

**DATE:** January 19, 2022

**TO:** WCA Governing Board

**FROM:** Johnathan Perisho, Project Manager

**THROUGH:** Mark Stanley, Executive Officer

**SUBJECT:** Item 15: Consideration of a resolution to approve Executive Officer or Designee to enter into a contract for spatial dataset and concept development for tributaries of the Mid/Upper San Gabriel River for the Upper San Gabriel River Technical Assistance Project.

**RECOMMENDATION:** That the Watershed Conservation Authority (WCA) Governing Board approve Executive Officer or Designee to negotiate and enter into a contract with Balance Hydrologics for spatial dataset and concept development for tributaries of the Mid/Upper San Gabriel River for the Upper San Gabriel River Technical Assistance Project in an amount not to exceed \$100,000.

**PROJECT DESCRIPTION:** The WCA has issued a Request for Proposals (RFP) included as Exhibit A to both inventory and develop geographic data of hydrologic features of the Mid/Upper San Gabriel Watershed, and in communication with the WCA and local stakeholders to develop concepts for potential landscape restoration projects appropriate for features identified.

While the Mid/Upper San Gabriel Valley is known to contain remnants of historic wetlands, creeks, and streams an inventory of present-day features is not known to exist. The WCA seeks to support the development of publicly available data and example projects that will be instrumental for the conservation and enhancement of these features. This effort is expected to leverage findings from associated study, to present potential opportunities for mitigation, and to support the advancement of ongoing work in perpetuity.

The RFP was released November 29, 2022 and closed by Thursday January 5, 2023. The RFP was posted on the WCA website and distributed through a diverse range of contacts across public platforms and academia, as well as through the California Society for Ecological Restoration. Four proposals were received, each representing a skilled multidisciplinary team of experts well qualified to complete work of significant benefit to the project, agency, and public. Each proposal has been scored by a review team composed of four staff from both the WCA and Rivers and Mountains Conservancy based on the following criteria included in the issued RFP:

Points	Criteria
35pts	General Quality and Responsiveness of the Proposal <ul style="list-style-type: none"> <li>• Recognition of overall concepts and objectives of project</li> <li>• Alignment of the proposal with the WCA mission</li> <li>• Responsiveness to RFP requirements</li> <li>• Work plan and technical approach for all requested services</li> <li>• Ability of proposed plan to contribute knowledge of baseline conditions in the USGR</li> </ul>

30pts	<p>Qualifications</p> <ul style="list-style-type: none"> <li>• Statement of interest and capacity</li> <li>• Record of successful projects of similar scope and intent as evidenced by excerpts/examples of previous similar plans and reports included in application. Do samples submitted show evidence of innovative data mining, or original mapping of water, hydrologic, or landscape features?</li> <li>• Recommendations (provide name, title, email, and phone number)</li> </ul>
30pts	<p>Not to exceed proposed cost proposal with tasks, and associated hours and hourly rates</p> <ul style="list-style-type: none"> <li>• Cost proposal will be considered for value and quality</li> <li>• Include any optional tasks as separate line items</li> </ul>
5pts	<p>Consideration of: entities based in the project territory, diversity in hiring, small business, women- or minority- owned business, Disabled Veteran Business Enterprise certified</p> <ul style="list-style-type: none"> <li>• Please note any considerations in Letter of Interest</li> </ul>

Averages for each proposal out of a total possible score of 100 are as follows:

- Balance Hydrologics: 91.25
- California State University, Northridge (CSUN): 81.25
- California State Polytechnic University, Pomona: 81.75
- LimnoTech: 80

Balance Hydrologics having received the highest score is recommend for award of contract. The submitted proposal is included as Exhibit B.

**BACKGROUND:** The LA Regional Water Quality Control Board has proposed a reinterpretation of the Basin Plan objective for temperature, warm freshwater habitat (WARM) beneficial use, requiring no more than 5 degrees Fahrenheit above natural temperature, and no more than 80 degrees Fahrenheit as a result of waste discharges. Accordingly, the Regional Water Board has proposed to reduce temperature effluent and receiving water limits in surface water discharge permits for LA County Sanitation Districts Water Reclamation Plants.

In response the LA County Sanitation Districts have initiated a temperature study for surface water discharges into the San Gabriel River and Rio Hondo watersheds. The study is to evaluate conditions and set plans for source control at the 5 water reclamation plants in these areas for actions spanning the next ten years. This study represents a significant opportunity to not only inform these efforts, but to serve as a reference for actions across the Rivers and Mountains Conservancy project area.

The WCA has been in communication with lead authors of the ongoing temperature study, and supplemental study is intended to support findings and impacts of work for the outcomes of the study as well as project developments across the RMC and WCA project area. For influence on ongoing studies and subsequent actions a majority of project work must be completed by Fall 2023 with an imperative to begin as soon as possible for approvals and data collection.

On September 15, 2022, the WCA board approved application for funding that was ultimately awarded by the RMC for initiatives to expand timely data collection and actionable knowledge of the San Gabriel River watershed to inform current and future study, plan work, restoration implementation, and site management across the study area. Results are to be publicly available and shared for meaningful dialog, structured to identify project opportunities with a focus on restoring and daylighting riparian systems, supporting stronger river and stream-adjacent projects, and data-driven land management.

Less than 10% of historic wetlands areas are estimated to remain across LA County with resources significantly threatened by development, climate impacts, and resource and land management. At the same time, these systems represent the richest and most abundant ecology of all plant communities in the region with the greatest potential to provide natural services—services inextricably linked with the region’s most pressing challenges—of ensuring water security, clean air and water, greenhouse gas sequestration, flood risk management, livable communities that are cool, safe, and thriving—and all of the living beings that are part of these functions, as well as food production, and our collective natural heritage.

Goals for the Upper San Gabriel River Technical Assistance and Planning Project include adding to knowledge of water temperature impacts, knowledge of species presence in the San Gabriel River and tributaries, and knowledge of geography in areas where there has not been systematic documentation. At the same time this knowledge will be compounded by targeted efforts to engage with local stakeholders and communities adjacent study areas to identify and develop specific project concepts that may be advanced pursuant to state priorities and initiatives including 30x30, the State Wildlife Action Plan, and local mitigation measures.

**FISCAL INFORMATION:** The proposed action would approve negotiation for the award of contract in an amount not to exceed \$100,000 to be funded through a \$236,000 grant awarded by the RMC in Proposition 68 funding for the Upper San Gabriel River Technical Assistance Project.

**REQUEST FOR PROPOSALS  
FOR SPATIAL DATASET AND CONCEPT DEVELOPMENT FOR  
TRIBUTARIES OF THE MID/UPPER SAN GABRIEL RIVER**



100 North Old San Gabriel Canyon Road  
Azusa, CA 91702

November 29, 2022

## **1. Introduction**

The Watershed Conservation Authority (WCA) is requesting proposals from qualified organizations to produce a spatial dataset of hydrologic features of the Upper San Gabriel watershed that have potential for contribution to watershed restoration, as well as concept development for restoration projects in the Upper San Gabriel River for the Upper San Gabriel River Watershed Technical Assistance and Planning project.

