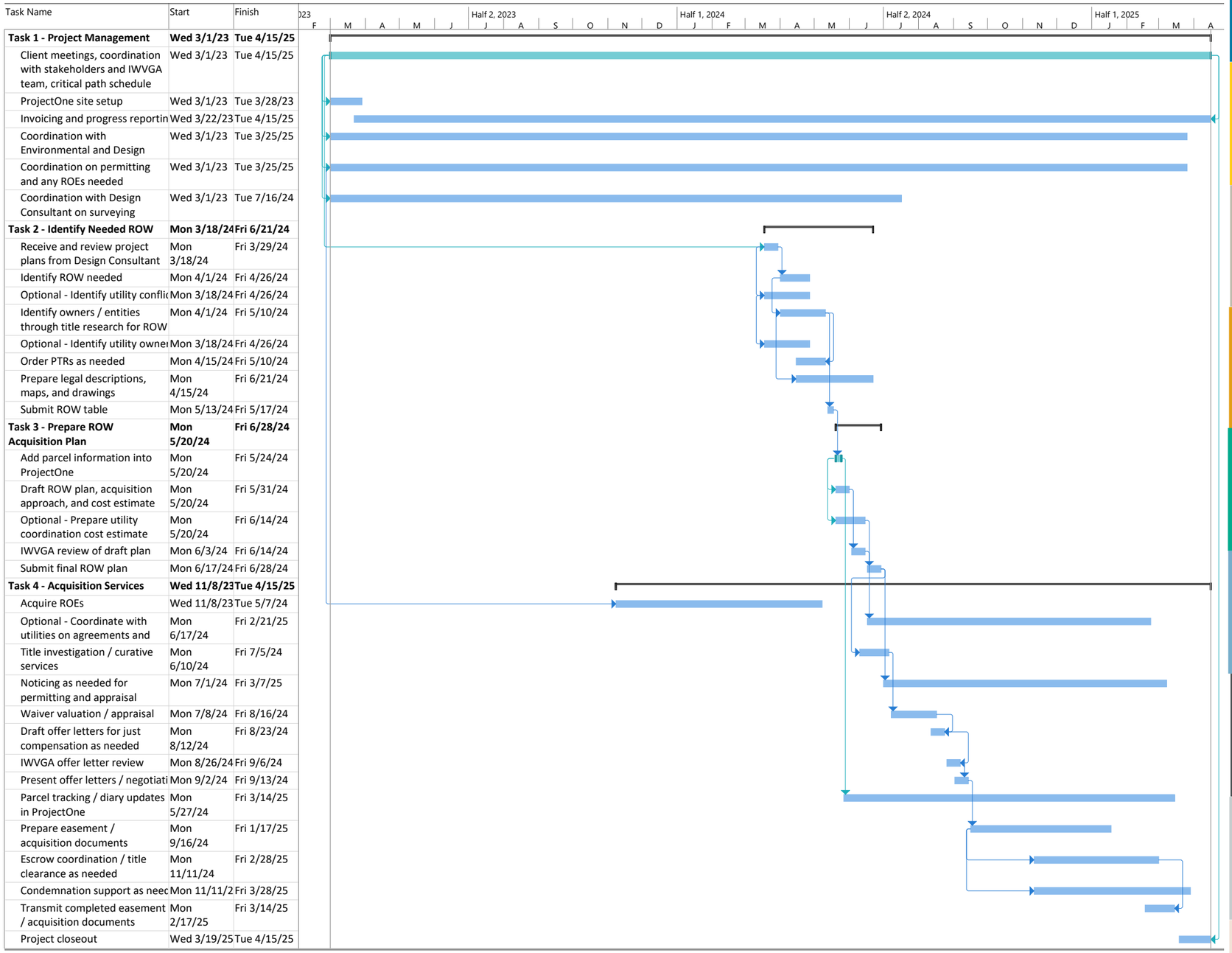
## PROPOSED ROW SCHEDULE

Based on our proposed approach in Section 8, our schedule is provided on the right.

Assumptions:

- The majority of pipeline ROW will acquired through franchise agreements
- Survey will be subcontracted through the Design Consultant
- Up to 25 months of management, including reports and up to 3 hours of meetings per month, subcontractor coordination
- Up to 60 parcels to research
- Up to 10 legals and plats
- Preliminary title reports with plotted easements will be needed for up to 54 privately owned parcels and up to 7 government or railroad parcels
- Cost estimates, plans, reports, and offer letters will go through one set of reviews and revisions
- We will acquire permissions for up to 54 rights of entry (ROE)
- We will negotiate with approximately 10 private property owners to acquire easements or land (estimated eight temporary construction easements with waiver valuations and up to two (2) part takes with appraisal reports for Honda Manufacturing and Thornhill)
- We will work with up to two (2) agencies for transfers (BLM and IWVWD)
- Up to 60 notice preparations / mailings
- This schedule reflects permitting coordinated by the Design Consultant and Environmental Consultant

| Task Name | Start | Finish |
|---|---|---|
| **Task 1 - Project Management** | **Wed 3/1/23** | **Tue 4/15/25** |
| Client meetings, coordination with stakeholders and IWVGA team, critical path schedule | Wed 3/1/23 | Tue 4/15/25 |
| ProjectOne site setup | Wed 3/1/23 | Tue 3/28/23 |
| Invoicing and progress reportin | Wed 3/22/23 | Tue 4/15/25 |
| Coordination with Environmental and Design | Wed 3/1/23 | Tue 3/25/25 |
| Coordination on permitting and any ROEs needed | Wed 3/1/23 | Tue 3/25/25 |
| Coordination with Design Consultant on surveying | Wed 3/1/23 | Tue 7/16/24 |
| **Task 2 - Identify Needed ROW** | **Mon 3/18/24** | **Fri 6/21/24** |
| Receive and review project plans from Design Consultant | Mon 3/18/24 | Fri 3/29/24 |
| Identify ROW needed | Mon 4/1/24 | Fri 4/26/24 |
| Optional - Identify utility conflic | Mon 3/18/24 | Fri 4/26/24 |
| Identify owners / entities through title research for ROW | Mon 4/1/24 | Fri 5/10/24 |
| Optional - Identify utility owner | Mon 3/18/24 | Fri 4/26/24 |
| Order PTRs as needed | Mon 4/15/24 | Fri 5/10/24 |
| Prepare legal descriptions, maps, and drawings | Mon 4/15/24 | Fri 6/21/24 |
| Submit ROW table | Mon 5/13/24 | Fri 5/17/24 |
| **Task 3 - Prepare ROW Acquisition Plan** | **Mon 5/20/24** | **Fri 6/28/24** |
| Add parcel information into ProjectOne | Mon 5/20/24 | Fri 5/24/24 |
| Draft ROW plan, acquisition approach, and cost estimate | Mon 5/20/24 | Fri 5/31/24 |
| Optional - Prepare utility coordination cost estimate | Mon 5/20/24 | Fri 6/14/24 |
| IWVGA review of draft plan | Mon 6/3/24 | Fri 6/14/24 |
| Submit final ROW plan | Mon 6/17/24 | Fri 6/28/24 |
| **Task 4 - Acquisition Services** | **Wed 11/8/23** | **Tue 4/15/25** |
| Acquire ROEs | Wed 11/8/23 | Tue 5/7/24 |
| Optional - Coordinate with utilities on agreements and | Mon 6/17/24 | Fri 2/21/25 |
| Title investigation / curative services | Mon 6/10/24 | Fri 7/5/24 |
| Noticing as needed for permitting and appraisal | Mon 7/1/24 | Fri 3/7/25 |
| Waiver valuation / appraisal | Mon 7/8/24 | Fri 8/16/24 |
| Draft offer letters for just compensation as needed | Mon 8/12/24 | Fri 8/23/24 |
| IWVGA offer letter review | Mon 8/26/24 | Fri 9/6/24 |
| Present offer letters / negotiati | Mon 9/2/24 | Fri 9/13/24 |
| Parcel tracking / diary updates in ProjectOne | Mon 5/27/24 | Fri 3/14/25 |
| Prepare easement / acquisition documents | Mon 9/16/24 | Fri 1/17/25 |
| Escrow coordination / title clearance as needed | Mon 11/11/24 | Fri 2/28/25 |
| Condemnation support as neec | Mon 11/11/2 | Fri 3/28/25 |
| Transmit completed easement / acquisition documents | Mon 2/17/25 | Fri 3/14/25 |
| Project closeout | Wed 3/19/25 | Tue 4/15/25 |



# 7. Fee Schedule

## COST ESTIMATE

Based on our proposed schedule and approach, we estimate the following allocation of labor and expenses to complete our ROW scope. This is an estimate based on our assumptions and current understanding of the Project. Rate schedules in effect for OPC and BRI are attached. Our assumptions include:

- This is an estimate subject to change upon receipt of more detailed Project information and client discussions.
- The majority of pipeline ROW will acquired through franchise agreements
- Our scope will require up to 25 months of project management, including reports and up to 3 hours of meetings per month, subcontractor coordination
- Survey will be subcontracted through the Design Consultant
- Up to 60 parcels to research are estimated
- Up to 10 legals and plats are estimated
- Preliminary title reports with plotted easements will be needed for up to 54 privately owned parcels and up to 7 government or railroad parcels
- Cost estimates, plans, reports, and offer letters will go through one set of reviews and revisions
- We will acquire permissions for up to 54 rights of entry (ROE)
- We will negotiate with approximately 10 private property owners to acquire easements or land (estimated eight temporary construction easements with waiver valuations and up to two (2) part takes with appraisal reports for Honda Manufacturing and Thornhill)
- We will work with up to two (2) agencies for transfers (BLM and IWVWD)
- Up to 60 notice preparations / mailings
- Permitting other than rights of entry will be obtained by the Design Consultant and Environmental Consultant

| Activity | Senior Program Manager | Professional Land Surveyor | Appraisal Manager | Senior Project Manager | Senior Utility Coordinator | Acquisition Manager | CAD Designer | Project Controls Manager | Senior Acquisition Agent | Senior ROW Analyst | Project Controls Analyst | Agent | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hourly Rate | 250 | 200 | 200 | 165 | 165 | 150 | 150 | 150 | 135 | 135 | 135 | 120 | |
| **Task 1: Project Management** | 80 | | | 24 | | | | 2 | | | 48 | | 30,740 |
| **Task 2: Identify Needed ROW** | 24 | 40 | | 16 | | | 120 | | | 960 | 8 | | 165,320 |
| **Task 3: Prepare ROW Acquisition Plan** | 12 | | | 8 | | 10 | | 2 | | | 92 | | 18,540 |
| **Task 4: Acquisition Services (ROEs, Easements, and Land Acquisition)** | 8 | 1 | 16 | 72 | | 88 | | | 144 | | 40 | 624 | 130,200 |
| **Subtotal Labor** | 124 | 41 | 16 | 120 | - | 98 | 120 | 4 | 144 | 960 | 188 | 624 | 344,800 |
| **Other Direct Costs** | | | | | | | | | | | | | |
| **Preliminary Title Reports with Plotted Easements (estimated 54 private properties and 7 government/UPRR)** | | | | | | | | | | | | | 58,790 |
| **Appraisal Reports (estimated 2)** | | | | | | | | | | | | | 10,000 |
| **Subtotal Other Direct Costs** | | | | | | | | | | | | | 68,790 |
| Total Estimated Fee | | | | | | | | | | | | | 413,590 |

## TYPICAL PER PARCEL FEES

As we recognize that design may still change, we have provided the following "typical" fees for services to help the IWVGA with estimating.

| Activity | Typical Fee (per Legal Larger Parcel) |
|---|---|
| **Prior rights research / interpretation** | 3,900 |
| **Preliminary Title Report with Plotted Easement (Residential)** | 810 |
| **Preliminary Title Report with Plotted Easement (Commercial)** | 960 |
| **Preliminary Title Report with Plotted Easement (Rail)** | 2,000 |
| **Preliminary Title Report with Plotted Easement (Government)** | 2,150 |
| **Legal Description, Plat Map, and Easement Exhibit** | 2,450 |
| **Waiver Valuation** | 3,000 |
| **Appraisal Report - Vacant Land, Partial Acquisition** | 4,000 |
| **Appraisal Report - Improved Land with Minor Damages, Partial Acquisition** | 5,500 |
| **Right of Entry Acquisition** | 1,200 |
| **Easement acquisition** | 2,400 |
| **Fee acquisition** | 7,000 |

*"Very professional, responsive, interacted well with property owners, kept complete notes and files, provided timely updates."*

**- Santa Clara Valley Water District**

# OPC Schedule of Hourly Rates

## The following rates will remain effective for 2 years

| | |
|---|---|
| **Management & Implementation** | |
| Senior Program Manager / Senior Vice President | $250.00 |
| Program Manager | $200.00 |
| Senior Project Manager / Quality Manager | $165.00 |
| Project Manager / Project Controls Manager | $150.00 |
| Senior Agent / Senior Analyst / Project Controls Analyst | $135.00 |
| Agent / Analyst / Senior Land Specialist | $120.00 |
| Relocation Specialist / Land Specialist | $105.00 |
| **Utility Coordination** | |
| Senior Utility Manager | $200.00 |
| Utility Manager | $165.00 |
| Senior Utility Coordinator | $150.00 |
| Utility Coordinator | $135.00 |
| **Right of Way Engineering** | |
| Project Engineer (PE) | $225.00 |
| Survey Manager (PLS) | $200.00 |
| Senior ROW Engineering / Survey Analyst | $150.00 |
| GIS / CADD Analyst | $150.00 |
| **Real Estate Appraisal** | |
| Appraisal Review Program Manager | $200.00 |
| **Property Management/Property Services** | |
| Property Management Supervisor | $165.00 |
| Property Manager | $135.00 |
| Property Services Supervisor | $135.00 |
| Community Liaison | $120.00 |
| **Project Support/Administrative** | |
| Project Controls Manager | $150.00 |
| Project Controls Analyst | $135.00 |
| Administrative Assistant | $90.00 |

BRI BENDER ROSENTHAL INCORPORATED

**MULTI-YEAR**

**HOURLY BILLING RATES**

| | 2023 | 2024 | 2025 |
|---|---|---|---|
| Sr. Designated Member (MAI/SRA/AI-GRS/ARA) | $220 | $227 | $234 |
| Designated Member (MAI/SRA/AI-GRS/ARA) | $195 | $201 | $208 |
| Senior Appraiser | $175 | $181 | $187 |
| Appraiser | $150 | $155 | $160 |
| Researcher | $90 | $93 | $96 |
| Administrative Support III | $85 | $88 | $91 |
| Administrative Support II | $70 | $73 | $76 |
| Administrative Support I | $50 | $52 | $54 |

*NOTE: For court or briefing preparation, depositions, any pre-trial conferences, court appearances, and related activities, the hourly rate is $450.

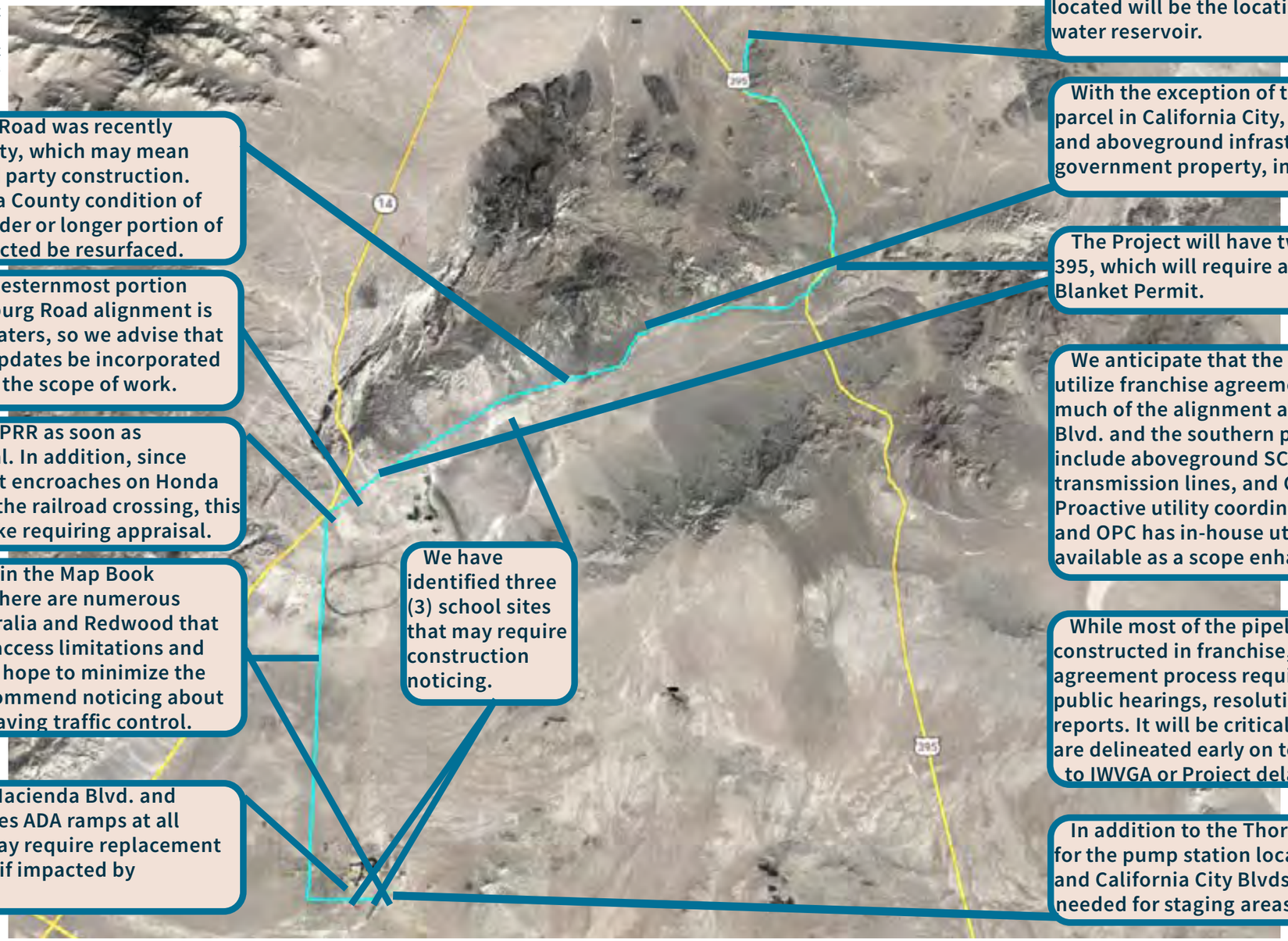
Valuation Services, including appraisals, appraisal reviews, and waiver valuations will be billed as lump sum services with the fee determined upon receipt of the scope of work.

Subconsultant Invoices will be marked up by 5% for processing services.

# 8. Proposed Scope of Work

## PROJECT AREA CONSIDERATIONS AND ISSUES

Based on the Central Alignment released in January, OPC has identified several critical factors that could impact the timing and overall success of the Project.




Redrock Randsburg Road was recently repaved by Kern County, which may mean a moratorium on third party construction. It may be required as a County condition of construction that a wider or longer portion of the road than is impacted be resurfaced.

The area along the westernmost portion of the Redrock Randsburg Road alignment is susceptible to flood waters, so we advise that flood plain mapping updates be incorporated as an enhancement to the scope of work.

Coordination with UPRR as soon as possible will be critical. In addition, since the pipeline alignment encroaches on Honda property to minimize the railroad crossing, this will likely be a part take requiring appraisal.

While not identified in the Map Book as impacted parcels, there are numerous residences along Neuralia and Redwood that may have temporary access limitations and driveway impacts. We hope to minimize the need for TCEs but recommend noticing about 20 households and having traffic control.

The Intersection of Hacienda Blvd. and Redwood Blvd. includes ADA ramps at all four corners. These may require replacement or protection in place if impacted by construction.

We have identified three (3) school sites that may require construction noticing.

The property where the existing Indian Wells Valley Water District Blending Tank is located will be the location of the imported water reservoir.

With the exception of the Thornhill parcel in California City, most pump stations and aboveground infrastructure will be on government property, including BLM sites.

The Project will have two crossings of US-395, which will require a Caltrans long-term Blanket Permit.

We anticipate that the pipeline will utilize franchise agreements. However, much of the alignment along Redwood Blvd. and the southern portion of Neuralia include aboveground SCE poles, overhead transmission lines, and City streetlights. Proactive utility coordination will be critical, and OPC has in-house utility coordinators available as a scope enhancement.

While most of the pipeline will be constructed in franchise, the franchise agreement process requires attendance of public hearings, resolutions, and City staff reports. It will be critical that franchise tasks are delineated early on to minimize excess cost to IWVGA or Project delays.

In addition to the Thornhill part take for the pump station location at Redwood and California City Blvds., there may be TCE needed for staging areas.

## POTENTIAL ROW IMPACTS

Based on review of Addedum 1 and the Map Book for the Central Alignment, OPC has closely reviewed the following list of potentially impacted parcels.

However, we have considered typical construction methods likely to be used for this pipeline and believe that ROW needed can be significantly minimized by using existing roads whe re possibleas depicted in the Map Book. Most of the pipeline can be constructied using franchise rights for the underground trench. The typical public ROW for a one-lane roadway is 30 feet, including 12 feet for the paved area and 18 feet of unpaved ROW. A 24 inch diameter pipeline may need approximately three feet on either side of the trench as well as up to 15 feet of staging area. Since this area includes sensitive habitats, we expect tha pipeline will construction will be staged to minimize open trenches or or long delays tominimize wildlife hazards. Thus, laydown area may only be needed for a day or so at a time. Spoils will still need to be managed, and thus we expect some some temporary construction easememnts to be negotiated. We presume no sensitive habitat of any southern segments prior to Redrock Randsburg Road. As such, we expect that the total number of parcels impacted will be approximately:

- Two (2) partial takes
- Up to eight (8) acquisitions easements
- Land transfer negotiations with two (2) government agencies

We also assume that OPC will be obtaining up to 54 ROE permissions for the private properties along the Area of Potential Effect. Our initial notes on the impacted parcels from the Map Books is provided for reference. This table is followed by our approach to the ROW tasks.

| Map Book Segment | APN | Owner | Address | Current Use | Notes |
|---|---|---|---|---|---|
| **1** | **21026114** | Peachee | No situs, California City (North corner of Redwood and California City) | Vacant | Potential TCE for staging / spoils area |
| **1** | **21028214** | Thornhill Tax Credit | No situs, California City (West corner of Redwood and California City) | Vacant | Part take / dedicationfor Pump Station |
| **1** | **21008114** | Yip | 20000 Conklin Blvd. | Residential Duplex | Not identified as an impact on map, driveway may be blocked and need traffic control, owner is offsite |
| **1** | **20531009** | Hale | 9925 Redwood Blvd. | Residential SFR | Not identified as an impact on map, driveway may be blocked and need traffic control, owner is offsite |

| Map Book Segment | APN | Owner | Address | Current Use | Notes |
|---|---|---|---|---|---|
| **1** | **20531011** | Paulison | 9901 Redwood Blvd. | Residential SFR | Not identified as an impact on map, driveway may be blocked and need traffic control |
| **1** | **20710001** | Mohave Unified School District | 9736 Redwood Blvd | California City Middle School | CPUC notification required |
| **1** | **20710001** | Mohave Unified School District | 19950 Hacienda Blvd | Hacienda Elementary School | CPUC notification required |
| **1** | **n/a** | City of California City | Intersection of Hacienda Blvd. and Redwood Blvd. | ADA ramps | Conditions for sidewalk impacts |
| **2** | **21326306** | Rosenberg | 21900 NEURALIA RD | Residential SFR | Not identified as an impact on map, driveway may be blocked and need traffic control |
| **2** | **30248001** | Ly | No situs (Neuralia Blvd., South of Rudnick Blvd.) | Vacant land | Potential TCE |
| **2** | **30229012** | Lee | No situs (Neuralia Blvd. North of Rudnick Blvd.) | Vacant land | Potential TCE |
| **2** | **30229030** | Lazaris | No situs (Neuralia Blvd.) | Vacant land | Potential TCE |
| **2** | **30229029** | Daglas, Alice Trustee | No situs (Neuralia Blvd.) | Vacant land | Potential TCE |
| **2** | **30229028** | San Filippo Irrevocable Trust | No situs (Neuralia Blvd.) | Vacant land | Potential TCE |
| **2** | **30229027** | Zonos Family Property | No situs (Neuralia Blvd.) | Vacant land | Potential TCE |
| **2** | **30229010** | Burke | No situs (Neuralia Blvd.) | Vacant land | Potential TCE |
| **2** | **30229007** | Emerald | No situs (Neuralia Blvd.) | Vacant land | Potential TCE |
| **2** | **30229006** | Oczkowski | No situs (Neuralia Blvd.) | Vacant land | Potential TCE |
| **2** | **30230313** | Kang | No situs (Neuralia Blvd.) | Vacant land | Potential TCE |
| **2** | **30230312** | Elegado | No situs (Neuralia Blvd.) | Vacant land | Potential TCE |
| **2** | **30230311** | Bautista | No situs (Neuralgia Blvd.) | Vacant land | Potential TCE |
| **2** | **30230303 and 04** | Hammond | No situs (Neuralia Blvd.) | Vacant land | Potential TCE |
| **2** | **30230302** | Apothio LLC | No situs (Neuralia Blvd.) | Vacant land | Potential TCE |
| **2** | **30230301** | Houn | No situs (Neuralia Blvd.) | Vacant land | Potential TCE |
| **2** | **33001001** | 68SF 8ME LLC | No situs (Neuralia Blvd.) | Vacant land | Potential TCE |
| **2** | **47004020** | Brainard | No situs (Neuralia Blvd.) | Vacant land | Potential TCE |
| **2** | **46903001** | 68SF 8ME LLC | No situs (Neuralia Blvd.) | Vacant renewable | Potential TCE |

| Map Book Segment | APN | Owner | Address | Current Use | Notes |
|---|---|---|---|---|---|
| 2 | **46917018** | Keren and Co. | No situs (Neuralia Blvd.) | Vacant land | Potential TCE |
| 2 | **46917008** | AEK GLOBAL INVS LLC | No situs (Neuralia Blvd.) | Vacant land | Potential TCE |
| 2 | **46917006** | 2NGEL Family Trust | No situs (Neuralia Blvd.) | Vacant land | Potential TCE |
| 2 | **46917001** | Rivera | No situs (Neuralia Blvd.) | Vacant land | Potential TCE |
| 2 | **46916122** | Bayshore LLC | No situs (Neuralia Blvd.) | Vacant land | Potential TCE |
| 2 | **46916118** | Pac States Land Co. | No situs (Neuralia Blvd.) | Vacant land | Potential TCE |
| 2 | **46916113** | Oak Investment LLC | No situs (Neuralia Blvd.) | Vacant land | Potential TCE |
| 2 | **46916110** | Benjauthrit | No situs (Neuralia Blvd.) | Vacant land | Potential TCE |
| 2 | **46916107** | SMITS | No situs (Neuralia Blvd.) | Vacant land | Potential TCE |
| 2 | **46916101** | Rodriguez | No situs (Neuralia Blvd.) | Vacant land | Potential TCE |
| 2 | **46901011** | Springbok Land Company LLC | No situs (Neuralia Blvd.) | Solar Generator | Potential TCE |
| 2 | **46901004** | Honda Development and Manufacturing of America | 30216 Neuralia Road | Auto racetrack | Potential TCE |
| 3 | **18112002, 06, 07, 08** | Honda Development and Manufacturing of America | No situs (Neuralia Blvd.) | Vacant land | Dedication, permanent easement, or part take |
| 3 | **18112009** | Union Pacific Railroad | No situs (Neuralia Blvd.) | Utility Parcel | Permitting |
| 3 | **18141216** | Hanzmann | No situs (Redrock Randsburg Rd.) | Vacant land | Potential TCE |
| 3 | **18141213** | Land Investment Network LLC | No situs (Redrock Randsburg Rd.) | Vacant land | Potential TCE |
| 3 | **18141201, 02, 03, 04, 05, 06, 07** | Natural Resources Group LLC | No situs (Redrock Randsburg Rd.) | Vacant land | Potential TCE (existing conservation easement) |
| 3 | **18123227** | Weldon | No situs (Redrock Randsburg Rd.) | Vacant land | Potential TCE |
| 3 | **18123108** | Weldon, Scott B Trust | No situs (Redrock Randsburg Rd.) | Vacant land | Potential TCE |
| 3 | **18123109** | Crandall | No situs (Redrock Randsburg Rd.) | Vacant land | Potential TCE |
| 3 | **18123110** | Mills | No situs (Redrock Randsburg Rd.) | Private road | Potential TCE |
| 3 | **18123117** | ALS Fund Inc. | No situs (Redrock Randsburg Rd.) | Vacant land | Potential TCE |
| 3 | **18123150** | Felder | No situs (Redrock Randsburg Rd.) | Vacant land | Potential TCE |
| 3 | **18123154** | US Bureau of Land Management | No situs (Redrock Randsburg Rd.) | Federal land | Franchise / interagency transfer |
| 4 | **15405012** | GM Gabrych Family | No situs (Redrock Randsburg Rd.) | Vacant land | Potential TCE |



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| Map Book Segment | APN | Owner | Address | Current Use | Notes |
|---|---|---|---|---|---|
| **4** | **15414011** | Samelson | No situs (Redrock Randsburg Rd.) | Vacant land | Potential TCE |
| **4** | **15413102** | Jerry J Flynn Family Trust | No situs (Redrock Randsburg Rd.) | Vacant land | Potential TCE |
| **5** | **15409117** | Le | No situs (Garlock Rd.) | Vacant land | Dedication / franchise / interagency transfer |
| **5** | **15409116** | Boyle | No situs (Garlock Rd.) | Vacant land | Potential TCE with conditions for conservation |
| **5** | **15426001, 02** | Cocke | No situs (Garlock Rd.) | Vacant land | Potential TCE |
| **5** | **15409126, 27** | EDF Renewable Development Inc. | No situs (Garlock Rd.) | Vacant renewable | Potential TCE |
| **5** | **15409102** | Kitchen | No situs (Garlock Rd.) | Vacant land | Potential TCE |
| **6** | **15409107** | US Bureau of Land Management | No situs (Garlock Rd.) | Federal land | Dedication / franchise / interagency transfer |
| **6** | **15417005** | Sully Miller Contracting | No situs (Garlock Rd.) | Sand, gravel | Potential TCE |
| **6** | **15416011** | US Bureau of Land Management | No situs (Garlock Rd.) | Federal land | Dedication / franchise / interagency transfer |
| **6** | **15416003** | US Bureau of Land Management | No situs (Garlock Rd.) | Federal land | Dedication / franchise / interagency transfer |
| **7** | **09718026, 27** | Epstein | No situs (Garlock Rd.) | Vacant land | Potential TCE |
| **8** | **51108213** | Indian Wells Valley Water District | No situs, Ridgecrest (West Kendall Ave.) | Water district (existing Ridgecrest Heights Water) | Dedication / franchise / interagency transfer |

## APPROACH TO ROW TASKS

| | Activities | Deliverables |
|---|---|---|
| **TASK 1. PROJECT MANAGEMENT** | • Client meetings<br>• Coordination with stakeholders, IWVGA Board, and Technical Advisory Committee<br>• Monthly coordination with IWVGA Water Resources Manager (WRM)<br>• Close coordination with environmental and design consultant<br>• Contribute to critical path schedule<br>• Invoicing and reporting<br>• Enter and track ROW and Project documents in dedicated ProjectOne® site | • Acquisition schedule<br>• Monthly progress reports<br>• Input into meeting minutes<br>• Invoices |
| **TASK 2. IDENTIFY NEEDED RIGHTS OF WAY** | • Review project plans prepared by the Design Consultant<br>• Identify all right-of-way needed<br>• Identify entities from which the rights-of-way must be obtained<br>• Prepare maps and drawings for the entire pipeline clearly showing the needed public ROW, easements for title, etc.<br>• Provide in table form with discussion of the needed ROW | • Acquisition maps<br>• Acquisition table |
| **TASK 3. PREPARE A ROW ACQUISITION PLAN** | • Prepare a draft plan with the approach, required steps, schedule, and approximate cost to acquire all the needed rights-of-way<br>• Incorporate comments on the draft plan and prepare a final plan<br>• Close coordination with environmental and design consultant | • Draft acquisition plan<br>• Final acquisition plan<br>• Acquisition cost estimate<br>• Acquisition schedule |
| **TASK 4. ACQUISITION SERVICES** | • Conduct any appraisals, research, or investigation needed to initiate each acquisition<br>• Prepare all documents, exhibits, or other submittals needed to start each acquisition<br>• Working with IWVGA staff, coordinate, meet, and negotiate as needed to acquire the ROW<br>• Provide escrow coordination and closing as needed<br>• Provide condemnation support if needed<br>• Transmit all acquisition documents and closeout ROW work | • Written offers, easements documents, deeds, notarized acquisition documents, acquisition diary files, title and escrow documents, etc. |

## TASK 1. PROJECT MANAGEMENT

Project Management will be led by April Harvey with support from Mia Garcia's project controls team and Donald M. Anderson as needed. Under Project Controls Manager Mia Garcia, OPC's dedicated project controls team will manage the acquisition reports, documents, spreadsheets, and agreements associated with the project, along with other administrative tasks including coordination of mailings, approval requests, and recording of executed deeds. Having a dedicated back-office project controls team allows our agents to focus on building trust with landowners in the field while project administration continues undelayed.

OPC will participate in ongoing general consultation and project coordination with the IWVGA, the Consultant team, and other project team members and stakeholders,such as the City of Ridgecrest, Indian Wells Valley Water District, County of Kern, among others.

Management of project and financial records is an essential part of an auditable right-of-way program. As part of OPC project management activities, April Harvey will be responsible for:

- Development of a project plan, administrative policies, procedures, and forms necessary to carry out the ROW program in the most cost-efficient manner.
- Tracking and management all budgetary-related aspects of the project associated with OPC's Scope of Work.
- Preparation of tracking reports that monitor the completion of tasks through OPC's ProjectOne® system.

To track the status of appraisal, acquisition, title, and escrow activity along 50 miles, the IWVGA will need a state-of-the-art system that provides real-time detailed information on an individual parcel level. OPC will establish and maintain the project in ProjectOne®, OPC's dedicated, online system, specifically designed by us to address the unique needs of the right of way industry. OPC's ProjectOne® utilizes the latest technology for management of detailed project data, documentation, milestones, risk management, subcontractor coordination, fiscal responsibilities, and progress reporting. OPC designed ProjectOne® with superior quality control in mind. It allows for standardization of project processes to support regulatory and jurisdictional consistencies. ProjectOne® works through Microsoft Sharepoint with secure access to IWVGA-approved users, requiring no special software.



In the earliest stages of project's lifecycle, a dedicated site is created in the ProjectOne® system where all project related data is centrally-stored in an organized and logical way, to provide easy access for the whole Project Team. OPC-managed projects follow a strict, standardized process that empowers team members to easily update project information, track progress and make appropriate decisions based on current, up-to-date information available simultaneously and immediately to everyone involved.

The ProjectOne® dashboard includes a summary view of multiple aspects of the project. OPC team members can easily navigate to additional pages with detailed information about various aspects of the project, including parcel information, acquisition or relocation data, milestone status, and source documents. Authorized users can also use risk management, subconsultant management, budgeting, and other project control tools in ProjectOne®. Users can even monitor the project's progress on a map, which reflects real-time updates to the project status. The integrated status map shown above has the full functionality of Google Maps, and in many locations, includes the ability to zoom down to the property outline and Street View for each property. Users can drill down to each property's details directly from the map just by clicking on the property pin.

OPC's quality assurance / quality control (QA/QC) program begins with the preparation of a detailed plan communicating OPC's approach and project objectives. The OPC QA/QC plan will be applied throughout the Project to ensure compliance. Any exceptions are promptly corrected as events occur. In addition to assuring quality work product, following the plan keeps the team on schedule, which in turn keeps the Project on-time and within budget.




## TASK 2. IDENTIFY NEEDED RIGHTS OF WAY

OPC understands that IWVGA's selected consultant for Engineering Design who's team will include the Land Surveyor of Record. And the Land Surveyor of Record will provide the project with:

- Horizontal and vertical survey control.
- Topographic surveying and mapping.
- Land survey monument recovery (Section Corners, street centerline monuments, property corners) with ties to the project control.
- Land Net Map or hardcopy Base Map in CAD format exhibiting the survey control, and the recovered survey monuments reconciled to recorded maps and deeds along the proposed pipeline corridor.

The Engineering Design consultant will deliver to OPC in a timely manner, the Land Net Map in CAD format, and their civil plans for the proposed pipeline alignment, georeferenced to the project control.

OPC will analyze the proposed pipeline alignment and Land Net Map to determine what ROW and temporary construction easements (TCE) will be required. OPC will develop a Right of Way Requirements Map (accompanied by a right of way parcel table) depicting the project's exact RW and TCE needs.

## TASK 3. PREPARE A RIGHT OF WAY ACQUISITION PLAN

OPC has observed that the KMZ file of the proposed pipeline route provided by IWVGA, places the pipeline within existing road RW from its beginning at California City Blvd. to mile marker #37. For the purposes of this proposal, OPC presumes that apart from

the Pump Station sites, ROW and TCE acquisitions will fall between mile marker #37 and Kendall Ave. in Ridgecrest.

### TASK 4. ACQUISITION SERVICES

Working under April Harvey, Kelly Dewitt and the OPC acquisition staff will meet with property owners and/or operations supervisors to discuss the proposed location of pipeline easements and aboveground equipment.

At OPC, we always prefer to meet with property owners personally. To that end, we try to reach them by phone to arrange a meeting. If no phone numbers are available, we send contact letters to the last known address requesting that they contact us. If that fails, we go to the last known address and try to contact the owner or if the subject property is not the owner's address, we contact tenants and/or neighbors to try to identify the owner's location or contact information.

We will address the concerns of the property owners equitably, in a language they are comfortable with, while attaining the goals of your project. The goal is always to strive for a "win–win" result.

Nearly 30% of OPC staff are fluent in Spanish. OPC agents speak nearly 20 different languages, resulting in real estate negotiations in terms that property owners understand. In situations where we do not possess the native language capabilities, we have contractual arrangements with language translation and communication skills.

During the course of the acquisition process, OPC will:

- Maintain a complete acquisition file of all correspondence, offers, and contacts with each property owner and IWVGA.
- Provide the IWVGA with written status reports at the prescribed interval and confer with the IWVGA Project Manager, as needed.
- Maintain a current Acquisition Checklist showing each successfully negotiated parcel.
- Outline any special terms agreed to with a recommendation for IWVGA action.

OPC will prepare the documentation for utility easement deeds to be ready for signature by each property owner. We understand that the IWVGA's legal counsel has prepared a template to be used for this project.

OPC retains many California notaries public on staff to simplify receipt of notarized signatures from property owners. Depending upon the owner's situation, and the proximity of the owner to one of our many California offices, we would either identify a notary where the owner could go or arrange for a mobile notary.

If necessary, escrow will be opened by submitting an instruction letter providing the purchase contract, title insurance coverage, and notarized Deed to escrow agent. OPC will assist with any due diligence requirements and resolve adverse title conditions preceding the close of escrow and will coordinate payment of just compensation. IWVGA will be furnished with copies of the recorded Deeds and title insurance policies following the close of escrow.

If previous negotiations with property owners in our earlier tasks fail to get required easement deeds, OPC will assist IWVGA in negotiations with property owners by continuing to communicate technical data to any potentially reluctant property owners. We will assist IWVGA in continuing to negotiate in good faith until all reasonable efforts have been exhausted. We train our negotiators to utilize an integrative negotiation process to tackle any barriers to settlement in a most efficient manner. The merits of counter-offers are evaluated, and we will make recommendations to adjust or settle.

One factor that differentiates us from others is the level of effort we devote to the negotiation process. Acquisition is not simply an "offer/counter-offer" action. Rather, we try to root out and solve the underlying issues preventing a settlement. This effort not only enhances our success rate but also builds trust in the acquisition process for the agency using our service. OPC's team of highly experience acquisition consultants are trained and experienced in working with owners who are not always happy that the project affects their property. We are experienced in working with the owners, determining the root cause(s) of their hostility and

developing an approach that addresses their concerns.

Additionally, OPC is available to advise IWVGA on easement or land acquisition matters related to this or any other project. Our acquisition services include easements, right of way, property, negotiations and exchanges, full and partial acquisitions, property research, disposition, permitting, site and route selection, title and escrow coordination, and more.

For instance, water pipeline projects can present unique challenges in the negotiations process because of restraints placed on surface usage over pipelines or under and adjacent to the elevated line improvements. Property interest concerns such as loss of site access, loss of planting area, work space restrictions, surface impacts, and equipment maneuvering restrictions all need to be clearly understood and articulated in the respective easement agreements and clearly communicated to impacted property owners. Often, rural uses in the after condition are limited to grazing or controlled agricultural uses resulting in severance damages to the remainder parcel. Consistent usage of comparable sales data and valuation methodology in the appraisal process will set the groundwork in avoiding excessive counter offers and owner attorney representation. While not foreseen at this time, if needed, OPC can also be engaged to provide the IWVGA with a highly organized, well-planned property appraisal process. Our acquisition team can also perform comprehensive reviews of the project's appraisal analyses and comparable sales data in preparation for the negotiation process.

"I go to OPC with most of my ROW needs! Understanding the entire process and how this needs to integrate with the overall project development process. Always available to answer questions. I will continue to come to OPC with my ROW estimates, appraisal and acquisition services."

**- Robert Blume, PE, Senior Project Manager, Kimley-Horn**

## PROPOSED SCOPE ENHANCEMENTS

Since OPC has in-house utility coordination, mapping and advanced geomatics, permitting, and grant writing capabilities, we want to make these available to the IWVGA to advance the Project. Below are some of the area that may make the most sense to add to the ROW scope:

**UTILITY COORDINATION**: OPC recommends taking on this scope of work as an enhancement. This is currently under Design Consultant RFP scope:

1. Primary point of contact with utility owners for identifying and verifying all utility facilities lying within existing and proposed rights of way of planned construction.
2. Actively participate on Project Development Team.
3. Attend Utility Kick Off Meeting.
4. Attend Community Meeting (if applicable).
5. Attend Public Hearing (if applicable).
6. Prepare the utility portion of the Right of Way Data Sheet.
7. Letter of introduction to utility owners.
8. Request “as-built” utility information from all utility owners within the project and provide this information to the design team for plotting.
9. Verify with utility owners that all utilities plotted on utility plans are accurate.
10. Coordinate 30% plan review, 60% plan review and 100% plan review and provide recommendations.
11. Identify all “High Priority” utility facilities within the project.
12. Coordinate, plan and meet with the Design Team and Utility Owners to determine what facilities require potholing.
13. Coordinate all phases of the positive location of utilities (includes potholing contractor, utility inspector for agency and survey team).
14. Review and verify with the Design Team the conflicting utility facilities based on the results of the potholing.
15. Coordinate and plan with the utility owners and their designers as needed to discuss project design, potential conflicts, relocation alternatives and resolution to conflicts.
16. Issue Relocation Claim Letters to conflicting utility owners (if applicable)
17. Determine liability for each utility company that is impacted by the project. Clearly document this information in a formal Report of Investigation.
18. Obtain detailed scopes of work from the utility companies for relocation, estimated start and completion dates, and proposed cost to perform and complete the job.
19. Issue Notice to Owner to relocate utilities.
20. Work with the project manager and utility owner to ensure the Utility Relocation Plan is compatible with permit requirements.
21. Prepare utility agreements as needed for any utility owner who has prior rights and conflicts with the project or who would like the awarded road contractor to perform utility relocation work regardless of determined liability.
22. Prepare and execute through Caltrans the FHWA Specific Authorizations for Utility Relocations and Utility Agreements.
23. Assist in obtaining permits (local City, County, State and/or other agencies- as needed), licenses, leases, CCUA’s, JUA’s and replacement easements as necessary for utility relocations.
24. Coordinate pre-relocation meetings with design, utility inspector, utility owner and project management.
25. Ensure utility owner (their contractor or both) is responsive to schedules and project needs.
26. Review and process invoicing and payments for utility relocation work.
27. Review and notify agency of expedite, variance or rush fees, process invoicing and payments for fees associated with obtaining permits from local City, County, State and/or other agencies as needed, licenses, leases, etc.
28. Prepare amended utility agreements when necessary for cost overages to initial cost estimates within original utility agreements.

29. Obtain final drawings and as-builts from the utility owners and confirm that all items of work have been completed by the utility owner.
30. Ensure all easement and property rights (Joint Use and Consent to Common Use Agreements) have properly conveyed to utility owners as necessary.
31. Manage utility relocation work during the construction phase of the project.
32. Provide final close-out utility parcel files to client. File will include all pertinent information that is essential for an audit. Including but not limited to: Relocation Claim Letters and responses, Notice to Owners for potholing and relocation, Utility Agreements and Amended Utility Agreements, Reports of Investigations, all supporting documentation for liability determinations, approved relocation plans, confirmation e-mails and diary notes, copies of JUA/CCUA or easements (as necessary) and final relocation as-built plans.
33. Review old plans (road, highways, substructure) and provide recommendations.
34. Utilize One Call System (811) if applicable.
35. Review other information sources (permit requirements, utility databases, GIS websites, etc).
36. Conduct field review if applicable.
37. Maintain file documentation and tracking spreadsheet.
38. Title Review and Title Abstract assessment.
39. Review and provide feedback on Critical Habitat identified by agencies during permitting discussions and work with consulting firm to determine appropriate risk mitigation steps.
40. Travel and/or overnight stays (if applicable) for utility coordination.

**PERMITTING:** Additionally, as we have noted, the permitting process will need to be coordinated carefully across all consultants. OPC's staff, including Sr. Program Manager April Harvey have direct experience obtaining permits from the following agencies and can take on this work. Below is a schedule of typical permitting times relevant to the Project to illustrate the timing of this critical path.

| Agency | Anticipated Permits | Estimated Timeline |
|---|---|---|
| **City of California City**<br>**City of Ridgecrest** | Franchise Rights<br>Street Cut Permit (to be obtained by the Construction Contractor) | 3 to 6 months |
| **County of Kern** | Street Cut Permit (to be obtained by the Construction Contractor)<br>May require repaving conditions for construction on potential Redrock Randsburg Road construction moratorium | up to 12 months |
| **Caltrans** | Long-Term Blanket Construction & Maintenance Permit for US-395 crossings<br><br>(Potential for variance and expedited approval) | 2 years |
| **California DWR, CA Department of Fish and Wildlife, CA Department of Parks and Recreation, State Water Resources Control Board** | Conservation and construction terms and conditions | 2 years |
| **US Bureau of Land Management**<br>**US Fish and Wildlife Service**<br>**US Army Corps of Engineers** | Transfers, access permits, conservation terms and conditions<br><br>(Potential expedited approvals or application with rush fees if needed) | 2 to 3 years |
| **Southern California Edison** | ROW encroachment licenses | 12 months |
| **Union Pacific Railroad** | Permit to be on railroad property for utility survey (active rail line flagman services)<br>Wireline / Pipeline Encroachment and Planning Construction Permit (6 month application review – contractor and business license, RR insurance in place before)<br>ROE / Temporary Use of Railroad Property Permit OR Road Crossing Maintenance<br>(Expedited application with rush fees if needed, potential safety training requirements for on-site work) | 12 to 18 months |

APPENDIX

# Resumes of Key Staff

April Harvey, SR/WA
Donald M. Anderson, SR/WA
Rand Cantrell
Skip Carleton, Jr., PLS
Kelly Dewitt
Andrew P. Nierenberg
Adam Bursch, MAI
David Houghton, MAI
Mia Garcia



# April Harvey SR. PROGRAM MANAGER, SR/WA, RWA, RWP

## OVERVIEW



Ms. Harvey has over 25 years of experience providing real estate services. Her background includes acquisition, eminent domain, management, project research and support. She negotiates purchase and sale of various properties involving eminent domain, attends public hearings, prepares offer letters, acquisition packages, reviews appraisals and real estate comps to determine lease rates, prepares and records acquisition grant deeds with various County offices. In addition, Ms. Harvey is very familiar with processes to obtained temporary construction permits, prepare Notice of Decision to Appraise letters, prepare and obtain zoning and building permits, as well as providing escrow coordination, and title review. As Sr. Program Manager, she attends meetings with engineers, architects, attorneys, property owners and field teams, along with pre-construction and project staff meetings. April has supervised staff and provided oversight of field investigations to determine property feasibility for the installation of wireless facilities.

### Education
Finance/Real Estate, California State University, Long Beach, CA 2003-2005

A.A., Cerritos Community College, Norwalk, CA

### Licenses
Real Estate Sales Agent, California #01279596

Registrant Real Estate Sales Agent, State of Texas

### Affiliations/Certifications
IRWA Chapter 1 President; Senior Member, Right of Way Agent, and Right of Way Professional; Committee Chair, IRWA Oil and Gas; IRWA Nominations Chair Member, AAPL

### Years of Experience
Initial Year in Industry: 1996
Initial Year with OPC: 2002-2005; 2022

## PAST RELEVANT EXPERIENCE

**ROW Manager**
Crimson Midstream, LLC, Long Beach, CA
Hired as a Senior Right of Way Agent III and promoted to ROW Team Lead and Promoted to ROW Manager. Managed, trained, supervised staff. Managed insurance, bonds, coordinated efforts with Insurance vendor, emergency responder for acquisition of pipelines; growth of the company's asset portfolio, negotiated agreements in CA, TX, and LA. Trained staff, developed training databases for ROW, expert witness, coordinated with legal on subpoenas, managed permitting, payments in CA and GOM markets, completed Operation qualification training (OQ), participated in manager meetings, on/off site meetings, public hearings. Mentor and on-going service provider to Operations, Engineering, Accounting, Business Development. Provide ROW services to staff, internally and externally, maintained approximately $3.5M budget, reduced bonds with agencies over $2M. Maintained existing ROW agreements for GAP assets from purchases of Chevron, Shell, Harvest Marks and Paramount Pipelines, enhanced job technical knowledge through outside Land and ROW compliance training programs, internal programs, and Leadership training courses. Maintained relationships with agencies, internal departments, public and legal. AAPL membership, RL Certification through the AAPL. Land and Right of Way Emergency Responder.

## PROJECT EXPERIENCE

### ExxonMobil Oil Corporation
**Pipeline Projects.** Preparation and Submittal of Excavation Permit Applications for the Idle Pipeline Project, Input Notice of Improvement request letters into the Access MIND Database, prepared and submitted 345+ Conflict/No Conflict Response Letters to various entities, Franchise Agreement Review, Coordinate Redondo Beach Title Report Binders for the M-141 and M-150 Pipeline along with response letter to the City of Redondo Beach to avoid unnecessary franchise payment.







# April Harvey SR. PROGRAM MANAGER, SR/WA, RWA/RWP

## PROJECT EXPERIENCE, continued

### Crimson California Pipeline Project
**Franchise, Due Diligence, and Consent Letter Projects**. Prepared and submitted 30+ franchise application packages to various agencies in the Los Angeles and Orange County areas for proprietary and common carrier pipelines, reviewed resolutions and franchise agreements, attend public hearings, coordination with Cities for calendar placement of franchise applications, prepared consent letters for the transfer of pipelines to various agencies and private owners.

### Los Angeles County Sanitation
**Palmdale Reclamation Project**. As Senior Site Acquisition Agent III, presented and negotiated voluntary acquisitions for the purchase of 65+ properties in the Palmdale area. Reported directly to the client, attorneys, and private owners, coordinated escrow, maintained confidential files, updated internal tracking reports and contact logs.

### T-Mobile, MetroPCS, Verizon Wireless, Sprint, Sprint-Nextel, and AT&T
**Site Acquisition Leasing and Zoning Manager**. Prepared site candidate information packages for submittal to wireless carriers for site determination and approval to proceed with lease and zoning of potential candidates, obtain photos of potential leasing and zoning candidates. Negotiated and managed leases and zoning for over 100+ sites. Negotiated rental properties with owners for the installation of wireless facilities on private and public properties, attend staff and client meetings, set and maintain project goals, managed acquisition and zoning agents, ordered title reports, clear title, coordinated site inspections, met with engineers, architects, construction workers, landlord attorney's, landlords, maintained confidential files. Review zoning and construction drawings, coordinate revisions to drawings based on City Zoning Ordinance and expectation of owners, submit Building Permit Applications for review and approval by various jurisdictions.

### Various Projects
Self-storage facilities, residential properties, agricultural farmland, vacant land, mixed use properties, churches, industrial commercial properties, high-rise buildings in the Downtown and Greater Los Angeles Area, Santa Clarita, Orange County, Chatsworth, Riverside, Las Vegas Nevada, Ventura, Bakersfield and San Bernardino Counties, City of Hemet, City of San Jacinto, Long Beach, San Francisco, Santa Barbara and Goleta. Negotiated leases with Cities, Community Colleges, and Governmental agencies for private and residential uses. Attend and spoke at City Council and Community meetings to support the installation of wireless facilities and settle disputes.

## DETAILS OF EXPERTISE

**IRWA Courses:**
Courses completed for SR/WA, RWA

**Conferences/Seminars:**
63rd Annual IRWA International Education Conference, Anchorage, Alaska; 64th Annual IRWA International Education Conference, Alberta, Canada
Common Ground Alliance (CGA) Seminar, Orlando, Florida
Annual EUCI training courses for Pipeline Safety and Pipeline Industry Standards
Annual KINETIC training courses for Pipeline Industry Standards



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# Donald M. Anderson SR/WA, SR. PROJECT MANAGER



## OVERVIEW

Through his extensive career managing real property for growing California municipalities, Mr. Donald Anderson has become known as a proven leader in the right of way community. He has spent decades in public agency roles at the City of Bakersfield and County of Kern overseeing right of way programs for major roadways, earning him a solid reputation of consistent on-time project delivery and integrity in the impacted community.

### Education

B.A., Political Science, Saint Ambrose College
Real Estate Law, California State University
RE Principals/Finance, Cerro Coso College

### Affiliations/Certifications

SR/WA Designation, International Right of Way Association (IRWA)

### Years of Experience

Initial Year in Industry: 1983
Initial Year with OPC: 2020

## PROJECT EXPERIENCE

### Port of Long Beach

**Pier B On-Dock Rail Support Facility Program.** Title Analyst responsible for reviewing title report to identity critical path items. Prepared Title Exception Summary Reports for 83 commercial and industrial parcels. Identified high risks items early allowing the time necessary to mitigate and avoid project delays.

### County of Kern

**Highway 46 Widening 4-Lane Segments 4B and 4C.** Widening project through the town of Lost Hills and the Lost Hills Oilfield. Approximately 25 partial take acquisitions and 5 full acquisitions. There were two residential displacements and two business relocations. Coordination of work with Chevron U.S.A. and Aera Energy to reduce impacts to their oilfield extraction operations. **South Shafter Sewer Project.** A Water Resources Board funded project that will extend sewer services to an unincorporated area of the City of Shafter. They are approximately 40 easements that will need to be acquired. OPC is coordinating all aspects of the acquisition process.

### City of Bakersfield

**12017 Lene Place.** The acquisition of right of way at a single-family estate to facilitate the out-granting to Caltrans.

### Metropolitan Bakersfield Habitat Conservation Plan Implementation Trust Group

**Metropolitan Bakersfield Habitat Conservation Plan-ITG.** Coordination of the acquisition of unimproved properties for habitat preservation to offset development impacts with the metropolitan Bakersfield area. Work included negotiation with property owners, due diligence clearance, escrow and title, coordination with California Department of Wildlife.





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# Donald M. Anderson SR/WA, SR. PROJECT MANAGER

## PAST RELEVANT EXPERIENCE

### County of Kern

**Real Property Agent**. Acquired and disposed of various interests in real property. Negotiated leases, licenses, and permits. Prepared and/or solicited appraisals to determine just compensation, minimum bids, and rents. Administered cable television franchises.

### Ticor Title Insurance Company

**Title Office/Examiner.** Prepared abstracts of title, reconciled title defects, and worked with lenders, attorneys, and escrow officers. Established branch title office and worked to increase market share. Conducted ALTA Survey inspections and prepared court abstracts.

### Fuller Oil Company

**Landman.** Conducted contract negotiations, title examinations, area analysis, and worldwide location of property owners. Prepared status reports and lease documents.

### City of Bakersfield

**Thomas Road Improvement Program (TRIP).** TRIP is a $1.3 billion roadway infrastructure program to improve local traffic flows and interregional transportation. As the City of Bakersfield Real Property Manager, supervised and administered the acquisition, including eminent domain proceedings, and disposal of surplus real property, relocation assistance, and facility leasing and property management of City-owned real property. Coordinated with City of Bakersfield, County of Kern, Caltrans, the Kern Council of Governments, and consultants. Oversaw and reviewed all activities performed by OPC, including a coordinated early acquisition program, relocation of both residential and complex nonresidential properties involving shopping centers and special type business operations, right of way engineering, and property services. Projects included the **24th Street Improvements, SR-178 Widening, 7th Standard Road Widening, Westside Parkway, SR-58 / Rosedale Highway Improvement, SR-58 Gap Closure, SR-99 Hosking Avenue Interchange,** and the **Centennial Corridor Improvement Project.**

**Centennial Corridor Improvement Project**. The City of Bakersfield, in cooperation with Caltrans, is building a new east-west transportation corridor for State Route 58, providing a continuous alignment from State Route 99 to Interstate 5. Real Property Manager responsible for entire right of way program, from right of way planning and strategy development to site clearance. The right of way program entailed almost 400 full and part take acquisitions from residential and commercial properties, including 140 parcels taken as part of an early acquisition strategy under MAP 21. Relocations included 274 residential households, 137 commercial businesses, and 560 personal property storage units. Right of way acquisition has proceeded on-time, allowing for construction to proceed on this $720 million well within schedule.

## DETAILS OF EXPERTISE

**IRWA Courses:**
101 Principles of Real Estate Acquisition
103 Ethics and the R/W Profession
104 Standards/Practices for R/W Prof.
201 Communication in RE Acquisition
202 Interpersonal Relations in RE Acquisition
205 Bargaining Negotiations
206 Presentation Skills
303 Managing the Consultant Process
401 Appraisal of Partial Acquisitions
402 Intro to Income Approach
403 Easement Valuation
410 Reviewing Appraisals in Eminent Domain
501 Residential Relocation Assistance
502 Business Relocation Assistance
506 Advanced Business Relocation
600 Environmental Awareness
603 Understanding Environmental Contamination in RE
701 Property Management: Leasing
802 Legal Aspects of Easements
803 Eminent Domain Law Basics for R/W Professionals
900 Principles of Real Estate Engineering

**Appraisal Institute:**
101 Introduction to Appraising Real Property
102 Applied Residential Property Valuation
Capitalization Theory & Techniques: Part A
Partial Acquisition Appraisals
401 & 402 U.S.P.A.P. Part A & B
Appraisal of Nonconforming Uses

**HUD Couse:**
All the Right Moves

**C.L.E. International:**
Eminent Domain
Negotiating Leases

**Sanli, Pastore & Hill Courses:**
Goodwill Loss Valuation, Level 1
Goodwill Loss Valuation, Level 2
Advanced Topics - Goodwill Loss Analysis

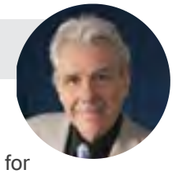
**Lorman:**
Strategies for Successful Eminent Domain Litigation in CA
Title Examination in CA





# Rand Cantrell SENIOR TITLE ANALYST/SENIOR AGENT

## OVERVIEW



As a Senior Title Analyst, Mr. Rand Cantrell performs detailed research for chains of title and land rights. Rand has over 30 years of experience in site acquisition and development, due diligence, and project and program management in the Energy & Utilities industry.

Mr. Cantrell has implemented procedures to significantly increase productivity and decrease project costs. His experience includes mineral and water title reports (including abstracts) and identification of mineral, riparian, and water ownerships.

### Education
B.A., University of Southern California

### Affiliations/Certifications
Member, International Right of Way Association (IRWA)
Registered Land Professional, American Association of Professional Landmen (AAPL)
Member, Nevada Landmen's Association
Member, Sacramento Petroleum Association
Past President, Bakersfield Association of Petroleum Landmen (BAPL)

### Years of Experience
Initial Year in Industry: 1981
Initial Year with OPC: 2018

## PROJECT EXPERIENCE

### Department of Water Resources / Psomas
**Cal Waterfix Project**. Senior Agent for title land and mineral rights of 213 parcels for right of way acquisitions and design for the water conveyance system through the Sacramento-San Joaquin River Delta.

### Contra Costa Valley Water District
**Contra Costa Canal Title Transfer Project, San Ramon, CA**. Senior Agent for title research for Contra Costa Canal and related canals, reservoirs, wasteways, and laterals as well as records for Bay Point Radio Relay Station, access roads and a 2.3 kV transmission line.

### San Diego Gas & Electric
**On-Call Right of Way Services**. San Diego, CA. Senior Right of Way Analyst responsible for title research, easement acquisition, and other real estate needs for power and gas transmission and related utility infrastructure across the San Diego area, including tribal lands.

## PAST RELEVANT EXPERTISE

**Principal**
Cantrell & Associates, Inc.
Authored mineral and water title reports, including abstracts. Identified types of mineral, riparian and water ownerships, and risk assessments. Created legal descriptions and performed due diligence and title curative including the drafting of documents and the acquisition of rights and releases of rights.

**Principal**
Expedine Wireless, Inc.
Directed Site Acquisition and Zoning Entitlement teams on several diversified assignments on behalf of various clients.

**Project Manager - Site Development**
Verizon (AirTouch Cellular)
Managed site acquisitions and development, acquired properties and rights of way, drafted and negotiated contracts.

**Land Supervisor**
Fuller Oil Company; T&T Land Services, Inc.
Coordinated project management of 320,000 acres with regard to title review, lease, and right of way acquisitions, due diligence, and preparation of drill site title abstracts. Developed library for lease addenda, support and curative documents.

# Linwood "Skip" Carleton, Jr. PLS

## SURVEY MANAGER

### OVERVIEW



As OPC's Right of Way Engineering/Land Surveying Manager, Mr. Carleton brings with him 50 years of experience in the surveying field. Skip has served as a Program Manager for transportation/transit projects. He has provided local agencies/municipalities land surveying and right of way engineering support services across the western US. His expertise includes land surveying program management, property boundary retracement, complex title analysis, field surveying practices, and client right of way engineering standards.

### Education

Coursework, University of Miami School of Engineering, Florida

### Licenses

Registered Professional Land Surveyor, CA, No. 6594

Professional Land Surveyor in New Mexico, Arizona, Nevada, and Texas

### Years of Experience

Initial Years in Industry: 1973
Initial Year with OPC: 2017

## PROJECT EXPERIENCE

### Contra Costa Water District

**Contra Costa Canal Title Transfer, Contra Costa County, CA.** Survey Manager responsible for Quitclaim Exhibit and easement mapping for several hundred parcels. Coordinated with client, US Bureau of Reclamation, and the County Recorder to compile decades of acquisition documents and title research. **San Miguel Pump Station Survey**. Survey Manager. Performed 3D laser scanning services at the San Miguel pump station facility for the development of a topographic survey base map, a 3-D model and color rendered map of the existing pump station. This information was then combined with conventional survey data obtained on the project to be used in the design of the Zone 2 separation system. **Los Vaqueros Conveyance System**. Survey Manager responsible for 19-mile 54" diameter water pipeline that ran from an intake facility at Old River and Hwy 4 to a blending facility at Oakley. The system included a transfer/pumping station near Byron that fed water for storage, via a secondary pipeline, into the new Los Vaqueros Reservoir. The job required GPS control, photo control, hydrographic surveys, engineering design surveys, centerline profiles, right-of-way surveying and mapping (for 64 parcels).

### City of Glendale Department of Water and Power (GWP)

**Various Right of Way Services, Glendale, CA.** Responsible for all easement documents, right of way exhibits, and legal descriptions for ongoing water and power improvements throughout the city on an ongoing basis.

### City of Bakersfield

**Bakersfield/TRIP, 24th Street Improvements (Former SR 178), Bakersfield, CA**. The Thomas Roads Improvement Program (TRIP) includes a series of improvement projects deemed necessary to update aging infrastructure in areas stressed by years of rapid population growth, interregional travel, and freight movement. As part of the program's collaborative effort between the City of Bakersfield, Kern County, and Caltrans, the Bakersfield 24th Street Improvement Project will significantly enhance some of the City's major arterial roads. Responsible for the engineering design survey and ROW mapping for the project to Caltrans specifications, as well as providing other survey services. He is responsible for all Right of Way Engineering/Land Surveying necessary for the project. **Centennial Corridor Improvement Project, Bakersfield, CA**. The City of Bakersfield, in cooperation with Caltrans, is proposing to build a new east-west transportation corridor for State Route 58, providing a continuous alignment from SR 99 to Interstate 5. Responsible for comprehensive engineering design survey services to Caltrans specifications, including: survey monument search and recovery, control verification, supplemental control, 3D laser scanning, topographic surveying and mapping, and 3D modeling. Responsible for preparation of ROW engineering mapping deliverables, and ROW engineering staking necessary to support the design of this project. Efforts included approximately 10 square miles of field surveying efforts within three Caltrans owned freeways, management of multiple field crews, daily interface with the City, and complex mineral rights analysis.





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# Linwood "Skip" Carleton, Jr. PLS

## SURVEY MANAGER

## PROJECT EXPERIENCE, continued

### Transportation Corridor Agency (TCA)

**Oso Parkway Improvement Project, Mission Viejo, CA.** In cooperation with Caltrans and the County of Orange, TCA is installing a diamond interchange at the Oso Parkway/SR 241 intersection. As the Right of Way Engineering Manager, responsible for the coordination with multiple surveying firms to facilitate Caltrans approval of all right of way engineering documents and right of way Certification to build the proposed interchange. **Various Title/Right of Way Engineering Services, Orange County, CA**. As part of their long-term property management plan, TCA has been in the process of disposition of several properties in the Foothill/Eastern Transportation Corridor, specifically within the Silverado/Mesa Conservation Easement limits. Responsible for preparation of as necessary legal descriptions, plat maps, exhibits, deed documents, and field surveying coordination services in multiple locations.

### Nevada Department of Transportation (NDOT)

**Right of Way Survey Services Manual, NV.** Advisor directing development of an upgraded department processes and technical procedures manual for the Right of Way Survey Services group of NDOT.

## PAST RELEVANT EXPERIENCE

### US Navy

**Bay Point Pipeline Project at Naval Weapons Station, Contra Costa County, CA**. Survey Manager responsible for establishing primary horizontal and vertical control network for a proposed 5-mile pipeline route, property and right-of-way retracement, location of existing utilities and preparation of right-of-way descriptions and plats.

### Los Angeles County Waterworks District

**Phase II, Avenue K Water Transmission Main, Lancaster, CA**. As the Survey Manager for the project, provided detailed topographic survey mapping for 1.5 miles of the six-lane boulevard, rendered in AutoCAD, exhibiting lane striping, all improvements, and one-foot contours.

### City of Glendale Department of Water and Power

**Adams Hill Water Main Replacement-Survey Services, Glendale, CA.** GWP intended to replace an existing four inch deteriorated cast-iron water main system with approximately 7,760 linear feet of new six and eight inch ductile-iron water mains in the vicinity of Adams Hill, Glendale, California. Mr. Carleton was responsible for all survey services, including establishing control and topographic surveying, necessary for GWP's Water Design Division to complete the replacement design.

### Santa Monica College

**Miscellaneous Land Surveying Services, Santa Monica, CA.** As part of the annual capital improvement program required for the five campuses throughout the City, Santa Monica College utilized Mr. Carleton's management services to facilitate all land surveying and right of way engineering needs including design and topographical surveying, construction staking, and boundary analysis/retracement services.

## SPECIFIC EXPERIENCE

Cannon, Regional Survey Manager, 2009 - 2017; Nolte, Survey Director, 2008 - 2009; David Evans, VP and Regional Survey Mgr. 2004-2008; URS, Regional Field Survey Mgr. 1998 - 2004; Alhambra Land Surveyors, VP and Survey Mgr. 1993 - 1998; Community Sciences Corporation, Field Surveyor 1978 - 1990.

# Kelly Dewitt ACQUISITION MANAGER

## OVERVIEW



As a Right of Way Project Manager, Mr. Dewitt provides extensive experience in right of way acquisition, real estate transactions, and the mortgage industry, including a solid background in the escrow process. He brings to our OPC team over 35 years of real estate experience, including title research of real property pertaining to Resolution of Liens. Mr. Dewitt is knowledgeable of both federal and state regulations relating to the acquisition process. He is proficient in the preparation of acquisition and relocation documents needed for resolution and closure of acquisition and relocation cases.

### Education

California Real Estate License Coursework

### License

Real Estate License, California, No. 00928779

### Years of Experience

Initial Year in Industry: 1986
Initial Year with OPC: 2016

## PROJECT EXPERIENCE

### Palmdale Water District

**2950 Sierra Reservoir Site and Pure Water AWPF Site Projects, Palmdale, CA.** The project involves the acquisition of two parcels to facilitate the construction of a future 4-million-gallon reservoir (2950 Sierra Reservoir Site) and an advanced water purification facility (Pure Water AV AWPF Site). OPC is providing acquisition for the reservoir site and owner outreach, appraisals, and preliminary title reports (PTR) for both parcels.

### Thomas Road Improvement Program/City of Bakersfield

**Centennial Corridor Project, Bakersfield, CA**. Responsible for full take and part take acquisitions including easements, as well as complex acquisitions of residential, commercial, and industrial parcels. Responsible for residential relocation and prepared relocation documents for claimant relocation benefits. Attended monthly meetings with the client. Coordinates the preparation of offer packages, purchase and sale agreements, and administration settlements documents. Successfully negotiated more than 35 full take and partial acquisitions including easements and has successfully relocated and more than 45 homeowners and residential tenants. **24th Street Widening Project, Bakersfield, CA**. As a Senior Agent, responsible for part take acquisitions including easements, as well as complex acquisitions of residential, commercial, and industrial parcels. Attends monthly meetings with the client and coordinates the preparation of offer packages, purchase and sale agreements, and administrative settlement documents. Successful negotiation of more than 18 partial acquisitions, including easements.

### Global Premier Development

**Regency Palms, Palmdale, CA.** Project Manager for 10 partial acquisitions. Client meetings, staff coordination, budget management, ROW documentation, owner coordination/negotiations, and project closeout.

### City of Lancaster / Kimley Horn

**Pedestrian Gap Closures, Lancaster, CA**. In the role of Project Manager, responsible for acquisitions of 26 temporary construction easements of commercial and industrial parcels including coordination of the preparation of offer packages, purchase and sale agreements and administrative settlement documents. Also responsible for conducting parcel site inspections, comparable sales research, and preparation of Minimum Valuation Estimates for commercial and industrial parcels impacted by the project. Attends monthly meetings with the client. **Avenue K Interchange, Lancaster, CA**. Project Manager for four (4) partial acquisitions, including client coordination/meetings, budget preparation/oversight, staff coordination, and ROW document preparation/review. **Lancaster Health District, Lancaster, CA**. Project Manager. 16 partial acquisitions. Client coordination/meetings, budget preparation/oversight, staff coordination/meetings, and ROW document preparation/review.





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# Kelly Dewitt ACQUISITION MANAGER

## PROJECT EXPERIENCE, continued

### T.Y. Lin International

**Holland Road/I-215 Overcrossing, Menifee, CA.** Project Manager for eight (8) partial acquisitions as part of a highway improvement project. Attended client meetings, prepared and managed budgets, coordinated staff, prepared and reviewed ROW documents, and negotiated with owners.

### San Bernardino County Transportation Authority (SBCTA)

**I-10 Express Lanes Project, Montclair, CA**. Responsible for part take acquisitions including easements as well as complex acquisitions of residential, commercial, and industrial parcels. Coordinates the preparation of offer packages, purchase and sale agreements and administrative settlement documents.

### City of Pico Rivera

**Hot Spots Project Rosemead Blvd. at Beverly Blvd., Pico Rivera, CA.** Project Manager. Responsible for negotiating partial and complex-partial acquisitions involving TCEs, road easements and permanent subsurface easements. Coordinates the preparation of offer packages, purchase and sale agreements and administrative settlement documents.

### City of La Cañada Flintridge / Ardurra

**I-210 Soundwall Improvement Phase III, La Cañada Flintridge, CA**. Senior Agent. Responsible for acquisitions of 17 temporary construction easements (TCEs) of commercial and residential parcels including coordination of the preparation of offer packages, purchase and sale agreements and administrative settlement documents. Responsible for conducting parcel site inspections, comparable sales research, and preparation of Waiver Valuations for commercial and industrial parcels impacted by the project. Attended monthly client meetings.

### California High Speed Rail Authority

**CA High Speed Rail - Central Valley Section, Fresno to Bakersfield, CA**. As a Senior Agent, essential functions include delivering the real estate and right of way to help build America's first high speed rail infrastructure in the State of California. Assisted project management with residential and business owner's documentation and final walkthrough of abandoned parcels acquired by the agency for High Speed Rail.

## PAST RELEVANT EXPERTISE

**Real Estate Agent**
Century 21 Real Estate Agency
RE Agent; Multi-family residences and commercial property throughout Southern California.

**Senior Manager, Loan Modifications**
The MRA Group
Responsible for enrollment in various federal, state, and/or bank internal loan modification programs.

## DETAILS OF EXPERTISE

**IRWA Courses:**
100 - Principles of Land Acquisition
105 - The Uniform Act Executive Summary
200 - Principal of Real Estate Negotiation
400 - Principles of Real Estate Appraisal
501 - Residential Relocation Assistance
506 - Advance Business Relocation

**Software Experience:**
Microsoft Suite and Adobe Acrobat

# Andrew P. Nierenberg APPRAISAL

## MANAGER



### OVERVIEW

Mr. Andrew P. Nierenberg is a Program Manager and Appraisal Manager with OPC. He is a former public sector executive manager with 38 years of experience in state government managing the appraisal and acquisition of right of way. Most recently, Mr. Nierenberg served as Deputy District Director of Right of Way for the State of California Department of Transportation, District 7.

His experience in appraisal includes various types of real property, with emphasis on appraisal for partial acquisition of fee and easement rights. He also has specialized experience in the appraisal of "airspace" rights for development of long-term leaseholds. Mr. Nierenberg's extensive background in all facets of right of way makes him an exceptional addition to the team.

### Education

MS, Public Admin., Cal State University, Los Angeles
BA, Economics/History, William & Mary College, VA
CA State University, Sac., Leadership Training I and II

### License

General Real Estate Appraiser, California, #AG021653

### Affiliations/Certifications

Recipient of the Emerson Rhyner Award for Outstanding Management, California Transportation Foundation and Caltrans
Member of Pi Sigma Alpha, National Political Science Honor Society

### Years of Experience

Initial Year in Industry: 1983
Initial Year with OPC: 2021

## PROJECT EXPERIENCE

### Stanislaus County Public Works

**North County Corridor - Phase I.** Consulting with the project team on appraisal and acquisition documents required for project delivery. Performed a high-level review of memorandum of adjustment documents for the acquisition team.

### Riverside County Transportation Commission / Western Riverside County Regional Conservation Agency

**On-Call Right of Way Services, Riverside County, CA.** Appraisal Manager and Appraisal Reviewer for residential, rural, vacant, and commercial parcels for habitat conservation projects as well as roadway and highway projects under an on-call contract with Riverside County Transportation Commission (RCTC).

### City of Glendale Department of Water and Power

**Glendale Community College Parking Lot Solar Canopy Appraisal, Glendale, CA.** Appraisal Manager for valuation for parking canopy space leased to the City from Glendale Community College for generating power through solar photovoltaic panels.

### Texas Department of Transportation (TxDOT)

**North Houston Highway Improvement Project (NHHIP), 3rd Ward Environmental Justice, Houston, TX.** Assisted in the preparation of an affordable housing development program for the impacted residents of the Third Ward. Assisted in the preparation of construction cost estimates for the construction of homes for that same program.





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# Andrew P. Nierenberg APPRAISAL

## MANAGER

## PAST EXPERIENCE, continued

### Deputy District Director of Right of Way

**State of California Department of Transportation, District 7**
Five years of experience as District Right of Way Manager for Caltrans District 7, Los Angeles Office, serving in the capacity of Deputy District Director, for the counties of Los Angeles and Ventura. The Deputy District Director manages 160+ right of way agents, right of way land surveyors and support staff reporting to one Principal Right of Way Agent, and six Supervising Right of Way Agents with the largest combined right of way capital outlay budget in Caltrans. Over 125 projects delivered to construction including 10 segments of I-5 (North & South), 3 segments of I-10, and right of way for both the I-405 and 605/10 Interchange Design-Build projects. Personally negotiated "possession and use agreements" securing property rights for the above referenced projects from federal, state, and local agencies as well as from multi-million dollar commercial and industrial interests.

### Division Chief of Right of Way and Land Surveys

**Caltrans Headquarters**
Led statewide Right of Way and Land Surveys Program working for Caltrans Chief Engineer Karla Sutliff during the final quarter of the 2014/2015 fiscal year. The fourth quarter is typically the heaviest volume of project delivery certification review for Headquarters Right of Way. Worked on many critical delivery projects in Northern California as well as complex excess land sales and airspace leasing issues.

### Senior Right of Way Agent–Supervisor

**Chief of Appraisal for the Regional Special Design-Sequence Task Force**
Responsible for directing nine staff appraisers in the valuation of complex property for acquisition of parcels to build the 60/91/215 interchange project in Riverside. The team produced 110 appraisals in eight months. Three years as Appraisal Senior Specialist for the Southern Right of Way Region. This role included Special Project Consultant for politically sensitive Right of Way issues reporting directly to the Regional Right of Way Manager. Twenty years' experience in the appraisal of various types of real property, with emphasis on appraisal for partial acquisition of fee and easement rights. Two years of specialized experience in the appraisal of "airspace" rights for development on a long-term leasehold basis.

## DETAILS OF EXPERTISE

Co-Presenter Speaker MCLE Spring Eminent Domain Seminar "Upcoming Large Projects - Joint Projects of LA Metro and Caltrans" April 2010.

Co-Presenter Speaker IRWA Spring Valuation Seminar "Timing Counts - The Right of Way Acquisition (and Appraisal) Process" spring 2010.

Certified USPAP instructor for State of California Department of Transportation Division of Right of Way; Statewide classes for Appraisers and Right of Way Agents.

Instructor Coordinator for California State University Northridge, Roland Tseng College of Extended Learning, Real Estate Appraisal education program from January 1994 to January 2008 inclusive. Instructor/course creator of the College's Appraisal Program 1994 to June 2007. Courses developed included:

"Principles of Real Estate Appraising," "Income Property Appraisal," "Appraisal Report Writing" "Applied Field Techniques" and "Standards of Professional Practice (1996 to 2003)" which were 90-hour core courses in the COEL's real estate appraisal certificate of participation program.

Speaker, IRWA Annual Relocation Assistance Seminar "What the RAP Agent Should Know about Appraisals", Spring 2007.

BRI BENDER ROSENTHAL INCORPORATED

# ADAM BURSCH



A graduate of Humboldt State and closet disco-lover, Adam Bursch is one of our more unexpected personalities in the land of appraisal. A favorite with all of his clients, he has been involved in real estate appraising and consulting since 2002 and his professional experience in real property appraisal encompasses a wide range of property types. His experience with the valuation of varied uses as industrial, office, retail, multi-family, mobile home parks, self-storage facilities, residential subdivisions, churches, and vacant land have made him a terror to opposing counsel on the expert witness stand. Adam manages large and small-scale right of way appraisal projects throughout CA.

## APPRAISAL MANAGER
## MAI, VICE PRESIDENT

20 Years of Experience
11 Years with BRI

## EDUCATION

B.S. Biology, Humboldt State University, California

M.B.A. Finance, California State University, Sacramento

## REGISTRATIONS

Certified General Real Estate Appraiser, AG 037931

MAI Member, Appraisal Institute

## AFFILIATIONS

Appraisal Institute (AI), Sacramento Sierra Chapter

## SPECIAL QUALIFICATIONS

Adam's professional experience encompasses a wide range of property types including industrial, office, retail, multi family, mobile home parks, self-storage facilities, residential subdivisions & land.

## REPRESENTATIVE PROJECT EXPERIENCE

### APPRAISAL MANAGER

***Friant Water Authority Friant-Kern Canal Subsidence Correction Project, Kern and Tulare Counties, CA:*** The project will involve both canal section rehabilitation and modification; and construction of a parallel canal throughout a 33-mile long portion of the existing canal, focusing on the areas most impacted most by subsidence. Adam is overseeing the BRI to provide appraisal services for over 150 parcels impacted by the project. Most parcels within this corridor are agricultural parcels, containing established crops and orchards, and some of the parcels may be bisected, impacting irrigation systems, and affecting crop production.

### APPRAISAL MANAGER

***County of Orange Prado Dam Project, San Bernardino County, CA:*** Adam is the Appraisal Manager for this flood risk management project constructed, owned, and operated by the U.S. Army Corps of Engineers, Los Angeles District. BRI is providing appraisal services for the impacted parcels. This project is complex due to the increase in runoff sediment accumulation, change to severity of design rainfall, and the general impacts to the reservoir due to urbanization.

### APPRAISAL MANAGER

***California American Water Company Gibson Crossing Project:*** The assignment was to appraise the proposed acquisition of six tentative mapped lots and a permanent easement for the expansion of a water tank site by California American Water Company. The larger parcel represented Gibson Crossing, a tentatively mapped subdivision. The analysis was complex in determining if there were damages to the remainder parcel.

### APPRAISAL MANAGER

***Yolo Bypass Salmonid Habitat Restoration & Fish Passage Project:*** BRI provided appraisal and acquisition services for over thirty (30) parcels impacted by this project. Appraisals services included the valuation of permanent flowage easements and Adam was responsible both for writing reports and providing oversight to the appraisal team.





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BRI BENDER ROSENTHAL INCORPORATED

# DAVID HOUGHTON



David is a consummate DIYer. What this means is that David has seen it all in building appraisal and knows how it got there and what it is worth to the penny. This makes him our ringer in the appraisal of new construction and existing retail, office projects, industrial buildings, proposed sub-divisions, multifamily developments, and speculative land in both Northern and Southern California. David currently provides appraisal services for many property types and has experience in appraising improved owner-user and income-producing properties, as well as speculative land, development land, agricultural land and residential estate properties across California.

## LEAD APPRAISER
## MAI, SENIOR APPRAISER

17 Years of Experience
8 Years with BRI

## EDUCATION

B.S. Business Management, University of Phoenix

## REGISTRATIONS

Certified General Real Estate Appraiser, AG 039402

MAI Member, Appraisal Institute

## AFFILIATIONS

Appraisal Institute (AI), Sacramento Sierra Chapter

## SPECIAL QUALIFICATIONS

David has been involved with numerous appraisal assignments throughout California, from single parcel assignments to complex corridor appraisals spanning multiple counties.

## REPRESENTATIVE PROJECT EXPERIENCE

### PROJECT MANAGER

***Metropolitan Water District of Southern California, Various Rental Studies:*** As Project Manager, David was assigned to determine the market rent for agricultural land on these islands and two duck clubs. The assignment was complicated by the lack of available rental data specific to the islands. The islands are unique with lower quality soils and subsidence issues that limits the potential crops to primarily corn and alfalfa, to a lesser extent. Through unique data analysis David was successful in obtaining the necessary data for MWD.

### LEAD APPRAISER

***Friant Water Authority, Friant-Kern Canal Subsidence Correction Project, Kern County, CA:*** David was the Appraisal Manager for this project to rehabilitate a 22-mile long portion of the existing canal, focusing on the areas most impacted most by subsidence. BRI provided full service right of way for 47 parcels, enabling the safe delivery of high-quality water to the community.

### LEAD APPRAISER

***Southern California Gas Company, Multiple Pipeline Projects in Kings, Kern, Riverside, San Luis Obispo and Imperial, CA:*** David is the lead appraiser for the delivery of partial acquisition appraisal assignments in support of SoCalGas' Pipeline Safety Enhancement Plan. This effort has involved 5 subterranean pipeline projects and the scope of the effort continues to increase and could ultimately encompass the utility's entire service area from Tulare County to the US/Mexico border.

### LEAD APPRAISER

***San Bernardino County Transportation Authority West Valley Connector Bus Rapid Transit (BRT) Project, Segment 2, San Bernardino, CA:*** David was the lead appraiser for segment 2 of this 35-mile-long BRT project involving the appraisal of 39 properties. The impacted parcels included varied commercial and industrial land uses, such as retail, motels, restaurant franchises with vehicle drive-thru access and auto sales dealers.

# Mia Garcia PROJECT CONTROLS MANAGER

## OVERVIEW



As Project Controls Manager, Ms. Garcia assists managers, principals, agents, and staff with project scheduling and reporting, change order management, and quality control to ensure that OPC completes its projects on-time, and within budget. She confirms that OPC follows risk assessment policy and procedures and she provides subconsultant coordination. Ms. Garcia is also responsible for Project Contract Administration and Document Management.

## Education

Bachelor of Science, Information Technology, University of Redlands, CA, 2004

## Years of Experience

Initial Year in Industry: 2009
Initial Year with OPC: 2010

## PROJECT EXPERIENCE

### California High Speed Rail Authority

**High Speed Rail Fresno to Bakersfield Segment**. Acting as Project Controls Manager for Acquisition, Property Management and Utilities Services, Ms. Garcia provides staff, subconsultant, and QA/QC coordination. The project involves 20 acquisitions, including 70 business and residential relocations, around 1,300 Joint Use and Consent to Common Use agreements with 60 utility owners, and property management services for 400 plus properties.

### San Bernardino County Transportation Authority (SBCTA)

**I-10 Corridor Contract 1 Project**. Responsibilities include cost budget tracking, schedule, and project deliverables, as well as all project documents and contractual obligations. This public improvement Project is intended to increase freeway capacity, improve traffic, and interchange operations and enhance road safety. **I-15/215 Devore Interchange Improvements Project**. Provided subconsultant coordination and administration, document management, project oversight, and quality control. The project focuses on reducing congestion and accidents, as well as increasing traffic flow at this vital interchange in San Bernardino County. The project proposes to add one lane and truck-bypass lanes in both directions, reduce unsafe traffic movements, and improve local connectivity. **I-215/Barton Road Improvement Project**. The project is proposed to realign the freeway on-ramps and off-ramps and involves the widening of Barton Road over the freeway. OPC prepared the preliminary right of way cost estimates and data sheets for the project. OPC also prepared a cost estimate to acquire a replacement site for a public high school in the project area. Provided administrative project oversight and assisted with meetings and overall project coordination.

### Orange County Transportation Authority (OCTA)

**I-405 Improvement Project**. The project includes the partial acquisition of 476 parcels and will add new lanes to the I-405 freeway from SR-55 to the I-5. The project will also improve chokepoints at interchanges and add merging lanes near on/off-ramps such as Lake Forest Drive, Irvine Center Drive, and SR-133, to improve the overall freeway operations in the I-405/I-5 El Toro "Y" area. The project will generally be constructed within the existing right of way. Responsibilities included budget, schedule, and project deliverables, as well as all project documents and contractual obligations.





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4. References & Related Exp.
5. Financial Capacity
6. Schedule
7. Fee Schedule
8. Proposed Scope of Work
Appendix: Resumes

# Mia Garcia PROJECT CONTROLS MANAGER

## PROJECT EXPERIENCE, continued

### Port of Corpus Christi

**Hillcrest Voluntary Acquisition and Relocation Project**. Project Controls Manager for voluntary acquisition and relocation of a single-family community with several hundred homes, a first-of-its-kind program as the result of a Civil Rights violation complaint filed against the State of Texas and the Port of Corpus Christi. Responsibilities included budget, schedule, and project deliverables, as well as all project documents and contractual obligations.

### Texas Department of Transportation (TxDOT)

**I-20 Interchange, SH-249 (Montgomery/Grimes), SH-71, SH-146, FM-1960 and FM-676 Project**. OPC is currently providing right of way appraisal, acquisition, and relocation services for various public and private property parcels impacted by the project. Responsibilities include cost budget tracking, schedule, and project deliverables, as well as all project documents and contractual obligations.

### Nevada Department of Transportation (NDOT)

**Project NEON**. OPC is currently providing right of way appraisal, acquisition, relocation, and property management services for up to 70 public and private property parcels impacted by Project Neon. The project extends 3.7 miles along I-15 from Sahara to the US95/I-15 Interchange. Responsibilities included budget, schedule, and project deliverables, as well as all project documents and contractual obligations.

### Riverside County Transportation Commission (RCTC)

**SR-91 Corridor Improvement Project**. This high-profile, politically-sensitive project involves over 450 partial and full acquisitions with varying degrees of difficulty, and approximately 250 residential and business relocations. Providing staff oversight, subconsultant administration, document management, and quality control. Assisted with Right of Way Certifications for all parcel groups working closely with relocation, demolition, and utilities to complete the Caltrans Certification process. Assisted with Client and internal project meetings. Also, assisted with scheduling, capital expenditure updates and reconciliations, quality assurance of documents, demolition procurement, and facilitating information/coordination efforts with all appraisers on the project.

### City of Bakersfield / Thomas Road Improvement Program

**Centennial Corridor Improvement Project**. The Centennial Corridor Project proposes to establish an alignment for a transportation facility to provide increased connectivity for traffic traveling within Bakersfield, and to provide a continuous route along SR-58 to I-5. Responsibilities included budget, schedule, and project deliverables, as well as all project documents and contractual obligations.

## DETAILS OF EXPERTISE

**Additional Coursework:**
Fundamentals/Successful Project Management
Resources Allocation and Information Technology
Excel at Managing and Supervising People
Business and Technical Writing
Microsoft Office Instructor
PMP Training for Certification
Multiple PMP Podcasts and Training

**Certifications**
NetSuite OpenAir Essentials
Crystal Reporting Level I, II
Microsoft Access and Complete Office Suite
Visual Basic and Visual Basic Net
Result-Oriented Variable Pay System
Franklin Covey Time Management
Leadership and Management Training
Getting It Done, Art of Stress-Free Productivity
The Essentials of Communicating with Diplomacy




**OPC is knowledgeable, efficient, and highly capable of holding difficult discussions with third parties.**

Carlos Sempere, Alameda County Water District

# Overland, Pacific & Cutler, LLC (OPC)

Indian Wells Valley Groundwter Authority - Contact Information

Overland, Pacific & Cutler, LLC

Main Office:
5000 Airport Plaza Dr., Ste. 250
Long Beach, CA 90815

April Harvey, SR/WA
Senior Program Manager
Direct : 213.793.4885
Toll Free : 800.400.7356

Email : AHarvey@OPCservices.com
www.OPCservices.com

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IWVGA Board Meeting
February 8, 2023

# Resolution 03-23
# Authorize Award of Contract to Overland, Pacific and Cutler, LLC for Right-of-Way and Parcel Acquisition Services for the Imported Water Pipeline



1

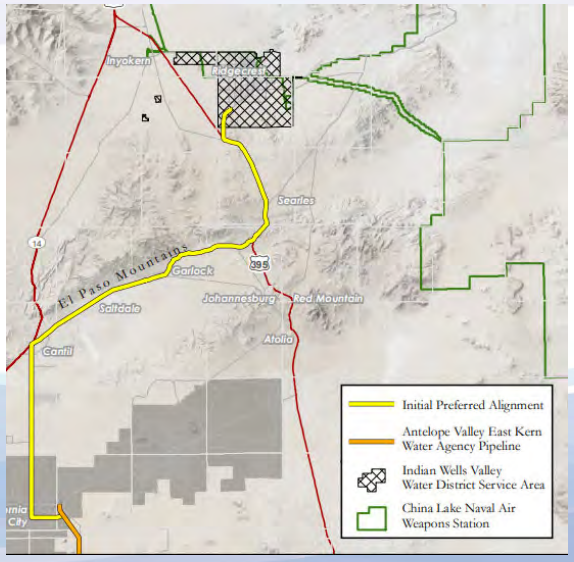
## Background – Project Funding

- April 28, 2022: IWVGA was awarded $7.6 million in grant funding from the California Budget Act of 2021 Sustainable Groundwater Management Grant Program SGMA Implementation Round 1 grant solicitation (SGMA-IP)
  - SGMA-IP funding will be used the IWVGA's Imported Water Interconnection Project
    - Design
    - Environmental Compliance
    - Right-of-Way Acquisition
    - Other permitting and coordination with partnering agencies
  - Work under the grant must be completed by March 31, 2025.
    - An inquiry is being made to DWR regarding the possibility of extending the deadline
- Staff is expecting some of the cost of the development of Imported Water Interconnection Project to be covered by the USACE Planning Assistance to States Program.



2

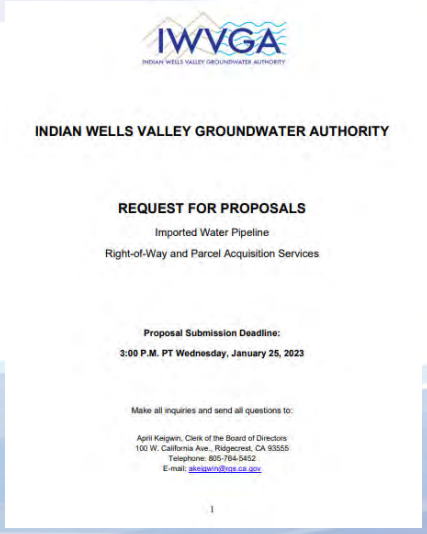
## Background – Alignment Study




- July 22, 2022: The Board authorized an agreement with Provost & Pritchard Consulting Group ("P&P" or "Provost & Pritchard") to perform an alignment study
- November 9, 2022 Board meeting: Provost & Pritchard presented three initially potential alignments
- December 6, 2022: A joint public meeting of the PAC and TAC was held to present screening criteria and preliminary weighting factors for committee and public discussion.
- December 14, 2022 Board meeting: The Board adopted the Resolution No. 11-22 which:
  - Approved the Central Alignment for further Environmental, Right-of-Way, and Design review for consideration for the Imported Water Interconnection Project and,
  - Authorized the General Manager to issue Requests for Proposals for Right-of-Way Acquisition Services, Environmental Documents (NEPA/CEQA) and Permitting Services, and Conveyance System Design Services for the Imported Water Interconnection Project



## Background – Request for Proposals



IWVGA

INDIAN WELLS VALLEY GROUNDWATER AUTHORITY

**INDIAN WELLS VALLEY GROUNDWATER AUTHORITY**

**REQUEST FOR PROPOSALS**

Imported Water Pipeline

Right-of-Way and Parcel Acquisition Services

**Proposal Submission Deadline:**

**3:00 P.M. PT Wednesday, January 25, 2023**

Make all inquiries and send all questions to:

April Keigwin, Clerk of the Board of Directors
100 W. California Ave., Ridgecrest, CA 93555
Telephone: 805-764-5452
E-mail: akeigwin@iwga.ca.gov

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- December 14, 2022: The Board approved the release of Requests for Proposals (RFP) for Design, Environmental, and Right-of-Way Consultants
  - December 19, 2022: The RFP's were advertised online, including the IWVGA website
  - January 16, 2023: Staff responded to all Pre-Proposal Questions from Respondents
  - January 25, 2023: Proposals for each RFP were due
- Staff formed a Review Committee to review all Proposals for the selection of Consultants for each RFP
  - January 30, 2023: The Review committee discussed the proposals

## Proposals

- Received Proposals from:
  - Epic Land Solutions, Inc
  - Monument
  - Overland, Pacific and Cutler, LLC. (OPC)
- The Review Committee agreed that the Proposal that best addressed the RFP was submitted by OPC
- OPC
  - Proposed Budget: $413,590.00
  - Anticipated Work Complete Date: April 2025






## Scope of Work - Overview

- The right-of-way and parcel acquisition services include:
  - Appraisals
  - Negotiations of terms and fees
  - Tracking of parcels and acquisition efforts
  - Coordination with the engineering design team
  - Title and escrow services, and right-of-way acquisition evaluating the need for and preparing all necessary Technical Studies and surveys



## Scope of Work – Task 1

| | Activities | Deliverables |
|---|---|---|
| **TASK 1. PROJECT MANAGEMENT** | • Client meetings<br>• Coordination with stakeholders, IWVGA Board, and Technical Advisory Committee<br>• Monthly coordination with IWVGA Water Resources Manager (WRM)<br>• Close coordination with environmental and design consultant<br>• Contribute to critical path schedule<br>• Invoicing and reporting<br>• Enter and track ROW and Project documents in dedicated ProjectOne® site | • Acquisition schedule<br>• Monthly progress reports<br>• Input into meeting minutes<br>• Invoices |



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## Scope of Work – Task 2

| | Activities | Deliverables |
|---|---|---|
| **TASK 2. IDENTIFY NEEDED RIGHTS OF WAY** | • Review project plans prepared by the Design Consultant<br>• Identify all right-of-way needed<br>• Identify entities from which the rights-of-way must be obtained<br>• Prepare maps and drawings for the entire pipeline clearly showing the needed public ROW, easements for title, etc.<br>• Provide in table form with discussion of the needed ROW | • Acquisition maps<br>• Acquisition table |



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## Scope of Work – Task 2

| | Activities | Deliverables |
|---|---|---|
| **TASK 3. PREPARE A ROW ACQUISITION PLAN** | • Prepare a draft plan with the approach, required steps, schedule, and approximate cost to acquire all the needed rights-of-way<br>• Incorporate comments on the draft plan and prepare a final plan<br>• Close coordination with environmental and design consultant | • Draft acquisition plan<br>• Final acquisition plan<br>• Acquisition cost estimate<br>• Acquisition schedule |



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## Scope of Work – Task 4

| | Activities | Deliverables |
|---|---|---|
| **TASK 4. ACQUISITION SERVICES** | • Conduct any appraisals, research, or investigation needed to initiate each acquisition<br>• Prepare all documents, exhibits, or other submittals needed to start each acquisition<br>• Working with IWVGA staff, coordinate, meet, and negotiate as needed to acquire the ROW<br>• Provide escrow coordination and closing as needed<br>• Provide condemnation support if needed<br>• Transmit all acquisition documents and closeout ROW work | • Written offers, easements documents, deeds, notarized acquisition documents, acquisition diary files, title and escrow documents, etc. |



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## Budget

- Total Estimated Fee:
  - Not-to-Exceed: $413,590.00

| Activity | Senior Program Manager | Professional Land Surveyor | Appraisal Manager | Senior Project Manager | Senior Utility Coordinator | Acquisition Manager | CAD Designer | Project Controls Manager | Senior Acquisition Agent | Senior ROW Analyst | Project Controls Analyst | Agent | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hourly Rate | 250 | 200 | 200 | 165 | 165 | 150 | 150 | 150 | 135 | 135 | 135 | 120 | |
| Task 1: Project Management | 80 | | | 24 | | | | 2 | | | 48 | | 30,740 |
| Task 2: Identify Needed ROW | 24 | 40 | | 16 | | | 120 | | | 960 | 8 | | 165,320 |
| Task 3: Prepare ROW Acquisition Plan | 12 | | | 8 | | 10 | | 2 | | | 92 | | 18,540 |
| Task 4: Acquisition Services (ROEs, Easements, and Land Acquisition) | 8 | 1 | 16 | 72 | | 88 | | | 144 | | 40 | 624 | 130,200 |
| Subtotal Labor | 124 | 41 | 16 | 120 | | 98 | 120 | 4 | 144 | 960 | 188 | 624 | 344,800 |
| Other Direct Costs | | | | | | | | | | | | | |
| Preliminary Title Reports with Plotted Easements (estimated 54 private properties and 7 government/UPRR) | | | | | | | | | | | | | 58,790 |
| Appraisal Reports (estimated 2) | | | | | | | | | | | | | 10,000 |
| Subtotal Other Direct Costs | | | | | | | | | | | | | 68,790 |
| Total Estimated Fee | | | | | | | | | | | | | 413,590 |



## Action(s) Required By the Board

Staff recommends the Board adopt
Resolution 04-23 to
Authorize Award of Contract to
Overland, Pacific and Cutler, LLC for
Right-of-Way and Parcel Acquisition Services
for the Imported Water Pipeline

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# IWVGA ADMINISTRATIVE OFFICE

***STAFF REPORT***

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**TO:** IWVGA Board Members **DATE: February 8, 2023**

**FROM:** IWVGA Staff

**SUBJECT:** **Agenda Item14 – Resolution 04-23 to Authorize Award of Contract to Provost and Pritchard Consulting Group for CEQA/NEPA Documents and Permit Documentation Services for the Imported Water Pipeline**

## BACKGROUND AND DISCUSSION

On April 28, 2022, the IWVGA was provided notice of award of $7.6 million in grant funding from the California Budget Act of 2021 Sustainable Groundwater Management Grant Program SGMA Implementation Round 1 grant solicitation (SGMA-IP). The grant funding will be primarily used for additional planning for the IWVGA's Imported Water Interconnection Project including design, environmental compliance, right-of-way acquisition, and other permitting and coordination with partnering agencies. A grant funding agreement between the IWVGA and the California Department of Water Resources (DWR) was executed on August 12, 2022. Work under the grant must be completed by March 31, 2025. The original estimated schedule for completion of the design, environmental compliance, right-of-way acquisition, and permitting extended beyond March 2025, in part due to the need for information and approvals from federal and state agencies. An inquiry is being made to DWR regarding the possibility of extending the deadline for completion of work under the grant.