The dataset is to include **tributaries within the urban San Gabriel River Watershed with a focus on neighborhood scale**. Such neighborhood scale features include but should not be limited to landscape features with potential stormwater management benefits, such as natural drainages, soft bottom tributaries, historic stream paths, and seeps. Such features will have potential based on hydrologic, geomorphic, historical, or other evidence to contribute stormwater management and habitat benefits in the future and will be used to clarify opportunities and constraints for improvement projects. The dataset is expected to be made publicly available.

Competitive proposals will go beyond compilation of existing publicly available databases and will clearly describe methods used to identify reaches and tributaries that are not part of the LA County Flood Control system. Key sources for the dataset are expected to include geological and hydrological studies, historic maps and records, aerial imaging, and ground truthing.

Based on identification and mapping of features and in consultation with the WCA local contacts the selected Consultant will develop a minimum of two concepts for potential projects which may include graphic rendering of potential strategies and associated quantifications.

Competitive proposals will draw upon the skills of a multidisciplinary team and will demonstrate expertise in hydrology as well as approaches to hydrological restoration in an urban context.

Proposals will be evaluated for value and contribution to understanding of restoration opportunities and should not exceed \$100,000. The contract period will be January 30, 2023 to December 1, 2023.

The WCA is a local public entity of the State of California recognized as a joint powers authority, exercising the joint authorities of the San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy (RMC) and Los Angeles County Flood Control District (LACFCD) pursuant to Section 65000 et seq. of the Government Code. The purpose of the WCA is to expand and improve open space and recreational opportunities for the conservation, restoration, and environmental enhancement of the San Gabriel and Lower Los Angeles Rivers Watershed area consistent with the goals of flood protection, water supply, groundwater recharge, and water conservation. Additional information can be found at [wca.ca.gov](http://wca.ca.gov).

## **2. Instructions to Proposers**

**Submittals must be received by WCA by Thursday, January 5, 2023, 5pm.**

**Submit digital copy of proposal to [staff@wca.ca.gov](mailto:staff@wca.ca.gov)** with the subject line: USGR Mapping and Concepts RFP

Only digital copies will be accepted. Hard copies will not be accepted and will not be scored.

The final date to submit questions and requests for clarification is Thursday, December 29, 2022, 5pm. Responses to questions and requests for clarification will be posted at <https://www.wca.ca.gov/contracts> before December 30, 2022.

It is recommended that potential proposers inform WCA of their intention or interest in responding to this RFP. Such notification will allow for supplemental information regarding this solicitation to be provided, including addenda and responses to questions.

## **3. Background and Overview**

The commissioned data will inform management methods, management recommendations for addressing water temperature and quality targets, and mitigation opportunities in urban streams, including those fed by treatment discharge. The data is anticipated to have utility in informing analysis of urban environmental issues including pollutants in water and air, carbon sequestration, relationships between riparian vegetation cover and plant and animal species, and how vegetation communities and channel morphology influence temperature.

## **4. Proposals**

- 4.1 This RFP is a solicitation for proposals only, and is neither intended, nor to be construed as, an offer to enter into an agreement or engage in any formal competitive bidding or negotiation pursuant to any statute, ordinance, rule, or regulation. Thus, the WCA reserves the unqualified right to reject any or all proposals for any reason. WCA is responsible only for that which is expressly stated in this RFP.

- 4.2 WCA shall not in any way be liable or responsible for any costs incurred in connection with the preparation, submittal, or presentation of any proposals prepared and/or submitted in response to this request. Responses to this RFP shall be made according to the specifications and instructions contained herein.
- 4.3 WCA reserves the right to interpret or change any provisions of this RFP at any time prior to the proposal submittal date. Such interpretations or changes shall be in the form of addenda to this RFP. Such addenda will become part of this RFP and may become part of the resultant contract. Such addenda shall be posted on the website and emailed to proposers that have identified themselves as interested in submitting a proposal.
- 4.4 WCA, at its sole discretion, may determine that a time extension is required for submittal of proposals, in which case an addendum shall indicate the new proposal submittal date.
- 4.5 Any agreement entered into by the Proposer shall be consistent with applicable federal, state, and local laws.
- 4.6 Any and all parts of the submitted proposal may become part of any resultant contract between the selected Consultant and the WCA.
- 4.7 WCA will select successful Proposer(s) based on the identification of the highest benefit to the WCA and its partners in providing the requested services, regardless of race, creed, color, gender, or sexual orientation. This determination will be established on a combination of experience and qualification, quality and quantity of proposed services, and associated cost.
- 4.8 The successful Proposer is also referred to as the Consultant in this document.
- 4.9 All services to be provided by the Consultant through contracted work, and all materials, documents, reports, and other information of all types shall be the sole and exclusive property of the WCA, a public agency, and are intended for public use. Public documents and products lose their status as privileged and proprietary and may not be used for proprietary development of profit.
- 4.10 Expenditures, including certain reimbursable expenses such as travel, as well as Indirect and Overhead, are limited to the funding sources' policies and guidelines for the resultant agreement. This includes, but not limited to, the grant and contracting policies of the State of California, Proposition 1, the State Water Resources Control Board, Rivers and Mountains Conservancy, and Santa Monica Mountains Conservancy. Proposed budgets with indirect and/or overhead line items shall not cumulatively exceed 10% of the proposed budget.

## **5. Scope of Services Requested**

Consultant will complete the following tasks:

- 1) Create an original dataset showing tributaries of the Upper San Gabriel River and neighborhood scale opportunities for hydrologic restoration. Such neighborhood scale features will include but not be limited to landscape features with potential stormwater management benefits, such as natural drainages, soft bottom tributaries, historic stream paths, and seeps. Dataset will include biophysical factors that influence restoration feasibility (for example, drainage area, etc.). Proposers should list what they consider to be relevant factors in an urban context.
- 2) The dataset shall have an accompanying report that includes:
  - Description of mapping methods
  - Results of mapping
  - Discussion on how findings may inform future management decisions regarding water temperature targets
  - Discussion of restoration potential in the areas mapped
  - Suggested method to use the data to prioritize candidates for restoration
- 3) Data collected, shapefiles, and maps produced for this scope will be submitted to WCA in their original form for possible use in future studies.
- 4) Concept development of at least two sites or reaches based on results of mapping. Concept development sites will be identified in consultation with WCA. Concept development deliverables will depend on nature of opportunities identified through mapping, and may include: (1) graphic rendering of potential strategies, e.g. slope and channel stabilization, revegetation, and associated programming, and (1) associated quantifications, e.g. flow volume of tributary area, water capture potential, and area potentially vegetated.
- 5) OPTIONAL: Proposers may suggest additional tasks that support the goals of this project, which may be considered if additional funds become available. Optional tasks should be included in the proposal as separate line items.

## **6. Feasibility**

The Consultant will be responsible for determining the feasibility and cost of implementing the requested scope of services.

## **7. Schedule**

- 7.1 After successful negotiations, award of contract, and contract execution, a Notice to Proceed will be issued for scope of services as required in this RFP.
- 7.2 Performance period will be between January 30, 2023 and December 1, 2023. Monthly progress check-in with WCA project manager will be scheduled.

## **8. Compensation**

The consultant shall be compensated based on hourly labor fees and direct costs for materials and travel based on a not-to-exceed contract amount. Payments for the work accomplished shall be made upon verification and acceptance of such work by the Executive Officer or his designee.

Mileage for travel and material costs required to complete the Scope of Work shall be budgeted within the proposal work plan and shall be incorporated into the not-to-exceed contract amount. WCA will reimburse the Consultant for mileage at its customary rate. Reimbursable travel beyond budget amounts shall require advance approval from the WCA project manager. Per diem expenses are not reimbursable.

## **9. Proposal Contents**

**Cover Letter:** maximum two-page letter including the name and address of the organization submitting the proposal; whether the proposing firm is an individual, partnership, corporation, or joint venture; and the name, address, telephone number, and e-mail address of the contact person who will be authorized to make representations for the organization. Additionally, the cover letter should describe the proposer's current workload and capacity/commitment to complete the requested scope of services in accordance with project schedules indicated by the proposed work plan.

**Work Plan:** Provide a Work Plan for all services as outlined in Section 5 for this RFP. The typical Work Plan shall indicate activities in support of the services requested, including reviews and participation of sub-consultants.

Describe technical approach to providing requested services

List project deliverables.

Describe how the deliverables will benefit the objectives of this project.

A competitive proposal will describe the work plan and contingencies with enough clarity to be compared favorably with other submitted proposals.

**Task list and Timeline:** Task list and timeline for completion.

**Budget:** Budget organized by task.

**Portfolio Cut Sheets, Project References, and Project Team Profiles/Resumes:** Provide information on key individuals providing the offered services including relevant experience, education, and past projects. A competitive proposal will show specific examples of experience with data mining; or mapping hydrologic or landscape features that do not rely on current publicly available datasets; as well as experience with concept development and urban hydrological restoration.

## **10. Evaluation Criteria**

Proposals that are determined to be responsive to the services requested shall be evaluated based on the following criteria:

POINTS	SCORING CRITERIA
35	<p>General Quality and Responsiveness of the Proposal</p> <ul style="list-style-type: none"> <li>• Recognition of overall concepts and objectives of project</li> <li>• Alignment of the proposal with the WCA mission</li> <li>• Responsiveness to RFP requirements</li> <li>• Work plan and technical approach for all requested services</li> <li>• Ability of proposed plan to contribute knowledge of baseline conditions in the USGR</li> </ul>
30	<p>Qualifications</p> <ul style="list-style-type: none"> <li>• Statement of interest and capacity</li> <li>• Record of successful projects of similar scope and intent as evidenced by excerpts/examples of previous similar plans and reports included in application. Do samples submitted show evidence of innovative data mining, or original mapping of water, hydrologic, or landscape features?</li> <li>• Recommendations (provide name, title, email and phone number)</li> </ul>
30	<p>Not to exceed proposed cost proposal with tasks, and associated hours and hourly rates</p> <ul style="list-style-type: none"> <li>• Cost proposal will be considered for value and quality</li> <li>• Include any optional tasks as separate line items</li> </ul>
5	<p>Consideration of: entities based in the project territory, diversity in hiring, small business, women- or minority- owned business, Disabled Veteran Business Enterprise certified</p> <ul style="list-style-type: none"> <li>• Please note any considerations in Letter of Interest</li> </ul>

**11. Evaluation Process**

Final selection will be based on the identification of the best qualified consultant providing highest benefit to the WCA and MRCA for the requested services. In the event that a satisfactory agreement cannot be negotiated, the WCA will terminate negotiations with that entity and begin negotiations with the next highest-scoring Proposer, and so forth. After successful negotiations, the contract shall be submitted to the WCA Board for their consideration to award. The Board reserves the right to reject any proposals at their discretion.

WCA reserves the right to terminate the selection proceedings at any time. WCA does not guarantee the amount of services being requested.

**12. General Information**

- 1) All notices, clarifications, and addenda to this RFP shall be posted on the WCA website. It is the

proposing Contractor's responsibility to monitor the website for all information regarding this RFP. WCA is not responsible for sending individual notification of changes or updates. It is the sole responsibility of the proposing Contractors to remain apprised of changes to this RFP.

- 2) All proposals become the properties of the WCA upon receipt and will not be returned to the proposers. Costs incurred for developing proposals and in anticipation of award of the Agreement are entirely the responsibility of the Proposer and shall not be charged to WCA.
- 3) All Proposer responses and cost information shall remain undisclosed until a successful Proposer is identified or, if all proposals are rejected, after rejection of all such proposals; following that date all proposals shall be regarded as public records under the California Public Records Act (GC 6250 et seq) and subject to review by the public.
- 4) A Proposal may be rejected if it is conditional or incomplete, or if it contains any alterations of form or other irregularities of any kind. WCA may waive an immaterial deviation in a proposal. WCA's waiver of an immaterial deviation shall in no way modify the RFP document or excuse the Proposer from full compliance with all requirements if awarded an Agreement.
- 5) Proposer may withdraw proposal by submitting a written withdrawal request to WCA, signed by its authorized agent. Proposer may thereafter submit a modified/new proposal prior to the RFP Submission Deadline. Proposal modifications offered in any other manner, oral or written, shall not be considered.
- 6) A variation of the terms (i.e., change in project representative, change in budget) requires mutual consent from the WCA and Consultant. No verbal understanding, agreement, or amendment not incorporated into the Agreement is binding on either party.
- 7) Notification of the Right to Protest: Should a proposer claim the WCA failed to follow the procedures specified in this RFP, protestant must submit the initial protest letter and a detailed, written statement of protest, including the RFP title, and WCA contact information, to:

Watershed Conservation Authority  
Attn: Executive Officer  
100 N. Old San Gabriel Canyon Road  
Azusa, CA 91702

### **13. Exhibits**

- A. Map of anticipated temperature sensor locations in the Upper San Gabriel River.
- B. Sample WCA Contract



- Legend**
-  Existing Sensor Locations
  -  Potential New Sensor Locations
  -  Stream Inventory Area
  -  Potential Biological Survey Sections

AGREEMENT FOR CONSULTANT SERVICES FOR  
XXXXXXX

THIS AGREEMENT is made and entered into this XXth day of November 20XX,

BY AND BETWEEN

Watershed Conservation Authority  
(WCA), a joint powers authority  
between the Rivers and Mountains  
Conservancy (RMC) and the Los  
Angeles County Flood Control District  
hereinafter referred to as "WCA"

AND

Organization Name  
Address Line 1  
Address Line 2  
Email of primary contact  
Phone: (XXX) XXX-XXXX  
hereinafter referred to as  
"Consultant,"

The parties hereto do mutually agree as follows:

- 1. CONSULTANT'S SERVICES: The Consultant's services, as briefly summarized above, is set forth fully in the attached Exhibit A, Scope of Work. In the event of any actual or perceived discrepancy between the summary of the Consultant's services contained herein and the Scope of Work in Exhibit A, the Scope of Work in Exhibit A shall control.
- 2. CONSIDERATION: In consideration of the performance by Consultant in a manner satisfactory to WCA of the services described in Article 1 above, including receipt and acceptance of such work by the Executive Officer of the WCA (hereinafter called Executive Officer) or authorized representative, WCA agrees to pay Consultant a maximum not to exceed fee of XXX Dollars (\$XXX,XXX). Services will be rendered beginning Month Day, Year and end by Month Day, Year.