In addition to the SGMA-IP Grant, Staff is expecting some of the cost of the development of Imported Water Interconnection Project to be covered by the USACE Planning Assistance to States Program.

On July 22, 2022, the Board authorized an agreement with Provost & Pritchard Consulting Group ("P&P" or "Provost & Pritchard") to perform an alignment study for the proposed imported water pipeline. Provost & Pritchard presented three initially potential alignments for the imported water pipeline at the November 9, 2022 Board meeting. A joint public meeting of the PAC and TAC was held December 6, 2022 to present screening criteria and preliminary weighting factors for committee and public discussion.

Following presentation of the results of the alternative alignment screening process at the December 14, 2022 Board meeting, the Board adopted Resolution No. 11-22 which; (1) approved the Central Alignment for further Environmental, Right-of-Way, and Design review for consideration for the Imported Water Interconnection Project and, (2) authorized the General Manager to issue Requests for Proposals for Right-of-Way Acquisition Services, Environmental Documents (NEPA/CEQA) and Permitting Services, and Conveyance System Design Services

for the Imported Water Interconnection Project.

A Request for Proposals (RFP) for Imported Water Conveyance System CEQA/NEPA Documents and Permit Documentation Services was advertised online to solicit proposals from qualified firms for imported water conveyance system design services on December 19, 2022. The CEQA/NEPA and permitting services include preparing CEQA/NEPA documentation, evaluating the need for and preparing all necessary Technical Studies and surveys, conducting environmental review and investigations, identifying permitting requirements, and fieldwork, as needed, for the pipelines, pump stations, reservoirs, and associated facilities for the Imported Water Interconnection Project.

On January 4, 2023, the IWVGA hosted a pre-proposal meeting where interested parties were presented information on the RFP's purpose, the scope of work, and the schedule. The IWVGA received questions regarding the RFP and posted responses to the questions on the IWVGA's website as Addendum 1 to the RFP. Staff responded to all Pre-Proposal Questions from Respondents by January 16, 2023. On January 25, 2023, the IWVGA received proposals from Provost & Pritchard Consulting Group and Environmental Science Associates. A staff review committee met via conference call on January 30, 2023 to discuss the proposals. The committee agreed the proposal that best addressed the RFP was submitted by Provost & Pritchard Consulting Group.

Provost & Pritchard Consulting Group's proposal has a total budget of $1,013,722.00. A Contract Services Agreement by and between the IWVGA and Provost & Prichard Consulting Group has been prepared and is included in your Board packet.

Also included on the Board meeting agenda today are Agenda Item 12 for the Board to consider the adoption of Resolution No. 02-23 to Authorize Award of Contract for Design Services for the Imported Water Pipeline and Agenda Item 13 for the Bord to consider the adoption of Resolution No. 03-23 to Authorize Award of Contract for Right-of-Way and Parcel Acquisition Services for the Imported Water Pipeline. The sum of the Not-to-Exceed amounts included in the Contract Services Agreements is $7,867,312.00, which exceeds the $7.6 million available from the SGMA-IP Grant. As mentioned above, Staff is expecting some of the cost of the development of Imported Water Interconnection Project to be covered by the USACE Planning Assistance to States Program. The IWVGA is also continuing to look for additional funding opportunities. The contracts will be administered on a task-order basis. Staff will determine whether sufficient funds are available before issuing each task order.

## ACTION(S) REQUIRED BY THE BOARD

Staff recommends the Board adopt the attached Resolution No. 04-23 to Authorize Award of Contract, subject to approval as to form by legal counsel, to Provost and Pritchard Consulting Group for CEQA/NEPA Documents and Permit Documentation Services for the Imported Water Pipeline.

**BEFORE THE BOARD OF DIRECTORS OF THE INDIAN WELLS VALLEY GROUNDWATER AUTHORITY**

**In the matter of:** **Resolution No. 04-23**

**AWARD OF CONTRACT TO PROVOST AND PRITCHARD CONSULTING GROUP FOR CEQA/NEPA DOCUMENTS AND PERMIT DOCUMENTATION SERVICES FOR THE IMPORTED WATER PIPELINE**

**I, _____, Clerk of the Board of Directors for the Indian Wells Valley Groundwater Authority, do certify that the following resolution, on motion of Director _____, seconded by Director _____, was duly passed and adopted by the Board of Directors at an official meeting this ____ day of _____, 2023, by the following vote:**

**AYES:**

**NOES:**

**ABSENT:**

_____
Clerk of the Board of Directors
Indian Wells Valley Groundwater Authority

**THE BOARD OF DIRECTORS OF INDIAN WELLS VALLEY GROUNDWATER AUTHORITY RESOLVES AS FOLLOWS:**

Section 1. **WHEREAS:**

(a) The Authority was awarded $7.6 million in grant funding from the California Budget Act of 2021 Sustainable Groundwater Management Grant Program SGMA Implementation Round 1 grant solicitation (SGMA-IP) for additional planning for the Authority's imported water interconnection project (Project).

(b) All work under the SGMA-IP grant must be completed by March 31, 2025.

(c) On December 14, 2022, the Board adopted Resolution 11-22 which; (1) approved the Central Alignment for further Environmental, Right-of-Way, and Design review for consideration for the Imported Water Interconnection Project and, (2) authorized the General Manager to issue Requests for Proposals for Right-of-Way Acquisition Services, Environmental Documents (NEPA/CEQA) and Permitting Services, and Conveyance System Design Services for the Imported Water Interconnection Project.

(d) A Request for Proposals (RFP) for Imported Water Conveyance System CEQA/NEPA Documents and Permit Documentation Services was advertised online to solicit proposals from qualified firms for imported water conveyance system design services on December 19, 2022.

(e) On January 25, 2023, the IWVGA received proposals from Provost & Pritchard Consulting Group and Environmental Science Associates. A staff review committee met via conference call on January 30, 2023 to discuss the proposals. The committee agreed the proposal that best addressed the RFP was submitted by Provost & Pritchard Consulting Group.

Section 2. **THEREFORE IT IS RESOLVED** by the Board of Directors of the Indian Wells Valley Groundwater Authority, as follows:

1. This Board finds that recited facts are true and that it has the jurisdiction to consider, approve, and adopt this Resolution.

2. The General Manager or his/her designee is authorized to execute a contract services agreement with Provost & Pritchard for CEQA/NEPA services in the form approved by the General Counsel and in an amount not to exceed $1,013,722.

**PASSED, APPROVED, AND ADOPTED**, by the Indian Wells Valley Groundwater Authority this ____ day of _____, 2023.

SIGNED:

_____
President of the Board of Directors

ATTEST:

_____

**CONTRACT SERVICES AGREEMENT**

**By and Between**

**Indian Wells Valley Groundwater Authority**

**and**

**Provost and Pritchard Consulting Group**

**for CEQA/NEPA Services**

**AGREEMENT FOR CONTRACT SERVICES**
**BETWEEN THE INDIAN WELLS VALLEY GROUNDWATER AUTHORITY**

**AND**

**PROVOST AND PRITCHARD CONSULTING GROUP**

**FOR CEQA/NEPA SERVICES**

THIS AGREEMENT FOR CONTRACT SERVICES (herein "Agreement") is made and entered into this ____ day of _____, 2023 by and between the Indian Wells Valley Groundwater Authority, ("Authority") and Provost and Pritchard Consulting Group ("Contractor"). Authority and Contractor may be referred to, individually or collectively, as "Party" or "Parties."

## RECITALS

A. Whereas, The Authority has recently secured a SGMA-Implementation grant funding opportunity through DWR for planning and design-level activities intended to bring new imported water supplies into the Basin. ;

B. Whereas, on December 19, 2022 the Authority released a Request for Proposals ("RFP") for CEQA/NEPA Documents and Permit Documentation services related to an imported water conveyance system.

C. Whereas, Contractor responded to the RFP and Authority and Contractor desire to enter into this Agreement for the completion of design services.

## OPERATIVE PROVISIONS

NOW, THEREFORE, in consideration of the mutual promises and covenants made by the Parties and contained herein and other consideration, the value and adequacy of which are hereby acknowledged, the parties agree as follows:

### ARTICLE 1. SERVICES OF CONTRACTOR/CONSULTANT

#### 1.1 Scope of Services.

In compliance with all terms and conditions of this Agreement, the Contractor shall provide those services specified in the "Scope of Work" in its proposal or bid, which shall be incorporated herein by this reference as though fully set forth herein as Exhibit "A," which may be referred to herein as the "services" or "work" hereunder. In the event of any inconsistency between the terms of such proposal and this Agreement, the terms of this Agreement shall govern. As a material inducement to the Authority entering into this Agreement, Contractor represents and warrants that it has the qualifications, experience, and facilities necessary to properly perform the services required under this Agreement in a thorough, competent, and professional manner, and is experienced in performing the work and services contemplated herein. Contractor shall at all times faithfully, competently and to the best of its ability,

experience and talent, perform all services described herein. Contractor covenants that it shall follow the highest professional standards in performing the work and services required hereunder and that all materials will be both of good quality as well as fit for the purpose intended. For purposes of this Agreement, the phrase "highest professional standards" shall mean those standards of practice recognized by one or more first-class firms performing similar work under similar circumstances.

### 1.2 Compliance with Law.

Contractor shall keep itself informed concerning, and shall render all services hereunder in accordance with, all ordinances, resolutions, statutes, rules, and regulations of the Authority and any Federal, State or local governmental entity having jurisdiction in effect at the time service is rendered.

### 1.3 Licenses, Permits, Fees and Assessments.

Contractor shall obtain at its sole cost and expense such licenses, permits and approvals as may be required by law for the performance of the services required by this Agreement. Contractor shall have the sole obligation to pay for any fees, assessments and taxes, plus applicable penalties and interest, which may be imposed by law and arise from or are necessary for the Contractor's performance of the services required by this Agreement, and shall indemnify, defend and hold harmless Authority, its officers, employees or agents of Authority, against any such fees, assessments, taxes, penalties or interest levied, assessed or imposed against Authority hereunder.

### 1.4 Familiarity with Work.

By executing this Agreement, Contractor warrants that Contractor (i) has thoroughly investigated and considered the scope of services to be performed, (ii) has carefully considered how the services should be performed, and (iii) fully understands the facilities, difficulties and restrictions attending performance of the services under this Agreement. If the services involve work upon any site, Contractor warrants that Contractor has or will investigate the site and is or will be fully acquainted with the conditions there existing, prior to commencement of services hereunder. Should the Contractor discover any latent or unknown conditions, which will materially affect the performance of the services hereunder, Contractor shall immediately inform the Authority of such fact and shall not proceed except at Contractor's risk until written instructions are received from the Water Resource Manager.

### 1.5 Care of Work.

The Contractor shall adopt reasonable methods during the life of the Agreement to furnish continuous protection to the work, and the equipment, materials, papers, documents, plans, studies and/or other components thereof to prevent losses or damages, and shall be responsible for all such damages, to persons or property, until acceptance of the work by Authority, except such losses or damages as may be caused by Authority's own negligence.

### 1.6 Further Responsibilities of Parties.

Both parties agree to use reasonable care and diligence to perform their respective obligations under this Agreement. Both parties agree to act in good faith to execute all instruments, prepare all documents and take all actions as may be reasonably necessary to carry out the purposes of this Agreement. Unless hereafter specified, neither party shall be responsible for the service of the other.

## ARTICLE 2. COMPENSATION AND METHOD OF PAYMENT.

### 2.1 Contract Sum.

Subject to any limitations set forth in this Agreement, Authority agrees to pay Contractor the amounts specified in the "Fee Structure and Schedule" included in Exhibit "A" and incorporated herein by this reference. The total compensation, including reimbursement for actual expenses, shall not exceed One Million, Thirteen Thousand, Seven Hundred and Twenty-Two Dollars ($1,013,722.00) (the "Contract Sum").

### 2.2 Method of Compensation.

The method of compensation may include: (i) a lump sum payment upon completion; (ii) payment in accordance with specified tasks or the percentage of completion of the services, less contract retention; (iii) payment for time and materials based upon the Contractor's rates as specified in the Schedule of Compensation, provided that (a) time estimates are provided for the performance of sub tasks, (b) contract retention is maintained, and (c) the Contract Sum is not exceeded; or (iv) such other methods as may be specified in the Schedule of Compensation.

### 2.3 Reimbursable Expenses.

Compensation may include reimbursement for actual and necessary expenditures for reproduction costs, telephone expenses, and travel expenses approved by the Water Resource Manager in advance, or actual subcontractor expenses of an approved subcontractor pursuant to Section 4.5, and only if specified in the Schedule of Compensation. The Contract Sum shall include the attendance of Contractor at all project meetings reasonably deemed necessary by the Authority. Coordination of the performance of the work with Authority is a critical component of the services. If Contractor is required to attend additional meetings to facilitate such coordination, Contractor shall not be entitled to any additional compensation for attending said meetings.

### 2.4 Invoices.

Each month Contractor shall furnish to Authority an original invoice for all work performed and expenses incurred during the preceding month in a form approved by Authority. By submitting an invoice for payment under this Agreement, Contractor is certifying compliance with all provisions of the Agreement. The invoice shall contain all information specified in Exhibit "B", and shall detail charges for all necessary and actual expenses by the following categories: labor (by sub-category), travel, materials, equipment, supplies, and sub-contractor

contracts. Sub-contractor charges shall also be detailed by such categories. Contractor shall not invoice Authority for any duplicate services performed by more than one person.

Authority shall independently review each invoice submitted by the Contractor to determine whether the work performed and expenses incurred are in compliance with the provisions of this Agreement. Except as to any charges for work performed or expenses incurred by Contractor which are disputed by Authority, or as provided in Section 7.3, Authority will use its best efforts to cause Contractor to be paid within forty-five (45) days of receipt of Contractor's correct and undisputed invoice; however, Contractor acknowledges and agrees that due to Authority warrant run procedures, the Authority cannot guarantee that payment will occur within this time period. In the event any charges or expenses are disputed by Authority, the original invoice shall be returned by Authority to Contractor for correction and resubmission. Review and payment by Authority for any invoice provided by the Contractor shall not constitute a waiver of any rights or remedies provided herein or any applicable law.

### 2.5 Waiver.

Payment to Contractor for work performed pursuant to this Agreement shall not be deemed to waive any defects in work performed by Contractor.

## ARTICLE 3. PERFORMANCE SCHEDULE

### 3.1 Time of Essence.

Time is of the essence in the performance of this Agreement.

### 3.2 Schedule of Performance.

Contractor shall commence the services pursuant to this Agreement upon receipt of a written notice to proceed and shall perform all services within the time period(s) established in the "Schedule" included in Exhibit "A" and incorporated herein by this reference. When requested by the Contractor, extensions to the time period(s) specified in the Schedule may be approved in writing by the Water Resource Manager but not exceeding one hundred eighty (180) days cumulatively.

### 3.3 Force Majeure.

The time period(s) specified in the Schedule of Performance for performance of the services rendered pursuant to this Agreement shall be extended because of any delays due to unforeseeable causes beyond the control and without the fault or negligence of the Contractor, including, but not restricted to, acts of God or of the public enemy, unusually severe weather, fires, earthquakes, floods, epidemics, quarantine restrictions, riots, strikes, freight embargoes, wars, litigation, and/or acts of any governmental agency, including the Authority, if the Contractor shall within ten (10) days of the commencement of such delay notify the Water Resource Manager in writing of the causes of the delay. The Water Resource Manager shall ascertain the facts and the extent of delay, and extend the time for performing the services for the period of the enforced delay when and if in the judgment of the Water Resource Manager such

delay is justified. The Water Resource Manager's determination shall be final and conclusive upon the parties to this Agreement. In no event shall Contractor be entitled to recover damages against the Authority for any delay in the performance of this Agreement, however caused, Contractor's sole remedy being extension of the Agreement pursuant to this Section.

### 3.4 Term.

Unless earlier terminated in accordance with Article 7 of this Agreement, this Agreement shall continue in full force and effect until completion of the services but not exceeding one (1) year from the date hereof, except as otherwise provided in the Schedule (Exhibit "A").

## ARTICLE 4. COORDINATION OF WORK

### 4.1 Representatives and Personnel of Contractor.

The following principals of Contractor ("Principals") are hereby designated as being the principals and representatives of Contractor authorized to act in its behalf with respect to the work specified herein and make all decisions in connection therewith:

| | |
|---|---|
| Heather Bashian, P.E., QSD | Principal In Charge |
| Dena Giacomini, P.E. | Project Manager |

It is expressly understood that the experience, knowledge, capability and reputation of the foregoing principals were a substantial inducement for Authority to enter into this Agreement. Therefore, the foregoing principals shall be responsible during the term of this Agreement for directing all activities of Contractor and devoting sufficient time to personally supervise the services hereunder. All personnel of Contractor, and any authorized agents, shall at all times be under the exclusive direction and control of the Principals. For purposes of this Agreement, the foregoing Principals may not be replaced nor may their responsibilities be substantially reduced by Contractor without the express written approval of Authority. Additionally, Contractor shall utilize only competent personnel to perform services pursuant to this Agreement. Contractor shall make every reasonable effort to maintain the stability and continuity of Contractor's staff and subcontractors, if any, assigned to perform the services required under this Agreement. Contractor shall notify Authority of any changes in Contractor's staff and subcontractors, if any, assigned to perform the services required under this Agreement, prior to and during any such performance.

### 4.2 Status of Contractor.

Contractor shall have no authority to bind Authority in any manner, or to incur any obligation, debt or liability of any kind on behalf of or against Authority, whether by contract or otherwise, unless such authority is expressly conferred under this Agreement or is otherwise expressly conferred in writing by Authority. Contractor shall not at any time or in any manner represent that Contractor or any of Contractor's officers, employees, or agents are in any manner officials, officers, employees or agents of Authority. Neither Contractor, nor any of Contractor's

officers, employees or agents, shall obtain any rights to retirement, health care or any other benefits which may otherwise accrue to Authority's employees. Contractor expressly waives any claim Contractor may have to any such rights.

### 4.3 Water Resource Manager.

The Water Resource Manager shall be such person as may be designated by the Authority. It shall be the Contractor's responsibility to assure that the Water Resource Manager is kept informed of the progress of the performance of the services and the Contractor shall refer any decisions which must be made by Authority to the Water Resource Manager. Unless otherwise specified herein, any approval of Authority required hereunder shall mean the approval of the Water Resource Manager. The Water Resource Manager shall have authority, if specified in writing by the Authority Manager, to sign all documents on behalf of the Authority required hereunder to carry out the terms of this Agreement.

### 4.4 Independent Contractor.

Neither the Authority nor any of its employees shall have any control over the manner, mode or means by which Contractor, its agents or employees, perform the services required herein, except as otherwise set forth herein. Authority shall have no voice in the selection, discharge, supervision or control of Contractor's employees, servants, representatives or agents, or in fixing their number, compensation or hours of service. Contractor shall perform all services required herein as an independent contractor of Authority and shall remain at all times as to Authority a wholly independent contractor with only such obligations as are consistent with that role. Contractor shall not at any time or in any manner represent that it or any of its agents or employees are agents or employees of Authority. Authority shall not in any way or for any purpose become or be deemed to be a partner of Contractor in its business or otherwise or a joint venturer or a member of any joint enterprise with Contractor.

### 4.5 Prohibition Against Subcontracting or Assignment.

The experience, knowledge, capability and reputation of Contractor, its principals and employees were a substantial inducement for the Authority to enter into this Agreement. Therefore, Contractor shall not contract with any other entity to perform in whole or in part the services required hereunder without the express written approval of the Authority. In addition, neither this Agreement nor any interest herein may be transferred, assigned, conveyed, hypothecated or encumbered voluntarily or by operation of law, whether for the benefit of creditors or otherwise, without the prior written approval of Authority. Transfers restricted hereunder shall include the transfer to any person or group of persons acting in concert of more than twenty five percent (25%) of the present ownership and/or control of Contractor, taking all transfers into account on a cumulative basis. In the event of any such unapproved transfer, including any bankruptcy proceeding, this Agreement shall be void. No approved transfer shall release the Contractor or any surety of Contractor of any liability hereunder without the express consent of Authority.

## ARTICLE 5. INSURANCE AND INDEMNIFICATION

### 5.1 Insurance Coverages.

Without limiting Contractor's indemnification of Authority, and prior to commencement of any services under this Agreement, Contractor shall obtain, provide and maintain at its own expense during the term of this Agreement, policies of insurance of the type and amounts described below and in a form satisfactory to Authority.

(a) General liability insurance. Contractor shall maintain commercial general liability insurance with coverage at least as broad as Insurance Services Office form CG 00 01, in an amount not less than $2,000,000 per occurrence, $4,000,000 general aggregate, for bodily injury, personal injury, and property damage. The policy must include contractual liability that has not been amended. Any endorsement restricting standard ISO "insured contract" language will not be accepted.

(b) Automobile liability insurance. Contractor shall maintain automobile insurance at least as broad as Insurance Services Office form CA 00 01 covering bodily injury and property damage for all activities of the Contractor arising out of or in connection with Services to be performed under this Agreement, including coverage for any owned, hired, non-owned or rented vehicles, in an amount not less than $1,000,000 combined single limit for each accident.

(c) Professional liability (errors & omissions) insurance. Contractor shall maintain professional liability insurance that covers the Services to be performed in connection with this Agreement, in the minimum amount of $1,000,000 per claim and in the aggregate. Any policy inception date, continuity date, or retroactive date must be before the effective date of this Agreement and Contractor agrees to maintain continuous coverage through a period no less than three (3) years after completion of the services required by this Agreement.

(d) Workers' compensation insurance. Contractor shall maintain Workers' Compensation Insurance (Statutory Limits) and Employer's Liability Insurance (with limits of at least $1,000,000).

(e) Subcontractors. Contractor shall include all subcontractors as insureds under its policies or shall furnish separate certificates and certified endorsements for each subcontractor. All coverages for subcontractors shall include all of the requirements stated herein.

### 5.2 General Insurance Requirements.

(a) Proof of insurance. Contractor shall provide certificates of insurance to Authority as evidence of the insurance coverage required herein, along with a waiver of subrogation endorsement for workers' compensation. Insurance certificates and endorsements must be approved by the Authority prior to commencement of performance. Current certification of insurance shall be kept on file with Authority at all times during the term of this Agreement.

Authority reserves the right to require complete, certified copies of all required insurance policies, at any time.

(b) Duration of coverage. Contractor shall procure and maintain for the duration of this Agreement insurance against claims for injuries to persons or damages to property, which may arise from or in connection with the performance of the Services hereunder by Contractor, its agents, representatives, employees or subcontractors.

(c) Primary/noncontributing. Coverage provided by Contractor shall be primary and any insurance or self-insurance procured or maintained by Authority shall not be required to contribute with it. The limits of insurance required herein may be satisfied by a combination of primary and umbrella or excess insurance. Any umbrella or excess insurance shall contain or be endorsed to contain a provision that such coverage shall also apply on a primary and non-contributory basis for the benefit of Authority before the Authority's own insurance or self-insurance shall be called upon to protect it as a named insured.

(d) Authority's rights of enforcement. In the event any policy of insurance required under this Agreement does not comply with these specifications or is canceled and not replaced, Authority has the right but not the duty to obtain the insurance it deems necessary and any premium paid by Authority will be promptly reimbursed by Contractor or Authority will withhold amounts sufficient to pay premium from Contractor payments. In the alternative, Authority may cancel this Agreement.

(e) Acceptable insurers. All insurance policies shall be issued by an insurance company currently authorized by the Insurance Commissioner to transact business of insurance or that is on the List of Approved Surplus Line Insurers in the State of California, with an assigned policyholders' Rating of A- (or higher) and Financial Size Category Class VI (or larger) in accordance with the latest edition of Best's Key Rating Guide, unless otherwise approved by the Authority.

(f) Waiver of subrogation. All insurance coverage maintained or procured pursuant to this agreement shall be endorsed to waive subrogation against Authority, its member agencies, elected or appointed officers, agents, officials, employees and volunteers or shall specifically allow Contractor or others providing insurance evidence in compliance with these specifications to waive their right of recovery prior to a loss. Contractor hereby waives its own right of recovery against Authority, and shall require similar written express waivers and insurance clauses from each of its subcontractors.

(g) Enforcement of contract provisions (non-estoppel). Contractor acknowledges and agrees that any actual or alleged failure on the part of the Authority to inform Contractor of non-compliance with any requirement imposes no additional obligations on the Authority nor does it waive any rights hereunder.

(h) Requirements not limiting. Requirements of specific coverage features or limits contained in this section are not intended as a limitation on coverage, limits or other requirements, or a waiver of any coverage normally provided by any insurance. Specific reference to a given coverage feature is for purposes of clarification only as it pertains to a given

issue and is not intended by any party or insured to be all inclusive, or to the exclusion of other coverage, or a waiver of any type. If the Contractor maintains higher limits than the minimums shown above, the Authority requires and shall be entitled to coverage for the higher limits maintained by the Contractor. Any available insurance proceeds in excess of the specified minimum limits of insurance and coverage shall be available to the Authority.

(i) Notice of cancellation. Contractor agrees to oblige its insurance agent or broker and insurers to provide to Authority with a thirty (30) day notice of cancellation (except for nonpayment for which a ten (10) day notice is required) or nonrenewal of coverage for each required coverage.

(j) Additional insured status. General liability policies shall provide or be endorsed to provide that Authority and its officers, officials, employees, and agents, and volunteers shall be additional insureds under such policies. This provision shall also apply to any excess/umbrella liability policies.

(k) Prohibition of undisclosed coverage limitations. None of the coverages required herein will be in compliance with these requirements if they include any limiting endorsement of any kind that has not been first submitted to Authority and approved of in writing.

(l) Separation of insureds. A severability of interests provision must apply for all additional insureds ensuring that Contractor's insurance shall apply separately to each insured against whom claim is made or suit is brought, except with respect to the insurer's limits of liability. The policy(ies) shall not contain any cross-liability exclusions.

(m) Pass through clause. Contractor agrees to ensure that its subcontractors, subcontractors, and any other party involved with the project who is brought onto or involved in the project by Contractor, provide the same minimum insurance coverage and endorsements required of Contractor. Contractor agrees to monitor and review all such coverage and assumes all responsibility for ensuring that such coverage is provided in conformity with the requirements of this section. Contractor agrees that upon request, all agreements with Contractors, subcontractors, and others engaged in the project will be submitted to Authority for review.

(n) Authority's right to revise specifications. The Authority reserves the right at any time during the term of the contract to change the amounts and types of insurance required by giving the Contractor ninety (90) days advance written notice of such change. If such change results in substantial additional cost to the Contractor, the Authority and Contractor may renegotiate Contractor's compensation.

(o) Self-insured retentions. Any self-insured retentions must be declared to and approved by Authority. Authority reserves the right to require that self-insured retentions be eliminated, lowered, or replaced by a deductible. Self-insurance will not be considered to comply with these specifications unless approved by Authority.

(p) Timely notice of claims. Contractor shall give Authority prompt and timely notice of claims made or suits instituted that arise out of or result from Contractor's

performance under this Agreement, and that involve or may involve coverage under any of the required liability policies.

(q) Additional insurance. Contractor shall also procure and maintain, at its own cost and expense, any additional kinds of insurance, which in its own judgment may be necessary for its proper protection and prosecution of the work.

**5.3 Indemnification.**

To the full extent permitted by law, Contractor agrees to indemnify, defend and hold harmless the Authority, its member agencies, its officers, employees and agents ("Indemnified Parties") against, and will hold and save them and each of them harmless from, any and all actions, either judicial, administrative, arbitration or regulatory claims, damages to persons or property, losses, costs, penalties, obligations, errors, omissions or liabilities whether actual or threatened (herein "claims or liabilities") that may be asserted or claimed by any person, firm or entity arising out of or in connection with the negligent performance of the work, operations or activities provided herein of Contractor, its officers, employees, agents, subcontractors, or invitees, or any individual or entity for which Contractor is legally liable ("indemnitors"), or arising from Contractor's or indemnitors' reckless or willful misconduct, or arising from Contractor's or indemnitors' negligent performance of or failure to perform any term, provision, covenant or condition of this Agreement, and in connection therewith:

(a) Contractor will defend any action or actions filed in connection with any of said claims or liabilities and will pay all costs and expenses, including legal costs and attorneys' fees incurred in connection therewith;

(b) Contractor will promptly pay any judgment rendered against the Authority, its officers, agents or employees for any such claims or liabilities arising out of or in connection with the negligent performance of or failure to perform such work, operations or activities of Contractor hereunder; and Contractor agrees to save and hold the Authority, its officers, agents, and employees harmless therefrom;

(c) In the event the Authority, its officers, agents or employees is made a party to any action or proceeding filed or prosecuted against Contractor for such damages or other claims arising out of or in connection with the negligent performance of or failure to perform the work, operation or activities of Contractor hereunder, Contractor agrees to pay to the Authority, its member agencies, its officers, agents or employees, any and all costs and expenses incurred by the Authority, its officers, agents or employees in such action or proceeding, including but not limited to, legal costs and attorneys' fees.

Contractor shall incorporate similar indemnity agreements with its subcontractors and if it fails to do so Contractor shall be fully responsible to indemnify Authority hereunder therefore, and failure of Authority to monitor compliance with these provisions shall not be a waiver hereof. This indemnification includes claims or liabilities arising from any negligent or wrongful act, error or omission, or reckless or willful misconduct of Contractor in the performance of professional services hereunder. The provisions of this Section do not apply to claims or

liabilities occurring as a result of Authority's sole negligence or willful acts or omissions, but, to the fullest extent permitted by law, shall apply to claims and liabilities resulting in part from Authority's negligence, except that design professionals' indemnity hereunder shall be limited to claims and liabilities arising out of the negligence, recklessness or willful misconduct of the design professional. The indemnity obligation shall be binding on successors and assigns of Contractor and shall survive termination of this Agreement.

## ARTICLE 6. RECORDS, REPORTS, AND RELEASE OF INFORMATION

### 6.1 Records.

Contractor shall keep, and require subcontractors to keep, such ledgers, books of accounts, invoices, vouchers, canceled checks, reports, studies or other documents relating to the disbursements charged to Authority and services performed hereunder (the "books and records"), as shall be necessary to perform the services required by this Agreement and enable the Water Resource Manager to evaluate the performance of such services. Any and all such documents shall be maintained in accordance with generally accepted accounting principles and shall be complete and detailed. The Water Resource Manager shall have full and free access to such books and records at all times during normal business hours of Authority, including the right to inspect, copy, audit and make records and transcripts from such records. Such records shall be maintained for a period of three (3) years following completion of the services hereunder, and the Authority shall have access to such records in the event any audit is required. In the event of dissolution of Contractor's business, custody of the books and records may be given to Authority, and access shall be provided by Contractor's successor in interest. Notwithstanding the above, the Contractor shall fully cooperate with the Authority in providing access to the books and records if a public records request is made and disclosure is required by law including but not limited to the California Public Records Act.

### 6.2 Reports.

Contractor shall periodically prepare and submit to the Water Resource Manager such reports concerning the performance of the services required by this Agreement as the Water Resource Manager shall require. Contractor hereby acknowledges that the Authority is greatly concerned about the cost of work and services to be performed pursuant to this Agreement. For this reason, Contractor agrees that if Contractor becomes aware of any facts, circumstances, techniques, or events that may or will materially increase or decrease the cost of the work or services contemplated herein or, if Contractor is providing design services, the cost of the project being designed, Contractor shall promptly notify the Water Resource Manager of said fact, circumstance, technique or event and the estimated increased or decreased cost related thereto and, if Contractor is providing design services, the estimated increased or decreased cost estimate for the project being designed.

### 6.3 Ownership of Documents.

All drawings, specifications, maps, designs, photographs, studies, surveys, data, notes, computer files, reports, records, documents and other materials (the "documents and materials") prepared by Contractor, its employees, subcontractors and agents in the performance of this

Agreement shall be the property of Authority and shall be delivered to Authority upon request of the Water Resource Manager or upon the termination of this Agreement, and Contractor shall have no claim for further employment or additional compensation as a result of the exercise by Authority of its full rights of ownership use, reuse, or assignment of the documents and materials hereunder. Any use, reuse or assignment of such completed documents for other projects and/or use of uncompleted documents without specific written authorization by the Contractor will be at the Authority's sole risk and without liability to Contractor, and Contractor's guarantee and warranties shall not extend to such use, reuse or assignment. Contractor may retain copies of such documents for its own use. Contractor shall have the right to use the concepts embodied therein. All subcontractors shall provide for assignment to Authority of any documents or materials prepared by them, and in the event Contractor fails to secure such assignment, Contractor shall indemnify Authority for all damages resulting therefrom. Moreover, Contractor with respect to any documents and materials that may qualify as "works made for hire" as defined in 17 U.S.C. § 101, such documents and materials are hereby deemed "works made for hire" for the Authority.

**6.4 Confidentiality and Release of Information.**

(a) All information gained or work product produced by Contractor in performance of this Agreement shall be considered confidential, unless such information is in the public domain or already known to Contractor. Contractor shall not release or disclose any such information or work product to persons or entities other than Authority without prior written authorization from the Water Resource Manager.

(b) Contractor, its officers, employees, agents or subcontractors, shall not, without prior written authorization from the Water Resource Manager or unless requested by the Authority Attorney, voluntarily provide documents, declarations, letters of support, testimony at depositions, response to interrogatories or other information concerning the work performed under this Agreement. Response to a subpoena or court order shall not be considered "voluntary" provided Contractor gives Authority notice of such court order or subpoena.

(c) If Contractor, or any officer, employee, agent or subcontractor of Contractor, provides any information or work product in violation of this Agreement, then Authority shall have the right to reimbursement and indemnity from Contractor for any damages, costs and fees, including attorney's fees, caused by or incurred as a result of Contractor's conduct.

(d) Contractor shall promptly notify Authority should Contractor, its officers, employees, agents or subcontractors be served with any summons, complaint, subpoena, notice of deposition, request for documents, interrogatories, request for admissions or other discovery request, court order or subpoena from any party regarding this Agreement and the work performed there under. Authority retains the right, but has no obligation, to represent Contractor or be present at any deposition, hearing or similar proceeding. Contractor agrees to cooperate fully with Authority and to provide Authority with the opportunity to review any response to discovery requests provided by Contractor. However, this right to review any such response does not imply or mean the right by Authority to control, direct, or rewrite said response.

## ARTICLE 7. ENFORCEMENT OF AGREEMENT AND TERMINATION

### 7.1 California Law.

This Agreement shall be interpreted, construed and governed both as to validity and to performance of the parties in accordance with the laws of the State of California. Legal actions concerning any dispute, claim or matter arising out of or in relation to this Agreement shall be instituted in the Superior Court of the County of Kern, State of California, or any other appropriate court in such county, and Contractor covenants and agrees to submit to the personal jurisdiction of such court in the event of such action. In the event of litigation in a U.S. District Court, venue shall lie exclusively in the Eastern District of California, in the City of Fresno, State of California.

### 7.2 Disputes; Default.

In the event that Contractor is in default under the terms of this Agreement, the Authority shall not have any obligation or duty to continue compensating Contractor for any work performed after the date of default. Instead, the Authority may give notice to Contractor of the default and the reasons for the default. The notice shall include the timeframe in which Contractor may cure the default. This timeframe is presumptively thirty (30) days, but may be extended, though not reduced, if circumstances warrant. During the period of time that Contractor is in default, the Authority shall hold all invoices and shall, when the default is cured, proceed with payment on the invoices. In the alternative, the Authority may, in its sole discretion, elect to pay some or all of the outstanding invoices during the period of default. If Contractor does not cure the default, the Authority may take necessary steps to terminate this Agreement under this Article. Any failure on the part of the Authority to give notice of the Contractor's default shall not be deemed to result in a waiver of the Authority's legal rights or any rights arising out of any provision of this Agreement.

### 7.3 Retention of Funds.

Contractor hereby authorizes Authority to deduct from any amount payable to Contractor (whether or not arising out of this Agreement) (i) any amounts the payment of which may be in dispute hereunder or which are necessary to compensate Authority for any losses, costs, liabilities, or damages suffered by Authority, and (ii) all amounts for which Authority may be liable to third parties, by reason of Contractor's acts or omissions in performing or failing to perform Contractor's obligation under this Agreement. In the event that any claim is made by a third party, the amount or validity of which is disputed by Contractor, or any indebtedness shall exist which shall appear to be the basis for a claim of lien, Authority may withhold from any payment due, without liability for interest because of such withholding, an amount sufficient to cover such claim. The failure of Authority to exercise such right to deduct or to withhold shall not, however, affect the obligations of the Contractor to insure, indemnify, and protect Authority as elsewhere provided herein.

### 7.4 Waiver.

Waiver by any party to this Agreement of any term, condition, or covenant of this Agreement shall not constitute a waiver of any other term, condition, or covenant. Waiver by any party of any breach of the provisions of this Agreement shall not constitute a waiver of any other provision or a waiver of any subsequent breach or violation of any provision of this Agreement. Acceptance by Authority of any work or services by Contractor shall not constitute a waiver of any of the provisions of this Agreement. No delay or omission in the exercise of any right or remedy by a non-defaulting party on any default shall impair such right or remedy or be construed as a waiver. Any waiver by either party of any default must be in writing and shall not be a waiver of any other default concerning the same or any other provision of this Agreement.

### 7.5 Rights and Remedies are Cumulative.

Except with respect to rights and remedies expressly declared to be exclusive in this Agreement, the rights and remedies of the parties are cumulative and the exercise by either party of one or more of such rights or remedies shall not preclude the exercise by it, at the same or different times, of any other rights or remedies for the same default or any other default by the other party.

### 7.6 Legal Action.

In addition to any other rights or remedies, either party may take legal action, in law or in equity, to cure, correct or remedy any default, to recover damages for any default, to compel specific performance of this Agreement, to obtain declaratory or injunctive relief, or to obtain any other remedy consistent with the purposes of this Agreement. Notwithstanding any contrary provision herein, Contractor shall file a statutory claim pursuant to Government Code Sections 905 et seq. and 910 et seq., in order to pursue a legal action under this Agreement.

### 7.7 Termination Prior to Expiration of Term.

This Section shall govern any termination of this Contract except as specifically provided in the following Section for termination for cause. The Authority reserves the right to terminate this Contract at any time, with or without cause, upon thirty (30) days' written notice to Contractor, except that where termination is due to the fault of the Contractor, the period of notice may be such shorter time as may be determined by the Water Resource Manager. In addition, the Contractor reserves the right to terminate this Contract at any time, with or without cause, upon sixty (60) days' written notice to Authority, except that where termination is due to the fault of the Authority, the period of notice may be such shorter time as the Contractor may determine. Upon receipt of any notice of termination, Contractor shall immediately cease all services hereunder except such as may be specifically approved by the Water Resource Manager. Except where the Contractor has initiated termination, the Contractor shall be entitled to compensation for all services rendered prior to the effective date of the notice of termination and for any services authorized by the Water Resource Manager thereafter in accordance with the Schedule of Compensation or such as may be approved by the Water Resource Manager, except as provided in Section 7.3. In the event the Contractor has initiated termination, the Contractor shall be entitled to compensation only for the reasonable value of the work product actually

produced hereunder. In the event of termination without cause pursuant to this Section, the terminating party need not provide the non-terminating party with the opportunity to cure pursuant to Section 7.2.

### 7.8 Termination for Default of Contractor.

If termination is due to the failure of the Contractor to fulfill its obligations under this Agreement, Authority may, after compliance with the provisions of Section 7.2, take over the work and prosecute the same to completion by contract or otherwise, and the Contractor shall be liable to the extent that the total cost for completion of the services required hereunder exceeds the compensation herein stipulated (provided that the Authority shall use reasonable efforts to mitigate such damages), and Authority may withhold any payments to the Contractor for the purpose of set-off or partial payment of the amounts owed the Authority as previously stated.

### 7.9 Attorneys' Fees.

If either party to this Agreement is required to initiate or defend or made a party to any action or proceeding in any way connected with this Agreement, the prevailing party in such action or proceeding, in addition to any other relief which may be granted, whether legal or equitable, shall be entitled to reasonable attorney's fees. Attorney's fees shall include attorney's fees on any appeal, and in addition a party entitled to attorney's fees shall be entitled to all other reasonable costs for investigating such action, taking depositions and discovery and all other necessary costs the court allows which are incurred in such litigation. All such fees shall be deemed to have accrued on commencement of such action and shall be enforceable whether or not such action is prosecuted to judgment.

## ARTICLE 8. AUTHORITY OFFICERS AND EMPLOYEES: NON-DISCRIMINATION

### 8.1 Non-liability of Authority Officers and Employees.

No officer or employee of the Authority shall be personally liable to the Contractor, or any successor in interest, in the event of any default or breach by the Authority or for any amount which may become due to the Contractor or to its successor, or for breach of any obligation of the terms of this Agreement.

### 8.2 Conflict of Interest.

Contractor covenants that neither it, nor any officer or principal of its firm, has or shall acquire any interest, directly or indirectly, which would conflict in any manner with the interests of Authority or which would in any way hinder Contractor's performance of services under this Agreement. Contractor further covenants that in the performance of this Agreement, no person having any such interest shall be employed by it as an officer, employee, agent or subcontractor without the express written consent of the Water Resource Manager. Contractor agrees to at all times avoid conflicts of interest or the appearance of any conflicts of interest with the interests of Authority in the performance of this Agreement.

No officer or employee of the Authority shall have any financial interest, direct or indirect, in this Agreement nor shall any such officer or employee participate in any decision relating to the Agreement which affects her/his financial interest or the financial interest of any corporation, partnership or association in which (s)he is, directly or indirectly, interested, in violation of any State statute or regulation. The Contractor warrants that it has not paid or given and will not pay or give any third party any money or other consideration for obtaining this Agreement.

### 8.3 Covenant Against Discrimination.

Contractor covenants that, by and for itself, its heirs, executors, assigns, and all persons claiming under or through them, that there shall be no discrimination against or segregation of, any person or group of persons on account of race, color, creed, religion, sex, gender, sexual orientation, marital status, national origin, ancestry or other protected class in the performance of this Agreement. Contractor shall take affirmative action to insure that applicants are employed and that employees are treated during employment without regard to their race, color, creed, religion, sex, gender, sexual orientation, marital status, national origin, ancestry or other protected class.

### 8.4 Unauthorized Aliens.

Contractor hereby promises and agrees to comply with all of the provisions of the Federal Immigration and Nationality Act, 8 U.S.C. § 1101 *et seq.*, as amended, and in connection therewith, shall not employ unauthorized aliens as defined therein. Should Contractor so employ such unauthorized aliens for the performance of work and/or services covered by this Agreement, and should any liability or sanctions be imposed against Authority for such use of unauthorized aliens, Contractor hereby agrees to and shall reimburse Authority for the cost of all such liabilities or sanctions imposed, together with any and all costs, including attorneys' fees, incurred by Authority.

## ARTICLE 9. MISCELLANEOUS PROVISIONS

### 9.1 Notices.

Any notice, demand, request, document, consent, approval, or communication either party desires or is required to give to the other party or any other person shall be in writing and either served personally or sent by prepaid, first-class mail, in the case of the Authority, to the attention of the Water Resource Manager (with her/his name and Authority title), Indian Wells Valley Groundwater Authority, 100 West California Avenue, Ridgecrest California 93555 and in the case of the Contractor, to the person(s) at the address designated on the execution page of this Agreement. Either party may change its address by notifying the other party of the change of address in writing. Notice shall be deemed communicated at the time personally delivered or in seventy-two (72) hours from the time of mailing if mailed as provided in this Section.

### 9.2 Interpretation.

The terms of this Agreement shall be construed in accordance with the meaning of the language used and shall not be construed for or against either party by reason of the authorship of this Agreement or any other rule of construction which might otherwise apply.

### 9.3 Counterparts.

This Agreement may be executed in counterparts, each of which shall be deemed to be an original, and such counterparts shall constitute one and the same instrument.

### 9.4 Integration; Amendment.

This Agreement including the attachments hereto is the entire, complete and exclusive expression of the understanding of the parties. It is understood that there are no oral agreements between the parties hereto affecting this Agreement and this Agreement supersedes and cancels any and all previous negotiations, arrangements, agreements and understandings, if any, between the parties, and none shall be used to interpret this Agreement. No amendment to or modification of this Agreement shall be valid unless made in writing and approved by the Contractor and by the Authority Council. The parties agree that this requirement for written modifications cannot be waived and that any attempted waiver shall be void.

### 9.5 Severability.

In the event that any one or more of the phrases, sentences, clauses, paragraphs, or sections contained in this Agreement shall be declared invalid or unenforceable by a valid judgment or decree of a court of competent jurisdiction, such invalidity or unenforceability shall not affect any of the remaining phrases, sentences, clauses, paragraphs, or sections of this Agreement which are hereby declared as severable and shall be interpreted to carry out the intent of the parties hereunder unless the invalid provision is so material that its invalidity deprives either party of the basic benefit of their bargain or renders this Agreement meaningless.

### 9.6 Warranty & Representation of Non-Collusion.

No official, officer, or employee of Authority has any financial interest, direct or indirect, in this Agreement, nor shall any official, officer, or employee of Authority participate in any decision relating to this Agreement which may affect his/her financial interest or the financial interest of any corporation, partnership, or association in which (s)he is directly or indirectly interested, or in violation of any corporation, partnership, or association in which (s)he is directly or indirectly interested, or in violation of any State or municipal statute or regulation. The determination of "financial interest" shall be consistent with State law and shall not include interests found to be "remote" or "noninterests" pursuant to Government Code Sections 1091 or 1091.5. Contractor warrants and represents that it has not paid or given, and will not pay or give, to any third party including, but not limited to, any Authority official, officer, or employee, any money, consideration, or other thing of value as a result or consequence of obtaining or being awarded any agreement. Contractor further warrants and represents that (s)he/it has not engaged in any act(s), omission(s), or other conduct or collusion that would result in the payment of any

money, consideration, or other thing of value to any third party including, but not limited to, any Authority official, officer, or employee, as a result of consequence of obtaining or being awarded any agreement. Contractor is aware of and understands that any such act(s), omission(s) or other conduct resulting in such payment of money, consideration, or other thing of value will render this Agreement void and of no force or effect.

Contractor's Authorized Initials _____

**9.7 Corporate Authority.**

The persons executing this Agreement on behalf of the parties hereto warrant that (i) such party is duly organized and existing, (ii) they are duly authorized to execute and deliver this Agreement on behalf of said party, (iii) by so executing this Agreement, such party is formally bound to the provisions of this Agreement, and (iv) that entering into this Agreement does not violate any provision of any other Agreement to which said party is bound. This Agreement shall be binding upon the heirs, executors, administrators, successors and assigns of the parties.