WCA shall compensate Consultant as follows:

- a. Monthly payments for the work accomplished shall be made upon verification and acceptance of such work by the Executive Officer or authorized representative. Monthly invoices shall be accompanied by an analysis of work completed for the invoice period. This analysis shall be prepared in a format

WCAXXXX

satisfactory to Executive Officer or authorized representative.

- b. In the event that budget reductions occur in any fiscal year covered by this Agreement that may cause WCA to consider terminating this Agreement, the parties agree to attempt to renegotiate the terms of this Agreement to reduce the cost thereof in lieu of termination under the termination provisions of the contract.
  - c. Consultant will not be required to perform services which will exceed the contract amount, scope of work, and contract dates without amendment to this Agreement.
  - d. Consultant will not be paid for any expenditure beyond the contract amount stipulated without a written amendment to this Agreement.
3. EQUIPMENT AND SUPPLIES: Consultant agrees to furnish all necessary equipment and supplies used in the performance of the aforementioned services and as set forth in the Exhibit A Scope of Work.
4. WCA RESPONSIBILITY: WCA will make available the items it specified it would make available, if any, in the Request for Proposals.
5. WCA REPRESENTATIVE: Executive Officer, or their authorized representative, shall represent WCA in all matters pertaining to the services to be rendered pursuant to this Agreement.
6. TERMS AND TERMINATION: The term of this Agreement shall commence on the date stipulated on Page 2 of this agreement, through Month Day, Year and unless otherwise modified, shall terminate on the date that the work is accepted by WCA. Either Party may cancel or terminate this Agreement for any lawful reason, without any liability other than payment for work already performed, up to the date of termination by giving thirty (30) days written notice of such termination to the other Party.

In the event of any such termination, Consultant shall provide to WCA a termination report within thirty (30) days consisting of all drawings, specifications, reports, and data accumulated through the date of such termination in a form accessible and usable by WCA.

7. INDEMNIFICATION:

7.1 WCA agrees to indemnify and hold harmless Consultant against any and all damages, claims, liabilities, costs, suits, or expenses arising from Consultant's

lawful activities on behalf of WCA under this Agreement for which WCA would be liable if Consultant were an employee, or to the extent the negligent acts and/or omissions of WCA cause or contribute to any loss or damage giving rise to the claim, suit or cause of action.

7.2 Consultant agrees to indemnify, defend, and hold harmless WCA, RMC, and the Los Angeles County Flood Control District, their Board of Supervisors, Executive Officers, agents, its elected or appointed officials, officers, and employees from and against any and all damages, claims, liabilities, costs, suits, or expenses, including reasonable defense costs and legal fees, and claims for damages of any nature whatsoever, including, but not limited to, bodily injury, death, personal injury, or property damage arising from, or connected with, Consultant's negligent, willful or unlawful acts, errors or omissions, or unlawful actions, operations, or services hereunder, as well as any Workers' Compensation suits, liability, or expense arising from, or connected with, services pursuant to this Agreement.

7.3 Neither the Consultant, nor any agents or subconsultants of any tier, shall be obligated to indemnify the WCA and its related persons and entities for liabilities caused by the willful negligence of the WCA and its related persons and entities. However, this provision does not limit any obligation to defend or indemnify the WCA and its related persons and entities arising under the policies of insurance maintained by the Consultant under Article 8, below.

7.4 Consultant agrees to require that any subconsultants, subcontractors, and independent contractors maintain the same insurance coverage which it is required to maintain under Article 8, below, including but not limited to, the obligation to name the WCA and its related persons and entities as additional insureds under each such policy.

7.5 Consultant further agrees to require any subconsultants, subcontractors, and independent contractors to indemnify, defend and hold harmless the WCA and its related persons and entities from any and all claims, liabilities, expenses, lawsuits, actions, or proceedings arising from, or connected with, any negligent act or omission of each such subconsultant, subcontractor, or independent contractor, its agents, or subconsultants of any tier.

7.6 Consultant's failure to require any subconsultant, subcontractor, or independent contractor to provide insurance and indemnification shall constitute a material breach of this Agreement. In the event of such breach, the WCA may, among other things, terminate this Agreement, suspend work being performed on the project by or on behalf of the Consultant, or in its sole discretion, the WCA may obtain replacement insurance coverage. In the event that replacement

coverage is obtained, the Consultant shall, upon demand, repay the WCA for the full amount of premiums paid by the WCA for the replacement coverage. In its sole discretion, the WCA may offset the cost of premiums against any monies due to the Consultant from the WCA.

8.0 LIABILITY AND INSURANCE: Without limiting Consultant’s indemnification of WCA and during the term of this Agreement, Consultant shall provide and maintain at its own expense the programs of insurance detailed below. Such programs and evidence of insurance shall be satisfactory to the WCA and primary to and not contributing with, any other insurance maintained by the WCA. Certificate(s) or other evidence of coverage shall be delivered to the Watershed Conservation Authority, 100 N. Old San Gabriel Canyon Road, Azusa, CA 91702 prior to commencing services under this Agreement, shall specifically identify this Agreement, and shall contain the express condition that WCA is to be given written notice by registered mail at least thirty (30) days in advance of any material modification or termination of insurance.

8.1 Failure by Consultant to procure and maintain the required insurance shall constitute a material breach of contract upon which WCA may immediately terminate or suspend this Agreement.

8.2 The Consultant shall obtain the following forms of liability insurance and such insurance shall be endorsed naming the Watershed Conservation Authority as an additional insured.

8.2.1. General liability insurance written on a commercial general liability form or on a comprehensive general liability form covering the hazards of premises/operations, contractual, independent contractors, advertising, products/completed operations, broad form property damage, and personal injury with a combined single limit of not less than One Million Dollars (\$1,000,000) per occurrence.

8.2.2. Comprehensive auto liability for all owned, non-owned, and hired vehicles with a combined single limit of not less than One Million Dollars (\$1,000,000) per occurrence.

8.2.3. Workers' Compensation: Insurance in an amount and form to meet all applicable requirements of the Labor Code of the State of California, including Employer's Liability with a One Million Dollar (\$1,000,000) limit, covering all persons the Consultant is legally required to cover. If Consultant is a sole proprietor and is not legally required to cover anyone, Consultant shall be exempt from this specific insurance requirement with the understanding and guarantee by Consultant that Consultant’s status in this regard will remain unchanged for the full duration of its performance

WCAXXXX

under this Agreement. Should Consultant's status as a sole proprietor change, it shall notify WCA in advance and shall immediately obtain the required insurance under this provision. Failure to do so shall constitute a material breach of this Agreement.

8.2.4. Professional Liability: Insurance covering liability arising from any error, omission, or negligent act of the Consultant, its officers, or employees with a limit of liability of not less than One Million Dollars (\$1,000,000) per claim or occurrence, and Two Million Dollars (\$2,000,000) in aggregate. If written on a Claims Made Form, Consultant shall continue to provide coverage for this project for a period of two years from the date of termination or completion of this Agreement.

9.0 ANTI-DISCRIMINATION: The Consultant shall abide by the following provisions found in Section 4.32.010 et seq. of the Los Angeles County Code:

9.1 Consultant certifies and agrees that all persons employed by Consultant, its affiliates, subsidiaries, or holding companies are, and will be, treated equally by Consultant without regard to or because of race, religion, ancestry, national origin, sex, or orientation, and in compliance with state and federal anti-discrimination laws. Consultant further certifies and agrees that it will deal with its subconsultants, bidders, and vendors without regard to or because of race, religion, ancestry, national, origin, or sex. Consultant agrees to allow access to its employment records during regular business hours to verify compliance with the foregoing provisions when so requested by WCA.

9.2 Consultant specifically recognizes and agrees that if WCA finds that any of the foregoing provisions have been violated, the same shall constitute a material breach of contract upon which WCA may determine to cancel, terminate, or suspend the contract. While WCA reserves the right to determine individually that the anti-discrimination provision of the contracts have been violated, in addition, a determination by the California Fair Employment Practices Commission or the Federal Equal Employment Opportunity Commission that Consultant has violated state or federal anti-discrimination laws shall constitute a finding by WCA that Consultant has violated the anti-discrimination provisions of the contract.

9.3 At its option, and in lieu of canceling, terminating, or suspending the contract, WCA may in its sole discretion impose damages for any violation of the anti-discrimination provisions of this clause, in the amount of Two Hundred Dollars (\$200) for each violation found and determined. WCA and Consultant specifically agree that the aforesaid amount shall be imposed as liquidated damages for any single violation, and not as a forfeiture or penalty. It is further specifically agreed

WCAXXXX

that the aforesaid amount is presumed to be the amount of damages sustained by reason of any such violation, because from the circumstances and the nature of the violation, it is impracticable and extremely difficult to fix actual damages. In no event shall WCA's exercise of its option under this section to be deemed or construed as a waiver or determination of rights with respect to any violation except the one at issue, including unresolved past, subsequent, continuing, or future violations.

**10.0 INDEPENDENT CONSULTANT STATUS:**

10.1 This Agreement is by and between WCA and Consultant and is not intended, and shall not be construed, to create the relationship of agent, servant, employee, partnership, joint venture, or association, as between WCA and Consultant.

10.2 Consultant understands and agrees that all persons furnishing services to WCA pursuant to this Agreement are, for purposes of Workers' Compensation liability, employees solely of Consultant and not of WCA.

10.3 Consultant shall bear the sole responsibility and liability for furnishing workers' compensation benefits to any person for injuries arising from, or connected with, services performed on behalf of Consultant pursuant to this Agreement.

11. **ASSIGNMENT:** This Agreement shall not be assigned without the prior written consent of WCA. Any attempt to assign without consent shall be void and confer no rights on any third parties, and shall not relieve Consultant of its obligations under this Agreement.

12. **FORUM SELECTION:** Consultant hereby agrees to submit to the jurisdiction of the courts of the State of California. The exclusive venue of any action brought by Consultant, on Consultant's behalf or on the behalf of any sub-consultant, which arises from this Agreement or is concerning or connected with services performed pursuant to this Agreement, shall be deemed to be in the Los Angeles County Superior Court.

13. **CONFLICT OF INTEREST:** No WCA employee in a position to influence the award of this Agreement or any competing agreement, and no spouse or economic dependent of such employee, shall be employed in any capacity by Consultant herein, or have any other direct or indirect financial interest in this Agreement.

14. **PROHIBITION FROM INVOLVEMENT IN BIDDING PROCESS:** Consultant understands

WCAXXXX

and agrees that neither it nor its subsidiaries shall be involved in any way in the bidding process on any Request for Proposal developed or prepared by or with the assistance of Consultant's services rendered pursuant to this Agreement, either as a prime consultant or sub-consultant, or as a consultant to any other prime consultant or sub-consultant. Any such involvement by Consultant shall result in the rejection by the WCA of the bid by the prime consultant in question.

## 15. GRATUITIES

15.1 It is improper for any WCA Executive Officer, employee, or agent to solicit consideration, in any form, from Consultant with the implication, suggestion, or statement that Consultant's provision of the consideration may secure more favorable treatment for Consultant in the award of the contract or that Consultants' failure to provide such consideration may negatively affect WCA's consideration of Consultant's submittal. Consultant shall not offer or give, either directly or through an intermediary, consideration, in any form, to a WCA Executive Officer, employee, or agent for the purpose of securing favorable treatment with respect to the award of the contract.

15.2 Consultant shall immediately report any attempt by a WCA Executive Officer, employee, or agent to solicit such improper consideration. The report shall be made to Executive Officer or authorized representative.

Among other items, such improper consideration may take the form of cash, discounts, service, the provision of travel or entertainment, or tangible gifts.

## 16. TERMINATION FOR IMPROPER CONSIDERATION

15.1 WCA may, by written notice to Consultant, immediately terminate the right of Consultant to proceed under this Agreement if it is found that consideration, in any form, was offered or given by Consultant, either directly or through an intermediary, to any WCA Executive Officer, employee, or agent with the intent of securing the Agreement or securing favorable treatment with respect to the award, amendment, or extension of the Agreement or the making of any determinations with respect to Consultants' performance pursuant to the Agreement. In the event of such termination, WCA shall be entitled to pursue the same remedies against Consultant as it could pursue in the event of default by Consultant.

17. NOTICE TO EMPLOYEES REGARDING THE FEDERAL EARNED INCOME CREDIT: Consultant shall notify its employees and shall require each sub-consultant to notify its employees, that they may be eligible for the federal Earned Income Credit under the

WCAXXXX

federal income tax laws. Such notice shall be provided in accordance with the requirement set forth in Internal Revenue Service Notice 1015.

18. REDUCTION OF SOLID WASTE: Consistent with the WCA's policy to reduce the amount of solid waste deposited in landfills, the Consultant agrees to use recycled-content paper to the maximum extent possible on the project.

19. WCA RIGHTS: The WCA may employ, either during or after performance of this contract, any right of recovery the WCA may have against the Consultant by any means it deems appropriate including, but not limited to, set-off, action at law or in equity, withholding, recoupment, or counterclaim. The rights and remedies of the WCA under this contract are in addition to any right or remedy provided by California law.

20. FAIR LABOR STANDARDS ACT: Consultant shall comply with all applicable provisions of the Federal Fair Labor Standards Act, and shall indemnify, defend, and hold harmless WCA, its agents, Executive Officers and employees from any and all liability including, but not limited to, wages, overtime pay, liquidated damages, penalties, court costs, and attorneys' fees arising under any wage and hour law including, but not limited to, the Federal Fair Labor Standards Act for services performed by Consultant's employees for which WCA may be found jointly or solely liable.

21. PREVAILING WAGE REQUIREMENTS: Consultant shall comply with all applicable prevailing wage requirements.

22. EMPLOYMENT ELIGIBILITY VERIFICATION: Consultant warrants that it fully complies with all federal statutes and regulations regarding employment. Consultant shall indemnify, defend, and hold harmless WCA, its Executive Officers and employees from employer sanctions and any other liability which may be assessed against Consultant or WCA in connection with any alleged violation of federal statutes or regulations pertaining to the eligibility for employment of persons performing services under this Agreement.