**[SIGNATURES ON FOLLOWING PAGE]**

**IN WITNESS WHEREOF**, the parties hereto have executed this Agreement on the date and year first-above written.

**AUTHORITY:**

Indian Wells Valley Groundwater Authority

_____
Carol Thomas-Keefer, Acting General Manager

**APPROVED AS TO FORM:**
ALESHIRE & WYNDER, LLP

_____
Keith Lemieux, Board Counsel

**CONTRACTOR:**

Provost and Pritchard Consulting Group

By:_____
Name: _____
Title:_____

By:_____
Name: _____
Title:_____

Address:1800 30th Street, Suite 280
Bakersfield, CA 93301

**Two corporate officer signatures required when Contractor is a corporation, with one signature required from each of the following groups: 1) Chairman of the Board, President or any Vice President; and 2) Secretary, any Assistant Secretary, Chief Financial Officer or any Assistant Treasurer. CONTRACTOR'S SIGNATURES SHALL BE DULY NOTARIZED, AND APPROPRIATE ATTESTATIONS SHALL BE INCLUDED AS MAY BE REQUIRED BY THE BYLAWS, ARTICLES OF INCORPORATION, OR OTHER RULES OR REGULATIONS APPLICABLE TO CONTRACTOR'S BUSINESS ENTITY.**

# CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy or validity of that document.

STATE OF CALIFORNIA

COUNTY OF KERN

On _____, 2023 before me, _____, personally appeared _____, proved to me on the basis of satisfactory evidence to be the person(s) whose names(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature: _____

**OPTIONAL**

Though the data below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent reattachment of this form

**CAPAAUTHORITY CLAIMED BY SIGNER**

☐ INDIVIDUAL
☐ CORPORATE OFFICER

_____
TITLE(S)

☐ PARTNER(S) ☐ LIMITED
☐ GENERAL
☐ ATTORNEY-IN-FACT
☐ TRUSTEE(S)
☐ GUARDIAN/CONSERVATOR
☐ OTHER_____

_____

**SIGNER IS REPRESENTING:**
(NAME OF PERSON(S) OR ENTITY(IES))

_____
_____

**DESCRIPTION OF ATTACHED DOCUMENT**

_____
TITLE OR TYPE OF DOCUMENT

_____
NUMBER OF PAGES

_____
DATE OF DOCUMENT

_____
SIGNER(S) OTHER THAN NAMED ABOVE

# CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy or validity of that document.

STATE OF CALIFORNIA

COUNTY OF KERN

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I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

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Signature: _____

**OPTIONAL**

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**CAPAAUTHORITY CLAIMED BY SIGNER**

☐ INDIVIDUAL
☐ CORPORATE OFFICER

_____
TITLE(S)

☐ PARTNER(S) ☐ LIMITED
☐ GENERAL
☐ ATTORNEY-IN-FACT
☐ TRUSTEE(S)
☐ GUARDIAN/CONSERVATOR
☐ OTHER_____

_____

**SIGNER IS REPRESENTING:**
(NAME OF PERSON(S) OR ENTITY(IES))

_____
_____

**DESCRIPTION OF ATTACHED DOCUMENT**

_____
TITLE OR TYPE OF DOCUMENT

_____
NUMBER OF PAGES

_____
DATE OF DOCUMENT

_____
SIGNER(S) OTHER THAN NAMED ABOVE

# EXHIBIT "A"

## Contractor's Proposal

# EXHIBIT "B"

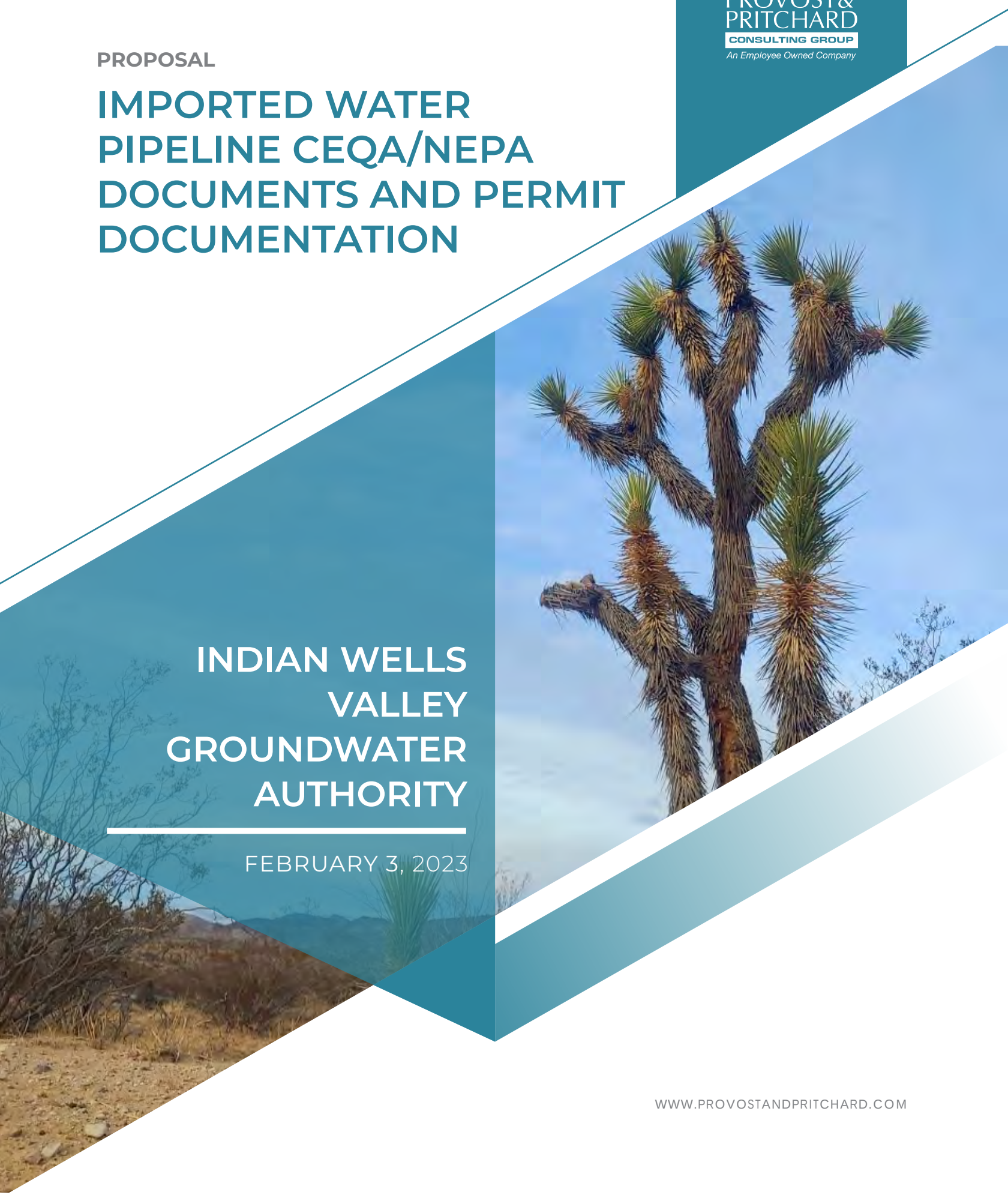
## Invoice Sample

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EST. 1968
PROVOST& PRITCHARD
CONSULTING GROUP
*An Employee Owned Company*

PROPOSAL

# IMPORTED WATER PIPELINE CEQA/NEPA DOCUMENTS AND PERMIT DOCUMENTATION



## INDIAN WELLS VALLEY GROUNDWATER AUTHORITY

FEBRUARY 3, 2023

WWW.PROVOSTANDPRITCHARD.COM

INDIAN WELLS VALLEY GROUNDWATER AUTHORITY

# IMPORTED WATER PIPELINE CEQA/NEPA DOCUMENTS AND PERMIT DOCUMENTATION

## Proposal

February 3, 2023


**Prepared for:**

**INDIAN WELLS VALLEY GROUNDWATER AUTHORITY**
April Keigwin, Clerk of the Board of Directors
100 W. California Ave.
Ridgecrest, CA 93555
Telephone: (805) 764-5452
Email: akeigwin@rgs.ca.gov

**Submitted by:**

**PROVOST & PRITCHARD CONSULTING GROUP**
1800 30th St. Suite 280
Bakersfield, CA 93301
Phone: (661) 616-5900

**www.provostandpritchard.com**

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# INTRODUCTION

February 3, 2023

April Keigwin, Clerk, Board of Directors
Indian Wells Valley Groundwater Authority
100 West California Avenue, Ridgecrest, CA 93555
akeigwin@rgs.ca.gov

EST. 1968
PROVOST& PRITCHARD
CONSULTING GROUP
*An Employee Owned Company*

**RE: Indian Wells Valley Groundwater Authority Imported Water Pipeline CEQA/NEPA Documents and Permit Documentation**

Ms. Keigwin,

Provost & Pritchard is pleased to submit this proposal in response to the Indian Wells Valley Groundwater Authority (the Authority) Request for Proposals (RFP) for Imported Water Pipeline CEQA/NEPA Documents and Permit Documentation (Project).

Provost & Pritchard and team have substantial experience in preparing California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) documents, obtaining agency permits, and preparing technical studies such as biology, air quality, cultural, and environmental site assessments, to support regulatory compliance requirements. From preparation of CEQA/NEPA documents, technical studies, and permitting packages through project completion, our team will work diligently to keep the Project on budget, on schedule and exceed your expectations.

Our team, including our subconsultants, have worked together on a multitude of water-related projects over the years. We have a clear understanding of water infrastructure and the ever-changing regulatory environment, and will apply out of the box thinking to maneuver the Project through the regulatory process to completion. This type of collaboration leads to accurate and thorough project documents and allows technical studies to be well planned and precise to meet tight budgets and fast schedules.

As an Environmental Planner and Biologist, Dena Giacomini has over 23 years of experience as a Project Manager and will be the point of contact to fulfill all stages of the CEQA/NEPA and permitting process. Ms. Giacomini understands multiple agencies will be involved in the successful completion of this Project and maintains outstanding working relationships with regulatory agencies and tribes throughout the State. Her experience is rooted in water processes, facilities, and regulatory compliance and is committed to meet the needs of this multi-faceted, fast-paced Project.

To get the Project "shovel ready" and to assist with additional funding efforts, planning and engineering efforts need to be complete in advance so that once funding is acquired, construction can begin quickly. Planning services, including compliance with CEQA/NEPA, and regulatory agency permitting is necessary to meet the funding agency requirements and demonstrate full commitment, to the Project, therefore providing the best chance of receiving funding.

Our planning, engineering and biological staff have assisted in developing the matrices used to identify the preferred alignment for the Project and have recommended an alignment with the least number of environmental impacts. Provost & Pritchard will continue to bring our understanding and knowledge, from both engineering and planning aspects to the Project.

In addition to the professional knowledge and background our team brings to the Project, we acutely understand quality deliverables are critical to the success of the Project. We strictly adhere to our own internal quality assurance/quality control (QA/QC) procedures and will assign an experienced staff person directly responsible for overseeing a team to complete QA/QC reviews on each deliverable before it is sent to the Authority or others. We believe that this commitment to quality allows the Authority to proceed with a high level of confidence as we navigate through the CEQA/NEPA and permitting process.

By having the Provost & Pritchard team for both the environment documentation and permitting, and design services portions of the Project, we offer a unified approach which provides a higher level of efficiency in coordination and collaboration, between these teams. A significant amount of interaction between the teams will be necessary for expeditious and thorough Project completion. For these reasons, we are proposing, also with Stantec Consulting Services Inc. (Stantec) in a prominent subconsultant role, on the engineering design services portion of the Project. Due to our accumulated knowledge of this Project and our ability to coordinate more efficiently, should the Authority decide to award both contracts to Provost & Pritchard, we will offer a credit in the form of a reduced fee for each project. See our respective cost proposals for details.

Please contact Dena Giacomini at (661) 616-5900 or by e-mail at dgiacomini@ppeng.com to further discuss our qualifications. We look forward to meeting with you to demonstrate how Provost & Pritchard can assist the Authority with professional consulting services.

Respectfully,

Dena Giacomini
Project Manager
DGiacomini@ppeng.com

Heather Bashian, PE, QSD
Principal-in-Charge
HBashian@ppeng.com

# PROPOSING FIRM(S)

PROVOST&PRITCHARD
CONSULTING GROUP

**Name:** Provost & Pritchard Consulting Group
**Contact:** Dena Giacomini
1800 30th Street, Suite 280
Bakersfield, CA 93301
**Phone:** (661) 616-5900
**Fax:** (559) 449-2715
**Email:** dgiacomini@ppeng.com

## COMPANY BACKGROUND

In 1968, Provost & Pritchard began a tradition of engineering excellence in the San Joaquin Valley. Over the course of 55 years, Provost & Pritchard has grown in size, services offered, and geography with 10 offices located throughout California. With over 240 employees, our staff is diverse in its specialties, and includes planners, environmental specialists, civil and agricultural engineers, hydrogeologists, land surveyors, construction managers and field representatives, and support personnel.

Importantly, Provost & Pritchard is responsible for the preparation of the Indian Wells Valley Groundwater Authority's Imported Water Pipeline Alignment Study. Working closely with the Authority over the last few months has helped our team gain a deep understanding of the needs and challenges of the overall project which include geographical terrain, jurisdictional issues, power supply to pump stations, and the expedited schedule stipulated by grant funding. Our work on the alignment study has allowed us time to collaborate and develop solutions in advance of beginning this Project.

## FIRM OWNERS/OFFICERS

As an employee-owned corporation, Provost & Pritchard is a closely held company. Only employees may be owners of the corporation and current major stockholders include Michael Taylor, Brian Ehlers, Ronald Samuelian, Donald Ikemiya, and Kevin Johansen. The remainder of the company stock is owned by 79 individual shareholders and the Employee Stock Ownership Plan (ESOP).

| CHIEF OFFICERS |
|---|
| Ronald Samuelian, President |
| Randy Hopkins, Chief Strategic Officer |
| Donald Ikemiya, Chief Strategic Officer |
| Matthew Kemp, Chief Strategic Officer |
| Russell McKay, Chief Financial Officer |

| BOARD OF DIRECTORS |
|---|
| Kevin Johansen, Chair |
| Heather Bashian |
| Kevin Berryhill |
| Brian Ehlers |
| Donald Ikemiya, Corporate Secretary |
| Charlie Stringer |
| Michael Taylor |

| DIRECTORS OF OPERATIONS | |
|---|---|
| Heather Bashian | Matthew Klinchuch |
| Alex Collins | Keith Mortensen |
| Jeffrey Dorn | David Norman |
| Jeffrey Eklund | Gavin O'Leary |
| Joseph Hopkins | Soo Ho Park |
| Kevin Johansen | Linda Sloan |
| Karen Kirk | Steve Spencer |

# SUBCONTRACTORS & RESPONSIBILITIES

Provost & Pritchard will serve as the primary consultant and has teamed with qualified subconsultants for this endeavor. Our firm will be responsible for overall project management and delivery, as well as lead the CEQA/NEPA and permit documentation efforts.

We will utilize Stantec for CEQA/NEPA outreach, permitting, and desert tortoise coordination, ASM Affiliates (ASM) for Cultural and Tribal Resources, and AMBIENT Air Quality & Noise Consulting (AMBIENT) for air quality, noise, and greenhouse gas (GHG) and energy. Provost & Pritchard has worked extensively with this team of subconsultants on many projects and details about their specialty services can be found below.

## STANTEC

### CEQA/NEPA OUTREACH, PERMITTING, DESERT

**Contact:** Heather Waldrop
**Address:** 5500 Ming Avenue, Suite 410, Bakersfield, CA 93309
**Phone:** (530) 280-8387
**Fax:** N/A
**Email:** heather.waldrop@stantec.com

Since 1954, Stantec has partnered with California's public agencies bringing fully integrated solutions by incorporating required project design goals in concert with environmental regulations. Our environmental and design teams have the foresight and experience working together of mitigating regulatory and environmental constraints to identify and solve potential hurdles.

Our professionals are well-versed in environmental compliance for conveyance facilities, including:

- California Environmental Quality Act/National Environmental Policy Act compliance
- Clean Water Act Permitting
- Lake or Streambed Alteration Agreements
- Incidental Take Permitting
- Section 7 Endangered Species Act Consultations

The Stantec team collaborates across disciplines and industries to bring buildings, energy and resource, and infrastructure projects to life. Our work—professional consulting in engineering, environmental resources and planning, and power systems—begins with a thorough understanding of the client's goals and concludes with a successful project. Our clients include Antelope Valley-East Kern Agency, Friant Water Authority (FWA), Metropolitan Water District of Southern California (MWD), Los Angeles County Sanitation and Environment (LASAN), Los Angeles County Sanitation Districts (LACSD), and East Bay Municipal Utility District (EBMUD).

Stantec currently employs more than 26,000 people across 400 offices.

## ASM AFFILIATES

### CULTURAL AND TRIBAL RESOURCES

**Contact:** Peter A. Carey, MA, RPA
**Address:** 20424 W Valley Blvd, Suite A, Tehachapi, CA 93561
**Phone:** (661) 823-7690
**Fax:** (760) 804-5755
**Email:** pcarey@asmaffiliates.com

ASM is a full-service cultural resource management firm specializing in high-quality consulting services for local, state and federal regulatory compliance. Since ASM's incorporation in 1977, they have completed more than 6,000 cultural resource studies throughout the West. These include prehistoric archaeology, architectural history, historical archaeology, ethnographic, geoarchaeological, remote sensing, and Geographical Information Systems (GIS) modeling studies. ASM's Kern County office, established in 2009, has conducted numerous projects in Kern County. We have on-call contracts with many clients, including the Kern Water Banking Authority, California State Parks, Tejon Ranchcorp, California Resources Corporation, and First Solar, among others. The ASM staff are full-time technical specialists as well as a large pool of part-time employees who have extensive experience working with and under ASM's proposed Project Management Team. We have successfully completed dozens of projects for water agencies in the southern California requiring archival records searches, historic context studies, tribal outreach, geoarchaeological buried site sensitivity analysis, field surveys, and the documentation and evaluation of prehistoric and historical archaeological sites, and historical structures, including water conveyance systems. Staff members will be selected for their technical expertise and will meet or exceed the Secretary of the Interior's standards for their respective fields. ASM's Kern County office will manage and conduct this contract and will provide the local knowledge and expertise needed to complete the project at the highest professional level, on time, and on budget.

# AMBIENT AIR QUALITY & NOISE CONSULTING

## AIR QUALITY, NOISE, GHG AND ENERGY

**Contact:** Kurt Legleiter

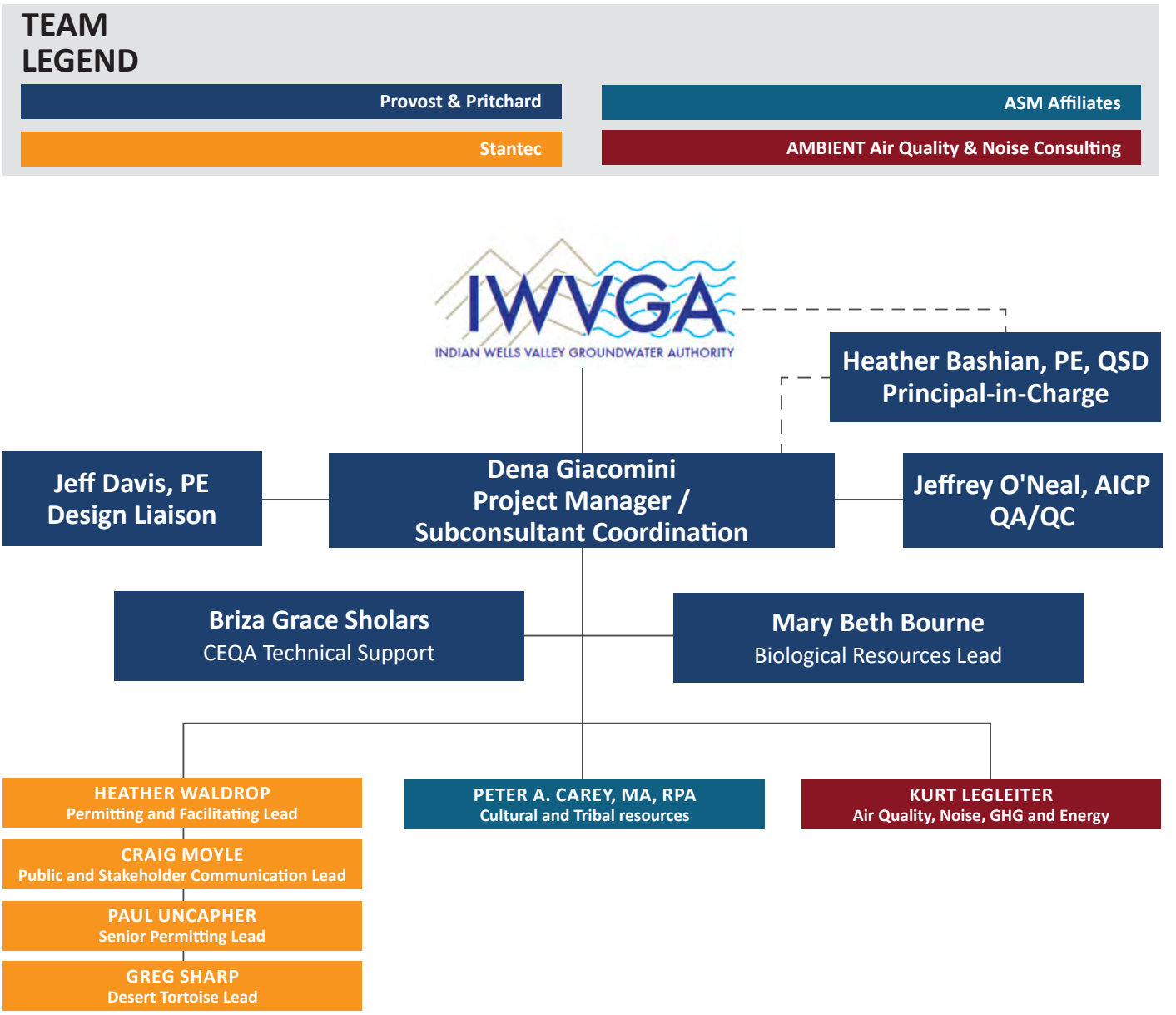
**Address:** 75 Higuera Street, Suite 105, San Luis Obispo, CA 93401
**Phone:** (805) 226-2727
**Fax:** N/A
**Email:** kurt@ambient.consulting

AMBIENT has over 30 years of combined experience related to the assessment of air quality, GHG, energy use, environmental noise, and ground-borne vibration impacts. AMBIENT maintains a working knowledge of federal, state, and local regulatory requirements. The company provides a broad range of services, with particular emphasis on providing analytical support and documentation for projects subject to CEQA and NEPA requirements. Additional services include regulatory and code compliance investigations, emissions modeling, barrier feasibility analyses, ambient noise and vibration monitoring, and land use compatibility determinations.



# PROJECT PERSONNEL

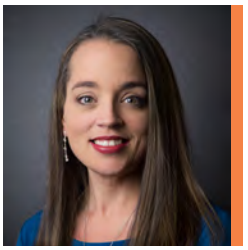
The following chart represents Provost & Pritchard's team organization for this Project. Provost & Pritchard will not substitute lead personnel without prior approval of the Authority.



# PERSONNEL QUALIFICATIONS

The following are brief biographies and assignments of the Project Manager and key staff that will be involved in this Project. Complete resumes that include education and past relevant experience are included in the Appendix.

PROVOST& PRITCHARD



## HEATHER BASHIAN, PE, QSD

### PRINCIPAL-IN-CHARGE

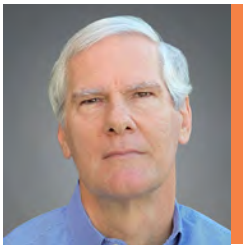
Heather Bashian is a Principal Engineer and project manager at Provost & Pritchard. With 20 years of municipal infrastructure planning and design, master planning, and grant writing and administration experience, she has been involved with projects related to all aspects of municipal infrastructure. She has extensive experience in design engineering for infrastructure projects including water supply and distribution, water main replacements, water metering, wastewater collection and rehabilitation, wastewater lift stations, stormwater collection projects, and recycled/reclaimed water distribution.



## DENA GIACOMINI

### PROJECT MANAGER

Dena Giacomini is a Principal Planner at Provost & Pritchard with more than 23 years of planning experience. She is experienced in the areas of land use planning, design-build projects, water, gas and electric utility projects, restoration, and grant writing, as well as overall federal, State, and local environmental regulatory compliance. She has managed environmental compliance and permitting approvals for linear, water and natural gas pipelines, as well as electrical infrastructure for California utilities and water suppliers. She has comprehensive knowledge and experience in CEQA/NEPA compliance and agency permitting, water quality, plant and wildlife biology, research, data analysis, and environmental land analysis.



## JEFF DAVIS, PE

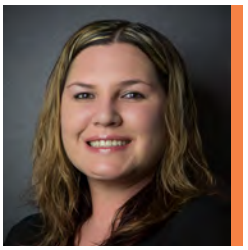
### DESIGN LIAISON

Jeff Davis is a Principal Engineer at Provost & Pritchard with more than 40 years of water resources engineering experience. For 15 years he served as the General Manager and Chief Engineer for the San Gorgonio Pass Water Agency. As an engineer with the Metropolitan Water District of Southern California (Met), he developed a master plan for the South Orange County portion of Met's service area and was involved in the planning, design, and management of numerous water infrastructure projects, both large and small. As the Chair of the Sites Reservoir Committee in 2021, he led the effort on the part of over twenty public and private water purveyors to plan, design, finance, and construct a $4 billion reservoir in the Sacramento Valley.



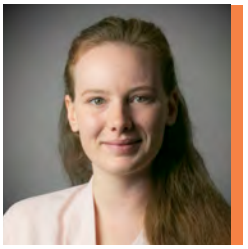
## JEFFREY O'NEAL, AICP
### QA/QC

Jeffrey O'Neal, a Principal Planner at Provost & Pritchard, has more than 22 years of experience in the planning field. As a planner with both public and private sector experience, he understands the perspectives of both public and private entities. He is an excellent communicator and an experienced project manager, working effectively to move projects forward while involving large groups of diverse interests. Mr. O'Neal has prepared, processed, and reviewed many documents of varying complexity pursuant to CEQA/NEPA. He has worked with Fresno, Kern, Madera, and Tulare Local Agency Formation Commissions (LAFCo) on numerous occasions to facilitate annexations, annexation extensions, sphere of influence amendments, and municipal service reviews. Mr. O'Neal has been a member of the American Institute of Certified Planners since 2007.



## BRIZA GRACE SHOLARS
### CEQA/NEPA LEAD

Briza Sholars, a Senior Environmental Planner at Provost & Pritchard Consulting Group, has over 23 years of planning experience. Her history includes the processing of environmental impact reports, and preparation of CEQA/NEPA compliant documents for public and private agencies, private firms, and irrigation districts. She has extensive experience in compiling researching, analyzing, and evaluating data, activities and studies related to water and wastewater infrastructure, transportation, housing, dairy, mining, solar, agriculture, resource conservation, and other development projects. Ms. Sholars has prepared and processed many documents of varying complexity compliant with CEQA and NEPA.



## MARY BETH BOURNE
### BIOLOGICAL RESOURCES LEAD

Mary Beth Bourne is a Biologist with Provost & Pritchard with more than six years of experience. A graduate of University of California, Los Angeles, with a B.S. in Biology and Indiana University with Masters in Environmental Science and Public Affairs, she has experience in conducting and preparing biological evaluations, biological assessments, and aquatic resources delineations. She has completed a wide variety of surveys including reconnaissance, protocol, presence/absence, nesting, botanical, and focused biological surveys. She has experience surveying and providing mitigation measures for multiple California threatened, endangered, candidate, or otherwise sensitive species, including Burrowing Owl, Swainson's Hawk, desert tortoise, western pond turtle, San Joaquin kit fox, and various rare plants. Ms. Bourne has experience coordinating with CDFW, United States Fish and Wildlife Service (USFWS), RWQCB, and USACE as well as various stakeholders to complete regulatory and permitting project requirements.

Stantec



## HEATHER WALDROP

### PERMITTING AND FACILITATING LEAD

Heather Waldrop has over 22 years of experience on large-scale environmental documents and complex permitting efforts, she works to keep progress moving forward, while communicating with the team leadership on issues that need resolving and critical path items that need to be addressed. Heather has been a partner in leading environmental compliance, including permitting acquisition and services during construction. Lessons learned from these experiences help Heather with critical project decisions and prioritize efforts to help with efficient execution of the task.



## CRAIG MOYLE

### PUBLIC AND STAKEHOLDER COMMUNICATION LEAD

Craig Moyle has lead and coordinated public and stakeholder outreach activities for a wide variety of projects, assisting in negotiating and mediating large, complex, and highly controversial water supply and resource issues facing the public, agencies, non-governmental organizations and other interested parties. Since 2000, he has been the lead public affairs consultant to the BLM for development of environmental reports for projects. He has developed and implemented a variety of project scoping meetings and managed the completion of public hearings consistent with CEQA/NEPA, inclusive of consultation with California Native American Tribes.



## PAUL UNCAPHER

### SENIOR PERMITTING LEAD

Paul Uncapher brings more than 40 years of experience with issuance and implementation of BLM special use permits; from 1982-1987 he was the environmental coordinator for the BLM Bakersfield District and supported geothermal development (including pipelines and power plants throughout southern California and the China Lake Naval Weapons Station). In the past 20 years, he has assisted clients in obtaining a wide array of special use permits from BLM for linear projects (water and natural gas pipelines, powerlines, fiber optic cables) in conjunction with the preparation of the associated NEPA, and in many instances joint NEPA/CEQA documents. His experience developing, facilitating and organizing design, construction and operational elements to minimize or avoid environmental impacts enables the environmental compliance process to move forward in a streamline, efficient and focused manner. He understands the challenges and complexity of developing a defensible environmental document that will be necessary for BLM to authorize occupancy and use of lands consistent with the applicable Resource Management Plan.



## GREG SHARP

### SENIOR ADVISOR DESERT TORTOISE

Greg Sharp has extensive experience working as a biologist and an environmental specialist. He has 28 years of experience in writing NEPA documents and technical reports. He has experience with helping ensure regulatory compliance with the Clean Air Act, Clean Water Act, federal and state surface mining laws, and the Endangered Species Act (ESA). Greg has utilized many survey techniques to assess the presence and/or monitor the status of many plant and animal species, including many listed as threatened, endangered, candidate, or otherwise considered sensitive. He is well-versed with the desert tortoise, southwestern willow flycatcher, Utah prairie dog, dwarf bear-claw poppy, greater sage grouse, pygmy rabbit, burrowing owl, and goshawks.

ASM affiliates
Archaeology • History • Ethnography • Architectural History



## PETER CAREY, MA, RPA

### DIRECTOR/SENIOR ARCHAEOLOGIST

Peter Carey has 14 years of experience in all manners of professional archaeology in California and the Great Basin. He earned his B.S. degree in Anthropology with a Cultural Resource Management option from California State Polytechnic University, Pomona in 2008, and received a M.A. in Anthropology with a concentration in Prehistoric Archaeology at the University of Nevada, Reno in 2013. His interests focus on prehistoric lithic procurement and technology, and Paleoindian archaeology. He has been involved in numerous survey, testing, and data recovery projects in California, Arizona, Nevada, and Oregon. Projects Mr. Carey has been involved with have taken place in Contra Costa, Imperial, Kern, Kings, Fresno, Mendocino, Lake, Los Angeles, Inyo, Mono, San Bernardino, Tulare, and Ventura counties, California; Yuma County, Arizona; Churchill, Clark, Douglas, Humboldt, and Lyon counties, Nevada; and Lake County, Oregon. Mr. Carey serves ASM as a Director and Senior Archaeologist.

AMBIENT
AIR QUALITY & NOISE CONSULTING



## KURT LEGLEITER

### AIR QUALITY, NOISE, GHG AND ENERGY LEAD

Kurt Legleiter is the Principal Air Quality and Noise Specialist at AMBIENT. His experience spans over 29 years and encompasses both the public and private sectors. He specializes in the preparation of air quality, GHG, noise, and ground-borne vibration impact assessments for projects subject to review under CEQA/NEPA. Mr. Legleiter is proficient in the use of various air quality and noise modeling software programs, including California Emissions Estimator Model software (CalEEMod), EMission FACtor , American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD), SoundPlan Noise Analysis Program, CALINE4 Model, and Federal Highway Administration's (FHWA) Traffic Noise Model.

# KEY STAFF RESUMES

Resumes for all team members can be found in the Appendix of this submittal.

# REFERENCES, RELATED EXPERIENCE & EXAMPLES OF WORK

Provost & Pritchard has knowledge and experience in successfully providing regulatory compliance services to over 30 drinking water systems throughout California. We have listed below a selection of projects that demonstrate our Teams experience, capabilities, and services needed by IWGVA. Provost & Pritchard has more than 30 years of researching, writing, and executing grant funding projects and has been successful in obtaining over $350 million in grants and loans for a variety of community infrastructure programs from agencies such as the USBR, Department of Water Resources (DWR), CalTrans, US Department of Agriculture, Natural Resources Conservation Services, and the State Water Resources Control Board (SWRCB). Through these successes, we have built relationships and rapport with staff at these agencies and are comfortable reaching out and understanding upcoming opportunities. Specifically, Provost & Pritchard has substantial experience in preparing CEQA/NEPA documents, obtaining agency permits, and preparing technical studies such as biology, air quality, traffic, to name a few, to support regulation compliance requirements. As a company we have over 54 years of knowledge, assisting our clients with projects such as pipelines, water wells, recreational facilities, drinking and wastewater treatment facilities, stormwater and recharge basins, and water conveyance and storage infrastructure. The following projects are a sampling of our Teams past successes.



Photo taken by Provost & Pritchard during Imported Water Pipeline Alignment Study.

## PROVOST & PRITCHARD:






## 2040 GENERAL PLAN EIR

### CITY OF FOWLER

**Reference:**

**Thomas W. Gaffery, IV**
Community & Economic Development Director
City of Fowler
128 S. 5th Street, Fowler, CA 93625
(559) 834-3113
tgaffery@ci.fowler.ca.us

The City of Fowler has initiated its first comprehensive update to the General Plan since 1976. While some elements, including Land Use, Circulation, and Economic Development, were updated or added in 2004, the City has not updated many of the existing elements in over 40 years. The potential expansion of the planning area boundary to include an additional 750 acres and compatibility with current City priorities will be considered throughout the update process. The General Plan will be updated for consistency with State requirements for topics including air quality, flood mapping, fire hazards, military planning, environmental justice, and climate adaptation. The update effort also includes development of an implementation work plan and preparation of the associated environmental impact report.

**Implementation Results/Status:** Completed in March of 2023.

**Project Team Members and Roles:**

- Dena Giacomini – CEQA Project Manager
- Jeffrey O'Neal – QA/QC
- Briza Sholars – Assessment Content
- Mary Beth Bourne – Biological Resources Lead
- ASM - Cultural Resources
- AMBIENT- Air Quality, Noise, GHG

## ENVIRONMENTAL SERVICES OF THE NORTH PIPELINE PROJECT

### PLEASANT VALLEY WATER DISTRICT

**Reference:**

**Brad Gleason**
President
Pleasant Valley Water District
6425 North Palm, Ste 104, Fresno, CA 93704
(559) 935-1902
bgleason@westhillsfarms.com

Provost & Pritchard prepared the necessary joint CEQA/NEPA compliance documents to fully analyze the potential environmental impacts from the new lift pump station, pipeline, and recharge and restoration project. The Project includes construction of a lift pump station out of the Coalinga Canal; up to three slant pumps, totaling 60 cubic feet per second (cfs) pumping capacity; a regulating reservoir; a booster pump station (including up to five pumps, totaling 60 cfs); and a 7.4 mile water pipeline as well as an ecological restoration area to be used for groundwater recharge near the City of Coalinga. USBR is the Lead Agency for NEPA as the Coalinga Canal is a federal facility. This project has potential form impacts to many protective species and work within jurisdictional boundaries. Our team navigated these concerns to keep the project moving forward.

**Results/Status:** Technical studies and CEQA/NEPA is complete. Construction will start in the Summer of 2024.

**Project Team Members and Roles:**

- Dena Giacomini – Technical Studies Project Manager, Permitting, CEQA/NEPA, QA/QC
- Briza Sholars – CEQA Project Manager
- Mary Beth Bourne – Biological Resources Lead
- ASM – Cultural Resources



Aerial photo of the tunnel alignment on the South San Joaquin Irrigation District Canyon Tunnel project.

## ENVIRONMENTAL SERVICES FOR THE SOUTH SAN JOAQUIN IRRIGATION DISTRICT CANYON TUNNEL

### SOUTH SAN JOAQUIN IRRIGATION DISTRICT, TUOLUMNE COUNTY, CA

**Reference:**

**Brad Gleason**
President
Pleasant Valley Water District
6425 North Palm, Ste 104, Fresno, CA 93704
(559) 935-1902
bgleason@westhillsfarms.com

Preparation of the necessary CEQA compliant documents to fully analyze the potential environmental impacts of drilling a two-mile-long tunnel into a mountain adjacent to the SSJID Joint Supply Canal as a new water conveyance tunnel to bypass the existing canal to improve long term reliability of this critical water supply system. The water is diverted above Goodwin Dam. The project also includes rehabilitation of existing roads and a barge landing, improved fencing, and new control gates. Due to in-water work varies agency permits were needed. Tribal consultation and extensive biological resource studies were warranted to protect species and keep the project moving forward. Our team assisted the district with eliminating fish screen requirements and other reductions with resource impacts.

**Implementation Results/Status:** Technical studies are complete. CEQA is going out for public review in February 2023. Permits will be secured by January 2024. Construction to start in 2024.

**Project Team Members and Roles:**

- Dena Giacomini – Project Manager, Technical Studies and Permitting
- Briza Sholars – CEQA Project Manager
- Mary Beth Bourne – Biological Resources Lead
- Jeffrey O'Neal – QA/QC
- ASM – Cultural Resources

STANTEC



## FRIANT-KERN CANAL MIDDLE REACH CAPACITY AND SUBSIDENCE CORRECTION PROJECT, FRIANT WATER AUTHORITY

### FRESNO TO BAKERSFIELD, CA

**Reference:**

**Johnny Amaral**
Chief of External Affairs
Friant Water Authority
854 N. Harvard Avenue, Lindsay, CA 93247
(559) 368-2860
Jamaral@friantwater.org

The 152-mile Friant-Kern Canal (FKC), owned by the U.S. Bureau of Reclamation (Reclamation) and operated by the FWA, has lost significant water delivery capacity due to regional land subsidence. Running from Millerton Lake on the San Joaquin River to the Kern River four miles west of Bakersfield, the FKC conveys water for agricultural and urban uses. The Project is to address original design and subsidence induced capacity reductions, which is most prevalent in the FKC Middle Reach (Milepost 88 to 121) in Tulare County, where the original design capacity varied from 4,500 to 2,500 cubic-feet-per-second. Following the severe drought of 1977, Reclamation performed corrective action work by raising the liner through a 17-mile long portion of this reach. More recent regional subsidence, including that induced by increased groundwater pumping during the drought period from 2012 through 2016, has caused further subsidence of the FKC and an approximate 60% reduction in canal capacity to levels that impair water delivery operations.

Starting in 2008, Stantec has supported development of technical approaches and alternatives for capacity corrections for the FKC. This work included the development of hydraulic models to identify bottlenecks in the FKC, water supply operations models to quantify potential water supply benefits, and estimating pre-appraisal-level engineering and construction costs for the corrective measures.

In 2018, Stantec was selected by FWA to provide engineering and environmental services for the FKC Subsidence Correction Project. Our team prepared alternative analyses, including hydraulic (i.e. HEC-RAS) and hydrological analyses, hydrogeology, surveying and mapping, geotechnical investigations and recommendations, and cost estimating. We identified, developed, and evaluated more than seven project alternatives, including a canal enlargement, bypass canal, parallel canal and pumping plants at several locations, under several flow requirements, and varying freeboard criteria. An analysis of potential future subsidence was conducted using a calibrated numerical groundwater flow model for a range of future hydrologic conditions and timing and magnitude of future groundwater pumping. Provost & Pritchard provided detailed topographic mapping, which was obtained to conduct 3D land surface modeling needed to estimate earthwork volumes (including borrow requirements) for alternative canal sections and estimate rights-of-way requirements. We

**PROJECT HIGHLIGHTS:** ... 20 miles of new parallel canal that includes 16 new siphon undercrossings, 2 new check structures, 11 new distribution pump stations, 35 turnouts/ turnout modifications; and 11 miles of canal lining raise. Due to funding limitations, a 10-mile segment of the new parallel canal was designated as the Phase 1 project.







evaluated alternatives for operational flexibility, constructability, durability, cost, schedule, and environmental impacts. Close coordination with FWA and Reclamation was conducted along with use of canal standards and criteria and development of feasibility studies per Reclamation principals and guidelines. Preliminary design for two alternatives (canal enlargement and parallel canal) was completed and the final design completed that has the following elements; 20 miles of new parallel canal that includes 16 new siphon undercrossings, 2 new check structures, 11 new distribution pump stations, 35 turnouts/ turnout modifications; and 11 miles of canal lining raise. Due to funding limitations, a 10-mile segment of the new parallel canal was designated as the Phase 1 project.

**Implementation Results/Status:** The Phase 1 Project construction is underway and is expected to be completed in 2025. Moving forward into design of next project phases.

**Project Team Members and Roles:**

- Dena Giacomini – Subconsultant Biological Project Manager
- Mary Beth Bourne – Biological
- Heather Waldrop (Stantec) – Environmental Compliance/Mitigation and Permitting Project Manager
- Craig Moyle – Landowner Coordination/Strategic Engagement
- Paul Uncapher – Senior EIS/EIR Lead

# DESERT STORM FIBER PROJECT, VERO FIBER NETWORKS

## VARIOUS LOCATIONS, NV



**Reference:**

**Karen Collins**
Project Manager
Vero Fiber Networks
1023 Walnut St, Boulder, CO 80302
(630) 660-5506
kcollins@veronetworks.com

Stantec completed routing and siting for an approximately 450-mile long haul underground fiber project in Nevada. We developed dozens of criteria that covered everything from constructability, bedrock, soil conditions, slopes, cultural and biological resources, land use, and other permitting constraints. We also investigated co-build opportunities; identified potential utility conflicts; and provided outreach to federal, state, and local jurisdictions to obtain access, as-built information to inform the design and routing of the project, and ultimately Right of Way (ROW) approvals. Outcomes of the project included route segment comparison tables, mapping products, a detailed permit matrix, comprehensive permitting and design schedule, and risk register.

Stantec has performed biological investigations (e.g., desert tortoise, Joshua tree), aquatic resource delineations and cultural resource surveys that form the basis for the preparation of an environmental assessment (EA) and support ongoing permitting and consultation efforts (e.g., ESA, NHPA, CWA). In addition, we are managing the special use permitting process that will support issuance of special use permits from the BLM and Forest Service. for this proposed project that will also be used to support compliance with ESA and NHPA.

**Implementation Results/Status:** The implementation of the project has been segregated into several construction projects including the following:

- State Water Project Turn-out Facilities – Status currently in construction
- Recharge Basin Facilities and Delivery Conveyance Systems – Status currently in construction
- Recovery Wells 10 of 27 – Status Construction Completed
- Recovery Conveyance Systems and Well Equipping Design – Status in design

**Project Team Members and Roles:**

- Paul Uncapher – Senior Advisor for BLM Permits

ASM

## CULTURAL RESOURCES STUDIES FOR SAN DIEGO GAS & ELECTRIC ENVIRONMENTAL SERVICES AND MASTER SERVICES AGREEMENT SUPPORT

### SAN DIEGO, CA

**Reference:**

**Rachel Ruston**
Principal Environmental Specialist
San Diego Gas and Electric
CP21E 01-485, SDG&E Century Park, San Diego, CA 92123
(619) 822-6786
rruston@sdge.com

ASM has provided on-call cultural resource services to SDG&E in San Diego, Imperial, Orange, and Riverside counties over three consecutive on-call contracts, including providing an on-site assistant for O&M, starting in 2009. Work conducted under these multi-year contracts includes small- to large-scale operations and maintenance projects that cover all levels of cultural resources compliance for gas line and electrical operations support under NEPA, Section 106 of the NHPA, CEQA, San Diego County Resource Protection Ordinance (RPO), and Historical Resources Guidelines developed by local cities and counties.

ASM's support includes project planning using record searches, engineering design review and literature reviews prepared with information from the California Historical Resources Information System and construction contractors, as well as supplemental searches with individual state and federal institutes such as the BIA, Department of Defense (DOD), California State Parks, and Native American Heritage Commission (NAHC) to inform early engineer design and development constraints.

ASM conducted extensive Class II/III field surveys and historical built environment reviews to state and federal standards for overhead and underground electrical facilities, gas lines, pump stations, substations, and related project components to identify and help avoid cultural resources that may be impacted by proposed projects. ASM has assisted and run government-to-government consultation on behalf of state and federal agencies that hold easement agreements with SDG&E and have obtained permits and permission from land managing agencies including BLM fieldwork authorizations, BIA and U.S. Forest Service Organic Act and ARPA permits, and DPR. ASM has also attended SDG&E internal kickoffs and job walks, as well as developed and led awareness training and engineering and design meetings.

**Results/Status:** On-going

**Project Team Members and Roles:**

- Peter Carey – Senior Archaeologist

# STATEMENT OF FINANCIAL CAPACITY

Provost & Pritchard Consulting Group continues to be a financially strong and viable consulting services firm with many employees having been with the company for more than 10 years. Provost & Pritchard's management is comprised of key principals and officers who are also shareholders with an average of over 15 years of service to the company. They continue to follow the prudent approach to financial management and growth of the company as established by its founders. Provost & Pritchard's staff utilize the latest project management tools that allow them to monitor both a project's schedule and budget in real-time. Ultimately this allows our project managers to keep projects on time and on budget. Through this success, the company has been able to fund its operations from its own resources, without the need for external borrowing.