23. FORCE MAJEURE: Neither party shall be liable to the other for any delay in performance, nor shall any such delay in performance constitute default, if such delay is caused by a "Force Majeure" that was unavoidable despite the exercise of diligence and good business practices and is unrelated to any fault, intentional act or negligence of the Party seeking relief from the delay. As used in this section, "Force Majeure" shall include, but shall not be limited to, acts of God, fire, flood, earthquake, other natural disaster, drought, floods or other environmental conditions that prevents performance of the work, pandemic causing wide-spread work disruption, or governmental statutes or regulations superimposed after the fact. A Force Majeure shall not, under any circumstances, include delay caused by or relating to financial condition of the Party seeking relief from the delay.

WCAXXX

None of the Force Majeure events will allow for a delay unless and until the Party seeking relief for such delay and interference delivers to the other Party written notice describing the event, its cause, when and how such Party obtained knowledge, the date the event commenced, and the estimated delay resulting therefrom. A Party claiming a delay from a Force Majeure event (a "Force Majeure delay") must deliver such written notice within ten (10) business days after it obtains actual knowledge of the event. The Party receiving a claim of a Force Majeure delay shall then have ten (10) business days from receipt of the written notice to accept or reject the claimed Force Majeure delay. Such acceptance shall be in writing. If the Party receiving the notice of a Force Majeure delay takes no action within ten (10) business days of receipt of such written notice, the claimed Force Majeure delay shall be deemed rejected. The period within which a Party is able to accept a Force Majeure delay may be extended a reasonable time period upon written mutual consent of both Parties to allow the Parties to verify the occurrence of a Force Majeure event, or to confirm the extent of the delay and impact claimed to be caused by a Force Majeure event. The acceptance of a Force Majeure delay shall only extend for the delay estimated in the original written notice of Force Majeure delay; any subsequent delays relating to the same Force Majeure event must be noticed in a subsequent written notice and accepted in a written acceptance, following the same procedures as set forth herein.

If a Force Majeure delay is accepted, and loss or damage was unavoidable despite the exercise of diligence and good business practices and is unrelated to any fault, intentional act or negligence of either Party, WCA and the Consultant shall meet and confer in good faith to determine the best course of action to address any damage that may be caused by such Force Majeure delay.

The Parties shall meet and confer in good faith in the event there is a dispute over whether a Force Majeure delay has occurred.

24. EXECUTIVE ORDER N-6-22-RUSSIA SANCTIONS: The Contractor shall comply with Executive Order N-6-22 (the EO) regarding Economic Sanctions against Russia and Russian entities and individuals. "Economic Sanctions" refers to sanctions imposed by the U.S. government in response to Russia's actions in Ukraine, as well as any sanctions imposed under state law. The EO directs state agencies to terminate contracts with, and to refrain from entering any new contracts with, individuals or entities that are determined to be a target of Economic Sanctions. Accordingly, should the State determine Contractor is a target of Economic Sanctions or is conducting prohibited transactions with sanctioned individuals or entities, that shall be grounds for termination of this agreement. The State shall provide Contractor advance written notice of such termination, allowing Contractor at least 30 calendar days to provide a written response. Termination shall be at the sole discretion of the State.

25. SEVERABILITY: If any provision of this Agreement is found by a court of competent jurisdiction to be invalid, void, or unenforceable, such provision shall be fully severable and such a finding shall in no way affect any other provision of this Agreement or the

WCAXXXX

validity or enforceability of this Agreement.

25. NOTICES: Any notice required or desired to be given pursuant to this Agreement shall be given in writing and addressed as follows:

WCA

Watershed Conservation Authority  
100 N. Old San Gabriel Canyon Road  
Azusa, CA 91702  
Attention: Mark Stanley, Executive Officer

Organization Name

Contact Name  
Address Line 1  
Address Line 2  
Email

The address for notice may be changed by giving notice pursuant to this paragraph.

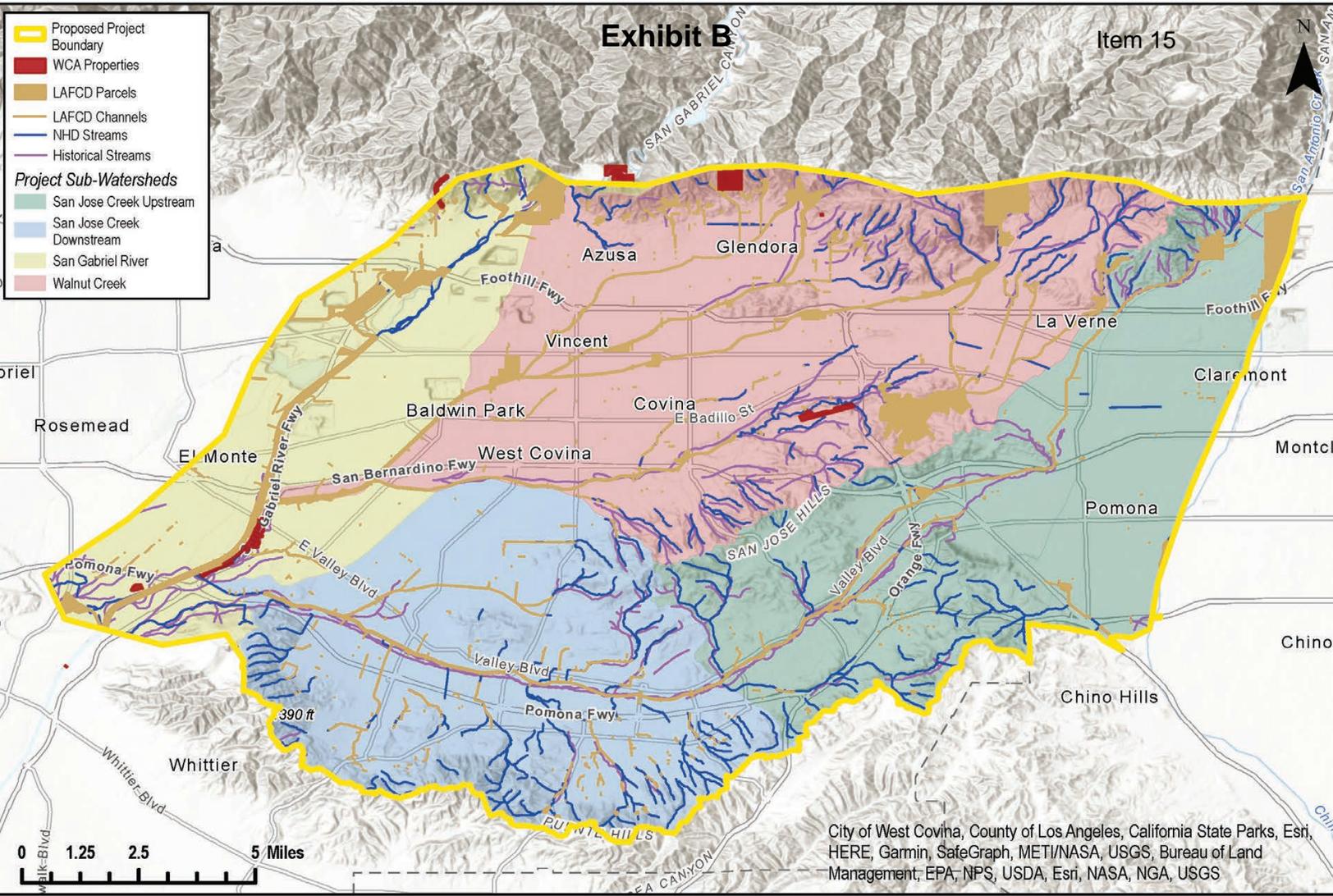
26. ENTIRE AGREEMENT: This contract constitutes the entire Agreement between WCA and Consultant and may be modified only by further written amendment to the Agreement between the parties hereto.