# SCHEDULE

Although it will be a very tight schedule, Provost & Pritchard feels that 18 months is feasible for the CEQA/NEPA process. There are a few unknown situations that could interfere with the timeline and are out of our control such as: agency response time, geotechnical boring work, technical study approval from federal agencies, design plans change, and/or project route is changed.

| | 2023 | | | | | | | | | | 2024 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *CEQA/ NEPA* | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | *Jan* | *Feb* | *Mar* | *Apr* | *May* | *Jun* | *Jul* | *Aug* | *Sep* | *Oct* |
| Project Kickoff and Ongoing Management | | | | | | | | | | | | | | | | | | | | |
| Kickoff Meeting with BLM – NEPA/CEQA Coordination | | | | | | | | | | | | | | | | | | | | |
| CEQA Initial Study | | | | | | | | | | | | | | | | | | | | |
| Technical Studies | | | | | | | | | | | | | | | | | | | | |
| Biological Resources | | | | | | | | | | | | | | | | | | | | |
| Cultural Resources/AB 52 Letters | | | | | | | | | | | | | | | | | | | | |
| Air Quality/GHG/ Energy | | | | | | | | | | | | | | | | | | | | |
| Noise | | | | | | | | | | | | | | | | | | | | |
| Aquatic Resources Delineation | | | | | | | | | | | | | | | | | | | | |
| Administrative Draft EIR/EA | | | | | | | | | | | | | | | | | | | | |
| Notice of Preparation to Responsible & Cooperating Agencies | | | | | | | | | | | | | | | | | | | | |
| Scoping Meetings: Notice and Conduct of Meetings (2) | | | | | | | | | | | | | | | | | | | | |
| 30-Day Public Scoping Period | | | | | | | | | | | | | | | | | | | | |
| Prepare Scoping Report | | | | | | | | | | | | | | | | | | | | |
| P&P Internal QA/QC | | | | | | | | | | | | | | | | | | | | |
| Internal Client Review of Administrative Draft | | | | | | | | | | | | | | | | | | | | |
| Internal BLM Review of Administrative Draft | | | | | | | | | | | | | | | | | | | | |
| Internal Respond to Comments | | | | | | | | | | | | | | | | | | | | |
| Draft EA/Focused EIR | | | | | | | | | | | | | | | | | | | | |
| Notice of Completion/ Notice of Availability | | | | | | | | | | | | | | | | | | | | |
| 45-Day Public Review | | | | | | | | | | | | | | | | | | | | |
| Public Workshop (Optional) | | | | | | | | | | | | | | | | | | | | |
| Respond to Public Comments | | | | | | | | | | | | | | | | | | | | |
| Prepare Draft-Final EA/EIR | | | | | | | | | | | | | | | | | | | | |
| Board Adoption | | | | | | | | | | | | | | | | | | | | |
| File Notice of Determination | | | | | | | | | | | | | | | | | | | | |
| Section 7 Consultation start/complete | | | | | | | | | | | | | | | | | | | | |
| Section 106 Consultation start/complete | | | | | | | | | | | | | | | | | | | | |
| NEPA FONSI Determination | | | | | | | | | | | | | | | | | | | | |
| Landowner/Cross-Coordination Support | | | | | | | | | | | | | | | | | | | | |
| | 2023 | | | | | | | | | | 2024 | | | | | | | | | |
| *PERMITTING* | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | *Jan* | *Feb* | *Mar* | *Apr* | *May* | *Jun* | *Jul* | *Aug* | *Sep* | *Oct* |
| Regulatory Compliance Technical Report | | | | | | | | | | | | | | | | | | | | |
| BLM Special Use Permit and Coordination with BLM | | | | | | | | | | | | | | | | | | | | |
| Federal Endangered Species Act Consultation | | | | | | | | | | | | | | | | | | | | |
| California Endangered Species Act Incidental Take Permit | | | | | | | | | | | | | | | | | | | | |
| Section 404 Permit | | | | | | | | | | | | | | | | | | | | |
| Section 401 Permit | | | | | | | | | | | | | | | | | | | | |
| 1600 Lake or Streambed Alteration Agreement Notification | | | | | | | | | | | | | | | | | | | | |

# SCHEDULE OVERVIEW: DESIGN + ENVIRONMENTAL

The following demonstrates the overlapping timelines of both the environmental and design portions of the project.

| | 2023 | | | | | | | | | | 2024 | | | | | | | | | | | | 2025 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Mar | Apr | May | June | July | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | June | July | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar |
| **DESIGN** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Notice to Proceed / Project Kickoff | | | | | | | | | | | | | | | | | | | | | | | | | |
| Preliminary Design | | | | | | | | | | | | | | | | | | | | | | | | | |
| Final Design | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30% Submittal | | | | | | | | | | | | | | | | | | | | | | | | | |
| 60% Submittal | | | | | | | | | | | | | | | | | | | | | | | | | |
| 90% Submittal | | | | | | | | | | | | | | | | | | | | | | | | | |
| 100% Submittal | | | | | | | | | | | | | | | | | | | | | | | | | |
| **PROJECT COMPLETION DEADLINE** | | | | | | | | | | | | | | | | | | | | | | | | | |
| **ENVIRONMENTAL** | | | | | | | | | | | | | | | | | | | | | | | | | |
| NTP/Project Kickoff | | | | | | | | | | | | | | | | | | | | | | | | | |
| Initial Study | | | | | | | | | | | | | | | | | | | | | | | | | |
| Technical Studies | | | | | | | | | | | | | | | | | | | | | | | | | |
| Administrative Draft EIR/EA | | | | | | | | | | | | | | | | | | | | | | | | | |
| Notice of Preparation | | | | | | | | | | | | | | | | | | | | | | | | | |
| Draft EA/Focused EIR | | | | | | | | | | | | | | | | | | | | | | | | | |
| Notice of Completion/ Notice of Availability | | | | | | | | | | | | | | | | | | | | | | | | | |
| 45-Day Public Review | | | | | | | | | | | | | | | | | | | | | | | | | |
| Final EA/EIR & Board Adoption | | | | | | | | | | | | | | | | | | | | | | | | | |
| File Notice of Determination; NEPA/FONSI Determination | | | | | | | | | | | | | | | | | | | | | | | | | |
| **PERMITTING** | | | | | | | | | | | | | | | | | | | | | | | | | |
| Regulatory Compliance Technical Report | | | | | | | | | | | | | | | | | | | | | | | | | |
| BLM Special Use Permit and Coordination with BLM | | | | | | | | | | | | | | | | | | | | | | | | | |
| Federal Endangered Species Act Consultation | | | | | | | | | | | | | | | | | | | | | | | | | |
| California Endangered Species Act Incidental Take Permit | | | | | | | | | | | | | | | | | | | | | | | | | |
| Section 404 Permit | | | | | | | | | | | | | | | | | | | | | | | | | |
| Section 401 Permit | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1600 Lake or Streambed Alteration Agreement Notification | | | | | | | | | | | | | | | | | | | | | | | | | |

# FEE STRUCTURE AND SCHEDULE

The following represents Provost & Pritchard's Fee Estimate for the proposed Imported Water Conveyance System Design Services. Each project task will be performed on a time and material basis. Several optional tasks have been suggested with no cost estimates for them presented at this time. Should the Authority wish to proceed with any of the optional tasks, we will provide a fee estimate for approval prior to beginning the task. Should Provost & Pritchard be selected for both the design services and the CEQA work, a credit is offered in the cost estimate for each project.

## FEE SCHEDULES

Fee schedules for Provost & Pritchard and our subconsultants can be found following this page.

**PROPOSAL FOR INDIAN WELLS VALLEY GROUNDWATER AUTHORITY**
**IMPORTED WATER CONVEYANCE SYSTEM CEQA/NEPA DOCUMENTS AND PERMIT DOCUMENTATION**
**Estimated Staffing Plan and Cost Breakdown**

| Task | | P&P Staffing Plan: Principal Planner II | Principal Engineer IV | Senior Planner IV | Associate GIS Specialist IV | Project Administrator III | Assistant Planner III | Assistant Planner II | Assistant Envir. Spec. III | Associate Biologist IV | Senior Planner V | P&P Totals: Total Hours | Subtotal Labor | Total P&P Expenses | Sub-Consultant Totals: Statec | Ambient | ASM | Total Fee |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **TASK 1: INITIAL COORDINATION (KICKOFF MEETING)** | | *$193* | *$243* | *$170* | *$130* | *$106* | *$108* | *$101* | *$117* | *$135* | *$185* | | | | | | | |
| **1.1** | Project Coordination | *30* | *0* | *30* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | 60 | $10,890 | *$0.00* | $34,811 | $0 | $0 | **$45,701** |
| **1.2** | Research/Project Kick-off/Initial Study | *6* | *2* | *6* | *1* | *2* | *1* | *1* | *1* | *1* | *1* | 22 | $3,652 | *$0* | $8,660 | $0 | $0 | **$12,312** |
| **1.3** | BLM Kick-off Meeting for EA | *5* | *2* | *5* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | 12 | $2,301 | *$0* | $0 | $0 | $0 | **$2,301** |
| **1.4** | Coordination meetings with Design Team | *20* | *20* | *20* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | 60 | $12,120 | *$0* | $0 | $0 | $0 | **$12,120** |
| **1.5** | IWVGA Board, WRM, TAC Meetings | *22* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | 22 | $4,246 | *$0* | $0 | $0 | $0 | **$4,246** |
| **1.6** | Monthly Coordination Meetings | *26* | *0* | *26* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | 52 | $9,438 | *$9,200* | $0 | $0 | $0 | **$26,638** |
| **1.7** | IWVGA Information Requests | *11* | *11* | *11* | *0* | *22* | *0* | *0* | *0* | *0* | *0* | 55 | $8,998 | *$4,140* | $0 | $0 | $0 | **$16,738** |
| | Task Units | *120* | *35* | *98* | *1* | *24* | *1* | *1* | *1* | *1* | *1* | *283* | | | | | | |
| | Task Total | *$23,160* | *$8,505* | *$16,660* | *$130* | *$2,544* | *$108* | *$101* | *$117* | *$135* | *$185* | | *$51,645* | *$13,340* | *$43,471* | *$0* | *$0* | *$120,056* |
| **TASK 2: GEOTECHNICAL INVESTIGATIONS** | | | | | | | | | | | | | | | | | | |
| **2.1** | Geotechnical Permitting | *20* | *20* | *0* | *0* | *0* | *0* | *0* | *22* | *0* | *0* | 62 | $11,294 | *$0* | $56,396 | $0 | $0 | **$67,690** |
| | Task Units | *20* | *20* | *0* | *0* | *0* | *0* | *0* | *22* | *0* | *0* | *62* | | | | | | |
| | Task Total | *$3,860* | *$4,860* | *$0* | *$0* | *$0* | *$0* | *$0* | *$2,574* | *$0* | *$0* | | *$11,294* | *$0* | *$56,396* | *$0* | *$0* | *$67,690* |
| **TASK 3: TECHNICAL STUDIES** | | | | | | | | | | | | | | | | | | |
| **3.1** | Biological Resources Techncial Studies | *76* | *5* | *20* | *32* | *9* | *0* | *0* | *0* | *780* | *0* | 922 | $129,697 | *$13,656* | $0 | $0 | $0 | **$156,353** |
| **3.2** | Cultural and Tribal Resources | *20* | *0* | *0* | *0* | *9* | *0* | *0* | *0* | *0* | *0* | 29 | $4,814 | *$0* | | | $101,200 | **$106,014** |
| **3.3** | Air Quality & Greenhouse Gas Impact Assessment | *10* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | 10 | $1,930 | *$0* | | $18,400 | | **$20,330** |
| **3.4** | Energy Use Impact Assessment | *10* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | 10 | $1,930 | *$0* | | $11,500 | | **$13,430** |
| **3.5** | Noise and Ground-Borne Vibration Impact Assessment | *10* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | 10 | $1,930 | *$0* | | $18,400 | | **$20,330** |
| **3.6** | Section 7 Consultation | *5* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | *9* | *0* | 14 | $2,180 | *$0* | $0 | $0 | $0 | **$2,180** |
| **3.7** | Section 106 Consultation | *5* | *0* | *0* | *0* | *9* | *0* | *0* | *0* | *9* | | 23 | $3,134 | *$0* | $0 | $0 | $0 | **$3,134** |
| | Task Units | *136* | *5* | *20* | *32* | *27* | *0* | *0* | *0* | *798* | *0* | *1,018* | | | | | | |
| | Task Total | *$26,248* | *$1,215* | *$3,400* | *$4,160* | *$2,862* | *$0* | *$0* | *$0* | *$107,730* | *$0* | | *$145,615* | *$13,656* | *$0* | *$48,300* | *$101,200* | *$321,771* |
| **TASK 4: PUBLIC OUTREACH** | | | | | | | | | | | | | | | | | | |
| **4.1** | Scoping Meetings (2) and Report | *42* | *0* | *42* | *0* | *0* | *0* | *20* | *0* | *0* | *0* | 104 | $17,266 | *$0* | $47,413 | $0 | $0 | **$64,679** |
| **4.2** | Public Review Period Meetings and Hearing | *17* | *0* | *9* | *0* | *35* | *0* | *0* | *0* | *0* | *0* | 61 | $8,521 | *$0* | $0 | $0 | $0 | **$8,521** |
| **4.3** | Landowner/cross-coordination support | *7* | *5* | *7* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | 19 | $3,756 | *$0* | $0 | $0 | $0 | **$3,756** |
| | Task Units | *66* | *5* | *58* | *0* | *35* | *0* | *20* | *0* | *0* | *0* | *184* | | | | | | |
| | Task Total | *$12,738* | *$1,215* | *$9,860* | *$0* | *$3,710* | *$0* | *$2,020* | *$0* | *$0* | *$0* | | *$29,543* | *$0* | *$47,413* | *$0* | *$0* | *$76,956* |
| **TASK 5: REGULATORY COMPLIANCE PERMITTING** | | | | | | | | | | | | | | | | | | |
| **5.1** | Permit Technical Report | *6* | *2* | *0* | *0* | *0* | *0* | *0* | *0* | *5* | *0* | 13 | $2,319 | *$0* | $21,160 | $0 | $0 | **$23,479** |
| **5.2** | CWA Permits (Section 404) | *6* | *6* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | 12 | $2,616 | *$0* | $28,179 | $0 | $0 | **$30,795** |
| **5.3** | CWA Permits (Section 401) | *6* | *6* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | 12 | $2,616 | *$0* | $29,835 | $0 | $0 | **$32,451** |
| **5.4** | Lake or Streambed Alteration Agreement (Section 1602) | *6* | *6* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | 12 | $2,616 | *$0* | $26,933 | $0 | $0 | **$29,549** |
| **5.5** | Aquatic Resources Delineation | *6* | *6* | *0* | *0* | *0* | *0* | *0* | *44* | *44* | *0* | 100 | $13,704 | *$0* | $114,419 | $0 | $0 | **$128,123** |
| **5.6** | Pre-Con Meetings | *6* | *6* | *0* | *0* | *0* | *0* | *0* | *5* | *5* | *0* | 22 | $3,876 | *$0* | $2,530 | $0 | $0 | **$6,406** |
| **5.7** | Coordination Meetings | *6* | *6* | *0* | *0* | *0* | *0* | *0* | *5* | *5* | *0* | 22 | $3,876 | *$0* | $9,373 | $0 | $0 | **$13,249** |
| **5.8** | ITP Federal/State | *6* | *6* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | *0* | 12 | $2,616 | *$0* | $33,672 | $0 | $0 | **$36,288** |
| **5.9** | BLM Special Use Permit | *10* | *0* | *0* | *0* | *0* | *0* | *0* | *9* | *0* | *0* | 19 | $2,983 | *$0* | $21,091 | $0 | $0 | **$24,074** |
| | Task Units | *58* | *44* | *0* | *0* | *0* | *0* | *0* | *63* | *59* | *0* | *224* | | | | | | |
| | Task Total | *$11,194* | *$10,692* | *$0* | *$0* | *$0* | *$0* | *$0* | *$7,371* | *$7,965* | *$0* | | *$37,222* | *$0* | *$287,192* | *$0* | *$0* | *$324,414* |
| **TASK 6: CEQA/NEPA** | | | | | | | | | | | | | | | | | | |
| **6.1** | Initial Study Checklist | *5* | *0* | *5* | *2* | *0* | *22* | *22* | *0* | *0* | *0* | 56 | $6,673 | *$0* | $0 | $0 | $0 | **$6,673** |
| **6.2** | Administrative Draft EA/EIR Preparation | *16* | *0* | *16* | *18* | *18* | *110* | *110* | *0* | *0* | *0* | 288 | $33,046 | *$0* | $30,475 | | | **$63,521** |
| **6.3** | Executive Summary | *5* | *0* | *9* | *0* | *0* | *0* | *18* | *0* | *0* | *0* | 32 | $4,313 | *$0* | $0 | $0 | $0 | **$4,313** |
| **6.4** | Environmental Justice | *2* | *0* | *5* | *0* | *0* | *0* | *11* | *0* | *0* | *0* | 18 | $2,347 | *$0* | $0 | $0 | $0 | **$2,347** |
| **6.5** | Alternatives Analysis | *9* | *0* | *11* | *0* | *0* | *33* | *11* | *0* | *0* | *0* | 64 | $8,282 | *$0* | $0 | $0 | $0 | **$8,282** |
| **6.6** | Document production/noticing | *1* | *0* | *5* | *0* | *13* | *0* | *0* | *0* | *0* | *0* | 19 | $2,421 | *$0* | $0 | $0 | $0 | **$2,421** |
| **6.7** | QA/QC | *17* | *0* | *9* | *0* | *0* | *0* | *0* | *0* | *0* | *35* | 61 | $11,286 | *$0* | $0 | $0 | $0 | **$11,286** |
| **6.8** | Final EA/EIR | *26* | *0* | *26* | *11* | *22* | *33* | *33* | *0* | *22* | *5* | 178 | $23,992 | *$0* | $0 | $0 | $0 | **$23,992** |
| | Task Units | *81* | *0* | *86* | *31* | *53* | *198* | *205* | *0* | *22* | *40* | *716* | | | | | | |
| | Task Total | *$15,633* | *$0* | *$14,620* | *$4,030* | *$5,618* | *$21,384* | *$20,705* | *$0* | *$2,970* | *$7,400* | | *$92,360* | *$0* | *$30,475* | *$0* | *$0* | *$122,835* |
| | **Project Total Units** | ***481*** | ***109*** | ***262*** | ***64*** | ***139*** | ***199*** | ***226*** | ***86*** | ***880*** | ***41*** | **2,487** | | | | | | |
| | **Project Total** | ***$92,833*** | ***$26,487*** | ***$44,540*** | ***$8,320*** | ***$14,734*** | ***$21,492*** | ***$22,826*** | ***$10,062*** | ***$118,800*** | ***$7,585*** | | **$367,679** | ***$26,996*** | ***$464,947*** | ***$48,300*** | ***$101,200*** | ***$1,033,722*** |

Design Coordination Reduction **($20,000)**

Total Estimated Fee: **$1,013,722**

# 2023 STANDARD FEE SCHEDULE

This schedule supersedes previously published fee schedules as of the effective date of January 1, 2023.
*Multi-year contracts are subject to any subsequent changes in these rates.*

| Staff Type | Fee Range |
|---|---|
| **Engineering Staff** | |
| Assistant Engineer | $105.00 – $138.00 |
| Associate Engineer | $126.00 – $161.00 |
| Senior Engineer | $164.00 – $200.00 |
| Principal Engineer | $207.00 – $253.00 |
| Associate Structural Engineer | $120.00 – $151.00 |
| Senior Structural Engineer | $150.00 – $185.00 |
| Principal Structural Engineer | $190.00 – $235.00 |
| **Specialists** | |
| Assistant Biologist | $90.00 – $110.00 |
| Associate Biologist | $110.00 – $135.00 |
| Principal Biologist | $165.00 – $200.00 |
| Assistant Environmental Specialist | $90.00 – $125.00 |
| Associate Environmental Specialist | $126.00 – $160.00 |
| Senior Environmental Specialist | $165.00 – $200.00 |
| Principal Environmental Specialist | $205.00 – $250.00 |
| Assistant GIS Specialist | $85.00 – $108.00 |
| Associate GIS Specialist | $105.00 – $137.00 |
| Senior GIS Specialist | $140.00 – $180.00 |
| Assistant Geologist/Hydrogeologist | $95.00 – $125.00 |
| Associate Geologist/Hydrogeologist | $127.00 – $160.00 |
| Senior Geologist/Hydrogeologist | $160.00 – $195.00 |
| Principal Geologist/Hydrogeologist | $200.00 – $245.00 |
| Associate Water Resources Specialist | $105.00 – $135.00 |
| Senior Water Resources Specialist | $135.00 – $175.00 |
| Environmental & Roof Specialist | $130.00 – $205.00 |
| External Affairs Specialist | $98.00 – $133.00 |
| Principal Tunneling Consultant | $235.00 – $260.00 |
| **Planning Staff** | |
| Assistant Planner/CEQA-NEPA Specialist | $90.00 – $115.00 |
| Associate Planner/CEQA-NEPA Specialist | $115.00 – $143.00 |
| Senior Planner/CEQA-NEPA Specialist | $145.00 – $178.00 |
| Principal Planner/CEQA-NEPA Specialist | $180.00 – $211.00 |

| Staff Type | Fee Range |
|---|---|
| **Technical Staff** | |
| Assistant Technician | $80.00 – $102.00 |
| Associate Technician | $102.00 – $130.00 |
| Senior Technician | $130.00 – $163.00 |
| **Construction Services Staff** | |
| Associate Construction Manager | $125.00 – $150.00 |
| Senior Construction Manager | $152.00 – $181.00 |
| Principal Construction Manager | $185.00 – $220.00 |
| Construction Inspector [1] | $155.00 – $185.00 |
| Construction Inspector [2] | $190.00 – $226.00 |
| **Support Staff** | |
| Administrative Assistant | $70.00 – $95.00 |
| Project Administrator | $83.00 – $113.00 |
| Senior Project Administrator | $115.00 – $205.00 |
| Intern | $65.00 – $85.00 |
| **Surveying Services Staff** | |
| Assistant Surveyor | $100.00 – $135.00 |
| Licensed Surveyor | $150.00 – $195.00 |
| 1-Man Survey Crew | $175.00/$205.00[1] |
| 2-Man Survey Crew | $245.00/$290.00[1] |
| 2-Man Survey Crew including LS | $280.00/$300.00[1] |
| UAV (Drone) Services | $215.00 |

(Field work not including survey equipment billed at individual standard rate plus vehicle as appropriate.)

(1) Prevailing wage rates shown for San Joaquin, Stanislaus, Merced, Madera, Fresno, Tulare, Kings, and Kern counties; other counties as quoted.

(2) Overtime for Construction Services prevailing wage will be calculated at 125% of the standard prevailing wage rate.

## Additional Fees

**Expert Witness / GIS Training:** As quoted.
**Travel Time (for greater than one (1) hour from employee's base office):** $80/hour (unless the individual's rate is less)

## Project Costs

**Mileage:** IRS value + 15%
**Outside Consultants:** Cost + 15%
**Direct Costs:** Cost + 15%

Stantec

**STANTEC FEE SCHEDULE**

**Indian Wells Valley Groundwater Authority**

**Imported Water Pipeline & CEQA/NEPA Documents and Permit Documentation**

| Labor Category | Hourly Rates* |
|---|---|
| Technical Advisor | $325.00 |
| Senior Principal | $300.00 |
| Principal | $280.00 |
| Associate | $260.00 |
| Senior GIS/CAD/Graphics | $160.00 |
| GIS/CAD/Graphics | $130.00 |
| Editor | $160.00 |
| Project Controls | $175.00 |
| Administrator | $115.00 |
| **Engineering** | |
| Project Lead Engineer | $240.00 |
| Project Engineer | $220.00 |
| Senior Engineer | $200.00 |
| Staff Engineer | $180.00 |
| Senior Designer | $160.00 |
| Designer | $140.00 |
| Assistant Engineer | $120.00 |
| **Planning** | |
| Senior Project Planner/Scientist | $250.00 |
| Project Planner/Scientist | $230.00 |
| Supervising Planner/Scientist | $200.00 |
| Senior Planner/Scientist | $175.00 |
| Staff Planner/Scientist | $150.00 |
| Junior Planner/Scientist | $130.00 |

**rates are good through March 31, 2025.*

| | |
|---|---|
| Mark up on Other Direct Costs | 10% |
| Mark up on Outside Services | 10% |

# ASM AFFILIATES

*2023 STANDARD BILLING RATES*

| Classification | Hourly Rate |
|---|---|
| Project Manager III | $175.00 |
| Project Manager II | $165.00 |
| Project Manager I | $155.00 |
| Senior Archaeologist III | $145.00 |
| Senior Archaeologist II | $130.00 |
| Senior Archaeologist I | $115.00 |
| Senior Historian II | $130.00 |
| Senior Historian I | $110.00 |
| Architectural Historian III | $130.00 |
| Architectural Historian II | $115.00 |
| Architectural Historian I | $100.00 |
| Associate Archaeologist III | $110.00 |
| Associate Archaeologist II | $100.00 |
| Associate Archaeologist I | $95.00 |
| Assistant Archaeologist III | $88.00 |
| Assistant Archaeologist II | $85.00 |
| Assistant Archaeologist I | $80.00 |
| Archaeological Crew III | $84.00 |
| Archaeological Crew II | $78.00 |
| Archaeological Crew I | $72.00 |
| GIS Administrator II | $125.00 |
| GIS Administrator I | $100.00 |
| Graphics Supervisor | $90.00 |
| Word Processor II | $80.00 |
| Word Processor I | $60.00 |
| Accountant | $100.00 |
| Admin Associate II | $80.00 |
| Admin Associate I | $62.00 |
| | |
| Records/Title Search | At Cost |
| Artifact Curation | At Cost |
| GPR Rental | $500/day |

# BILLING RATES

| Staff | Billing Rate |
|---|---|
| Kurt Legleiter, Principal Air Quality & Noise Specialist | $150/hour |
| Air Quality & Noise Analyst | $60/hour |
| Travel | Based on Federal per diem rates at time the expense was incurred |
| Mileage | |

# APPROACH AND PROPOSED SCOPE OF WORK

The Authority is currently developing a new imported water supply Project as part of the Groundwater Sustainability Plan. The Project is being funded as part of a $7.6 million Sustainable Groundwater Management Act (SGMA) grant which is intended to develop water supply projects that mitigate groundwater basin overdraft conditions. The heart of the Project is a proposed 50-mile pipeline and pumping facilities conveying potable treated water from California City to the City of Ridgecrest with delivery into the existing City's water distribution system. As part of our team's previous work directly for the Indian Wells Valley Groundwater Authority, Provost & Pritchard develop a series of the potential pipeline routes which identified a preferred alignment, referred to as the "Central Alignment".

Provost & Pritchard's approach to the environmental compliance process reflects our management principles. Our Team is prepared to complete the necessary services to successfully meet State and federal regulations and fulfill Authority's desired Project outcome and schedule. We can successfully navigate and balance Authority's needs against the ever-changing environmental and regulatory permitting and scope. We have learned from experience – communication early and often is key to balancing the needs of Project goals. We will generally follow a clear and straightforward approach for the typical services as described below. Our goal is to proceed expeditiously, but thoroughly, through all tasks required for the Project.

The following is a step-by-step process and discussion of our approach.

## TASK 1: INITIAL COORDINATION (KICKOFF MEETING)

**Coordinate with both Authority staff and BLM regarding Project documentation and format.** Coordination with the Design team is also extremely important to initiate CEQA/NEPA and permitting for the geotechnical work. Further it is important to begin coordination with landowners to allow the technical studies to begin as soon as possible. Coordination will occur throughout the Project duration coordinate meetings and are discussed in more detail in Task 4 below.

- Authority Board, WRM, and Technical Advisory Committee meetings;
- Scoping meetings in the City of Ridgecrest and California City;
- Monthly coordination meetings with Authority staff, the WRM, and potentially the Project's Design Consultant;
- Coordination meetings with any lead agencies for NEPA; and
- Meetings as needed with Federal, State, and local agencies.

## TASK 2: GEOTECHNICAL INVESTIGATIONS INITIAL COORDINATION (KICKOFF MEETING)

We understand that completion of the geotechnical investigations is a critical path in order to maintain the design schedule with the desired timeline for this work to begin in June 2023. Once we've received the notice to proceed, the biological resources, aquatic delineation, and archaeological surveys would begin immediately, prioritizing areas where we know geotechnical borings are needed. Where geotechnical investigations occur on private property, our outreach team will coordinate with the right-of-way consultant to execute formal Right-of-Entry Agreements between the Authority and the landowner to allow for site assessment of cultural resources, biological resources and utilities and ultimately execute needed geotechnical investigations (e.g., drilling activities). We assume that preparation of the Right-of-Entry Agreement will be led by the Right-Of-Way consultant in consultation with the Design Team, the Environmental Team, and the Authority WRM. Coordination and location of the geotechnical borings is vital to maintain the permitting schedule as proposed below. Once developed, efforts to negotiate execution of the agreement with landowners will be conducted by our Outreach Team as a component to schedule site review and subsequent geotechnical work.

Once the Team has a full understanding of potential biological resources and/or archaeological resources impacts that may occur

associated with the geotechnical work, the team will work with BLM to initiate NEPA approval for geotechnical investigations on BLM lands as well as CEQA approval with the Authority for borings on private and/or state lands. Avoidance measures will be identified to facilitate approval via a Categorical Exclusion under NEPA and a Categorical Exemption under CEQA. With this in mind, measures will be identified to avoid species impact in an effort to achieve a no effect determination regarding potential species impacts. This will increase the potential that BLM will not need to consult under Section 7 of the ESA and help meet the Project schedule. It is expected that consultation under Section 106 of the National Historic Preservation Act will be required, and the cultural resources report will focus on the locations for geotechnical investigations such that BLM can initiate consultation with the State Historic Preservation Officer as quickly as possible.

Geotechnical investigations that occur within waters of the United States and/or waters of the State or within areas under jurisdiction by CDFW will require permits. The Environmental Team will identify the geotechnical investigations that will require permitting and begin preparing the appropriate permitting applications. It is assumed that investigations occurring within waters of the United States will be permitted via the Corps Nationwide Permit (NWP) No. 6 – Survey Activities, and that a pre-construction notification to the Corps will not be required. As such, the 2021 State Water Board General Order for the Corps' Nationwide Permits (Order No. WQ 2021-0048-DWQ) would be applicable, and a Notice of Intent will be submitted to the Regional Board. It is also expected that geotechnical investigations within the jurisdiction of CDFW will require a notification under Section 1600 of the Fish and Game Code. Once Authority has approved the CEQA document, permit applications will be submitted to the appropriate agencies, and the Team will maintain continuous contact with the permitting agencies to ensure that the applications are moving through the process.

**Throughout the environmental review process for the geotechnical investigations, the environmental Team will be in close communication with the Design Team to review the schedule and inform the design team of progress.** As we gain clearances for the geotechnical investigations, the Design Team can develop and maintain their workplan to conduct borings in areas that are considered "cleared" environmentally, with the goal of having all investigations completed in accordance with the design schedule.

**DELIVERABLES:**

- Draft and Final right of entry agreements.
- Administrative Draft Categorical Exclusion (NEPA) and Categorical Exemption (CEQA) and draft 401 Notice of Intent and CDFW Permit Packages, including associated GIS shapefiles and figures.
- Final Categorical Exclusion/Categorical Exemption.
- Final Permit Packages.

# TASK 3: TECHNICAL STUDIES

Provost & Pritchard will team with ASM, Stantec, and AMBIENT to complete the technical studies. **Navigating the complexities of CEQA/NEPA and permitting requirements, especially with special-status-species, including BLM sensitive species, requires an integrated team who can help guide design while successfully conducting environmental impact evaluations, and agency coordination from day one in order to avoid costly delays and/or avoidable impacts and mitigation.** A solid Project area/area of potential effect must be finalized prior to any field surveys. Our team will leverage our expertise to identify potential environmental issues that could result in complex or time-consuming permitting. These considerations will be used to initiate early agency coordination, and aid in developing and maintaining the Project schedule, while maximizing efficiency and minimizing the risk of unexpected schedule delays.

## BIOLOGICAL RESOURCES TECHNICAL STUDIES

Implementing baseline biological surveys as soon as possible is critical not only for refining pre-construction requirements during agency consultations, but also current climatic conditions. In order for protocol level and botanical surveys to be accepted during the permitting phase of a Project, they must be conducted under appropriate ecological conditions. Rainfall is critical for species of concern in this region, including desert tortoise, Mohave ground squirrel, and rare botanical species. Initiating surveys in early Spring 2023, given the amount of rainfall this winter, would avoid potentially year-long delays when conditions are too dry to appropriately determine the presence or absence of these protected special status species. Historical data and large-scale projects previously implemented in the region indicate that agencies will require these biological surveys. Completing this work in advance of agency consultation will convey that the Project proponent is taking all necessary actions to accurately determine potential environmental impacts and to mitigate those impacts, which will ultimately ensure a smoother permitting process and avoid delays.

- Provost & Pritchard staff, with support from Stantec desert tortoise expert, will perform a reconnaissance-level, desert tortoise protocol-level, and botanical biological field survey immediately upon notice to proceed.
- Goals of the biological field survey consist of identification of existing biological resources within the Project area, including land uses and biotic habitats, constituent plants and animals, and suitable habitat for special status species. Biological information of the Project area will be built from the information previously gathered during the alignment study and will be utilized to expedite the surveys.
- The team understands that the Project consists of the approximately 50-mile-long initial preferred alignment with a 105-foot buffer on either side, creating a 210-foot-wide survey corridor. Thus, the proposed Project totals approximately 1,270-acres to be surveyed, with survey widths varying dependent on some existing limitations (e.g., ditches, fencing, etc.).
- The surveys will be performed using  two side-by-side transects approximately 50 feet apart along the full 50-mile alignment. Goals of the biological field surveys include identification of existing biological resources within the Project area, including land uses and biotic habitats, constituent plants and animals, and suitable habitat for all special status species.
- Prepare a Biological Evaluation/Biological Assessment (BE/BA) report evaluating potential Project impacts to state and federally listed or special status species, habitats, and other sensitive biological resources.  The reports will be consistent with CEQA/NEPA standards including Sections 7 consultation language and will be suitable for submission to the regulatory permitting agencies.
- Mitigation measures will be identified for potentially significant impacts.
- The team will assist the BLM with Federal ESA Section 7 consultation and will provide the BE/BA for submittal to USFWS. The reports will apply the best available science and tools and will include a project description; a defined action area; species and/or critical habitat descriptions and potential project-related effects (including direct, indirect, and cumulative); avoidance and minimization measures; and provide effective determination statements.
- California ESA generally parallels the main provisions of the federal ESA. California ESA consultation with CDFW for the proposed action, and the resultant California ESA applications lead to issuance by CDFW of either a Consistency Determination or Incidental Take Permit. If there is a potential for take or adverse effects of a species listed under both the federal and State ESA, a Consistency Determination would be requested. However, if the team identifies the potential for take of a State-listed (non-federally listed) species, a separate Incidental Take Permit will be sought.

- Our biologists will establish the baseline conditions of the Project alignment by conducting reconnaissance-level field surveys to verify/refine desktop vegetation mapping products and assess if special-status species and/or their habitats have the potential to occur within the biological study area.
- Following completion of the reconnaissance-level field surveys, the team will work with Authority and BLM to identify strategies to avoid or minimize potential impacts. Based on past experiences with other projects, avoidance and/or minimization measures may include working with the design team to provide refinement as well as construction practices. We have found that for similar projects even minor adjustments to project designs (e.g., slightly adjusting staging area boundaries) can greatly minimize impacts on sensitive resources.
- Following completion of the survey efforts, the team will facilitate a field site visit with Authority, the BLM and other key agency representatives (e.g., CDFW and USFWS). Our Team has often facilitated site visits on other projects (e.g., Pacheco Reservoir Expansion Project, Friant Kern Canal Middle Reach Capacity Correction Project) to encourage dialogue with the involved agencies; introduce them to the Project and the core Project team members; and proactively identify issues or concerns these agencies may have. Early identification of key issues helps to inform mitigation and/or minimization strategies in the official reports and establish rapport with the regulatory agencies to streamline and expedite the consultation process.

**DELIVERABLES:**

- Reconnaissance-level Biological Survey BE/BA Report;
- Protocol-level Presence/Absence Desert Tortoise Report; and
- Special Status Botanical Survey Early Season, Mid-Season, and Late Season Memoranda.

## CULTURAL AND TRIBAL RESOURCES

Under the direction of Dena Giacomini, ASM will conduct an intensive Class III inventory/Phase I pedestrian field survey of the Project area to support the preparation of documents for compliance with CEQA/NEPA and to provide documentation for all permitting for the Project.

- ASM will apply for all appropriate permits to conduct cultural resources investigations or fieldwork authorization (FWA) from all applicable federal, state, and local agencies. Additionally, ASM will request records from the BLM to ensure all available background materials are acquired. Once the appropriate fieldwork permits are obtained, ASM will field an experienced crew of four cultural resources professionals, meeting Secretary of Interior standards.
- The team will prepare letters on behalf of Authority to the appropriate tribes for consultation to meet under Assembly Bill (AB) 52 procedural requirements.
- ASM will survey the Project area using 15-meter transect intervals. All previously recorded and newly identified cultural resources will be recorded and documented on California DPR 523 forms. ASM will plot all sites and isolates and create working field maps and final, report-quality maps. Photographs and notes will be taken to document the investigation and the locations of all sites, features, or isolates.
- The previous background research conducted by ASM for the Pipeline Alternative Alignments Study indicates that approximately half of the Project area has been subject to cultural resources surveys. It is known that the California Historical Resource Information System Information Center lists 47 previously recorded resources as present within the Project area.
    - Of those 47 previously recorded resources, it is assumed that 10 will be avoided or not impacted and do not require further consideration.
    - Of the remaining 37 resources:
        - 16 are historic-era sites which have been previously recommended as not eligible for the National Register of Historic Places (NRHP) or California Register of Historical Resources (CRHR) and will require only condition up-dates,
        - five are prehistoric isolated finds which ASM will attempt to relocate and identify additional artifacts, and
        - 12 are historic-era sites which presumably cannot be avoided and will require site updates and NRHP/CRHR eligibility evaluations.
    - It is assumed, based on the approximately 50 percent survey coverage, that 20 previously unknown resources will be

identified and recorded during the survey effort. It is further assumed that those 20 previously recorded resources will require NRHP/CRHR eligibility evaluations.

- Data collected from the desktop review and from the field effort will be compiled into comprehensive tables to be included in the draft and final cultural resources technical reports.
- The draft technical report along with all site documentation will be submitted to the appropriate stakeholders within the proposed schedule (i.e., prior to October 2024), which may be adjusted based on client needs.
  - This document will be prepared in accordance with State and local CEQA Guidelines and CEQA-related legislation, as well as compliance with NEPA Guidelines and NEPA-related legislation.
  - These documents are presumed to be prepared as joint CEQA/NEPA documents and involve oversight of the BLM, the Federal Lead Agency. ASM will address any agency comments on the draft report within two weeks of receipt, and a final report will incorporate all comments.

**DELIVERABLES:**

- AB 52 Tribal Letters
- NRHP/CRHR Eligibility Evaluations
- Cultural Resources Technical Report

## AIR QUALITY & GREENHOUSE GAS IMPACT ASSESSMENT

Under the direction of Provost & Pritchard's Project Manager, AMBIENT will prepare an Air Quality and GHG Impact Assessment to evaluate short-term construction and long-term operational impacts associated with the proposed Project.

- The assessment will include a summary discussion of the existing environment, including applicable regulatory framework, standards, and attainment status. Field monitoring of meteorology and pollutant emissions is not anticipated to be required for this Project and is not included in this scope of work.
- Short-term construction and long-term operational emissions of criteria air pollutants and GHG emissions will be quantified utilizing the CalEEMod computer program.
- Emissions will be quantified based on Project-specific construction information and schedules, to be provided. Localized increases in pollutant concentrations, including carbon monoxide, particulate matter, and air toxics are anticipated to be minor and will be qualitatively assessed.
- Dispersion modeling of localized pollutant concentrations and the preparation of health risk assessments is not anticipated to be required and is not included. This analysis includes a quantitative assessment of up to three Project alternatives and a qualitative comparative analysis of up to five additional Project alternatives.
- The Project's consistency with air quality attainment/maintenance plans and GHG-reduction plans will be qualitatively discussed.
- Measures recommended by the Eastern Kern County Air Pollution Control District (EKCAPCD) for the control of short-term construction emissions will be discussed. Applicable EKCAPCD rules and regulations will be identified and discussed. The effectiveness of proposed mitigation measures will be discussed.

**DELIVERABLES:**

- Air Quality and GHG Assessment Report.

## AIR QUALITY GENERAL CONFORMITY ANALYSIS

Projects that require federal approval or funding are subject to Federal Air Quality Conformity requirements. In accordance with federal requirements, AMBIENT will prepare an Air Quality General Conformity Analysis for the Project. This analysis will be prepared in memorandum format based on the emissions modeling conducted above.

- Project-generated emissions will be compared to Federal de minimis thresholds.
- Mitigation measures will be identified and quantitatively assessed to the extent necessary.
- The Air Quality General Conformity Analysis will be provided for inclusion in the publicly circulated NEPA document. This scope of work assumes that a separate public review period for air quality conformity would not be required.

**DELIVERABLES:**

- Air Quality Conformity Analysis Report.

## ENERGY USE IMPACT ASSESSMENT

Ambient will prepare an Energy Use Impact Assessment to evaluate construction and operational energy use associated with the Project.

- The assessment will include a summary discussion of the existing environment, including applicable regulatory framework.
- Energy use associated with the proposed Project is anticipated to be primarily associated with fuel consumption associated with short-term construction activities and long-term maintenance and inspection activities, Fuel use will be quantified based, in part, on the CalEEMod emissions modeling conducted for this Project.
- Electricity use associated with long-term project operations will be quantified to the extent project-specific information is available. Consistency with applicable regulatory requirements for energy conservation will be discussed.
- This analysis includes a quantitative assessment of up to three project alternatives and a qualitative comparative analysis of up to five additional project alternatives.
- Mitigation measures will be identified for potentially significant impacts. The effectiveness of proposed mitigation measures will be discussed.

**DELIVERABLES:**

- Energy Use Assessment Report.

## NOISE AND GROUND-BORNE VIBRATION IMPACT ASSESSMENT

The noise and ground-borne Vibration Impact Assessment will include a summary description of the existing environment and applicable regulatory framework. The existing noise environments within the project area will be discussed based on existing environmental documentation and data to be obtained from noise measurements conducted in the project vicinity. AMBIENT will conduct up to twenty short-term (i.e., 10-15-minute) noise measurements in the vicinity of noise-sensitive land uses located along the proposed project alignments to document ambient noise conditions. Measured noise levels will be summarized in tabular format within the report.

- The noise impact analysis will include evaluation of potential short-term (i.e., construction) and long-term (i.e., operational) increases in ambient noise levels attributable to the proposed Project.
- Short-term noise impacts will be quantitatively assessed based on noise levels typically associated with construction related activities and equipment.
- Long-term increases in operational noise levels, including noise levels commonly associated with water pumps and routine maintenance activities, will be discussed.
- Predicted operational noise levels for stationary noise sources (e.g., pump stations) located near noise-sensitive land uses will be quantitatively assessed.

- This analysis includes a quantitative assessment of up to three project alternatives and a qualitative comparative analysis of up to five additional project alternatives.
- Ground-borne vibration impacts are anticipated to be primarily associated with short-term construction activities.
- Predicted construction-generated vibration levels will be quantified and discussed. Long-term operational vibration impacts are anticipated to be minor and will be qualitatively discussed.
- The significance of noise and ground-borne vibration impacts will be determined in comparison to applicable noise standards. Mitigation measures will be included for significant impacts.

**DELIVERABLES:**

- Noise and Vibration Assessment Report.

## AQUATIC RESOURCE DELINEATIONS

To support the acquisition of the Clean Water Act (CWA) Sections 404 and 401, and Fish and Game Code 1600 permits, we will deploy a team of wetland scientists who will conduct an aquatic resources delineation to identify aquatic resources (i.e., wetlands and other waters) that may be subject to USACE, SWRCB or RWQCB, and/or CDFW jurisdiction. Additionally, as changes to the jurisdictional regulations are continuously occurring, including the anticipated changes in the definition of waters of the United States, we will ensure that the report reflects the current definition.

- This team will perform the delineation following the USACE and SWRCB/RWQCB methodologies including but not limited to identifying features of the Project that could be subject to the jurisdiction of federal and/or State agencies, such as the USACE 1987 Corps of Engineers Wetland Delineation Manual, and the Arid West Regional Supplement, CDFW, RWQCB and SWRCB State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State, and used to support CEQA and NEPA documents.
- Our team will work closely with IWVGA and their right-of-way consultant to obtain the legal access necessary to perform a comprehensive aquatic resources delineation.
- To expedite survey efforts and avoid delays in areas with limited access or access constraints, the team will employ a representative sampling approach whereby we will use data point(s) to represent similar aquatic resources (e.g., a data point for one intermittent feature may be used to represent similar intermittent features that are in close proximity to each other). Recently, the USACE and the RWQCB accepted a similar approach for the Friant Kern Canal Middle Reach Capacity Correction Project and have successfully used this method on numerous other similar long linear projects where it is infeasible for data points to be recorded for every aquatic feature in a given study area.
- Where representative sampling is applied, the use of aerial photography and topographic map interpretation in combination with physical inspection will be used to determine the requisite aquatic resources characteristics.
- Upon completing the delineation, our wetland scientists will leverage their extensive experience working with the USACE and the RWQCB to prepare an aquatic resources delineation report. This report will summarize the findings of the delineation including amounts of potential waters of the United States and waters of the State present in the delineation study area.
- Based on experiences with similarly sized projects and in consideration of the schedule, the delineation report will be prepared to support Preliminary Jurisdictional Determination instead of an Approved Jurisdictional Determination given the rigorous analysis and lengthy timeline an Approved Jurisdictional Determination requires.

**DELIVERABLES:**

- Aquatic Resources Delineation Report; and
- Jurisdictional Verification Form.

# TASK 4: PUBLIC OUTREACH (COORDINATION AND PRESENTATION AT MEETINGS)

## SCOPING MEETINGS

The Team brings decades of direct and hands-on experience engaging beneficial users and users of groundwater and surface water resources through complex projects implemented consistent with the CEQA/NEPA process. As with the guiding principles articulated in the Authority's Communication and Engagement Plan (April 19, 2018), our team would prepare and implement effective and efficient outreach programs that will deliver clear, consistent, inclusive, and stakeholder-specific information necessary for IWVGA and its partner agencies to reach informed, defensible decisions. The following tasks will be provided:

- Prepare – in close coordination with Authority, its Policy Advisory Committee and Technical Advisory Committee – a Project Communication and Engagement Plan. Anticipated up to 15 pages in length, this document will serve as a roadmap and supplement to the agency's existing Communication and Engagement Plan.
- For ease of public access, the plan and other information materials prepared for the Project will be posted to a new website section established by the Agency on its website. This section would include a new navigation menu on the Authority website homepage, and associated sub-sections the support public and stakeholder outreach. . Content, organizational structure, and images for this section will be provided by the Team.
- Two public scoping meetings, and two public workshops during release of the draft CEQA/NEPA document, and a public hearing during document adoption. The team anticipates conducting public scoping meetings in the cities of Ridgecrest and California City as part of the 30-day scoping period.
- Meeting notification will be completed through submittal to the State Clearinghouse and the Federal Register, as appropriate, and posting of public notices in local newspapers of record (e.g., The Daily Independent, the News Review and Mojave Desert News).
- A news release will be prepared on behalf of Authority for posting on the website, release to local media, and email distribution.
- Email distribution is anticipated to include existing stakeholder databases including the Authority Interested Parties Database (established by the Authority pursuant to California Water Code §10723.4); an existing Sacred Lands and Tribal Contact list as provided by the California Native American Heritage Commission; and a list from BLM. The Project team also recommends sending the notice by United States mail to all private property owners along the Project alignment.
- Results of the scoping meeting will be compiled into a scoping report, inclusive of written comments received from stakeholders, oral comments received during the scoping meetings, and the record of notification. Comments received during this period will be aggregated by type and presented to the Authority Board of Directors for their reference and consideration.

A key audience for outreach in support of the Project are the private property owners along the pipeline alignment. The Authority Central Alignment Mapbook identifies 65 affected parcels, of which includes 48 individual landowners. None of these landowners reside in Project area, with 15 percent of owners residing in Arizona, Indiana, Michigan, Nebraska, New York or Washington. Moreover, a majority of these lands are held by trusts, an ownership vehicle that often clouds the actual property owner(s). We anticipate this ratio to hold if additional properties are identified for temporary use by the Project or for acquisition by Authority. We have found that maintaining good relationships with landowners during development of long, linear projects similar to this Project is critical for schedule and cost management.

## PUBLIC REVIEW PERIOD

The draft CEQA/NEPA document will be distributed for public review for a minimum of 45-days (note BLM only requires a 30-day circulation for EAs, however the minimum circulation for an EIR is 45-days).

- During the public review period, the Project team will host two public meetings to present the findings of the environmental document and respond to clarifying questions from the public and stakeholders.
- Notifications will be conducted consistent with activities implemented for Project scoping meetings.
- As with the scoping meetings, these meetings will be held in the cities of Ridgecrest and California City.
- Comments received during the public comment period will be responded to as part of preparation of the final CEQA/NEPA document, with copies of all comments included as an appendix.

## PUBLIC HEARING

A public hearing is anticipated to be conducted during a session of the Authority Board of Directors to certify the CEQA document.

- Notification of the hearing to certify the CEQA document is assumed to be conducted as part of Authority's compliance actions under the Brown Act.
- It is expected that BLM will prepare the documentation necessary to support its NEPA decision.
- All meetings will be guided by detailed meeting facilitation plans prepared by the team for approval.
- Each facilitation plan will include an annotated meeting agenda that defines parameters/information requirements for each agenda topic; a defined staffing and notification plan for each event; and a defined resource and logistics plan.
- Details within these plans are referenced for development of the meeting agenda, meeting notifications and meeting presentations/information materials.
- We anticipate preparation of up to three (3) two-page information documents for each meeting, along with up to 10 informational posters.

## LANDOWNER COORDINATION (OPTIONAL)

As an optional task, the Team recommends Authority select and assign a single landowner coordinator to lead engagements with affected landowners to manage execution of Right-of-Entry Permits and support timely access to private properties for biological, cultural, archeological, topographic, design and other field visits required to prepare the CEQA/NEPA document, to support Project design requirements, and assist realty staff engage with owners of properties identified for acquisition. This Landowner Coordinator would be responsible for, among other things, maintaining positive relationships with affected landowners by providing clear, consistent and understandable details to the process, purpose and results of Project activities; to assess and evaluate the potential level of Project cooperation by landowners and their representatives; and to socialize the range of details gathered through this activity to Project leaders, field staff, and others, as appropriate. We recommend that Craig Moyle, who led such activities for the Friant-Kern Canal Middle Reach Capacity Correction Project and for the San Joaquin River Restoration Program since 2007, serve as the landowner coordinator and coordination meeting facilitator. As part of these meetings, Craig will work with the Authority Water Resources Manager and key task leads on agenda topics, facilitate discussion on each progress activity, and memorialize in an action item summary distributed within 24 hours of each meeting.

**DELIVERABLES:**

- Project Communication and Engagement Plan
- Public Scoping Notice
  - State Clearinghouse
  - Federal Register
  - News Release
  - Public Notice (newspapers)
- Scoping Report

- Stakeholder database
  - Consolidated email lists
  - U.S. Mailing list of affected landowners (assumed at approximately 200 unique addresses)
- Meeting Facilitation Plans, Information Materials and Meeting Posters
- Project Coordination Meeting Agendas and Action Item Summaries
- Compilation and content analysis of comments on draft CEQA/NEPA document – this will be an appendix to the CEQA/NEPA document

# TASK 5: REGULATORY COMPLIANCE PERMITTING

Simultaneously, along a parallel path with the technical studies, preparation, coordination, and execution of the required permitting packages will start. Agency timelines are outside of our control, therefore agency coordination is essential and must take place often to maintain the vigorous schedule outlined in this proposal.

## TECHNICAL REPORT

Navigating the complexities of permitting, especially with special-status-species, including BLM sensitive species, requires an integrated team who can help guide design while successfully conducting environmental impact evaluation, and agency coordination from day one to avoid costly delays and/or avoidable impacts and mitigation. The Team will leverage our expertise to identify potential environmental issues that could result in complex or time-consuming permitting. These considerations will be used to initiate early agency coordination, and aid in developing and maintaining the Project schedule, while maximizing efficiency and minimizing the risk of unexpected schedule delays.