WCA

Organization Name

By \_\_\_\_\_  
Mark Stanley  
Executive Officer

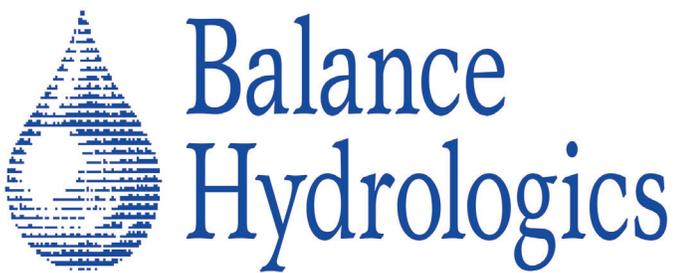
By \_\_\_\_\_  
Authorized Signatory Name  
Title

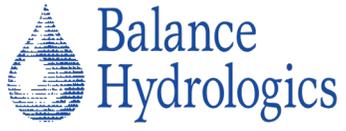


**Proposal for**

**WATERSHED CONSERVATION AUTHORITY**  
**Spatial Dataset and Concept Development for**  
**Tributaries of the Mid/Upper San Gabriel River**

**5 January 2023**





*This page intentionally left blank.*

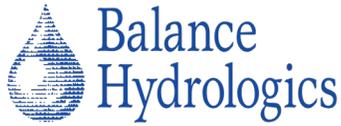


Table of Contents

COVER LETTER..... 1

WORK PLAN..... 3

TASK LIST AND TIMELINE..... 11

BUDGET..... 12

PORTFOLIO CUT SHEETS AND PROJECT REFERENCES..... 13

    Sepulveda Basin Restoration Feasibility Study, The River Project, Los Angeles County, Los Angeles, California 13

    Concrete Channel Removal at Goleta Creek and Watershed Management Plan, City of Goleta, Santa Barbara, California 15

    San Gabriel Mountain Foothills, Hydrologic Opportunities and Parcel Acquisition Prioritization, Watershed Conservation Authority, Los Angeles County, Azusa, California 17

    San Felipe Restoration, Santa Clara Valley Habitat Agency, Santa Clara County, San Jose, California 18

    San Gabriel Mountains Restoration Opportunities in the San Gabriel Canyon and along the Azusa Plain, Watershed Conservation Authority, Los Angeles County, Azusa, California 20

    Calder Creek Restoration and Vision Concepts, Sebastopol, California 21

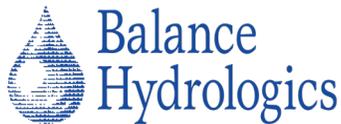
    Old Tujunga Wash Restoration at Johnny Carson Park, Burbank, California 22

    Tujunga/Pacoima Watershed Plan, California Bay-Delta Watershed Program 23

    Water LA Project, City of Los Angeles, California 24

PROJECT TEAM..... 25

RESUMES..... 27



## Cover Letter

January 5, 2023

Watershed Conservation Authority  
100 N. Old San Gabriel Canyon Road  
Azusa, California 91702

**RE: Request for Proposals for Spatial Dataset and Concept Development for Tributaries of the Mid/Upper San Gabriel River**

Dear Watershed Conservation Authority:

Balance Hydrologics, Inc. is pleased to submit our proposal in support of the important work the Watershed Conservation Authority (WCA) is doing to reconnect communities to nature and rehabilitate the streams and waterways that nurture and support that connection. We are skilled engineers and earth science professionals dedicated to supporting the WCA in completing a hydrologic-focused geo-database and at least two, and likely up to four, restoration concepts in a project description sheet form (depending on the size and scope of the selected example projects) that can be applied to specific sites, as well as being scalable templates for broader implementation within the Upper San Gabriel River Watershed and tributaries.

We propose to collaborate closely with WCA to support the specific goals of this project as well as the vision of the organization. We will use our technical expertise to compile and analyze geo-spatial data to inform and guide future planning and restoration goals. We have the flexibility to adjust elements of the work plan described herein, if desired, to achieve project objectives more efficiently and effectively.

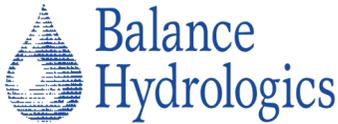
### ***Project Team***

Balance Hydrologics (Balance) will lead a small multidisciplinary team of highly qualified professionals with a wide range of experience in southern California watersheds, including two project partners: The Wildling Design Studio (WDS; Jessica Hall) and The River Project (TRP; Melanie Winter).

### ***Estimated Schedule***

We are prepared to begin work upon a notice to proceed, given that we have a master on-call agreement in place. We will subcontract with TRP and WDS. We have the staffing to complete the project within the schedule proposed in the RFP and detailed herein.

The attached proposal highlights the following strengths of our team:



- **Expertise:** Our team has completed projects focused on a broad range of watershed issues across Northern, Central and Southern California over the past 30+ years. Balance completed two previous projects for WCA that were finalized in April and May 2021, WDS has an on-call contract with WCA and has completed numerous Southern California projects, and TRP has been dedicated to restoring the vital ecosystems of the greater Los Angeles River area for a climate-resilient future. As a team, we will leverage documents already available and apply our collective understanding of Southern California watershed processes to WCA goals to produce the deliverables requested.
- **Effective communication:** We pride ourselves on effective communication of complicated aspects of our technical work in written, visual, and geo-spatial form. We consistently communicate with our clients and pride ourselves on flexibility when adjustments to project goals and tasks may be desired by the client, within available budget.
- **Readiness and Ability:** Our team has the availability and is excited to provide the requested services and deliverables on a timely basis as described in our proposed work plan. We are committed to our clients and to the success of their projects, and we share a passion for developing sound evaluations and useful project deliverables, submitted on time and in budget.

Our consulting services will be performed in accordance with applicable State and City regulations and ordinances under the guidance of Professional registrations held by our firm. This Project will be managed by Anne Senter, PhD, [asenter@balancehydro.com](mailto:asenter@balancehydro.com), direct line: 415-595-1875 and overseen by Scott Brown, P.G. and Principal Hydrologist/Geologist, [sbrown@balancehydro.com](mailto:sbrown@balancehydro.com).

Edward Ballman, PE is authorized to represent Balance on all matters relating to this proposal and his contact information is listed below.

Address: 800 Bancroft Way • Suite 101 • Berkeley, CA 94710  
 Phone Number: 510-704-1000, x203  
 Email Address: [eballman@balancehydro.com](mailto:eballman@balancehydro.com)

We hope that you agree that our team provides the required expertise and local experience to best meet the needs of the WCA on this project. Please feel free to contact either Anne Senter or Scott Brown if you have any questions or require additional information about our proposal. Thank you for this opportunity.