The team will leverage existing work that was conducted for the alignment study to develop a technical approach and timeline for completion of environmental review and permit acquisition. Based on this, as well as our understanding of the Project constraints and regulatory requirements, Stantec will prepare a Project Regulatory Compliance Technical Memorandum (TM) that summarizes federal, state and local consultation; permitting; and approval requirements for the Project. The TM will contain the following: the permits and approvals needed to implement the Project; the information necessary to update permitting documents, apply for and successfully obtain the necessary permits and approvals; where and how this information will be developed; and a detailed schedule for permit application and approval agreement preparation and submittal of deliverables.

The objective is to identify critical path items or permitting hurdles that should be prioritized to meet the Project schedule, as well as establish a communication protocol to ensure that the right studies are completed in the right order and in a timely manner to maintain the schedule.

**DELIVERABLES:**

- Draft and Final Project Regulatory Compliance TM

## CLEAN WATER ACT PERMITS

The CWA Section 404 permit, issued by USACE, can be a scheduling challenge. Projects with only minimal adverse effects (i.e., fills of less than 0.5 acre of non-tidal waters of the United States) can typically be authorized under USACE's NWP program to expedite the environmental compliance process, provided the Project satisfies the terms and conditions of the particular NWP; and the Regional Conditions instituted by the USACE Sacramento District (e.g., Condition 18-Endangered Species, Condition 20 Historic Properties). Because the majority of the impact associated with this Project would be temporary (construction-related) it may qualify under the NWP 58- Utility Line Activities for Water and Other Substances. Because the Project is a linear project that would include multiple single and complete crossings, the Pre-Construction Notification will contain all of the required information as identified in General Condition No. 32.

If it is determined that the Project does not qualify for a NWP, the team will determine if it may qualify for authorization under a Letter of Permission or if an Individual Permit is required. Regardless of the required permit, the team have the experience and capability to work with the IWVGA, BLM, and USACE to get the Project permitted.

A Clean Water Act Section 401 water quality certification is required from the Regional Water Quality Control Board for all projects that receive a Section 404 authorization from the USACE. Given the expectation that the Project will result in direct impacts on more than 0.2 of an acre or 300 linear feet of waters of the state, an alternatives analysis is expected. The Team proposes a preemptive approach to addressing this by including an alternatives analysis in the CEQA/NEPA document that not only addresses CEQA requirements, but also establishes the groundwork for identifying the Least Environmentally Damaging Practicable Alternative (LEDPA), as required under the Regional Board's Procedures for Discharges of Dredged or Fill Material to Waters of the State.

## LAKE OR STREAMBED ALTERATION AGREEMENT

Section 1602 of the California Fish and Game (CFG) Code requires that any entity proposing an activity that will substantially affect a drainage feature under the jurisdiction of the CDFW, must notify the CDFW of the proposed activity. If the agency determines that the activity may substantially adversely affect the jurisdictional resource, a lake or Streambed Alteration Agreement (SAA) will be required. The team has extensive experience with preparing CDFW Section 1600 Streambed Alteration Agreements. It is recognized that all state permits, including an incidental take permit under the California ESA, will require compliance with CEQA. As part of permit preparation, the Team will closely coordinate as preceding tasks are completed to ensure incorporation of the appropriate CEQA findings and mitigation measures into the applications/notifications.

Pursuant to Section 1600 et. seq. of the Fish and Game Code, projects are required to notify the CDFW prior to beginning any activity that will (1) divert or obstruct the natural flow of any river, stream, or lake; (2) change the bed, channel, or bank of any river, stream, or lake; (3) use material from any river, stream, or lake; or (4) deposit or dispose of material into any river, stream, or lake. CDFW will require that a Lake and Streambed Alteration Agreement is obtained for project activities. Although the Project would result in impacts on multiple crossings, one notification will be prepared that provides project detail for each crossing under CDFW's jurisdiction. Stantec will engage with CDFW early to understand their concerns about this approach or the Project and address any key concerns prior to Project notification.

## BLM – SPECIAL USE PERMIT

Given BLM's presumed role as the Federal Lead Agency, upon Project initiation, the team will prepare an SF 299 form that includes the proposed Plan of Development (POD) for submission to the BLM's Ridgecrest office in Ridgecrest, California. Our Team worked closely with that BLM office during the alignment study. The SF 299 will use relevant information available from the design team to provide a thorough description of the Project. This task includes two rounds of review, comment and revision based on input from IWVGA and two additional rounds of review and comment provided by the BLM prior to acceptance by BLM as a complete application. This task also includes a site-review and in-person meeting with IWVGA and BLM representatives prior to submission of the SF 299.

The SF 299 package will include a comprehensive list of information specific to the Project, including identification of BLM lands that may be used for ancillary facilities (e.g., pump stations, electrical distribution line). Sections of the POD pertaining to purpose and need, project description and construction methods will be completed in conjunction with efforts to support the preparation of a CEQA/NEPA document.

Throughout alternatives and EIR/EA development, the team will continuously review project details with the design and ROW teams to determine and alert IWVGA if any other permits or authorizations may be required that are not specifically listed in this proposal.

Deliverables:

- Administrative Draft Permit Packages, including associated GIS shapefiles and figures
- Agency Draft Permit Packages
- Final Permit Packages

## TASK 6: CEQA/NEPA

Provost & Pritchard has provided a fully developed project schedule and is committed to meet the October 2024 deadline. With a tight deadline it is imperative that numerous tasks are carried out simultaneously. Provost & Pritchard's Project Manager, Dena Giacomini will ensure that the technical studies, geotechnical CEQA/NEPA documents, permits, and scoping meeting schedules are started immediately. These are the critical path items and have the most impact on the schedule as discussed in more detail above.

Based on the information gathered during the alignment study and understanding of the potential environmental affect/impacts, Provost & Pritchard assumes that a Focused Environmental Impact Report/Environmental Assessment (FEIR/EA) is the appropriate level CEQA/NEPA document for the proposed Project. We are assuming that the affect associated with the project can be mitigated and therefore under NEPA an EA would be required. Due to the heavy regulatory agency oversight, and public and environmental stakeholders associated with the Project, we recommend a Focused Environmental Impact Report (FEIR) to fully address those concerns, resolve disputes, and provide the Authority with a highly defensible document.

Provost & Pritchard recommends composing a FEIR instead of a full EIR. By utilizing a FEIR process, we can eliminate the need to analyze some of the resource sections as identified in Appendix G Environmental Checklist of the CEQA Statues and Guidelines, and "focus" on the resource sections that have the potential to impact those resources. To confirm that a FEIR/EA is the appropriate document for this Project, our team will author an Initial Study and provide the findings to Authority before moving forward with the FEIR. As an example, during the initial study phase of CEQA, resources topics such as population, public resources, wildfire, to name a few, would most likely not identify impacts and would not result in the need for further analysis. Inversely, this would allow time and budget to be concentrated on those resources that may have impacts on the environment. We assume that this process would remove almost ½ of the twenty resources that requires analysis.

Overall, the above approach would:

- Allow for a thorough and concise FEIR document;
- Allow impacts to resources to be fully known and mitigated appropriately;
- Expedite the schedule; whereas every additional week is priceless; and
- Provide added cost efficiency.

To assist BLM with the NEPA process, technical studies, especially the biological and cultural studies are vital to maintaining a tight schedule and will be executed within the first week after the Notice to Proceed. These technical studies will be used for multiple regulatory processes including NEPA/CEQA, identification of appropriate and implementable mitigation measures, education and comfort of stakeholders, and meeting permitting agency obligations. The EA with BLM as the lead agency is also beneficial to the project schedule since NEPA regulations were overhauled in 2020, with one of the game-changing requirements including a mandatory time limit to complete an EA, not to exceed one-year.

Provost & Pritchard's staff experience with CEQA/NEPA projects involves the full range of the process:

- Interaction with internal Authority and BLM staff and board members;
- Project development and modifications to reduce impacts;
- Internal and public scoping to determine the appropriate level of CEQA documentation;
- Resolution of conflicts that threaten to adversely affect projects;
- Authorship and publication of complex reports;
- Management of consultant contracts for technical studies and services;
- Preparation of all public notices; responses to comments on draft EA/EIRs;

- Preparation of staff reports and PowerPoint® presentations to the Board of Directors;
- Preparation of Notices of Determination; and
- Filings with the State Clearinghouse.

Specifically, the following tasks will be provided:

- Prepare an Initial Study to remove environmental resources from analysis.
- Prepare an Administrative draft Focused EIR/Finding of No Significant Impact (EIR/FONSI). The document will be prepared in accordance with current CEQA guidelines as well as BLM NEPA guidelines.
- Prepare Notice of Preparation (NOP) and Notice of Availability (NOA).
- Once the Administrative Draft IS/EA is complete, submit, in electronic format, the Draft to the Authority and BLM staff for review.
- Incorporate one round of comments from the Authority following one round of comments from BLM staff review, respond to internal comments and prepare a Draft EIS/EA.
- Prepare and submit, in electronic format, a Draft EIS/EA for public review.
- Submit to the State Clearinghouse and County Clerk's Office for public review/circulation.
- Prepare Notices including Notice of Intent (NOI) and Notice of Completion (NOC).
- Prepare responses to up to 15 comment letters.
- Provide Final EIS/EA for Authority adoption.
- Prepare the Notice of Determination (NOD) and submit to the Clearinghouse and County Clerk's Office.

**DELIVERABLES:**

- Administrative Draft EIR/EA
- NOP and NOA
- Draft FEIR/EA
- Final FEIR-EA
- NOI, NOC, and NOD.

# APPENDIX A
## KEY STAFF RESUMES

# Heather Bashian

*PE, QSD*

**Principal Civil Engineer**

## Education

- Master's in Business Administration National University
- B.S. Civil Engineering, California State University, Fresno
- QSD/QSP Construction General Permit Training, WGR Southwest, Inc., 2011

## Registration/Certifications

- Civil Engineer, California #73075
- Qualified SWPPP Developer (QSD) #00542
- Air Quality Management Certificate, San Joaquin Valley Air Pollution Control District, 2006

## Affiliations

- American Society of Civil Engineers (ASCE)
- Society of Women Engineers (SWE)

## Areas of Expertise

- Municipal Infrastructure Development
- Grant Preparation
- Urban Water Management Plans
- Regional Water Management Planning
- Regulatory Compliance

## Professional Summary

Heather Bashian is a principal engineer and project manager at Provost & Pritchard. With 20 years of municipal infrastructure planning and design, master planning, and grant writing and administration experience, she has been involved with projects related to all aspects of municipal infrastructure. She has extensive experience in design engineering for infrastructure projects including water supply and distribution, water main replacements, water metering, wastewater collection and rehabilitation, wastewater lift stations, stormwater collection projects, and recycled/reclaimed water distribution.

## Relevant Experience

**Kings River Pipeline, Carollo Engineers, Fresno, California, Project Engineer –** Ms. Bashian provided design services for a 4.3-mile segment (of the 13-mile alignment) of a 72" pipeline as part of the City of Fresno's Southeast Water Treatment Facility (SEWTF). The plant will provide potable water to the City of Fresno water system and the pipeline will provide raw water conveyance from the Kings River to the SEWTF. The alignment of the pipeline runs from the SEWTF location, east and south to the Fresno Canal.

**Water Mains in Various Locations, City of Madera, California, Project Manager/Engineer –** The project provided water connectivity in the City of Madera to improve supply conditions at all times of the day, throughout the year. The improvements entitled more than 4,200 feet of eight and twelve inch water mains in seven locations throughout the distribution system. Complexities of the project included coordination with the Madera Irrigation District, and a constrained timeline so construction could be complete in advance of other projects. Construction of the improvements was completed in 2018.

**Armstrong Avenue Water Main Replacement Project, City of Fresno, California, Project Manager/Engineer –** Ms. Bashian led design engineering services for the water main project in Armstrong Avenue, south of Kings Canyon Boulevard. The project includes design of nearly 2,700 feet of 16-inch water main, including fire hydrants, water services and traffic signal restoration. The project is a replacement project for an existing, undersized water main. Coordination with the County for a road encroachment permit was also completed for the project. Construction of the project was completed in July 2021.

**Madison-Whitesbridge Recycled Water Main Project, City of Fresno, California, Project Manager/Engineer –** Ms. Bashian provided design engineering services for the recycled water main project in Madison, Valentine, Whitesbridge and Brawley Avenues and the Nielsen Basin. The project includes design of over 20,600 feet of 16-inch recycled water main, including two jack and bore installations, crossing of existing facilities and a railroad crossing. Coordination between the City, County, Fresno Metropolitan Flood Control District, Caltrans, and the railroad company was a critical component of the project. Construction was completed in 2020.

**Water Main Replacements – Olive Gardens, Van Ness Extension and PS201 to PS36 Raw Water Pipeline, City of Fresno, California, Project Engineer –** Ms. Bashian provided design engineering services for the water main pipeline replacement in two residential areas of town, known by the City as Van Ness Extension and Olive Gardens. The project includes design of 6,600 feet of 8-inch, 12-inch and 14-inch water mains and replacement of all services and fire hydrants along the alignment. The project also includes a 2,800-foot, 8-inch raw water pipeline between two well sites along Church Avenue, raw water blending, and the related improvements on each well site.

**Pipeline Replacement Project, Tranquillity Irrigation District, Fresno County, California, Project Manager/Project Engineer –** Ms. Bashian provided design engineering services for Tranquillity Irrigation District's pipeline replacement project. The existing pipeline required replacement due to degradation and biofilm accumulation within the pipeline. California Department of Public Health provided the District with a grant to prepare construction documents and replace the water transmission mains within the community. The project consists of construction of 7,800 feet of 12-inch water main on the major streets of the community, replacement of hydrants, valves and water services within the project limits, two railroad jack and bore installations and four railroad crossing permits. Coordination and sequencing of the project schedule was also included to maintain water supply during the construction of the new system and provide adequate support for the reconnection of the existing homes to the new water system. The project's estimated construction cost was just under $2 million and was funded in through a state funding contract.

**Water System Improvement Project, Pratt Mutual Water Company, Tulare County, California, Project Manager/Project Engineer –** Ms. Bashian provided design engineering services, community outreach, agency coordination for the reconstruction of the water system for the Pratt Mutual Water Company near Tulare, California, which includes 35,000 feet of pipeline and replacement of all water services and fire hydrants. The project includes providing two points of connection to the City of Tulare's water supply system, three canal jack and bore installations, one railroad jack and bore installation and a railroad crossing permit. Coordination and sequencing of the project schedule was also included to maintain water supply during the construction of the new system and provide adequate support for the reconnection of the existing homes to the new water system. The project's preliminary planning and design phases were funded through state and federal funding programs. The project's estimated construction cost was just over $5 million and was funded in Fall 2012 through an additional state funding contract. Ms. Bashian also worked on the funding applications and compliance documents for the state and federal funding sources for the design and construction phases.

**Tipton Street-Mineral King Avenue Sewer Repairs, City of Visalia, California, Quality Assurance and Quality Control Engineer –** The City of Visalia contracted with provost & Pritchard to resolve an ongoing contamination issue related to wastewater leaching into the surrounding soils and causing less than desirable levels of various constituents in the soil. The project included design of sewer and storm water main rehabilitation through removal and replacement construction, and cast-in-place-pipe installation through more than 3,000 feet of six, eight, ten, twelve and twenty-one inch sewer and storm drain mains. Construction of the improvements is anticipated in 2023.

**Dakota Avenue and First Street Sewer Rehabilitation and Repair Project, City of Fresno, California, Project Manager –** Ms. Bashian served as the Project Manager for the design of the rehabilitation and repair of sewer mains in the vicinity of Dakota Avenue and First Street. The project includes approximately 1,100 feet of 6-inch diameter vitrified clay pipe (VCP), 3,800 feet of 8-inch diameter VCP, and 800 feet for 12-inch diameter VCP that was constructed in the 1950s. The sewer repairs will replace sections of pipe that have failed or are anticipated to fail in the near term and, once repairs are complete, the rehabilitation will reinforce the structural integrity by preventing additional hydrogen sulfide corrosion through the installation of a cured-in-place (CIPP) liner.

# Dena Giacomini

## Principal Planner/Biologist

### Education

- BA, Environmental Studies; Biology, California State University Sacramento
- Environmental Planning, UC Davis Extension
- Wetland Delineator, Wetland Training Institute

### Registration/Certifications

- HAZWOPER (40 hours)
- RCRA/ DOT HAZMAT
- Hazard Communication
- Erosion and Sediment Control Lead
- Wetland Delineator

### Affiliations

- Association of Environmental Professionals
- Groundwater Resources Association of California

### Areas of Expertise

- Project Management
- CEQA/NEPA
- Planning
- Biological Studies
- Wetlands Delineations
- Permitting
- Research and Data Analysis
- Land Restoration
- Soils Management
- Mitigation Monitoring and Reporting Programs
- Water Quality
- WEAP Training
- Grant Writing
- Pre-Construction Surveys
- Construction Monitoring
- Nesting Bird Surveys

## Professional Summary

Dena Giacomini is a Principal Planner at Provost & Pritchard with more than 23 years of planning experience. She is experienced in the areas of land use planning, design-build projects, water, gas and electric utility projects, restoration, and grant writing, as well as overall federal, State and local environmental regulatory compliance. She has comprehensive knowledge and experience in CEQA/NEPA compliance and agency permitting, water quality, plant and wildlife biology, research, data analysis, and environmental land analysis. She has developed and maintained outstanding working relationships with regulatory agencies, tribes, and has coordinated and collaborated with a multitude of stakeholders throughout the western United States. She has also directed and managed small and large projects and provide expertise with Municipal Codes and Ordinances, County General Plans, Strategic Plans, and Master Plans.

## Relevant Experience

**City of Fowler 2040 General Plan EIR, Fresno County, California – Project Manager.** Ms. Giacomini managed the preparation of the necessary CEQA EIR compliant documents to fully analyze the potential environmental impacts to support the City of Fowler 2040 General Plan. There were several significant impacts as part of the project including traffic/vehicle miles traveled, noise, and agricultural resources.

**Natural Resources Conservation Service, United States Department of Agriculture, Reclamation District 1500, Karnak Facility EIS/MND, Sutter County California – Project Manager.** RD1500 is in the process of modernizing a pumping facility in order to provide for flood protection to the community of Robbins and the associated watershed. The Project will provide flood protection approximately 65,000 acres in Sutter County. The EIS Watershed Plan and will be the first of its kind in California and will be required to be approved by US Congress. Additional but separate IS/MND is required to meet state regulatory compliance for the projects.

**Linear Transmission and Distribution Projects, Pacific Gas and Electric, Throughout California – Planner, Biologist, Environmental Scientist.** Provided NEPA/CEQA EA/EIS environmental compliance documents and permitting applications to CDFW, USACE, RWQCB, BLM, USFS, SLC, and Coastal Commission for various PG&E projects including:

- Gas Line 220, 210B, and 210A Project, Solano County.
- 1288T-1407 Hydro-Test ID-98 L-210A Project, Solano County.
- Los Medanos Sediment Basin Project, Contra Costa County.
- Lincoln Capacity Proponent EA Project, Placer County.
- Port of Stockton Interconnection Project, San Joaquin County.
- Ravenswood-Newark Reconductor, San Mateo County.
- Pittsburg-Tesla 230V EA Project, Contra Costa County
- Windsor Substation EA Project, Sonoma County

**Water Transfer Project, Patterson Irrigation District and South Valley Water Resources Authority CEQA/NEPA, California – Project Manager.** Prepared CEQA/NEPA document Initial EA/MND for a Water Transfer Project between Patterson Irrigation District and 13 California Water Districts. Project components included Warren Act Contracts, and discussions with Department of Water Resources, United State Bureau of Reclamation to approve water transfer turnouts.

**Silver Line Linear Tunnel Project, Los Angeles County Metropolitan Transportation Authority Regional Connector CEQA/NEPA, Los Angeles County, California – Environmental Project Manager.** Ms. Giacomini managed a $1.5 billion, 1.9-mile underground tunnel light-rail system and three new stations. Project specifics included managing California Environmental Quality Act (CEQA) EIR/EIS, archeological and paleontological studies, noise and vibration studies, air quality studies, green construction, and mitigation measure compliance and reporting. Provided daily construction project management; worked with federal, state, and local regulatory agencies and local stakeholders; budget preparation; contract management; and scheduling.

**Elliot Bay Seawall and Tunnel Project NEPA Document, City of Seattle, Washington – Environmental Project Manager.** For this multi-million-dollar project worked with Seattle Department of Transportation, Public Utility, and Seattle City Light professionals to obtain environmental compliance to replace the seawall along the City of Seattle's downtown waterfront and underground the existing freeway. The goal of the project was to reduce risks from coastal storm and seismic damage, protect critical infrastructure, and enhance degraded ecosystem functions. Environmental components are Project National Environmental Policy Act (NEPA) EIS, Industrial NPDES permit for vault discharge. Authored a new Directors Rule for vault discharges, Shoreline and Hydraulic Use permits, and United States Army Corps of Engineers (USACE) 404 Nationwide Permit (NWP).

**Golden Gate Recreation Area, Marin Equestrian Plan EA/MND, National Park Service, California, Project Manager**. Assisted the National Park Service to compile the Marin Equestrian Plan EA/MND. Tasks completed included the analysis of public comments and identifying issues, preparation of the preliminary draft Environmental Assessment, evaluated water quality and hazardous materials on site and assisted with the preparation of a Value Analysis matrix and draft and final Environmental Assessment and Finding of No Significant Impact.

**Seaborn – Groundwater Recharge and Restoration, Tulare Irrigation District, Tulare County, Project Manager and Lead Biologist** – The Project is to create water surface storage and restore habitat from a post-reclamation reservoir facility to divert and store water on the Seaborn Property, previously used for mining. A reconnaissance level biological survey for the APE and provided a Biological Evaluation/Assessment (CEQA/NEPA) to allow the District to construct Project specifics include a pump station to return water back to the Kaweah River above McKays Point via pipeline or open channel for the ability to divert to both the St. John's River (SJT) and the Lower Kaweah River in years when more water is available. Species identified included Bald Eagle, active Osprey nests, active Great Blue Heron nests, active Tree Swallow nests, and an Ash-Throated Flycatcher, California tiger salamander (CTS), kangaroo rats, Swainson's Hawk (SWHK), SJKF, TRBL, Osprey, Western pond turtle, and special status plants. Mitigation measures included WEAP training, pre-construction nesting bird surveys, focused surveys for Bald and Golden Eagles, Western Pond Turtles, and special status plants. The report included all recommended mitigation measures and was consistent with CEQA/NEPA regulatory compliance standards and to a level necessary for permitting efforts.

**Folsom Lake Intake and Pump Station, El Dorado Irrigation District, California, Project Manager.** Environmental Scientist to prepared CEQA/NEPA EA/MND documents, permits for USACE, RWQCB, and CDFW and coordinated approvals with the Bureau of Reclamation to perform geotechnical surveys within jurisdictional waters for a proposed new intake and pump station adjacent to the existing raw water pumping facilities. Performed field investigations for water quality, special status species, and coordinated with multiple agencies to determine impacts and avoidances for the project.

**Conejo GAC Water Treatment, Camrosa Water District, Camarillo, California – Project Manager.** Conducted IS/MND and technical studies to allow the construction of a centralized Granular Activated Carbon drinking water treatment plant to remove contaminants. Performed reconnaissance level biological evaluation, pre-construction survey, WEAP training, and limiting construction hours to protect special status bats. Provided compliance with Mitigation Monitoring and Reporting Program through construction completion.

# Jeff Davis

*PE*

Principal Engineer

## Education

- M.S., Water Resources Engineering, Stanford University
- B.S., Environmental and Water Resources Engineering, Vanderbilt University

## Registration/Certifications

- Civil Engineer, California #36337

## Affiliations

- Life Member, American Society of Civil Engineers (ASCE)
- American Water Works Association (AWWA)

## Areas of Expertise

- Water supply planning and management
- Master planning
- Infrastructure planning
- Water transfers and exchanges
- Negotiations with public agencies
- Water Resource Engineering
- Groundwater

## Professional Summary

Jeff Davis is a Principal Engineer at Provost & Pritchard with more than 40 years of water resources engineering experience. For 15 years he served as the General Manager and Chief Engineer for the San Gorgonio Pass Water Agency. He also spent five years as the Director of the Water Resources Institute at California State University, San Bernardino where he developed a regional resource for water agencies and other public agencies by obtaining grants from United States Environmental Protection Agency (USEPA) and others. As an engineer with the Metropolitan Water District of Southern California, he developed a master plan for the South Orange County portion of Met's service area.

## Relevant Experience

**CEQA Issues, San Gorgonio Pass, Cal –** Prior to taking over as General Manager in 2005, the Agency had been successfully sued on several occasions by a local anti-growth group, costing the Agency millions of dollars in legal and delayed construction costs. During his 15-year tenure, the Agency was not sued on CEQA due to his attention to detail on CEQA documents. DWR was sued by the local group on a SWP extension, but largely due to Mr. Davis's input into the EIR on growth inducement, the suit was dropped.

**Beaumont Avenue Recharge Facility and Pipeline, Beaumont, Cal –** As General Manager, Mr. Davis supervised this entire project, including CEQA certification, for a controversial project. He also led the effort for a predecessor project that was not constructed, including obtaining a 404 permit from the US Army Corps of Engineers.

**San Joaquin Reservoir cover, Newport Beach, Cal –** As project engineer on a project to install a floating cover on a 3,000 AF treated water reservoir, Mr. Davis led the CEQA effort, including holding public meetings with local homeowners who strongly opposed the project.

**Sites Reservoir, Maxwell, Cal –** Mr. Davis was on the committee that supervised the original EIR for this $4 billion project (that EIR has now been superseded by a new one). Mr. Davis worked assiduously to ensure that the original EIR would withstand litigation on local water supply issues, including growth inducement, and the EIR reflected this input. As Chair of the Sites Reservoir Committee in 2021, Mr. Davis also worked as part of a team overseeing the consultant who drafted the current EIR for the project.

**Water Transfer between Antelope Valley-East Kern Water Agency (AVEK) and San Gorgonio Pass Water Agency (SGPWA), Project Manager –** As General Manager of SGPWA, Mr. Davis negotiated a long-term water transfer of Nickel water rights (100% reliable non-SWP water) with AVEK to augment the imported water supplies of SGPWA, and ensured CEQA compliance in the process.

**South Orange County Area Study Master Plan, Metropolitan Water District, California, Project Engineer –** Mr. Davis developed a master plan for the South Orange County portion of Metropolitan's service area after meeting with stakeholders in the County for several months.

**Infrastructure Study, San Gorgonio Pass Water Agency, San Bernardino County, California, Project Manager –** While serving as General Manager of the San Gorgonio Pass Water Agency, Mr. Davis instituted an infrastructure master plan to determine how the Agency would serve its retail customers in the future. Primary purpose was to determine what new infrastructure would be required to move State Water Project water from the western to the eastern portion of the Agency's service area.

**Water Exchanges between City of Ventura, Casitas Mutual Water District, and San Gorgonio Pass Water Agency, Southern California, Project Manager** – While serving as General Manager of the San Gorgonio Pass Water agency, Mr. Davis negotiated a number of one-year water transfers and exchanges for State Water Project water with both the City of Ventura and The Casitas Municipal Water District.

## Previous Experience

**San Gorgonio Pass Water Agency, Beaumont, California, General Manager and Chief Engineer –** In this role, Mr. Davis was the Chief Executive Officer of a wholesale water agency serving a rapidly growing region of nearly 100,000 people. His duties included developing and managing a $30 million budget; planning for and meeting current and projected water demands; managing staff and Board of Directors; managing finances; planning for financing of future water supplies; planning, designing, and constructing infrastructure. His accomplishments in this role included Growing reserves to over $50 million while maintaining constant water rate for ten years; constructing a regional recharge facility; negotiating deals to augment supply as area grew and SWP allocations dropped, initiated and organized meetings for Class 8 Contractors to discuss common interests and issues. (2005-2020)

**Water Resources Institute at CSU San Bernardino, California, Director –** As the first Director of newly created institute, Mr. Davis built it into a regional resource for water agencies and other public agencies by obtaining grants from US EPA and others; building and supporting new water-related curriculum programs and finding internships and jobs for students in the water industry. He hired staff; managed budgets; initiated and managed programs; worked with faculty, administration, and outside water agencies. His key accomplishments included creating a series of scholarships by raising funds through honoring local water leaders; introducing students to the water industry where they still have jobs; building water archive rivaling that of UC Berkeley; building bridges to the water industry through initiation and maintenance of partnerships with public water agencies, flood control districts, regulatory agencies, and NGO's. (2000-2005)

**Metropolitan Water District of Southern California, San Bernardino, California, Various Role –** Mr. Davis spent 13 years with the Metropolitan Water District of Southern California in progressively more responsible roles. The role included:

> *Advance Planning Branch*—Project engineer on numerous large-scale long-term water supply planning studies for Metropolitan's service area, including the South Orange County area. (1987-1989)
>
> *Mechanical Engineering Branch*—Section Head supervising group of mechanical engineers designing mechanical projects at filtration plants, hydro plants, and pump stations. Responsible for hiring, managing staff, providing quality control and project management support, budgeting, etc. Managed District's overall chemical containment program. (1989-1998)
>
> *Project Management Branch*—Developed project management training for entire Engineering Division, trained younger engineers in how to manage projects, managed various projects from budgeting through completion. (1998-2000)

**Metcalf & Eddy, Houston, Texas, Project Engineer –** In this role, Mr. Davis was a project engineer on major long-term water supply planning study ($3.1 million) for City of Houston. He was responsible for all technical aspects of project performed by M&E, coordinated with subconsultants performing financial and institutional portions of the study, and testified in front of Houston City Council (1985-1987)

# Jeffrey O'Neal, AICP

## Principal Planner

### Education

- B.A. Geography
  California State University, Fresno
- UC Davis Continuing and Professional Education
  - Annual Land Use Law Review and Update (2010, 2015, 2016, 2020, 2021, 2022)
  - Subdivision Map Act (2009, 2011, 2014)
  - Thresholds of Significance in Environmental Planning (2018)
  - Vested Rights, Vesting Maps, and Development Agreements (2018)
  - CEQA Update, Issues, and Trends (2019)
- Land Use Navigators Subdivision Map Act (2017, 2020, 2022)
- Additional continuing education for AICP certification maintenance

### Registration/Certifications

- American Institute of Certified Planners (AICP 021890)

### Affiliations

- American Planning Association (APA)

### Areas of Expertise

- Municipal Planning
- Environmental Compliance
- Subdivision Map Act
- LAFCo Procedures
- Land Development Planning

## Professional Summary

Jeff O'Neal has more than 20 years of experience in the planning field, focusing on municipal planning and environmental analysis. He has both public and private sector experience and understands the intricacies of environmental review for a variety of project types. Mr. O'Neal has prepared, processed, and reviewed many documents of varying complexity pursuant to the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). Mr. O'Neal has been a member of the American Institute of Certified Planners since 2007.

## Relevant Experience

**Planning Practice Group, Provost & Pritchard Consulting Group, Practice Group Lead –** Since 2017, Mr. O'Neal has been the lead of Provost & Pritchard's Planning Practice Group (PPG). PPG meetings occur monthly, and both Provost & Pritchard staff and others are invited. For each meeting, Mr. O'Neal provides an update on recent legislation and/or case law affecting the planning, development, or environmental compliance fields, and either presents updates on projects of interest or coordinates with others to do so.

**CEQA-Plus Environmental Impact Report for Plainview Wastewater System Feasibility Study, County of Tulare, Environmental QA/QC –** The purpose of this project was to research the feasibility of constructing a wastewater collection, treatment, and disposal system to replace the individual onsite septic systems within the community of Plainview. Mr. O'Neal provided quality assurance/quality control oversight for the CEQA-Plus Environmental Impact Report prepared as part of the overall feasibility analysis.

**Environmental Compliance Document, New Wastewater Treatment Plant, City of Ridgecrest, Environmental QA/QC –** Mr. O'Neal provided quality assurance and quality control oversight for the EIR prepared to analyze the construction and operation of a new wastewater treatment plant in the City of Ridgecrest. The EIR contains complete analysis of two Project Alternatives, plus a No Project Alternative, and addressed significant impacts to hydrology, water quality, and noise. Construction of either alternative would occur largely within the U.S. Naval Air Weapons Station China Lake, and potentially within adjacent San Bernardino County.

**CEQA-Plus Environmental Impact Report, East Side Regional Park and Recharge Basin Project, City of Visalia, QA/QC –** Mr. O'Neal is providing quality assurance services for preparation of the CEQA-Plus EIR as part of the design of a regional park and recharge basin for the City of Visalia. The project is situated on 280 acres of city-owned property on the east side of Visalia.

**Environmental Compliance Document, Porterville Irrigation District In-Lieu Groundwater Recharge Project, Porterville Irrigation District, QA/QC –** Mr. O'Neal provided quality-control oversight for a joint

CEQA/NEPA document with the Porterville Irrigation District acting as the CEQA lead agency and the United States Bureau of Reclamation acting as the NEPA lead agency. The District proposes to build two new distribution facilities for delivery of surface water supplies to areas within the District that currently do not have infrastructure to receive those deliveries. The project would also allow the District to capture additional wet-year water supplies, when available, and help offset water supply impacts caused by the San Joaquin River Restoration Settlement.

**Mendota Pool Bypass and Reach 2B Improvements Project Draft EIS/EIR Review, City of Mendota, Contract City Planner & Technical Reviewer –** In 2015, Mr. O'Neal was responsible for reviewing the Draft EIS/EIR prepared by the U.S. Bureau of Reclamation analyzing proposed reconstruction of the segment of the San Joaquin River and Mendota Pool near the City of Mendota. Mr. O'Neal reviewed the draft document and constructed a comment letter to USBR addressing the City's concerns related to this project. Specifically, the letter cited concerns related to a proposed borrow area that abutted the City's wastewater treatment plant, potential use of City-owned property for USBR construction logistics, what the City deemed to be inappropriate inclusion of mitigation measures as project components, and incorrect references to various publicly-owned lands. Most importantly, the project proposed to create a floodplain that would inundate the City's three municipal wells and make access to the City's primary water delivery pipeline impossible. As a result of Mr. O'Neal's comments on behalf of the City, USBR revised its project plans to avoid the City's wells, provide for assessment and/or relocation of the water delivery pipeline, and coordinate with the City regarding borrow and logistics areas.

**Environmental Document, Outside Canal Water Line Replacement, City of Mendota, Contract City Planner –** In 2012, the County of Fresno undertook a project to replace an aging bridge near Mendota from which the City's main water delivery pipeline was suspended. The overall project required that the City remove and reconstruct its water main below-grade while limiting effects to the City's water system capacity. Mr. O'Neal prepared a mitigated negative declaration to assess the impacts of trench-cutting the Outside Canal, owned by Central California Irrigation District (CCID), and relocating the pipeline, including measures to reduce impacts to biological and cultural resources. Project challenges included coordinating the project timelines with Fresno County and with CCID to account for a construction window that could only occur when the canal was dry.

**Environmental Document, Recharge Basin No. 11, Laguna Irrigation District, Riverdale, Project Manager –** In 2014, the Laguna Irrigation District began the process of constructing a 41-acre recharge basin, along with reconstruction and stabilization of approximately 3.2 miles of the earthen Liberty canal, which had been damaged and partially collapsed due to adjacent agricultural practices. Mr. O'Neal prepared a mitigated negative declaration addressing potential issues to the San Joaquin kit fox and Swainson's hawk, in addition to cultural resources. Construction on the project was completed in 2016.

**High-Speed Train Draft EIR/EIS Review, Kern High School District, Bakersfield, Technical Reviewer –** Mr. O'Neal was responsible for reviewing the Fresno to Bakersfield Environmental Impact Report/Environmental Impact Statement as it related to impacts to Bakersfield High School. Specifically, the project team cited concerns related to student safety, noise impacts, visual and aesthetic disturbances, unmitigated traffic impacts during construction, operation of both the rail itself and of the nearby proposed rail station, and the document's lack of analysis of cumulative impacts. Of primary concern was that one of the proposed route alignments would result in the demolition of the school's historic Industrial Arts Building. To that end, Provost & Pritchard engaged the services of an architectural historian to rebut the High-Speed Rail Authority's determination of this building's historic qualities. Provost & Pritchard composed an extensive and detailed comment letter addressing the District's concerns about the High-Speed Rail project. Following the revisions made to the EIR/EIS in 2013, Provost & Pritchard was again engaged by the District to provide additional review and comments, including an updated comment letter addressing the High-Speed Rail Authority's responses to the District's original comments.

# Briza Grace Sholars

## Senior Environmental Planner

### Education

- B.A. Sociology,
  University of California, Santa Barbara

### Continuing Education

- 2022 AEP Conference, Tenaya
- 2020 Virtual AEP Conference
- California Environmental Quality Act Training, 2016/2017/2018/2019
- NAEP Improving the NEPA Process through Project Management Best Practices, 2018
- AB 52 Tribal Consultation Training, 2016, 2017
- U.S. Fish & Wildlife, Parkway Trust, Three-Day Gateway Workshop for Yosemite
- U.S. HUD Part 58 Environmental Review Training
- AEP NEPA Essentials Workshop, 2016
- San Joaquin Valley Parks Summit, 2016
- AEP 404 Permit Training, 2016, 2017
- 5th Annual San Joaquin Valley Affordable Housing Summit

### Areas of Expertise

- CEQA/NEPA Compliance
- Project Management
- Environmental Regulations

## PROFESSIONAL SUMMARY

Briza Sholars is a senior environmental planner at Provost & Pritchard Consulting Group, with over 23 years of planning experience. Ms. Sholars is skilled in project management with attention to schedule and budget. Her history includes the processing of environmental impact reports, and preparation of CEQA/NEPA compliant documents for public agencies, private firms, and Irrigation Districts. She has extensive experience in compiling researching, analyzing, and evaluating data, activities and studies related to water and wastewater infrastructure, transportation, housing, dairy, mining, solar, agriculture, resource conservation, and other development projects. Ms. Sholars has prepared and processed many documents of varying complexity compliant with CEQA and NEPA. She is familiar with land use trends and environmental issues, and, as a planner with both public and private sector experience, she understands the perspectives of both local agencies and project proponents.

## EXPERIENCE

**Environmental Services for Arvin Edison Water Storage District's Expansion of District Distribution System Pipelines into Groundwater Service Area (GWSA) Lands Project (Project). Project, Kern County, California, Senior Environmental Planner -** Ms. Sholars manager the preparation of the necessary CEQA compliant documents to fully analyze the potential environmental impacts of the construction of up to 44 miles of pipelines, manholes and turnouts within AEWSD. The proposed pipelines will be operated when excess surface water is available (approximately every three years) and/or when water transfers are scheduled. The proposed pipelines will be mainly low-head gravity distribution pipelines ranging from 12" to 72" in diameter. The proposed pipelines will commence from various existing AEWSD facilities, such as the Forrest Frick Discharge Pipeline, North Canal, South Canal, or other smaller lateral pipelines. A 0.75-mile open canal is also proposed from the existing Tejon Spreading Works.

**Environmental Services for Pleasant Valley Water District's North Pipeline Project, Fresno County, California, Senior Environmental Planner -** Ms. Sholars prepared the necessary joint CEQA/NEPA compliance documents to fully analyze the potential environmental impacts from the District's new lift pump station, pipeline, and recharge and restoration project. The Project includes construction of a lift pump station out of the Coalinga Canal (Canal); up to three (3) slant pumps, totaling sixty (60) cubic feet per second (cfs) pumping capacity; a regulating reservoir; a booster pump station (including up to five (5) pumps, totaling 60 cfs); and a 7.4 mile water pipeline as well as an ecological restoration area to be used for groundwater recharge near the City of Coalinga. USBR is the Lead Agency for NEPA as the Coalinga Canal is a federal facility.

**Environmental Services for the South San Joaquin Irrigation District Canyon Tunnel Project, Calaveras, Stanislaus, Tuolumne County, California, Senior Environmental Planner -** Ms. Sholars managed the preparation of the necessary CEQA compliant documents to fully analyze the potential environmental impacts of drilling a two mile long tunnel into a mountain adjacent to the SSJID Joint Supply Canal as a new water conveyance tunnel to bypass the existing canal to improve long term reliability of this critical water supply system. The water is diverted above Goodwin Dam. The project also includes rehabilitation of existing roads and a barge landing, improved fencing, and new control gates.

Environmental Services for Fresno Irrigation District, Gould Canal to Friant-Kern Canal Intertie Project, Sanger, California, Senior Environmental Planner - Ms. Sholars prepared the necessary joint CEQA/NEPA compliance documents to fully analyze the potential environmental impacts from the District's new pump station project. In addition to the 200 cfs pump station in the Gould Canal, project facilities include a steel pipeline up to 84 inches in diameter and a concrete discharge structure in the Friant-Kern Canal. The pump station would have up to five electrically motorized pumps with a total power requirement of approximately 300 hp. The purpose of the project is to provide a connection to convey water from the District's Gould Canal to the Friant-Kern Canal in order to increase water supply reliability, enhance operational flexibility, and reduce system constraints.

**Environmental Services for the Central Valley Meat Facility Project, Kings County, California, Senior Environmental Planner -** Ms. Sholars managed the preparation of the necessary CEQA compliant documents to fully analyze the potential environmental impacts of an enclosed meat rendering facility, a new pet food facility, along with support facilities at the existing CVMC facility. The new facilities will primarily service the needs of two existing beef processing plants with a combined slaughter capacity of up to 3,000 head per day. The facility is being designed to accept the future needs of other regional beef processors and will provide a total capacity to process roughly 10.5 million pounds (lbs.) of raw material, generating an estimated 2 million lbs. of tallow and 3 million lbs. of meat and bone meal on a weekly basis.

**Environmental Services for the City of Patterson Urban Bicycle Trail at Salado Creek Project. City of Patterson, California, Senior Environmental Planner –** Ms. Sholars managed the preparation of the necessary CEQA compliant documents to fully analyze to fully analyze the potential environmental impacts of filling gaps between existing trail segments to create approximately 6,500 linear feet of continuous bike and pedestrian trail along Salado Creek from just south of Sweet Briar Drive to Cliff Swallow Drive in the City of Patterson. The existing trail segments in poor condition will be rehabilitated. A new protected crossing under Sperry Avenue will be constructed to improve bike and pedestrian safety. Approximately 273 trees will be planted, as well as 88 pedestrian scale light poles installed.

Environmental Services for the City of Clovis Nees Avenue Widening Project, Fresno County, California, Senior Environmental Planner – Provost & Pritchard prepared the necessary CEQA compliant documents to fully analyze the potential environmental impacts of widening approximately one-half mile of Nees Avenue between Clovis Avenue and Minnewawa Avenue from a three-lane arterial to a four-lane arterial. The project would construct a new 12-foot outside travel lane on the north side of Nees Avenue and replace failing pavement as needed. It also includes installation of a Class II bicycle lane and improved sidewalk that will complete the pedestrian and bicycle connectivity between nearby Garfield Elementary, Alta Sierra Intermediate School, and Buchanan High School to residences and neighborhoods in the vicinity.

**Other Experience**

**Planning/Development Services, County of Fresno Department of Public Works & Planning, Fresno, California, Environmental Planner III –** While working for the County of Fresno for over 10 years, Ms. Sholars was responsible for processing environmental applications associated with Community Development mixed use, affordable housing and senior housing projects, and Design transportation projects for Academy Avenue and Millerton Road Widening projects and the Kings River and Kings River Slough Bridge Replacement projects. In addition, she successfully coordinated the preparation and completion of environmental impact reports for: ESPN Radio Towers, Kings River Sand & Gravel, Friant Ranch, Jesse Morrow Mountain Mine, Riverbend Sand and Gravel, Carmelita Mine and Reclamation, and the Tranquillity Solar project.

# Mary Beth Bourne

## Associate Biologist

### Education

- M.S., Environmental Science, Indiana University
    - Concentration: Ecology and Conservation
- M.P.A., Public Affairs, Indiana University
- B.S., Biology, University of California, Los Angeles

### Workshops/Certifications

- Western Burrowing Owl Certificate, 2019, Elkhorn Slough
- Wetland Plant Identification for Northern/Central California Certificate, 2021, Wetland Training Institute
- Wetland Plant Identification for Southern California Certificate, 2021, Wetland Training Institute
- Rare Pond Species Survey Techniques Workshop, 2022, The Wildlife Project
- Western Pond Turtle Nesting Workshop, 2022, The Wildlife Project
- Introduction to the Mojave Desert Tortoise Workshop Certificate, 2022, Desert Tortoise Council

### Areas of Expertise

- Biological Evaluations/Assessments (CEQA/NEPA)
- Wetland Delineations
- Research and Data Analysis
- Mitigation Monitoring and Reporting
- WEAP Training
- Water Quality Monitoring
- Pre-Construction Surveys
- Nesting Bird Surveys

## Professional Summary

Mary Beth Bourne is an Associate Biologist with Provost & Pritchard. A graduate of Indiana University with Masters' in Environmental Science and Public Affairs, she has experience in conducting and preparing biological evaluations, aquatic resources delineations, biological pre and post construction surveys. She is experienced in communicating with local, state, and federal agencies to assist clients in fulfilling regulatory and permitting requirements.

## Relevant Experience

**Self-Help Enterprises, Lake of the Woods Mutual Water Company Phase 3 Watermain Replacement, Kern County, California, Lead Biologist –** Lead Aquatic Resource Delineation (ARD) and Biological Evaluation/Assessment operations to support CEQA/NEPA and permitting efforts, to allow for the installation and construction of 17,700 linear feet of new pipelines, replacement of a water tank, and installation of a new SCADA system. The Project includes lands owned by the United States Forest Service and requires the renewal of a Special Use Permit. Communicated with California Department of Wildlife Staff to correct and update rare species data published by the agency, ultimately avoiding multi-year focused surveys.

**Catalyst Companies, Los Gatos Creek Restoration and North Pipeline, Fresno County, California, Biologist -** Conducted an ARD, a biological evaluation to support CEQA and permitting efforts, and created appropriate biological mitigation measures to allow for the creation of a pump station at the Coalinga Canal and approximately 7.4 miles of pipeline through private land, terminating at Los Gatos Creek. The entire Project area is 232 acres (90 acres for the pipeline and 142 acres for the Los Gatos Creek restoration). Species identified during the survey included Loggerhead Shrike, kangaroo rat tracks, and potential Burrowing Owl and San Joaquin Kit Fox dens. Mitigation measures included WEAP training, pre-construction nesting bird surveys, focused surveys for San Joaquin kit fox, Burrowing Owls, kangaroo rats, special status reptiles, and special status plants.

**Tulare Irrigation District, Seaborn – Groundwater Recharge and Restoration, Tulare County, Lead Biologist –** Conducted a Biological Evaluation/Assessment (CEQA/NEPA) to allow the District to construct post-reclamation reservoir facilities to divert and store water on the Seaborn Property, previously used for mining. Mitigation measures included WEAP training, pre-construction nesting bird surveys, focused surveys for Bald and Golden Eagles, Western Pond Turtles, and special status plants.

**United States Bureau of Reclamation, sub-contract to Stantec, Friant-Kern Canal Middle Reach Capacity Correction Phase 1 Project, Biologist –** Conducted long-term biological monitoring as well as pre-construction nesting bird surveys as described in the MMRP to allow for the restoration of capacity within the Friant-Kern Canal (FKC) by enlarging and realigning several miles of canal. Species of concern include, Swainson's Hawk, burrowing owl, and San Joaquin Kit Fox.

**Camrosa Water District, Conejo GAC Water Treatment, Camarillo, California, Biologist –** Conducted a biological evaluation (CEQA) to allow the construction of a centralized Granular Activated Carbon (GAC) drinking water treatment plant. Performed reconnaissance level biological evaluation for federal and state listed species in Ventura County to support CEQA. Mitigation measures included nesting bird surveys, WEAP training, and limiting construction hours to protect special status bats. Subsequently implemented the Mitigation, Monitoring, and Reporting Program (MMRP).

**Holladay Engineering, Grant Grove Concession Housing in Sequoia and Kings Canyon National Park, Tulare and Fresno Counties, California, Lead Biologist -** Conducted an ARD to guide design of concession housing while protecting sensitive wetland resources within Grants Grove Village in Kings Canyon National Park.

**Saucelito School District, Saucelito Elementary School Well Construction, Tulare County, California, Biologist –** Conducted the prescribed WEAP and pre-construction nesting bird surveys, including Swainson's Hawk, San Joaquin kit fox, and maternity bat roost survey to allow the District to construct a new well on the grounds of Saucelito Elementary School. Identified multiple active nests on the property and created construction free buffer zones around the nests.

**AC Contractors, Inc., Verizon Cell Tower at San Luis Reservoir, Los Banos, California, Biologist –** Conducted the prescribed pre-construction surveys, including Swainson's Hawk, San Joaquin kit fox, Burrowing Owl, and blunt-nosed leopard lizard. Identified Swainson's Hawks foraging in the vicinity of the project and communicated with the United States Bureau of Reclamation (USBR) to incorporate appropriate and approved mitigation measures to allow the project to move forward and fulfill the Mitigation Monitoring, and Reporting Program (MMRP).

**Superior Mutual Water Company, Well 3 TCP Mitigation Project, Kern County, California, Biologist –** Conducted a pre-construction rare plant survey for Kern mallow (*Eremalche parryi ssp. kernensis*) as prescribed by the MMRP in accordance with guidelines set for in the focused survey protocol.

**Pixley Public Utility District, Pixley Water Supply and Distribution, Pixley, California, Biologist –** Conducted the prescribed San Joaquin kit fox pre-construction survey and WEAP training to allow the District to abandon two well, modify two existing wells, and construct two new drinking water wells. Two potential SJKF dens and numerous kangaroo rat tracks were identified during the survey. Identified and created appropriate construction free buffer zones and physical barriers to allow construction to move forward without impacting sensitive species.

**Homer LLC, Deer Creek Pipeline, Tulare County, California, Biologist** – Conducted a native tree survey post-construction to confirm no native trees were removed during construction activities in accordance with the MMRP requirements.

**Renewable Resource Group, Old Deer Creek Water Bank, Tulare County, California, Biologist –** Conducted a biological evaluation (CEQA) to allow Renewable Resource Group to develop approximately 158 acres of recharge basins and associated facilities. Performed reconnaissance level biological evaluation for federal and state listed species in Tulare County to support CEQA. Species surveyed for included California Condor, San Joaquin kit fox, Tipton kangaroo rat, and Valley Elderberry longhorn beetle. Mitigation measures included pre-construction nesting bird survey, San Joaquin Kit Fox Survey, and focused bat survey.

**City of Turlock, City-Wide Chlorination Project, Turlock, California, Biologist –** Conducted a biological evaluation (CEQA) and accompanying pre-construction nesting bird surveys, including Swainson's Hawk, and San Joaquin Kit Fox surveys to allow the City of Turlock to add disinfectant at 18 wells and three storage tanks within the City's water system (21 sites total). One active nest was identified and monitored through nesting bird season until fledging occurred.

**Wm. Bolthouse Farms, Inc., Nickel, Porter, Limi GAC Treatment System, Kern County, California, Biologist –** Conducted the prescribed pre-construction survey for nesting birds, including Swainson's Hawk, and San Joaquin kit fox as required by the Metropolitan Bakersfield Habitat Conservation Plan (MBHCP). Completed and submitted the Exemption and Ground Disturbance Compliance Forms to complete the MBHCP construction package.

**Mountains Restoration Trust, Calabasas, California, Aquatics Biotechnician & Labor Supervisor –** Conducted biosurveys in accordance with NPS standards; prepared report on stakeholders and funding opportunities in the Santa Monica Mountains; supervised field crews on native tree mapping project for a restoration site.



# Heather Waldrop

Stantec Project Manager
22 years of experience · Redding, California

Heather specializes in CEQA/NEPA document preparation and permitting requirements for major water infrastructure projects, fish screens, pumping plants, wastewater outfalls, public utilities, and bridges in California. Heather has conducted CEQA and NEPA review of all levels, including categorical exemptions/exclusions to Environmental Impact Reports/Environmental Impact Statements (EIS/EIR), as well as manages state and federal permitting such as USACE Section 404 Permit, California Department of Fish and Wildlife Section 1600 Authorization, Endangered Species Act and California Endangered Species Act consultations, Regional Water Quality Control Board Section 401 Certifications, Central Valley Flood Protection Board permitting, and Section 106 consultations with the State Historic Preservation Officer. Heather also has experience leading environmental compliance with cross-cutting federal authorities, helping to secure over $135 million in project funding through the California State Water Board Revolving Fund.

## EDUCATION

B.S., Environmental Studies, California State University, San Jose, CA, 1997

## PROJECT EXPERIENCE

Delta Cross Channel Gate Upgrades | Bureau of Reclamation | San Francisco-San Joaquin Bay Delta | Environmental Compliance and Permitting Lead

Heather is collaborating with the team who manages the detailed evaluation and condition assessment for two 60-feet-wide by 30-feet-tall radial gates to determine potential modifications for remote and more frequent gate operations. Stantec developed an appraisal technical memorandum with detailed descriptions of several initial options, designs, cost estimates, and interim analysis of environmental effects. Reclamation is currently reviewing the initial options that were developed and screened based specified planning criteria for accomplishing the project objective, identify alternatives for feasibility analysis, and assess environmental impacts in an Environmental Assessment

Friant-Kern Canal Middle Reach Capacity and Subsidence Correction Project | Friant Water Authority and US Bureau of Reclamation | Bakersfield, California | Environmental Compliance/Mitigation and Permitting/Lead NEPA/CEQA Task Manager

Friant Water Authority, under a cooperative agreement with the US Bureau of Reclamation, is working to correct the conveyance capacity problems caused by subsidence and original project design deficiency on the Friant-Kern Canal in Tulare and Kern Counties, from Mile Post 88 to Mile Post 121.5. Heather served as the lead NEPA/CEQA task manager in developing the Final EIS/EIR, including leading the team to develop the necessary technical reports to complete agency consultations and permitting. The team obtained Section 401 permits, Lake or Streambed Alteration Agreements, Section 404 permits, and led compliance with Section 7 of the Endangered Species Act and Section 106 of the National Historic Preservation Act. Heather also helped develop the environmental compliance component of the construction specifications and is currently serving as the Environmental Coordinator for construction of Phase 1. Working alongside FWA and Reclamation, she is leading a team of scientists and biologists in developing and executing mitigation compliance. Construction for Phase 1 began in January 2022.

San Luis Low Point Improvement Project Feasibility Report and EIS/R | Santa Clara Valley Water District | Pacheco Reservoir, California | Permitting Lead

Heather serves as the permitting lead, coordinating and managing the overall permitting process for the project, including Clean Water Act Section 401 and 404, Endangered Species Act, California Endangered Species Act, Section 1602 Lake and Streambed Alteration Agreement, water rights permits/change petitions, air quality permits, and other local permits. The project includes construction of a 300-foot-tall dam, appurtenant structures (spillway, inlet/outlet structures), two miles of new 490 cfs pipeline, 40 miles of new and improved roads, four miles of new high-voltage power transmission lines, and other infrastructure improvements.

Siskiyou Telephone - Fiberoptic Telecommunications Biological and Cultural Resources Investigations and Permitting | Happy Camp, California | Project Manager

For 20 years, Heather has managed conducting cultural resources review and reporting; biological resource review and reporting; preparation of Proponent's Environmental Assessments, and coordinating biological monitoring services during construction, for the installation of over 45 miles of fiberoptic telecommunications lines. The majority of the work has occurred on California state Highways 3 and 96, in various locations throughout in Siskiyou

County. The reports typically accompany encroachment permits submitted to the District 2 office of California Department of Transportation; Lake or Streambed Alteration Agreements submitted to the Region 1 office of California Department of Fish and Wildlife; and, to the U.S. Forest Service, if located in national forests for compliance with NEPA.

Proponent's Environmental Assessment - Fiberoptic Telecommunications Installation | Happy Camp, California | Project Manager*

Heather served as the project manager in the develop a Proponent's Environmental Assessment for submittal to the California Public Utility Commission for consideration of distribution of Advanced Services Fund for evaluation of the potential environmental impacts that could result from the Clear Creek to Ti Bar Project. The Clear Creek to Ti Bar Project, constructed in 2019, is for the operation of a fiber optic broadband facility cable to provide service to unserved and underserved areas along the State Highway 96 corridor between Somes Bar and Happy Camp. The project consisted of installing 88,282 feet of fiber optic broadband facility cable in and alongside State Highway 96, which is maintained by Caltrans. The project included follow on work to develop work training materials and conducting environmental awareness training and biological monitoring associated with the proposed installation. Training and monitoring were being conducted as part of the California Public Utility Commission's Mitigation Monitoring Plan, and per the CDFW Lake or Streambed Alteration Agreement.

Westside Sewer Interceptor Project | City of Redding | Redding, California | Project Manager

Heather is providing support in preparing technical studies and an Initial study/mitigated negative declaration (IS/MND) to construct a new 48-inch-diameter trunk sewer pipeline. The team has completed two biological assessments, one for US Fish and Wildlife Service and one for National Marine Fisheries Service, supported the city in initiating contact with regulatory agencies, permitting, and public review of the IS/MND was completed in December 2021.

Sites Reservoir | Sites Project Authority | Maxwell, California | CEQA/NEPA Task Lead*

The Sites Reservoir EIS/R, led by the US Bureau of Reclamation and Sites Project Authority, analyzed four project alternatives for a 1.3-to-1.8-million-acre foot reservoir with a new 2,000 cubic foot per second (cfs) intake facility on the Sacramento River, 1,500 cfs conveyance pipeline, and new hydropower facilities. Heather helped in many avenues to develop the EIS/R. Heather assisted the project manager to develop the scope, budget, and schedule for the EIS/R; as well as assisted in general NEPA/CEQA tasks such as developing and publishing the Notice of Intent and Notice of Preparation and scoping; developed and quality reviewed resource sections for the draft document and interpreted modeling results for technical resource sections. The document was developed under a rigorous timeframe to meet the requirements for submittal under the State's Water Storage Investment Program for consideration of funding under Proposition 1. The project was awarded partial funding, enabling the advancement of project permitting and approvals.

Black Rascal Flood Control Project | Merced County Public Works | Merced County, California | Project Manager*

Heather oversaw preparation of an EIR for the project that consisted of a new detention basin located immediately upstream from the Black Rascal diversion channel, a State Plan of Flood Control facility. The detention basin temporarily stores flow during periods of heavy rain and limits flow into the diversion channel to 3,000 cfs to reduce peak flows in Bear Creek. The EIR and project was approved by the Merced County Board of Supervisors and is currently in the permitting phase.

Clean Water Program | City of San Mateo | San Mateo, California | CEQA Task Manager*

Heather was the CEQA task manager for preparation of the programmatic environmental impact report (PEIR) for the Program that is a series of capital projects to upgrade and increase the capacity of the San Mateo wastewater treatment plant and collection system to eliminate sanitary sewer overflows and meet current and future regulatory requirements. In addition to the PEIR, Heather also led the development of the environmental package as part of an application to the State Water Resources Control Board for funding under the State Revolving Fund (SRF) and the Water Infrastructure Finance and Innovation Act (WIFIA), both funded by the Environmental Protection Agency (EPA). Documentation included preparing two biological assessments for consultation with US Fish and Wildlife Service and National Marine Fisheries Service, a cultural resources report for Section 106 consultation, and federal cross-cutter documentation to demonstrate compliance with federal requirements. The project was selected in 2018 for funding under WIFIA and was awarded $137 million from SRF.

Additional follow-up work included preparing an EIR for the Underground Flow Equalization System (UFES) project which is an important component in that it would equalize wet weather flows by temporarily holding excess flows upstream of the wastewater treatment plant and reduce storage requirements during wet weather events.



# Craig Moyle PMP

CEQA/NEPA Outreach Lead
29 years of experience · Sacramento, California

Craig brings nearly 30 years media, public relations, facilitation and public affairs experience that assist government agency staff, elected officials, non-governmental organizations, the public and other interested parties exchange information and make informed decisions on a wide array of water resource challenges and opportunities. His communication and engagement experience in groundwater management and planning extent to the early 2000s through the Farmington Groundwater Recharge Program in close coordination with USACE and Stockton East Water District. He currently serves as Managing Senior Facilitator for the Department of Water Resources Facilitation Support Services (FSS) Program. In this capacity, he provides strategic oversight and management to facilitation support task orders in more than 30 California groundwater basins and subbasins and management and oversight of statewide public outreach campaigns that assist DWR achieve its objectives under SGMA. He brings extensive understanding of Central and Northern California natural resource policies and regulations associated with groundwater resources, hydrology, flood management, forestry, ecosystem functions, water resource management, agriculture, and agency governance. Additionally, he brings extensive experience working with federally and non-federally recognized Native American tribes in Northern and Central California.

## EDUCATION

BA, Journalism, California State University, Fresno, Fresno, California, 1992

## PROJECT EXPERIENCE

Facilitation Support Services (FSS) Program | California Department of Water Resources | Statewide, California | Senior Managing Facilitator

Since 2019, Craig has served as Senior Managing Facilitator for the FSS Program, a key resource of DWR to assist Groundwater Sustainability Agencies (GSA) comply with the Sustainable Groundwater Management Act (SGMA). From 2015 to 2019, he served as a facilitator under the Sustainable Groundwater Management Act Facilitation Support Program, the predecessor to the FSS Program.

As Senior Managing Facilitator, Craig is responsible for oversight and strategic integration of more than 30 active task orders authorized by DWR to support GSAs in preparation, adoption and implementation of Groundwater Sustainability Plans (GSP) consistent with SGMA. He additionally provides management and strategic oversight of statewide public outreach services, as authorized by DWR. A key factor in this support is aligning communication and engagement tactics to 1) the statutory and regulatory environment placed on GSAs and beneficials users/uses of groundwater, and 2) the behavioral, economic and societal drivers that can affect sustainable groundwater management actions.

In addition to these managing responsibilities, Craig is also serving as facilitator and strategic counsel in the Kaweah Subbasin (Water Marketing Strategy), Shasta Valley and Scott River Valley Basins (Regional Native American Tribal Engagement) and East San Joaquin Subbasin (Water Accounting Framework/GSP Funding and Finance Strategies). From 2015 to 2019, Craig provided facilitation support to GSAs in the Kings and Kaweah subbasins for, among other things, governance establishment and GSP preparation and adoption.

Central Valley Flood Protection Plan (CVFPP) | California Department of Water Resources | Sacramento, California | Communication and Engagement Outreach Manager

Craig served as Public Affairs Program Manager for the CVFMP Program, a key feature of the FloodSAFE California initiative. In his capacity, he provides management, oversight and strategic direction of a multi-disciplinary team coordinating public relations, public affairs and stakeholder facilitation necessary for successful completion of the 2012 CVFPP, a legislatively directed deliverable for DWR. This multi-year effort includes internal and external communication and engagement processes for the CVFMP Program and other FloodSAFE programs and projects. This effort has included development and oversight of numerous workshops and work groups, each separated into five Central Valley regions. More than 200 stakeholder organizations participated in 2012 CVFPP plan development processes. He additionally managed and directed updates to the Program website, public education videos, newsletters, and factsheets in coordination with DWR Public Affairs, FloodSAFE California, and Central Valley Flood Planning Offices.

To manage, track and memorialize the engagement as part of the Program's administrative record, Craig established and directed management of a stakeholder registry that tracked individual comments and engagements with stakeholders throughout the planning process. Known as the Partner Tracker, this database was woven into the Program's SharePoint site and contributed to the overall administrative record of the Program.

San Joaquin River Restoration Program (SJRRP) | Bureau of Reclamation | Mid-Pacific Region, San Joaquin Valley, California | Landowner Coordination Lead
Since 2007, Craig has served as the primary point-of-contact for all landowner coordination needs for the performance of pre-construction surveys and investigations by SJRRP implementing agencies and their agents. He represents the SJRRP before major Third Parties to the Settlement and assists in formulation of strategic outreach initiatives as a member of a Public Affairs Team, and provides follow-up for a wide range of geologic, archeological, cultural, biologic, and engineering surveys and studies. Craig manages the distribution and acceptance of a multi-agency Temporary Entry Permit with landowners and private water companies in collaboration with Reclamation Realty Specialists. He is involved in the development and execution of long-term licensing agreements between agencies and landowners for installation of monitoring equipment. He additionally served as the facilitator for CEQA and NEPA compliant public hearings for the Program's Reach 2B Bypass and Channel Improvements Project Draft EIS/R.

Friant-Kern Canal Middle Reach Capacity and Subsidence Correction Project | Friant Water Authority and U.S. Bureau of Reclamation | Bakersfield, California | Landowner Coordination/Strategic Engagement
Since 2015, Craig has provided public outreach, landowner coordination, and interagency collaboration in support to Friant Water Authority to prepare and implement a corrective action to restore conveyance capacity of the Friant-Kern Canal. This support has included development of outreach information materials related to subsidence of the Friant-Kern Canal, public and agency outreach consistent with CEQA and NEPA, and facilitation of multi-agency and multi-consultant team meetings to track and manage project implementation.

Delta Cross Channel Upgrades Project | Bureau of Reclamation | Walnut Grove, California | Communication and Engagement Lead
Craig is communication and engagement lead for efforts to prepare alternatives to upgrade this facility consistent with the US Fish and Wildlife Service's Biological Opinion. These efforts include coordination with the Bureau and project planners on engagement actions with key stakeholder groups, particularly the Delta Protection Advisory Committee and local landowners. Formal public engagement for preparation of the environmental document is expected to begin in early 2022.

CalFED Record of Decision Programs | Bureau of Reclamation | Great Basin, California | Public Outreach Lead
Craig has led all public, landowner, stakeholder and agency communication and engagement for the Upper San Joaquin River Basin Storage Investigation and the Shasta Lake Water Resources Investigation. These projects are two of five identified through the CalFED Record of Decision. Outreach activities include media, advertising, logistical and facilitation support for NEPA compliant public hearings for the Public Draft EIS. Activities throughout the life of the project additionally included newsletters, fact sheets, landowner coordination, local business engagement, local government affairs, Native American tribes, and agency collaboration.

California Water Plan | California Department of Water Resource | Statewide, California | Project Manager
Carig served as project manager for the oversight and management to project budgets and deliverables for facilitation services in support of the 2013 Update of the California Water Plan. In this capacity, he provided contract compliance reporting to the Department for quarterly billings and progress reports from project initiation to project close-out. This included the conduct of regular written and verbal communication with the Department's project manager to monitor overall project deliverables and respond to data needs, as necessary.

Farmington Groundwater Program | USACE/Stockton East Water District | Stanislaus County, California | Outreach and Information Manager
Craig was the webmaster, and outreach and information manager for the farmington groundwater replenishment program, a joint effort of the USACE and Stockton East Water District (SEWD). In this capacity, Craig helped establish the program's brand identity and indicial recruitment of approximately 35,000 acres of farmland as candidate recharge sites. He developed extensive collateral materials, a newsletter, and managed the program website (http://www.farmingtonprogram.org). His recent support to the program was coordination and consultation with private property owners for the performance of environmental surveys as part of a water right petition by SEWD. Additionally, Craig developed and managed the program website, information materials, meeting facilitation, and speaker's bureau. Work on the Farmington program continued in the design of a regional recharge basin network and system conveyance as part of a water rights application for surplus flood and wet-weather flows in Calaveras and Stanislaus rivers, and Little Johns Creek. In support of this task, Craig met with individuals whose properties have been identified as candidate recharge sites. In addition to briefing landowners of the effort, he sought a letter of support from the landowner for inclusion in the water right application.



# Paul Uncapher

Senior Federal Permitting Lead
42 years of experience · Redding, California

Paul is a senior principal with 42 years of experience managing complex, and often controversial projects, as well as leading and facilitating teams in a wide array of planning processes for federal, state and regional agencies. As a trained meeting manager and facilitator, he has successfully led the development and implementation of a wide array of planning processes for complex projects associated with use and development of federal lands. In the past 30 years, he has been heavily involved in planning efforts at the national, regional and local level involving the National Park Service, Forest Service, Bureau of Land Management, Bureau of Indian Affairs and the Bureau of Reclamation. He has been the lead author for a number of public involvement plans and organized public meetings at more than 25 locations nationwide.

Before joining Stantec, Paul served as a project manager for the Forest Service and BLM for more than 100 utility projects throughout the western United States, including hydropower, transmission corridors, and pipelines that required NEPA compliance, including projects that involved Western and Bonneville Power Administration facilities. All of these projects issues related to access and travel management on public lands, including construction traffic, authorized and unauthorized access for vehicles, aircraft and watercraft.

## EDUCATION

BS, Geological Sciences, California State University, Chico, California, 1980

## CERTIFICATIONS

American Fisheries Society

Association of California Water Agencies

National Hydropower Association

## PROJECT EXPERIENCE

Shasta Lake Water Resources Investigation | Bureau of Reclamation | Shasta County, California | Project Manager

Paul provided leadership and direction to project team responsible for designing and implementing a wide range of natural resource investigations required to support an EIS for the enlargement of Shasta Lake. He assisted the US Bureau of Reclamation in developing a comprehensive strategy as part of an interagency steering committee consisting of US Fish and Wildlife Service, US Forest Service, BLM, Bureau of Indian Affairs, National Marine Fisheries Service, California Department Water Resources, and California Department of Fish and Game. Paul actively participated in the development of alternatives and mitigation measures considered in the EIS. Managed the preparation of part or all of seven chapters of the Draft and Final EIS.

Long-Term Plan to Protect Salmon in the Lower Klamath River | Bureau of Reclamation | Klamath River, California | Senior NEPA Specialist

Paul provided senior review of key elements of the EIS prepared for the Bureau of Reclamation including Alternatives, Agricultural and Forestry Resources, Land Use and Hazards and Hazardous Materials. Also participated in the content analysis of comments and development of comment responses for inclusion in the Final EIS.

Trinity River Restoration Program Joint NEPA/CEQA Documentation | Bureau of Reclamation | Trinity County, California | Project Manager

Paul managed the preparation of multiple CEQA/NEPA documents over an eighteen-year period, including the 2009 Master EIR-EIR/Project EA that is still being used by the North Coast Regional Water Quality Control Board to comply with Section 401 of the Clean Water Act. He served as the primary author for the comprehensive mitigation and monitoring plan that is still valid and in use 11 years after the Master EIR was approved. He also managed the Clean Water Act 404 and 401 permit efforts for more than a dozen large-scale channel rehabilitation projects, including the development and implementation of a comprehensive riparian revegetation monitoring program.

Pacheco Reservoir Expansion Project | Santa Clara Valley Water District | Santa Clara Valley, California | Senior NEPA/CEQA Specialist and Quality Control

Working closely with the both the design team and the environmental teams, prepared initial studies (IS) necessary to conduct a wide array of geotechnical investigations necessary to support the feasibility report and provide information necessary to complete an EIR for a new dam and reservoir that would provide storage for 140,000 acre feet of water in the Coast Range of central California. Worked with biologist, geologists and archaeologists to develop and implement a wide array of technical investigations within a 9,000 acre project area to ensure that the regulatory requirements of NEPA, CEQA, NHPA and Clean Water Act will be satisfied. Also providing the leadership and direction in the development of a comprehensive large-scale mitigation program anticipate to address impacts to special-status species, sensitive natural communities and federal and state jurisdictional waters and wetlands.

Sisk Dam Seismic Stability Project Joint NEPA EIS/CEQA EIR, Technical Studies and Regulatory Support Project | Bureau of Reclamation | Merced County, California | Project Manager

Over a four period, managed a multidisciplinary team that developed and implemented a range of technical studies (e.g., biology, cultural) that supported preparation of the administrative draft EIS/EIR. Worked closely with Reclamation and DWR in conjunction with engineers and economist to refine the purpose and need; managed the alternatives development process; developed the public involvement plan; and prepared the scoping report.

Upper North Fork Feather River EIR to Support 401 Certification | California Water Resources Control Board/PG&E | Plumas and Lassen Counties, California | Project Manager

Paul managed this highly controversial and complex project that addresses issues related to water quality in Lake Almanor and the Upper North Fork Feather River. He managed an array of technical studies, investigations and modeling efforts to provide the client with the information necessary to develop alternatives that would ensure compliance with Basin Plan. The degree of public controversy and comment associated with issuance of the Draft EIR resulted in developing a recirculated Draft EIR that was supported by additional modeling and analysis.

Red Mountain Communication Site Relocation EIR/EA | California Department of General Services | Humboldt and Del Norte Counties, California | Project Manager

Paul led the preparation of an EA/EIR supporting replacement of an existing Cal OES Strategic Communication site with three new sites at locations along the north coast of California. Initially, the National Park Service served as NEPA lead agency but in response to extensive comments on the draft EIR/EA, Paul facilitated the alternative development process that resulted in avoidance of sites on federal lands in a manner acceptable to the federal agencies and local tribes. This highly complex and controversial project required extensive technical studies and investigations (e.g., cultural, aesthetics, biological) to support the preparation of an EIR/EA. Paul worked closely with lead CEQA and NEPA agencies to develop the project description in a manner that avoided any CEQA mitigation.

Pacific Connector Gas Pipeline Project | Pembina Pipeline Corp. | Southern Oregon | Project Manager*

Since 2010 managing 3rd part NEPA contract that includes preparing an EIS and other environmental compliance documents in conjunction with FERC's consultant representing the BLM and the Forest Service for a proposed 240 mile LNG pipeline that would cross four BLM districts and three National Forests and require 16 specific amendments to land management plans. This effort to-date includes 15 discrete tasks including administrative support, technical analysis, preparation of EIS sections and management of the Project GIS files. Mr. Uncapher is also leading efforts to develop communication strategies, prepare, public involvement plans and enhance the coordination efforts with a number tribal governments.

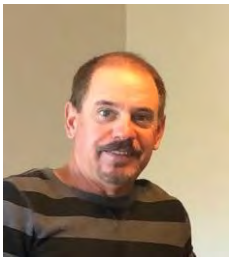
Access Road Reliability Enhancement Program Environmental Services and Permitting Support | Western Area Power Administration | Sierra Nevada Region, California and Nevada | Project Manager*

Paul managed more than 20 work orders over a three-year period, including managing comprehensive road condition/erosion surveys on more than 2,000 miles of access roads associated with electrical transmission paths throughout the region. He also oversaw the design and compliance process for remediating more than 200 miles of access roads on National Park Service lands.

Sediment Source Inventory on the Shasta Trinity National Forest | USDA Forest Service, Shasta-Trinity National Forest | Shasta and Trinity Counties, California | Project Manager*

Paul conducted technical study that included assessment of current conditions and restoration opportunities for more than 1,500 miles of roads within the boundaries of the Shasta-Trinity National Forest. He used the Road Analysis process provided by the Forest Service to develop a comprehensive database on each road segment as it relates to sediment production and hydrologic function.

*denotes project completed with previous firm



# Greg Sharp

Desert Tortoise Lead
28 years of experience · St. George, Utah

Greg has extensive experience working as a biologist and an environmental specialist. He has 28 years of experience in writing NEPA documents for projects including: Biological Assessments (BAs), Environmental Assessments (EAs), Biological Evaluations (BEs), Environmental Impact Statements (EISs), Categorical Exclusions, and Technical Reports. He has experience with helping ensure regulatory compliance with the Clean Air Act, Clean Water Act, federal and state surface mining laws, and the Endangered Species Act (ESA). Greg has utilized many survey techniques to assess the presence and/or monitor the status of many plant and animal species, including many listed as threatened, endangered, candidate, or otherwise considered sensitive. He is well-versed with the desert tortoise, southwestern willow flycatcher, Utah prairie dog, dwarf bear-claw poppy, greater sage grouse, pygmy rabbit, burrowing owl, and goshawks.

## EDUCATION

B.S., Fisheries and Wildlife Biology, Iowa State University, Ames, Iowa, 1990

## CERTIFICATIONS & TRAINING

Desert Tortoise Survey Techniques Workshop, St. George, Utah, 2007

Visual Resource Management Training, St. George, Utah, 2009

USFWS Southwestern Willow Flycatcher Training, St. George, Utah, 2001

MSHA, Newly Employed Miner, Online 8 hour Refresher, St. George, Utah, 2014

NEPA Process & Documentation Course, St. George, Utah, 2005

UDOT Environmental Control Supervisor Training, Salt Lake City, Utah, 2009

USFWS Utah Prairie Dog Training, Cedar City, Utah, 2014

USFWS Raptor Training, Price, Utah, 2013

## PROJECT EXPERIENCE

Power Line Project | Western Area Power Administration | Folsom, California | Authorized Tortoise Biologist

Greg was authorized tortoise biologist that conducted tortoise clearance surveys and monitored construction activities.

Black Rock-Beaver Dam Power Line Project | City, Arizona | Authorized Tortoise Biologist

Greg was authorized tortoise biologist that conducted tortoise clearance surveys and monitored construction activities.

Transmission Line Maintenance | PacifiCorp | Cedar City, Utah | Lead Utah Prairie Dog Certified Biologist

Greg completed USFWS protocol prairie dog surveys, conducted count surveys, and monitored project activities.

UNEV Pipeline | Holly Energy Partners, LP | Salt Lake City, Utah to Las Vegas, Nevada | Authorized Tortoise Biologist

Greg was authorized tortoise biologist that conducted tortoise clearance surveys and monitored construction activities.

Unexploded Ordinance Project | Winchester Hills | Winchester Hills, Utah | Authorized Tortoise Biologist

Greg was authorized tortoise biologist that conducted tortoise clearance surveys and monitored construction activities.

St. George to Central Transmission Line Project | PacifiCorp | Washington County, Utah | Construction Environmental Compliance Monitor and Authorized Tortoise Biologist

Greg was the lead tortoise biologist that conducted tortoise clearance surveys, monitored construction activities, and handled and relocated desert tortoise.

Southern Parkway Highway Project | Washington County, Utah | Construction Environmental Compliance Monitor and Tortoise Biologist

Greg was a tortoise biologist that conducted tortoise clearance surveys, conducted tortoise environmental training, and monitored construction activities. He also ensured compliance, of all contractors, with all other BLM stipulations in the ROW Grant.

Sigurd to Red Butte Maintenance Project | PacifiCorp | Salt Lake County, Utah | Construction Environmental Compliance Monitor and Biologist

Greg was the lead biologist that conducted Utah Prairie Dog clearance surveys, conducted Utah Prairie Dog environmental training, monitored construction activities. He also ensured compliance, of all PacifiCorp contractors, with all other BLM stipulations in the ROW Grant.

Cameron to Milford Transmission Line Project | PacifiCorp | Milford, Utah | Construction Environmental Compliance Monitor and Biologist

Greg conducted environmental compliance checks during the Project. He also assisted with biological and visual resource surveys conducted for the project.

Camp Williams-Four Corners Project | PacifiCorp | Farmington, New Mexico | Biologist

Greg conducted Southwestern Willow Flycatcher surveys for the project. He helped ensure all permits were applied for from the State and Navajo Nation Dept. of Fish and Game.

Simplot East Smokey Mine Expansion Project | Caribou County, Idaho | Lead Field Biologist

Greg completed surveys for the following Forest Service Sensitive species: wolverine, Canada lynx, pine martin, great gray owl, flammulated owl, boreal owl, and goshawk.

Well 34 Project | Nevada | Authorized Tortoise Biologist

Greg was authorized tortoise biologist that conducted tortoise clearance surveys and monitored construction activities.

## Peter A. Carey, M.A., RPA

**Director/Senior Archaeologist Total**

**Years of Experience:** 14

**Education:**

| | |
|---|---|
| M.A. | 2013/Anthropology/University of Nevada, Reno |
| B.S. | 2008/Anthropology, Option: Cultural Resource Management /California State Polytechnic University, Pomona |

**Registrations:**

| | |
|---|---|
| 2013 | Register of Professional Archaeologists |

**Professional Profile:**

Mr. Carey has 14 years of experience in all manners of professional archaeology in California and the Great Basin. He earned his B.S. degree in Anthropology with a Cultural Resource Management option from California State Polytechnic University, Pomona in 2008, and received a M.A. in Anthropology with a concentration in Prehistoric Archaeology at the University of Nevada, Reno in 2013. His interests focus on prehistoric lithic procurement and technology, and Paleoindian archaeology. He has been involved in numerous survey, testing, and data recovery projects in California, Arizona, Nevada, and Oregon. Projects Mr. Carey has been involved with have taken place in Contra Costa, Imperial, Kern, Kings, Fresno, Mendocino, Lake, Los Angeles, Inyo, Mono, San Bernardino, Tulare, and Ventura counties, California; Yuma County, Arizona; Churchill, Clark, Douglas, Humboldt, and Lyon counties, Nevada; and Lake County, Oregon. Mr. Carey serves ASM as a Senior Archaeologist.

**Select Project Experience:**

**NRHP Evaluation of Nine Sites for the 7H to 9D Pipeline Project, Buena Vista Hills, Kern County, CA**
**Field Director**
**CLIENT: California Resources Corporation**
Responsible for supervising a crew in the evaluation of nine historic sites that have the potential to be impacted by the 7H to 9D Pipeline in the Buena Vista Hills. Also involved in writing of the technical report.

**Class III Inventory and NRHP Evaluations for the 6 and 8 Inch Pipeline Right-of-Way Project, Kern County, CA**
**Field Director**
**CLIENT: Berry Petroleum Company**
Responsible for organizing and supervising fieldwork, including survey of a linear study area NRHP evaluation of any newly identified sites as well as previously recorded sites, for the installation of pipelines. Also involved in writing of the technical report and project meetings between the client and the BLM.

**Class III Inventory for the Nixon Pipeline Project, Kern County, CA**
**Field Director**
**CLIENT: Holmes Western Oil Corporation**
Responsible for organizing and conducting fieldwork for a linear survey area in an active oil field. Also involved in writing of a negative survey letter report.

**Class III Inventory/Phase I Survey for the Groundwater Banking and Conveyance Improvement Project, Kern County, CA**
**Principal Investigator**
**CLIENT: Rosedale-Rio Bravo Water Storage District**

Responsible for development of work plan and supervision of crew chiefs for survey groundwater recharge basins and water improvement locations. Responsible interpretation of results and technical reporting.

**Phase I Survey of 549 Acres for the Homebase Leases, Kern County, CA**
**Field Director**
**CLIENT: Berry Petroleum Company**
Responsible for organizing and supervising a crew in the survey of approximately 549 acres for the Homebase Leases survey. Responsible for identifying portions of survey area which would not require survey based on Kern County CEQA Mitigation Measure 4.5-1.

**Phase I Survey of the Parkinson and Santiago Creek Unit Leases, Kern County, CA**
**Field Director**
**CLIENT: Holmes Western Oil Corporation**
Responsible for organizing field work logistics and supervising crew during survey of two leases in an active oil field. Also involved in writing of separated CEQA letter report for each lease.

**Class III Inventory/Phase I Survey for the Pixley Irrigation District Lower Deer Creek Watershed Plan, Tulare County, CA**
**Principal Investigator**
**CLIENT: Odell Planning & Research, Inc.**
Responsible for development of work plan and supervision of crew chiefs for survey of approximately 1,360-acres of proposed groundwater recharge basins and habitat restoration. Responsible for coordinating and compiling records for the 124,000-acre Lower Deer Creek Watershed Plan area. edingly steep and difficult terrain and for making in field decisions on accessible and safe survey areas. Responsible for interpretation of field results and technical reporting.

**Monitoring for the Lake Isabella Dam Safety Modification Project, Kern County, CA**
**Secretary of the Interior Qualified Archaeological Monitor**
**CLIENT: Flatiron-Dragados-Sukut**
Responsible for identifying cultural materials that may be discovered during project activities in areas predetermined by the USACE to be sensitive; and marking sites designated by USACE to be avoided.

**Class III Inventory/Phase I Survey for the Pixley Groundwater Banking Project, Tulare County, CA**
**Field Director**
**CLIENT: GEI Consultants, Inc.**
Responsible for organizing, conducting, and supervising a crew for survey of 6.5 miles of pipelines and a 580-acre recharge basin. Also involved in writing of the technical report.

**Phase I Survey/Class III Inventory for the Buena Vista Water Storage District Northern Pipeline Project, Kern County, CA**
**Field Director**
**CLIENT: South Valley Water Banking Authority**
Directed a survey along approximately 25 miles of existing canals for the installation of pipelines. Assisted in evaluating the eligibility of the historic canals for the NRHP. Also involved in writing of the technical report.

**Monitoring of Trenching and Installation of Pipeline at Coso Geothermal, NAWS, China Lake, Inyo County, CA**
**Field Archaeologist**
**CLIENT: Coso-Operating Company**
Conducted monitoring from trenching and installation of a water pipeline at the Coso Geothermal Plant on NAWS, China Lake land.

# RESUME

## KURT LEGLEITER, PRINCIPAL

**PERSONNEL BIO**

Kurt Legleiter is the Principal Air Quality and Noise Specialist at AMBIENT Air Quality & Noise Consulting. His experience spans over 29 years and encompasses both the public and private sectors. He specializes in the preparation of air quality, greenhouse gas, noise, and groundborne vibration impact assessments for projects subject to review under the California Environmental Quality Act and the National Environmental Policy Act. Mr. Legleiter is proficient in the use of various air quality and noise modeling software programs, including CalEEMod, EMFAC, AERMOD, SoundPlan, CALINE4, and FHWA's Traffic Noise Model

**ROLE**

Analysis of Air Quality, Greenhouse Gas, Energy Use, Noise & Vibration Impacts

**EDUCATION**

- B.A., Urban & Environmental Planning, CSU Fresno, 1994
- B.S., Environmental Health Science, CSU Fresno, 1994

**YEARS OF EXPERIENCE**

- Total Years of Experience: 29

**SELECTED PROJECT EXPERIENCE**

- Alta Sierra Dog Bar Pipeline Project, Nevada County
- Carmel Lagoon EPB, SRPS & ISMP Project, Monterey County
- Carmel River Floodplain Restoration and Environmental Enhancement Project, Monterey County
- Elizabeth George Water Treatment Plant Upgrade & Expansion Project, Nevada County
- Ironhouse Sanitary District Highway 4 Pipeline Project, Contra Costa County and the City of Oakley
- Jackson Wastewater Treatment Plant Improvement Project, City of Jackson
- Lathrop Water Recycling and Treatment Master Plan Project, City of Lathrop
- Lewiston CSWB Wastewater Treatment Plant Project, Trinity County
- Livingston Domestic Wastewater Treatment Plant Expansion Project, City of Livingston
- Livingston Industrial Wastewater Treatment Plant Expansion Project, City of Livingston
- Manteca Wastewater Treatment Plant Expansion Project, City of Manteca
- Mid-Higuera Bypass Project, City of San Luis Obispo
- Oak Shores Wastewater Treatment Plant Improvements Project, San Luis Obispo County
- Pixley Groundwater Banking Project, Tulare County
- Ridgecrest Wastewater Treatment Plant Project, City of Ridgecrest
- Rodeo Flat Pipeline & Pump Station Project, Nevada County
- San Simeon Community Services District Water Treatment Facility, San Luis Obispo County
- South Valley Water Bank Authority's Water Bank Project, Tulare County
- Upper Alamo Creek and Ulatis Creek Detention Basins Project, City of Vacaville

# APPENDIX B
## ADDENDUM NO. 1

# Indian Wells Valley Groundwater Authority

## Addendum No. 1 to Request for Proposals

## Imported Water Pipeline

## CEQA/NEPA Documents and Permit Documentation Services

## Friday, January 13, 2023

**The Bidder shall execute the certification on page 3 of 3 of this addendum and shall submit the signed certification with Bidder's Proposal.**

I. Modifications to Request for Proposals:

1. Change Section "Attachments" on Page 3 to read as follows:

"**Attachments**
Attachment A: Scope of Services
Attachment B: Figure of Initial Preferred Alignment
Attachment C: Sample Contract Agreement
Attachment D: Map Book of the 3 Alignments as of January 4, 2023
Attachment E: Responses to Questions from the Pre-Proposal Meeting
Attachment F: Responses to Written Questions sent by January 11, 2023"

2. Change the last sentence in the first paragraph on Page 5 to read as follows:

"A KMZ file may be provided upon request. A Map Book for each of the three alignments analyzed in the Alternative Alignments Study is attached as Appendix D."

3. Change Section IIIC "Proposal Submission Instructions" on Page 7 to read as follows:

"All proposals must meet the content requirements and format guidelines listed below in the "Proposal Content Guidelines" section. The complete proposal shall be submitted by the due date by e-mail to April Keigwin, marked as "Proposal for IWVGA Imported Water Conveyance System Design Services" in the subject line.

Proposals must detail the business name, business address and contact person of the respondent. Responses must be addressed to the attention of April Keigwin, Clerk of the Board for the IWVGA."

4. Attach Attachment D to the Request for Proposals after Attachment C.

5. Attach Attachment E to the Request for Proposals after Attachment D.

**End of Modifications**

Indian Wells Valley Groundwater Authority
100 W. California Avenue
Ridgecrest, CA 93555

Addendum No. 1

Friday, January 13, 2023

Prepared by:
STETSON ENGINEERS, INC.

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## BIDDER'S CERTIFICATION

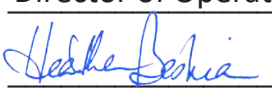
I acknowledge receipt of the foregoing Addendum No. 1 and accept all conditions contained herein.

Dated: 01/25/2023

Company: Provost & Pritchard Consulting Group

Bidder: Heather Bashian, PE, QSD

Title: Director of Operations

Signature: 

**THIS FORM MUST BE COMPLETED AND SUBMITTED WITH PROPOSAL**

PROVOST&PRITCHARD
CONSULTING GROUP

Clovis • Visalia • Bakersfield • Modesto • Los Banos • Chico • Sacramento • Sonora
**www.provostandpritchard.com** • info@ppeng.com

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IWVGA Board Meeting
February 8, 2023

# Resolution 04-23
# Authorize Award of Contract to Provost and Pritchard Consulting Group for CEQA/NEPA AND PERMIT DOCUMENTATION for the Imported Water Pipeline



1

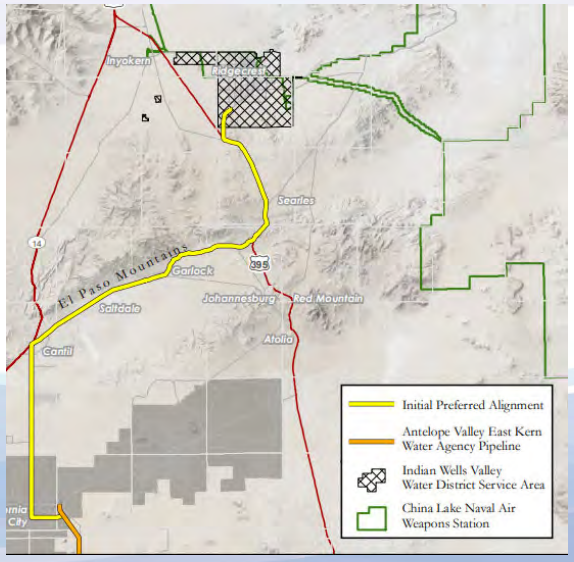
## Background – Project Funding

- April 28, 2022: IWVGA was awarded $7.6 million in grant funding from the California Budget Act of 2021 Sustainable Groundwater Management Grant Program SGMA Implementation Round 1 grant solicitation (SGMA-IP)
  - SGMA-IP funding will be used the IWVGA's Imported Water Interconnection Project
    - Design
    - Environmental Compliance
    - Right-of-Way Acquisition
    - Other permitting and coordination with partnering agencies
  - Work under the grant must be completed by March 31, 2025.
    - An inquiry is being made to DWR regarding the possibility of extending the deadline
- Staff is expecting some of the cost of the development of Imported Water Interconnection Project to be covered by the USACE Planning Assistance to States Program.



2

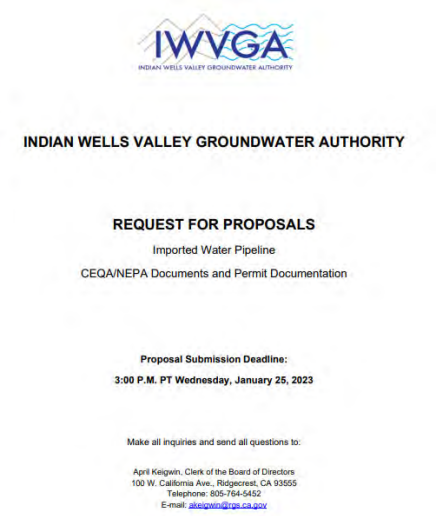
## Background – Alignment Study




- July 22, 2022: The Board authorized an agreement with Provost & Pritchard Consulting Group ("P&P" or "Provost & Pritchard") to perform an alignment study
- November 9, 2022 Board meeting: Provost & Pritchard presented three initially potential alignments
- December 6, 2022: A joint public meeting of the PAC and TAC was held to present screening criteria and preliminary weighting factors for committee and public discussion.
- December 14, 2022 Board meeting: The Board adopted the Resolution No. 11-22 which:
  - Approved the Central Alignment for further Environmental, Right-of-Way, and Design review for consideration for the Imported Water Interconnection Project and,
  - Authorized the General Manager to issue Requests for Proposals for Right-of-Way Acquisition Services, Environmental Documents (NEPA/CEQA) and Permitting Services, and Conveyance System Design Services for the Imported Water Interconnection Project



## Background – Request for Proposals



IWVGA

INDIAN WELLS VALLEY GROUNDWATER AUTHORITY

**INDIAN WELLS VALLEY GROUNDWATER AUTHORITY**

**REQUEST FOR PROPOSALS**

Imported Water Pipeline

CEQA/NEPA Documents and Permit Documentation

**Proposal Submission Deadline:**

**3:00 P.M. PT Wednesday, January 25, 2023**

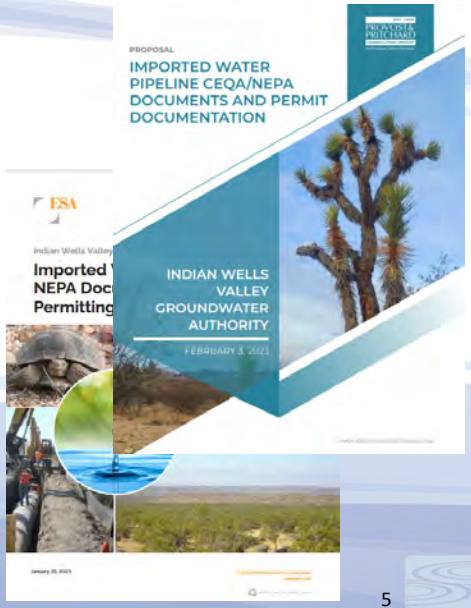
Make all inquiries and send all questions to:

April Keigwin, Clerk of the Board of Directors
100 W. California Ave., Ridgecrest, CA 93555
Telephone: 805-764-5452
E-mail: akeigwin@rgs.ca.gov

- December 14, 2022: The Board approved the release of Requests for Proposals (RFP) for Design, Environmental, and Right-of-Way Consultants
  - December 19, 2022: The RFP's were advertised online, including the IWVGA website
  - January 16, 2023: Staff responded to all Pre-Proposal Questions from Respondents
  - January 25, 2023: Proposals for each RFP were due
- Staff formed a Review Committee to review all Proposals for the selection of Consultants for each RFP
  - January 30, 2023: The Review committee discussed the proposals

## Proposals

- Received Proposals from:
  - Provost and Pritchard Consulting Group
  - Environmental Science Associates
- The Review Committee agreed that the Proposal that best addressed the RFP was submitted by Provost and Pritchard Consulting Group
- Provost and Pritchard Consulting Group
  - Proposed Budget: $1,013,722
  - Anticipated Work Complete Date: October 2024






5

## Scope of Work - Overview

- The CEQA/NEPA and permitting services include:
  - preparing CEQA/NEPA documentation
  - evaluating the need for and preparing all necessary Technical Studies and surveys
  - conducting environmental review and investigations
  - identifying permitting requirements
  - Fieldwork

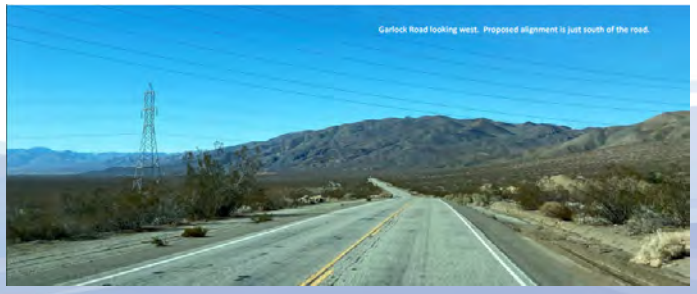





6

## Scope of Work – Tasks 1 through 2

- **TASK 1: INITIAL COORDINATION (KICKOFF MEETING)**
- **TASK 2: GEOTECHNICAL INVESTIGATIONS INITIAL COORDINATION (KICKOFF MEETING)**
  DELIVERABLES:
  - Administrative Draft Categorical Exclusion (NEPA) and Categorical Exemption (CEQA) and draft 401 Notice of Intent and CDFW Permit Packages, including associated GIS shapefiles and figures
  - Final Categorical Exclusion/Categorical Exemption
  - Final Permit Packages






## Scope of Work – Task 3

- **TASK 3: TECHNICAL STUDIES**
  - BIOLOGICAL RESOURCES TECHNICAL STUDIES
    - DELIVERABLES:
      - Reconnaissance-level Biological Survey BE/BA Report
      - Protocol-level Presence/Absence Desert Tortoise Report
      - Special Status Botanical Survey Early Season, Mid-Season, and Late Season Memoranda
  - CULTURAL AND TRIBAL RESOURCES
    - DELIVERABLES:
      - AB 52 Tribal Letters
      - NRHP/CRHR Eligibility Evaluations
      - Cultural Resources Technical Report
  - AIR QUALITY & GREENHOUSE GAS IMPACT ASSESSMENT
    - DELIVERABLES:
      - Air Quality and GHG Assessment Report.
  - AIR QUALITY GENERAL CONFORMITY ANALYSIS
    - DELIVERABLES:
      - Air Quality Conformity Analysis Report.
  - ENERGY USE IMPACT ASSESSMENT
    - DELIVERABLES:
      - Energy Use Assessment Report.
  - NOISE AND GROUND-BORNE VIBRATION IMPACT ASSESSMENT
    - DELIVERABLES:
      - Noise and Vibration Assessment Report.
  - AQUATIC RESOURCE DELINEATIONS
    - DELIVERABLES:
      - Aquatic Resources Delineation Report
      - Jurisdictional Verification Form

# Scope of Work – Task 4 through 6

- **TASK 4: PUBLIC OUTREACH (COORDINATION AND PRESENTATION AT MEETINGS)**
  - SCOPING MEETINGS
  - PUBLIC REVIEW PERIOD
  - PUBLIC HEARING



- **TASK 5: REGULATORY COMPLIANCE PERMITTING**
  - TECHNICAL REPORT
    - DELIVERABLES:
      - Draft and Final Project Regulatory Compliance TM
  - CLEAN WATER ACT PERMITS
  - LAKE OR STREAMBED ALTERATION AGREEMENT
  - BLM – SPECIAL USE PERMIT
    - Deliverables:
      - Administrative Draft Permit Packages, including associated GIS shapefiles and figures
      - Agency Draft Permit Packages
      - Final Permit Packages
- **TASK 6: CEQA/NEPA**
  - DELIVERABLES:
    - Administrative Draft EIR/EA
    - NOP and NOA
    - Draft FEIR/EA
    - Final FEIR-EA
    - NOI, NOC, and NOD



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# Budget

- Total Estimated Fee:
  - Not-to-Exceed: $1,013,722

- Design Coordination Reduction included in Total Estimated Fee
  - Reduced coordination fees due to Provost and Pritchard also being recommended for the Award of Contract for Design Services
  - Reduction of $20,000

| Task | Total Fee |
|---|---|
| **TASK 1: INITIAL COORDINATION (KICKOFF MEETING)** | |
| 1.1 Project Coordination | $45,701 |
| 1.2 Research/Project Kick-off/Initial Study | $12,312 |
| 1.3 BLM Kick-off Meeting for EA | $2,301 |
| 1.4 Coordination meetings with Design Team | $12,120 |
| 1.5 IWVGA Board, WRM, TAC Meetings | $4,246 |
| 1.6 Monthly Coordination Meetings | $26,638 |
| 1.7 IWVGA Information Requests | $16,738 |
| Task Units | |
| Task Total | $120,056 |
| **TASK 2: GEOTECHNICAL INVESTIGATIONS** | |
| 2.1 Geotechnical Permitting | $67,690 |
| Task Units | |
| Task Total | $67,690 |
| **TASK 3: TECHNICAL STUDIES** | |
| 3.1 Biological Resources Technical Studies | $156,353 |
| 3.2 Cultural and Tribal Resources | $106,914 |
| 3.3 Air Quality & Greenhouse Gas Impact Assessment | $20,330 |
| 3.4 Energy Use Impact Assessment | $13,430 |
| 3.5 Noise and Ground-Borne Vibration Impact Assessment | $20,330 |
| 3.6 Section 7 Consultation | $2,180 |
| 3.7 Section 106 Consultation | $3,134 |
| Task Units | |
| Task Total | $321,771 |
| **TASK 4: PUBLIC OUTREACH** | |
| 4.1 Scoping Meetings (2) and Report | $64,679 |
| 4.2 Public Review Period Meetings and Hearing | $8,521 |
| 4.3 Landowner/cross-coordination support | $3,756 |
| Task Units | |
| Task Total | $76,956 |
| **TASK 5: REGULATORY COMPLIANCE PERMITTING** | |
| 5.1 Permit Technical Report | $23,479 |
| 5.2 CWA Permits (Section 404) | $30,795 |
| 5.3 CWA Permits (Section 401) | $32,451 |
| 5.4 Lake or Streambed Alteration Agreement (Section 1602) | $29,549 |
| 5.5 Aquatic Resources Delineation | $128,123 |
| 5.6 Pre-Con Meetings | $6,406 |
| 5.7 Coordination Meetings | $13,249 |
| 5.8 ITP Federal/State | $36,288 |
| 5.9 BLM Special Use Permit | $24,074 |
| Task Units | |
| Task Total | $324,414 |
| **TASK 6: CEQA/NEPA** | |
| 6.1 Initial Study Checklist | $6,673 |
| 6.2 Administrative Draft EA/EIR Preparation | $63,521 |
| 6.3 Executive Summary | $4,313 |
| 6.4 Environmental Justice | $2,247 |
| 6.5 Alternatives Analysis | $8,282 |
| 6.6 Document production/noticing | $2,421 |
| 6.7 QA/QC | $11,286 |
| 6.8 Final EA/EIR | $23,992 |
| Task Units | |
| Task Total | $122,835 |
| Project Total Units | |
| Project Total | $1,033,722 |
| Design Coordination Reduction | ($20,000) |
| Total Estimated Fee: | $1,013,722 |



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## Action(s) Required By the Board

Staff recommends the Board adopt
Resolution 04-23
Authorize Award of Contract to
Provost and Pritchard Consulting Group for
CEQA/NEPA AND PERMIT DOCUMENTATION
for the Imported Water Pipeline

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**TO:** IWVGA Board Members **DATE: February 8, 2023**

**FROM:** IWVGA Water Resources Manager

**SUBJECT: AGENDA ITEM 15 – WATER RESOURCES MANAGER'S REPORT**

Presented below are brief updates on the status of grant funding, GSP Implementation Projects and Management Actions, and Miscellaneous Items.

## AGENDA ITEM 15a – GRANT FUNDING UPDATE

*Proposition 1 Update*

- Invoice #14a
  - Covers January 2022 through March 2022
  - Total requested payment after retention: **$64,941.88**
  - Status: Under DWR review
- Invoice #15a
  - Covers April 2022 through June 2022
  - Total requested payment after retention: **$17,532.41**
  - Status: Under DWR review
- Invoice #16a
  - Covers July 2022 through September 2022
  - Total requested payment after retention: **$21,049.59**
  - Status: Under DWR review
- Invoice 17a:
  - Covers October 2022 through December 2022
  - Status: In progress

*Proposition 68 Update*

- Invoice #14b
  - Covers January 2022 through March 2022
  - Total requested payment after retention: **$1,885.36**
  - Status: Approved, currently awaiting payment
- Invoice #15b
  - Covers April 2022 through June 2022
  - Total requested payment after retention: **$21,932.28**
  - Status: Under DWR review

- Invoice #16b
    - Covers July 2022 through September 2022
    - Total requested payment after retention: **$6,380.65**
    - Status: Under DWR review
- Invoice 17b:
    - Covers October 2022 through December 2022
    - Status: In progress

*Proposition 1/68 Grant Closeout*

- Upcoming Submittal
    - Draft Grant Completion Reports were submitted on January 29, 2023
    - Progress Report/Invoice 17 and retention invoice due by February 28, 2023

*SGMA Implementation Round 1 Update*

- Invoice #1
    - Covers January 2022 through September 2022
    - Total requested payment: **$102,689.73**
    - Status: Under DWR Review

- Invoice #2
    - Covers October 2022 to December 2022
    - Due to DWR on February 28, 2023
    - Status: In progress

*SGMA Implementation Round 2 Update*

- Application submitted on December 15, 2022 for $8,945,000 (under review by DWR)
    - Funding requested for several tasks related to implementing the GSP and preparing the 5-year GSP update.

*Urban Community Drought Relief Program Update*

- Two applications submitted on January 31, 2023 for $10,570,000 (under review by DWR)
    - Funding requested for the Recycled Water Project and the Shallow Well Consolidation Project.

**AGENDA ITEM 15b – GSP IMPLEMENTATION PROJECTS / MANAGEMENT ACTIONS UPDATE**

*Item 15b.i – Recycled Water Program*

- Recycled Water Alternatives Analysis
  - Provided Draft Final Tech Memo for Alternatives Analysis to TAC on January 12, 2023
  - Received comments from Working Group regarding the Draft Final Tech Memo for Alternatives Analysis on February 2, 2023
    - Analysis has determined that advanced treatment and injection into the Basin of the available recycled water is the most feasible project.
  - Next Steps
    - Review/incorporate comments from Working Group and TAC into the Draft Final Tech Memo for Alternatives Analysis

- U.S. Bureau of Reclamation Title XVI Feasibility Study
  - Board authorized Water Resource Manager to proceed with Title XVI Feasibility Study during July 22,2022 Special Board Meeting
  - Received treatment and cost evaluations from Trussell on December 27, 2022
  - Draft Title XVI Feasibility Study completed and currently being reviewed by Staff
  - Next Steps:
    - Review/incorporate comments from Staff into the Draft Title XVI Feasibility Study

*Item 15b.ii - Imported Water Project*

- Imported Water Pipeline Alignment Study
  - Provost & Pritchard
    - Conducted Progress Meeting on January 18
    - Provost & Pritchard have submitted Final Technical Memorandums for Pipeline Capacity and Delivery (Task 1) and Connection Points (Task 3) per Staff comments
    - WRM Extension of Schedule (Per Section 3.2 Schedule of Performance of the Contract Services Agreement)
      - Authorized the extension of the Contract Services Agreement's Schedule of Performance by ninety (90) calendar days, to April 17, 2023.
      - Terms, conditions and budget included in the original Contract Services Agreement, executed by the Authority on July 22, 2022 are unchanged
    - Next Steps:
      - Extension of Schedule Tasks:
        - Continue coordination with utility agencies, Kern County, California City, California State Parks, etc. for Right-of-Way related tasks
        - Continue hydraulic analysis

- Continue coordination with SCE for power availability
- Continue project management

- Overall Imported Water Pipeline Project
  - On December 12, 2022, the Board approved the release of Requests for Proposals (RFP) for Design, Environmental, and Right-of-Way Consultants
    - The RFP's were advertised online, including the IWVGA website, starting on December 19, 2022
    - Staff responded to all Pre-Proposal Questions from Respondents by January 16, 2023
    - Staff formed a Review Committee to review all Proposals for the selection of Consultants for each RFP
    - Proposals for each RFP were due January 25, 2023
      - The Review committee discussed and ranked proposals on January 30, 2023
  - Next Steps
    - Upon Board Approval, Staff will coordinate execution of contracts with the consultants selected by the Review (Please see Board Agenda Items 12, 13, and 14)

*Item 15b.iii - Shallow Well Mitigation Program*

- Current Applications
  - Stark St
    - Reported dry well located on Stark Street, west of Ridgecrest
    - Well stopped producing water in June 2022
    - Self-Help Enterprise (SHE) provided water quality records on October 26, 2022
    - Staff call with Garrison Brothers on November 29, 2022
    - WRM provided Draft Evaluation Report to GA Staff for review prior to providing Draft Report to SHE
  - Heritage Village Master Community Association (HVMCA)
    - Reported dry well located on Heritage Dr in Ridgecrest
    - Well stopped producing water in Spring 2022 and pulled up sand and other debris
    - HVMCA provided information from Garrison Brothers on November 2, 2022
    - Application was determined complete on November 4, 2022
    - WRM provided Draft Evaluation Report to HVMCA for review
  - Investigating additional dry wells reported to DWR

*Item 15 b.iv - Annual Report*

- 3 comment letters received on Draft WY 2022 Annual Report
- Revised Final Draft presented to Board (Please see Board Agenda Item 11)
- Final to be submitted to DWR by April 1, 2023

## AGENDA ITEM 15c – MISCELLANEOUS ITEMS

*See presentations on Agenda Item 15c.*

## ACTION(S) REQUIRED BY THE BOARD

There are no actions required by the Board.

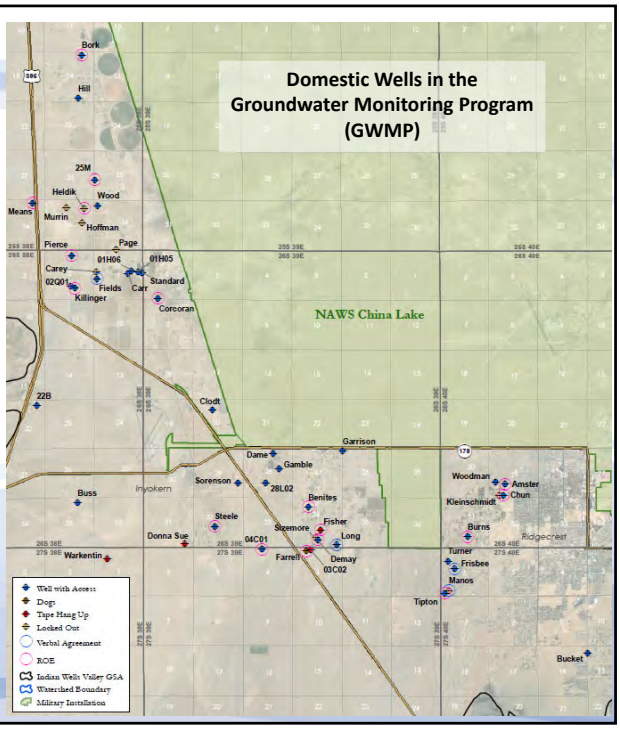
J:\2652 IWVGA\01 - Prep & Attend Board, PAC, & TAC meetings\Board\2023\2 - February 2023\0 - FINAL PACKAGE FOR APRIL\Agenda Item 15 -WRM Report.docx

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# IWVGA Board Meeting
# February 8, 2023

## *Data Collection and Monitoring*

- Coordination with KCWA regarding 47 DOM wells in GWMP
  - Outreach
  - Right of Access Forms
- Evaluate Data Gap Projects in Southeast
  - Work with City of Ridgecrest for potential monitoring well placement
  - Determine status of Bucket Well to be deepened
  - Development of permitting forms for Inyo Well replacement
  - Development of projects for Navy/Coso funding
- GWMP groundwater level collection
  - Planning first week of March for Spring 2023 field work
    - KCWA – groundwater levels
    - Navy – groundwater levels and GDE monitoring
    - Stetson – groundwater levels and datalogger data




**AGENDA ITEM 15c**

1

# IWVGA Board Meeting
# February 8, 2023

## *GSP Model Configuration Management Plan*

Jan 19th TEAMS meeting with WRM, DRI, TMG (DOM)
Initial review of AEM (SkyTEM) data
Dr Ryan Smith Presentation

Discussions re: regions of focus for the IWV Model Updates

Feb 9th TEAMS meeting with WRM, Navy DRI, TMG (DOM)
Continued review and assessment of AEM data for IWV Model Update

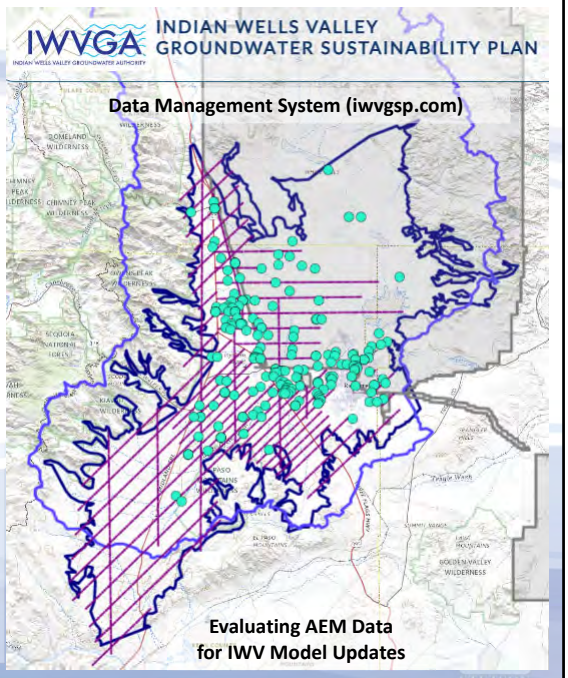
CMP Timeline

2023: TMG continued review of technical data/reports

TMG review of model revisions, calibration, sensitivity

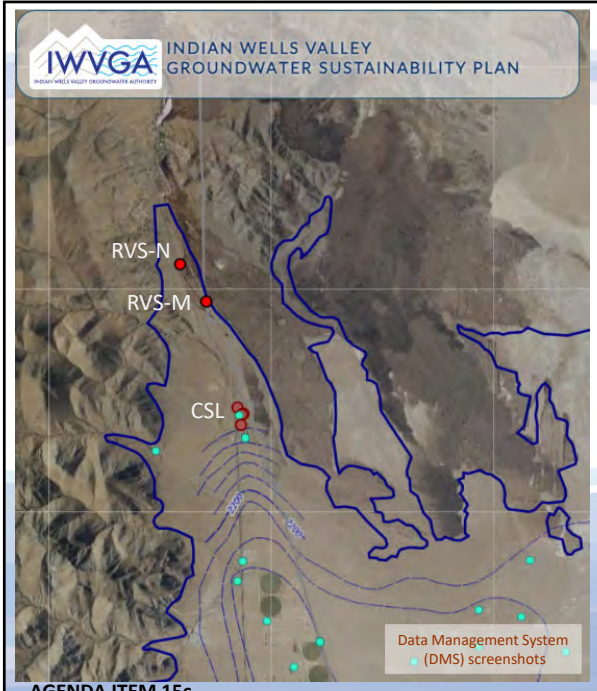
Model updates and calibration for 5-Year GSP Report

2024: Modeling Scenarios for 5-Year GSP Report




**AGENDA ITEM 15c**

2




AGENDA ITEM 15c

# IWVGA Board Meeting
# February 8, 2023

## *Subflow from Rose Valley to IWV*

- Drilling and construction of 2 RVS monitoring wells on hold until Navy's verification of accounting and appropriations (invoicing)
  - 12/14/2022 GA Board approved Navy / GA Cooperative Agreement.
  - 8/10/2022 GA Board approved Drilling Subcontract
- Evaluate existing former sawmill wells
  - Authority signed lease agreement with California State Lands Commission(CSLC) on 11/28/2022.
  - Coordinating with CSLC for return signature.

3

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*8% of the Year Completed*

# BUDGET TO ACTUAL REPORT- January

| | | (A) BUDGET | ACTUALS BY REVENUE ALLOCATION: Restricted Extraction | Restricted Augmentation | Restricted Shallow Well Mitigation | Restricted Prop. 1; Prop.68 SDAC | Restricted SGMA IP Grant | Restricted Navy/COSO Fund | (B) $ ACTUAL | (A-B) $ REMAINING | (B/A) % COMPLETED | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | **REVENUE** | | | | | | | | | | | 1 |
| 2 | Extraction Fee | 1,319,924 | 142,256 | - | - | - | - | - | **142,256** | 1,177,668 | 11% | 2 |
| 3 | **Transfer In/Loan from Augmentation Fund** | *367,814* | - | - | - | - | - | - | **-** | 367,814 | 0% | 3 |
| 4 | **Transfer In/Loan from Grant Funds-Prop 1/Prop 68** | *204,636* | - | - | - | - | - | - | | 204,636 | 0% | 4 |
| 5 | Augmentation Fee | 3,912,060 | - | 502,544 | - | - | - | - | **502,544** | 3,409,516 | 13% | 5 |
| 6 | **Transfer In/Loan Repayment from Extraction Fund** | - | - | - | - | - | - | - | **-** | - | 0% | 6 |
| 7 | Shallow Well Mitigation Fee | 125,776 | - | - | 4,524 | - | - | - | **4,524** | 121,252 | 4% | 7 |
| 8 | Department of Water Resources (DWR) Grants-Prop 1/68 | 204,636 | - | - | - | - | - | - | **-** | 204,636 | 0% | 8 |
| 9 | Department of Water Resources (DWR) Grants -IP Grant | 2,000,000 | - | - | - | - | - | - | **-** | 2,000,000 | 0% | 9 |
| 10 | Navy/COSO Royalty Fund | 15,000 | - | - | - | - | - | - | **-** | 15,000 | 0% | 10 |
| 11 | | | | | | | | | | | | 11 |
| 12 | **TOTAL REVENUES** | 8,149,846 | 142,256 | 502,544 | 4,524 | - | - | - | **649,324** | 7,500,522 | 8% | 12 |
| 13 | **EXPENSES** | | | | | | | | | | | 13 |
| 14 | **Administration** | | | | | | | | | | | 14 |
| 15 | Administration (RGS) | 333,000 | 25,431 | 25,431 | - | - | - | - | **50,862** | 282,138 | 15% | 15 |
| 16 | Office Rent (City of Ridgecrest) | 3,600 | 450 | 450 | - | - | - | - | **900** | 2,700 | 25% | 16 |
| 17 | Office Supplies | 1,000 | - | - | - | - | - | - | **-** | 1,000 | 0% | 17 |
| 18 | Postage and Delivery | 360 | - | - | - | - | - | - | **-** | 360 | 0% | 18 |
| 19 | External Audit | 12,000 | - | - | - | - | - | - | **-** | 12,000 | 0% | 19 |
| 20 | Council Chambers/IT Services (City of Ridgecrest) | 8,500 | - | - | - | - | - | - | **-** | 8,500 | 0% | 20 |
| 21 | General Counsel (Aleshire & Wynder/City of Ridgecrest) | 200,000 | 18,239 | - | - | - | - | - | **18,239** | 181,761 | 9% | 21 |
| 22 | Insurance Premium (Insurica) | 14,870 | - | - | - | - | - | - | **-** | 14,870 | 0% | 22 |
| 23 | Legal Notices (Daily Independent) | 2,000 | - | - | - | - | - | - | **-** | 2,000 | 0% | 23 |
| 24 | Memberships (Cal. Assoc.Mutual Water Co) | 100 | - | - | - | - | - | - | **-** | 100 | 0% | 24 |
| 25 | Website (IWVWD) | 300 | - | - | - | - | - | - | **-** | 300 | 0% | 25 |
| 26 | Printing and Reproduction | - | - | - | - | - | - | - | **-** | - | 0% | 26 |
| 27 | Bank Service Charges | 24 | - | - | - | - | - | - | **-** | 24 | 0% | 27 |
| 28 | | | | | | | | | | | | 28 |
| 29 | **Non-Departmental** | | | | | | | | | | | 29 |
| 30 | Other Legal Services (RWG Law) | 400,000 | - | - | - | - | - | - | **-** | 400,000 | 0% | 30 |
| 31 | Lobbying Services (Capitol Core) | 174,000 | - | 25,113 | - | - | - | - | **25,113** | 148,888 | 14% | 31 |
| 32 | Other Professional Services | - | - | - | - | - | - | - | **-** | - | 0% | 32 |
| 33 | Shallow Well Mitigation Emergency Assistance Program | 50,000 | - | - | - | - | - | - | **-** | 50,000 | 0% | 33 |
| 34 | Repayment of Kern County Advance | - | - | - | - | - | - | - | **-** | - | 0% | 34 |
| 35 | Repayment of City of Ridgecrest In-Kind Services | 500,000 | - | - | - | - | - | - | **-** | 500,000 | 0% | 35 |
| 36 | **Transfer Out/ Loan Repayment to Augmentation Fund** | - | - | - | - | - | - | - | **-** | - | *0%* | 36 |
| 37 | **Transfer Out/Loan to Extraction Fund** | *572,450* | - | - | - | - | - | - | **-** | *572,450* | *0%* | 37 |

*8% of the Year Completed*

# BUDGET TO ACTUAL REPORT- January

| | | ACTUALS BY REVENUE ALLOCATION | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | (A) BUDGET | Restricted Extraction | Restricted Augmentation | Restricted Shallow Well Mitigation | Restricted Prop. 1; Prop.68 SDAC | Restricted SGMA IP Grant | Restricted Navy/COSO Fund | (B) $ ACTUAL | (A-B) $ REMAINING | (B/A) % COMPLETED |
| **Community & Engagement** | | | | | | | | | | |
| Design Services | 25,000 | - | - | - | - | - | - | - | *25,000* | *0%* |
| Printing and Reproduction | 10,000 | - | - | - | - | - | - | - | *10,000* | *0%* |
| Website Services | 25,000 | - | - | - | - | - | - | - | *25,000* | *0%* |
| **Basin Management Administration** | | | | | | | | | | |
| Production Reporting, Transient Pool, and Fee Support (Stetson) | 5,000 | - | - | - | - | - | - | - | 5,000 | 0% |
| Meetings and Prep (Stetson) | 140,000 | 11,572 | - | - | - | - | - | **11,572** | 128,428 | 8% |
| Budget Support (Stetson) | 7,500 | - | - | - | - | - | - | - | 7,500 | 0% |
| Stakeholder Coordination (Stetson) | 10,000 | - | - | - | - | - | - | - | 10,000 | 0% |
| Litigation Support (Stetson) | 40,000 | 6,015 | - | - | - | - | - | **6,015** | 33,985 | 15% |
| **Basin Management** | | | | | | | | | | |
| General Engineering (Stetson) | 50,000 | 588 | - | - | - | - | - | **588** | 49,412 | 1% |
| TSS: El Paso Well Drilling Support (Stetson) | - | - | - | - | - | - | - | - | - | 0% |
| TSS: General Coordination/Application Support (Stetson) | 15,000 | 61 | - | - | - | - | - | **61** | 14,939 | 0% |
| Coordination with DWR on GSP Review (Stetson) | - | 4,948 | - | - | - | - | - | **4,948** | (4,948) | 0% |
| GSP 5-Year Update (Stetson) | 50,000 | - | - | - | - | - | - | - | 50,000 | 0% |
| Annual Report Preparation (Stetson) | 50,000 | 21,964 | - | - | - | - | - | **21,964** | 28,036 | 44% |
| Data Management System Support (Stetson) | 30,000 | 4,474 | - | - | - | - | - | **4,474** | 25,526 | 15% |
| Allocation Plan: Allocation Process & Transient Pool Support (Stetson) | - | - | - | - | - | - | - | - | - | 0% |
| Allocation Plan and Rules & Regs on Pumping/Restrictions (Stetson) | 12,000 | - | - | - | - | - | - | - | 12,000 | 0% |
| Allocation Plan: Fallowing & Transient Pool Transfer Program (Stetson) | - | - | - | - | - | - | - | - | - | 0% |
| Conservation Efforts (Stetson) | 10,000 | - | - | - | - | - | - | - | 10,000 | 0% |
| General Project Management (Stetson) | 30,000 | 2,572 | - | - | - | - | - | **2,572** | 27,429 | 9% |
| Model Transfer and Upgrade (Stetson) | 200,000 | 16,025 | - | - | - | - | - | **16,025** | 183,975 | 8% |
| Navy/Coso Royalty Fund: Develop Projects & Secure Funding (Stetson) | 25,000 | 1,551 | - | - | - | - | - | **1,551** | 23,450 | 6% |
| Navy/Coso Royalty Fund: Rose Valley MW Permitting, Bid, Drilling (Stetson | 15,000 | - | - | - | - | - | 155 | **155** | 14,846 | 1% |
| Data Collection, Monitoring, and Data Gaps (Stetson) | 145,000 | 21,600 | - | - | - | - | - | **21,600** | 123,400 | 15% |
| Imported Water: Negotiations and Coordination(Stetson) | 20,000 | - | - | - | - | - | - | - | 20,000 | 0% |
| Imported Water: Engineering and Analysis(Stetson) | - | - | 669 | - | - | - | - | **669** | (669) | 0% |
| Recycled Water (Stetson) | 150,000 | - | 8,163 | - | - | - | - | **8,163** | 141,838 | 5% |

*8% of the Year Completed*

# BUDGET TO ACTUAL REPORT- January

| | | ACTUALS BY REVENUE ALLOCATION | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | (A) BUDGET | Restricted Extraction | Restricted Augmentation | Restricted Shallow Well Mitigation | Restricted Prop. 1; Prop.68 SDAC | Restricted SGMA IP Grant | Restricted Navy/COSO Fund | (B) $ ACTUAL | (A-B) $ REMAINING | (B/A) % COMPLETED |
| **EXPENSES (Cont'd)** | | | | | | | | | | |
| **Basin Management (cont'd)** | | | | | | | | | | |
| Shallow Well Mitigation Program: Plan Development (Stetson) | - | - | - | - | - | - | - | **-** | - | 0% |
| Shallow Well Mitigation Program: Outreach and Impacts Eval.(Stetson) | 20,000 | - | - | 2,312 | - | - | - | **2,312** | 17,689 | 12% |
| Brackish Water Group: Data Review and Coordination(Stetson) | - | - | - | - | - | - | - | **-** | - | 0% |
| Review of Outside Studies and Coordination (Stetson) | 30,000 | - | - | - | - | - | - | **-** | 30,000 | 0% |
| Well Monitoring Services (WellIntel Inc.) | 2,100 | - | - | - | - | - | - | **-** | 2,100 | 0% |
| Weather Station Maintenance(Stetson) | - | - | - | - | - | - | - | **-** | - | 0% |
| | | | | | | | | | | |
| **Grant Management** | | | | | | | | | | |
| Prop 1 / Prop 68 Grant Administration (Stetson) | 5,000 | 2,549 | - | - | - | - | - | **2,549** | 2,451 | 51% |
| Prop 1 SDAC Support | - | - | - | - | 150 | - | - | **150** | (150) | 0% |
| Grant Review and Application Preparation (Stetson) | 75,000 | 12,278 | - | - | - | - | - | **12,278** | 62,722 | 16% |
| IP Grant Administration (Stetson) | 70,000 | - | - | - | - | 7,541 | - | **7,541** | 62,459 | 11% |
| Planning/Design/Envrionmental (Stetson) | 175,000 | - | - | - | - | 15,457 | - | **15,457** | 159,544 | 9% |
| Engagement/Outreach (Stetson) | 25,000 | - | - | - | - | - | - | | | |
| Engagement /Outreach-Other Professional Services (Provost & Pritchard) | 1,730,000 | - | - | - | - | 58,202 | - | **58,202** | 1,671,798 | 3% |
| **TOTAL EXPENSES** | 5,468,804 | 150,317 | 59,825 | 2,312 | 150 | 81,199 | 155 | **293,957** | 5,149,847 | 5% |
| | | | | | | | | | | |
| **Surplus (Deficit)** | 2,681,042 | (8,061) | 442,719 | 2,212 | (150) | (81,199) | (155) | **355,367** | | |

*Budget to Actual Report includes all revenues and expenditures during the calendar year and is on a cash basis. Accruals will be finalized during the year-end reconciliation and audit process and presented in a separate report.*
*Billing and receipt of reimbursement grant program revenue may cross over fiscal years with revenue received for prior year programs. Separate reconciliation will be completed for grant programs.*

IWVGA

*AS of January 31, 2022*

# MONTH TO DATE REVENUES & EXPENDITURES EXCLUDING TRANSFERS

| | Revenue | Transfer In* | Transfer Out* | Expenses | Surplus (Deficit) |
|---|---|---|---|---|---|
| Extraction Fund | 142,256 | - | - | 150,317 | (8,061) |
| Augmentation Fund | 502,544 | - | - | 59,825 | 442,719 |
| Shallow Well Mitigation Fund | 4,524 | - | - | 2,312 | 2,212 |
| Department of Water Resources (DWR) Grants-Prop 1/68 | - | - | - | 150 | (150) |
| Department of Water Resources (DWR) Grants -IP Grant | - | - | - | 81,199 | (81,199) |
| Navy/COSO Royalty Fund | - | - | - | 155 | (155) |
| Total | 649,324 | - | - | 293,957 | 355,367 |

** The Extraction Fund Budget will be balanced through a loan from the Augmentation Fund.*

IWVGA

*AS of January 31, 2022*

# OUTSTANDING OBLIGATIONS

| | Kern County | City of Ridgecrest | Augmentation Fund | **Total** |
|---|---|---|---|---|
| **Advance Agreements** | | | | |
| Advance of Funds | 500,000 | - | - | **500,000** |
| Advance Repayment | (500,000) | - | - | **(500,000)** |
| **In-Kind Services** | | | | |
| Attorney Srvcs./IT/Chambers -FY22 | - | 241,204 | - | **241,204** |
| Attorney Srvcs./IT/Chambers -FY 21 | - | 325,235 | - | **325,235** |
| Attorney Srvcs./IT/Chambers -FY's16-20 | - | 366,982 | - | **366,982** |
| **Inter-Fund Loans** | | | | |
| 2023 Loan to Extraction Fund-Estimated* | - | - | 367,814 | **367,814** |
| Repayment of Adv. Of Funds to IWVWD** | - | - | 500,000 | **500,000** |
| Repymt of Adv. Of Funds to Kern Cty-YE Est*** | - | - | 142,200 | **142,200** |
| **Postponed Invoice Payments** | | | | |
| None | - | - | - | **-** |
| Total | - | 933,421 | 1,010,014 | **1,943,435** |

*Estimated and included in proposed budget**

*IWVWD used restricted Augmentation Revenue to repay the Advance Agreement***

*Repayment of the IWVWD Advance requires a transfer from the Extraction Fund to the Augmention Fund.*

*Kern Cnty Repymnt was $500k but it is estimated only $142,200 will be loaned from the Augmentation Fund at YE****

*City of Ridgecrest In-Kind Services includes services associated with Extraction and Augmentation expenses.*

IWVGA

*AS of January 31, 2022*

# ADOPTED 2023 OBLIGATION REPAYMENTS

| | Kern County | City of Ridgecrest | Augmentation Fund | **Total** |
|---|---|---|---|---|
| **Advance Agreements** | | | | |
| Advance of Funds-Est. Repayment 12/31/2022 | - | - | - | **-** |
| **In-Kind Services** | | | | |
| Attorney Services/IT/Council Chambers | - | 500,000 | - | **500,000** |
| **Financing** | | | | |
| Water Purchase related Financing- TBD | - | - | - | **-** |
| | - | 500,000 | - | **500,000** |

*Upon repayment of Obligations, an inter-fund loan will be created between the Extraction Fund and Augmentation Fund for amount not funded by the Extraction Fund.*

IWVGA

*As of January 31,2023*

# CASH BALANCE

**January 2023 Activity**

| Cash Receipts (Receipts over $50,000 and all grants are detailed) | | |
|---|---|---|
| November - IWVWD Augmentation/Extraction/SWM | $ | 334,583.19 |
| December - IWVWD Augmentation/Extraction/SWM | | 248,807.61 |
| All Other Cash Receipts -December | | 41,942.52 |
| All Other Cash Receipts -January | | 23,990.60 |
| Total Cash Receipts | $ | 649,323.92 |

| Cash Disbursements (Obligation payments are detailed) | | |
|---|---|---|
| Warrants - Dec Approved Warrants issued in Jan(Partial) | $ | 136,946.48 |
| Warrants - Jan Approved Warrants issued in Jan | | 189,803.30 |
| Total Cash Disbursements | $ | 326,749.78 |

**Cash Balance**

Prior Month to Current Month Ending Balance Reconciliation

| December Cash Balance By Investment | | |
|---|---|---|
| Kern County Treasurer | $ | 5,758,118.28 |
| AltaOne Credit Union | | - |
| Total Cash Balance as of December 31 | $ | 5,758,118.28 |

| January Activity | | |
|---|---|---|
| Cash Receipts | $ | 649,323.92 |
| Cash Disbursements | | (326,749.78) |
| Total January Activity | $ | 322,574.14 |
| January Ending Cash Balance | $ | 6,080,692.42 |
| Less: Outstanding Warrants | | (659,626.99) |
| Total Available Cash By Activity as of January 31 | $ | 5,421,065.43 |

| January Cash Balance by Investment | | |
|---|---|---|
| Kern County Treasurer | $ | 6,080,692.42 |
| AltaOne | | - |
| Total January Balance | $ | 6,080,692.42 |
| Less: Outstanding Warrants | | (659,626.99) |
| Total Available Cash by Investment as of January 31 | $ | 5,421,065.43 |

*Cash Receipts are deposited in AltaOne Credit Union and sent electronically to Kern County Treasurer. Cash in Transit at month end will be reflected in the Kern County Treasurer balance. Warrants are approved by IWVGA Board and administratively processed by IWVGA staff. Warrants are executed by Kern County staff. Outstanding Warrants are vendor invoices received and not yet paid. Outstanding Obligations are detailed in a separate attached report.*

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**Client Memorandum**

| | |
|---|---|
| To: | Carol Thomas-Keefer, General Manager Indian Wells Valley Groundwater Authority |
| From: | Michael W. McKinney, President Capitol Core Group |
| cc: | Steve Johnson, Stetson Engineers<br>Jeff Simonetti, SVP Capitol Core Group<br>Todd Tatum, SCA Capitol Core Group |
| Date: | January 30, 2023 |
| Subject: | Project Update Memorandum – January 2023 Activities |

The following will provide activities and updates for the month of January 2023.

## Task 1: Imported Water Supplies

**Updated Report** – Subtask A: Agency-Seller 1 activities

Negotiations resumed in January with the entity identified as "Public Agency-1 Seller" in our open session reports. A full report was provided to the Board detailing activities in closed-session.

**Updated Report** – Subtask A: Jackson Ranch Activities

In addition, Capitol Core participated in the Closed Session meeting on January 25th pertaining to the Jackson Ranch water purchase.

**Updated Report** – Subtask C: "Other Required Agreements:" Interconnection Alignment

Capitol Core continues to provide as requested support to Provost and Pritchard on the alignment for the interconnection project. In the coming months we will be actively working with AVEK on the interconnection agreement to tie into their system. State/Federal agency support on the ROW permitting will be provided on an on-call basis to P&P/Stetson.

**Updated Report** – Subtask D: "New Water Sales" January Activities

Capitol Core continues to seek further water supplies for the Authority. On January 26th, the State Department of Water Resources provided an increased water initial water allocation from 5% to 30% for State Water Project Supplies. The increased initial allocation reflects the large amount of water supplies that the State was able to capture during the multiple storm events that hit the State in late December and January. The State will conduct further snow surveys on the first day of February, March and April and may adjust the allocation further if the snowpack continues to improve. You can view details of the DWR water allocation announcement here.

As a result of the better allocation from DWR than initially feared, there may be further opportunities to purchase water in 2023. Capitol Core will continue to keep the Authority apprised of further opportunities it finds.

## Task 2: Interconnection Pipeline Project

**New/Action Required** – U.S. Army Corps of Engineers: Letter of Interest for the Planning Assistance to States Program

See separate agenda item. As requested, Capitol Core completed the Letter of Interest to the U.S. Army Corps of Engineers for the Planning Assistance to States Program. This applies to planning activities for the Interconnection and Water Recycling Plant projects.

## Task 3: Water Recycling Plant

**Updated Report** – U.S. Bureau of Reclamation: Title XVI Feasibility Study

Stetson Engineers is in the process of submitting the Title XVI Feasibility Study to the U.S. Bureau of Reclamation (USBR) for consideration. If approved, the study would open funding sources for the Water Recycling Plant (planning and/or construction phases) pursuant to Congressional authorization/appropriation under the Western Waters programs of the *Infrastructure Investment and Jobs Act of 2021*. Over the course of February and March, Capitol Core will brief Congressional Representatives on the Feasibility Study. Stetson Engineers has the lead on this project until such time that USBR approves the Study.

**Updated Report** – DWR: Urban Community Drought Program

Stetson Engineers will submit application for $5.3 million in planning activities funding for the water recycling plant in February. Capitol Core will be seeking legislative support for the application and will complete its activities for this program during February/March.

## Task 4: Wastewater Treatment Plant

**Updated Report** – City of Ridgecrest Federal Community Project Funding Request

As reported in our December memorandum, the City of Ridgecrest has directed Capitol Core to prepare a "Community Project Funding Request" to the *Fiscal Year 2024 Interior, Environment and Related Agencies Act* requesting an earmark-designation for a loan amount under the Clean Water State Revolving Fund. As reported, earmark-designation of loan amounts have reduced state allocations under the program, requiring the City to seek the loan through a legislative-directed basis. In January, Capitol Core prepared all draft documents associated with the funding request which are currently being reviewed by the City. We anticipate completion of the package in February.

While we will complete the package in February, Capitol Core currently has no timetable for the beginning of the appropriations process at the federal level. The topline level of appropriations for the 2023 Congressional year is dependent on the outcome of the negotiations over the debt ceiling. While talks are beginning about resolving this issue, Congress has not set a timetable to address this issue. Appropriations

staff has told Capitol Core that the appropriations cycle will not start prior to a resolution on the debt ceiling debate.

**New Report** – *Fiscal Year 2024 Defense Appropriations Act*: DCIP Funding

Representative Ken Calvert (R-CA, 41st) has been named Chairman of the House Subcommittee on Defense (House Appropriations) which will have direct authority over the funding amounts for the Defense Community Infrastructure Program (DCIP). The wastewater treatment plant will be eligible for an anticipated $7 million application by the City in 2024. Capitol Core began work in January with stakeholders from the Association of Defense Communities to determine the funding request for the program. FY2023 appropriations included $192 million for DCIP, and it is likely the group will seek similar, if not slightly higher, appropriations for FY2024.

**New Report** – USEPA: Wastewater Regulations: Industrial discharges

U.S. Environmental Protection Agency (USEPA) released *Effluent Guidelines Program Plan 15* (Plan 15), which lays out how the Agency will work to protect the nation's waterways by following the science and the Clean Water Act to develop technology-based pollution limits and studies on wastewater discharges from industrial sources. This Plan focuses on evaluating the extent and nature of both nutrient and per- and polyfluoroalkyl substances (PFAS) discharges. Plan 15 further advances EPA's commitment in the PFAS Strategic Roadmap to restrict PFAS discharges from industrial sources through a multi-faceted Effluent Limitations Guidelines program. This new rulemaking will impact the City of Ridgecrest's wastewater treatment facility. Capitol Core has transmitted the proposed regulations and "Guidelines Program" to the City for review.

## Task 5: Other Projects Supporting the GSP

**New Report** – Congressional Activities: Water and Water Infrastructure

Congress returned in January to a tumultuous start in the House of Representatives. Capitol Core has congratulated Representative Kevin McCarthy to his election as Speaker of the House and looks forward to working with his office on the tasks outlined above. The House and Senate worked through formation and organization issues through much of the month with a few pieces of legislation of interest to the Authority.

HR 186 (McClintock, R-5th) would designate the U.S. Bureau of Reclamation as the "lead agency" for federal permitting related to surface water storage projects. This removes the US Army Corps and U.S. Department of Agriculture roles as the potential lead-agency for such projects centralizing the federal permitting process. The bill has no impact on IWVGA but is being monitored for potential movement and advancing legislative vehicle for water measures.

HR 250 (Garamendi, D-CA, 8th) would expand the lists of projects eligible for funding under the Clean Water State Revolving Fund. Text for the bill has not been published as of the date of this memorandum. The Bill is co-sponsored by Representative Bost of Illinois. At this time the bill is being monitored for potential applicability to the Water Recycling Plant.

HR 215 (Valadao, R-CA, 22nd) is a reintroduction of the "Waters Act" from last Session with 11 California Republican co-sponsors, including Representative McCarthy. The bill primarily impacts

water supply within the Central Valley Region and, as introduced, does not impact IWVGA. The bill is being monitored for potential movement and advancing legislative vehicle for water measures.

**New Report** – State Legislative Activities: State Budget

The California State Legislature has returned from its December recess and is now in full Session. Legislation being introduced remains in the mandatory waiting period prior to policy committee hearings. Fiscal work within the State is well underway with the Governor's Request for the *Fiscal Year 2023-2024 State Budget Act* having been introduced to address the $18 billion expected deficit. A complete summary of the bill was provided under a separate e-mail and the sections of interest are summarized below. The Governor's proposed budget does not call for a declared "Budget Emergency" and therefore does not allow for withdrawals from the State's two Budget Reserve programs which currently total $32 billion.

Several Bills – *Fiscal Year 2023-2024 State Budget Act, by Request* would address budget deficits through a series of cost-shifting ($4.3 billion), delayed spending ($7.1 billion), triggered restorations ($3.8 billion), and budget reductions ($2.6 billion). Capitol Core is monitoring budget activity and is recommending IWVGA remain neutral on the budget proposal.

Of interest to IWVGA: $385 million of previously authorized programs under the Governor's "Water Supply," "Drought Resilience," and "Community Resilience" programs would be subject to delayed spending which moves legislative authorization into future appropriation cycles. $194 million in "Water Supply" and "Drought Resilience" programs are subject to triggered restorations – allowing for program funding should unanticipated funds become available; $128 million in "sustainable agriculture" funding and $1.26 billion in general energy/water programs are also subject to triggered restoration. Within outright budget reductions $25 million in sustainable agriculture, $25 million in water conservation programs and $79 million in greenhouse gas reduction programs are eliminated. In total, energy/water combined programs are subject to a $1.86 billion reduction and water-specific programs are subject to a $757 million reduction in this year's budget proposal.

**New Report** – State Legislative Activities: Policy Legislation

AB 62 (Mathis, R-33rd) would codify the water supply (surface and groundwater) established in the Governor's "Water Supply Strategy" and require the Department of Natural Resources achieve the goals by 2043. Capitol Core is monitoring this bill for movement but may recommend a "support" position for the legislation at a later date.

AB 66 (Mathis, R-33rd) would require a 180-day permitting cycle for all water supply projects within the State. Capitol Core is monitoring this bill for movement but may recommend aa "support" position for the legislation at a later date.

SB 3 (Dodd, 3rd) would require community water systems serving less than 200 connections to comply with the requirements of the *Water Shutoff Protection Act*. We are currently monitoring the bill.

SB 23 (Caballero, D-14th) would also require an *expedited* permitting process for all flood control and water supply projects within the State. We are currently monitoring the bill.

SB 231 (Hurtado, D-16) would require the DWR to modify its 5-year drought modeling to account for persistent drought. The bill modifies that portion of SGMA that deals DWR water supply determinations. We are currently monitoring the bill.

**New Report** – Funding Source: Multibenefit Land Repurposing Program

The California Department of Conservation has released the guidelines and application for the Multibenefit Land Repurposing Program during the 2023 funding cycle. According to the program guidelines, this current Round (Round 2) is funded through the Public Resources Trailer Bill (AB 211, Ch. 574, Stat. of 2022), which appropriated $40 million to the Department of Conservation to fund groundwater sustainability projects that reduce groundwater use, repurpose irrigated agricultural land, and provide wildlife habitat.

The Multibenefit Land Repurposing Program seeks to use this funding to increase regional capacity to repurpose agricultural land to reduce reliance on groundwater while providing community health, economic wellbeing, water supply, habitat, and climate benefits. Groundwater Sustainability Agencies are eligible to apply. **Applications for the 2023 round of funding are due on March 29th**. You can view more details about the program here.

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**IWVGA POLICY ADVISORY COMMITTEE REPORT** Meeting Thursday January 26, 2023

**Item 1. Call to Order**
Voting members David Janiec, Renee Westa-Lusk, West Katzenstein, Lyle Fisher, Judie Decker, Camille Anderson, and Tim Carroll, and non-voting members Don Zdeba and John Kersey were present. Not present were voting member Regina Troglin and non-voting members Tom Bickauskas and Lorelei Oviatt.

**Item 2. Pledge of Allegiance**

**Item 3. Open Public Comment (Not Related to Other Agenda Items)**
None received

**Item 4. Approval of Regular Meeting Dates for 2023**
Judie Decker moved to approve the fourth Thursday of the month as the standing monthly meetings for 2023, excepting the deferral of dates for the November and December meetings until October, pending holiday schedule and availability. The motion was second by Renee Westa-Lusk and passed unanimously, 7-0.

**Item 5. Approve Minutes of the November PAC Meeting**
Lyle Fisher moved to accept the minutes including amending the title from "Report" to "Minutes". The motion was seconded by Tim Carrol and approved unanimously, 7-0.

**Item 6. PAC Consideration of Stantec Facilitation Recommendations for Potential Incorporation in the PAC Updated Communications and Engagement Recommendations or Formal Draft Plan**
The Chair summarized the Stantec Recommendations regarding "Identified Gaps" and "Stakeholder Collaborative Conditions for Success" presented at the November PAC meeting. PAC members reviewed and discussed these, as well as the three individual member written inputs provided by Judie Decker, West Katzenstein and Lyle Fisher. Additionally, the General Manager Carol Thomas-Keefer and the PAC Chair provided verbal information from Stantec and subs regarding any potential interest in interpreter services for public meetings and information that DWR may be able to provide necessary funding. Carol Thomas-Keefer and Don Zdeba confirmed that the final Stantec DWR Facilitation Report had not yet been completed and provided to the Water District or the GA.

**PAC Member Comment –** The entire PAC agreed that the original PAC C&E Recommendations, including the June 2022 C&E PAC Report with the attached detailed PAC C&E recommendations, and the formal Draft C&E Plan submitted with the September 2022 PAC Report, adequately addressed the observations and recommendations provided by Stantec, <u>if implemented and followed</u>. They also agreed to re-emphasize key points including the need for the integrated, comprehensive schedule, and the key Fact Sheets. Additionally, PAC members noted that communications and engagement are ongoing processes that the GA had tasked us to review periodically.
Renee Westa-Lusk noted Stantec's specific recommendations regarding community events as C&E opportunities (such as Farmers Market, Petroglyph Festival, etc.), and suggested adding these to the recommended appendices in the formal C&E Plan. The PAC did not provide these draft appendices with the original draft, but had offered to work with GA staff to develop them.
PAC members noted they had neither noticed a need for, nor received any requests for interpretive services. However, they noted that given the community demographics, there may be value in providing

the key Fact Sheets and documents in Spanish, and consideration given for spanish translators in local meetings conducted in disadvantaged communities.

**Public Comment** – Don Decker stated that that Domestic Well Owners newsletter had successfully provided good information for many years but all that has transpired since the GA was established, including the abortive public meeting in Inyokern, have soured the public receptiveness and it will be very difficult to recover. He noted that in the presence of the lawsuits and the attendant risks, they had discontinued the newsletter.

**PAC Action** – After much discussion and clarification, Judie Decker moved to approve the original PAC C&E Recommendations and Plan, as submitted, with the wording changes recommendation submitted by Lyle Fisher (replace the word "Employ" with "Designate" in the recommendation regarding "Employ or assign a C&E Director or Lead". The motion was seconded by Lyle Fisher and approved unanimously, 7-0.

**Item 7. Member Comments**

Don Zdeba noted that the public hearing for the new rate schedule proposed by the Water District is to held at 6PM February 27th, at the Water District.

**Item 8. Meeting Adjourned.**

Submitted by: David Janiec, IWVGA PAC Chair, February 3, 2023

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