Sincerely,

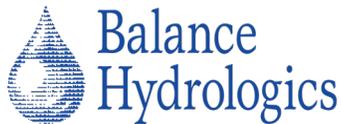
BALANCE HYDROLOGICS, Inc.

---

Anne E. Senter, PhD  
 Geomorphologist/Hydrologist

---

Edward Ballman, PE, CFM  
 Principal Engineer



## Work Plan

### Project Goals

The Balance Team proposes a process- and science-based approach to manage the development of a geospatial database that will provide a substantial contribution to understanding hydrologic baseline conditions in the Upper San Gabriel River watershed (USGR; approximately 209 sq mi). The geodatabase will be focused on identifying hydrologic and geomorphic restoration opportunities in the USGR, within the framework of WCA and regional watershed management goals<sup>1</sup>. Our project efforts will focus primarily on smaller catchment areas where the Los Angeles Flood Control District (LAFCD) does not have jurisdiction, where streamflow historically flowed or is still seasonally present, where remnant seeps or springs may be present, where opportunity areas are identified to revitalize, rehabilitate or restore stream functionality and ecological values, and where opportunities to promote climate resilience throughout the urbanized (and occasionally semi-urbanized) portion of the USGR watershed are identified. Other areas of focus will include along the San Gabriel River mainstem, at WCA property locations, and at sub-watershed tributary confluences where restoration concepts and/or BMP retrofits may be most effective.

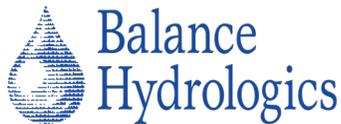
We propose a project boundary that mostly conforms to the coarse outline provided by WCA<sup>2</sup>. Some adjustments were made along the southern and eastern boundaries to capture watershed delineations as defined by USGS HUC-12 shapefiles and the Los Angeles County boundary, respectively (see cover image). We will use the latest ESRI ArcGIS Pro mapping software platform (currently 10.8.2) to build the geodatabase within this area and will perform spatial analyses that result in new quantitative and qualitative data that will help identify and prioritize restoration potential at sub-watershed to neighborhood scales.

We will combine geospatial analyses with manual review of the geodatabase and analysis results to identify areas where hydrologic/geomorphic features are located (or historically were or could be/should be in the future) and

---

<sup>1</sup> “Regional watershed management goals related to geomorphic and hydrologic processes include preserving, enhancing or rehabilitating water quality and quantity and functional habitat that support native species and natural processes. Functional habitat that are accessible to the public help to promote community health, and in addition, flood control is an important element of public health. Such processes are present throughout the San Gabriel Valley Basin, from summit to sea”. Excerpt from Balance Hydrologics’s Geomorphic and Hydrologic Opportunities in the WCA Priority Parcels along the San Gabriel Mountain Foothills memorandum, (Senter and Brown, 2021).

<sup>2</sup> We recognize that the general project area provided by WCA cuts across natural watershed boundaries in many areas; this is a function of urbanization patterns and historical canal, irrigation and channelization practices.



develop restoration-potential “classes”<sup>3</sup> that can be used to anticipate which types of restoration concepts could be used in which areas of the USGR.

In consultation with WCA, we will identify locations where hydrologic restoration potential appears feasible and where on-the-ground reconnaissance could provide more information. A two-day field site visit will be scheduled to spot check the results of our desktop analyses<sup>4</sup>. We will work closely with WCA to select and visit as many site locations as possible in the study area.

The project report will incorporate information learned from GIS analyses as well as from our field site visits and collaborative discussions with WCA staff. The report will describe our mapping methods and will contain a summary matrix identifying relevant hydrologic elements of the analyses and a relative scale of restoration potential. These activities will culminate in the development restoration concepts that focus on the potential for revitalizing natural environments and providing new connections for communities in the USGR, as described in Task 4.

### Scope of Work

Proposed project-specific services are outlined below:

#### Task 1. Hydrologic Spatial Database Development

The overarching goal of developing an original hydrologic-focused spatial database in the USGR is to provide a contextual overview of historical and existing conditions and establish priority areas where restoration or management actions could be implemented to protect or improve existing (or future) creek functions and values. Results from spatial analyses, manual desktop investigations, and field reconnaissance will provide insight into patterns within and between sub-watersheds and neighborhoods. Locations, or restoration type-classes (as described in Footnote 3), will be identified that have restoration potential in partnership with WCA staff.

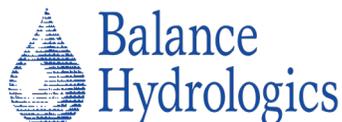
We have materials provided by WCA from previous related work focused on hydrologic opportunities in the San Gabriel Valley Foothills (Senter and Brown, 2021). Therefore, we have familiarity with documents pertinent to this project, including: the regional water management plan; historical ecology report of the area; existing reports and assessments that describe natural conditions; a WCA literature review of select reports; and a variety of existing shapefiles, including digitized historical maps<sup>5</sup>. This information will provide important source material for the

---

<sup>3</sup> Restoration “classes” identified for this project may be defined as generalized types of restoration activity (e.g., “daylighting” creek reaches, stormwater capture at residential-to-neighborhood scales, floodplain reconnections, water quality improvements via riparian connectivity, etc.) that may be feasible at more than one location.

<sup>4</sup> We have chosen to limit the field ground truthing to a two-day effort in order to conform with the proposed budget limits for this project, instead concentrating our work in the GIS compilation/analysis effort and conceptual example projects. Additional field confirmation efforts could be provided if additional budget becomes available in the short-term, or be included as an additional task in future project phases.

<sup>5</sup> Wm. H. Hall, 1888 Irrigation Maps, H. Gannett 1894 Topographic Maps.



geodatabase relevant to the highly urbanized USGR. In addition, we will review the GreenPortal<sup>6</sup> website (for the lower San Gabriel River) to glean other sources from that site that may have relevance for the USGR watershed. We will collaborate with WCA to structure the hydrologic geodatabase to be in support of/compatible with the framework of the GreenPortal (if desired).

We will build the initial geodatabase using a suite of existing shapefiles in our files or that can be obtained via public access sources, which may include: Los Angeles County Flood Control District (LACFCD) parcels and storm drain network, Los Angeles County storm drain maps<sup>7</sup>, WCA property boundaries, USGS watershed boundaries, NHD hydrography dataset, CSUN historical hydrologic maps, historical aerial imagery, groundwater basin boundary, groundwater dependent ecosystems, significant ecological areas, seeps and springs data, infiltration potential, fire history, existing conservancy lands, percent impervious surfaces, debris basin locations, CalAdapt climate projections, and geology and soils maps. In addition, we will assess storm runoff potential via USGS StreamStats and hydrologic spatial analyst tools.

The final geodatabase will include three primary types of data: input datasets, analysis datasets, and results datasets. All input datasets used in the analysis will be refined and clipped to the area of interest, including flowlines, channel types (concrete/natural), seeps and springs, topography, and land cover. Once the initial geodatabase has been assembled, we will thoroughly explore and analyze the data by using spatial tools, such as but not limited to, buffer, proximity, network, neighborhood, clusters, or other statistical analyses, to achieve an understanding of the hydrologic and geomorphic opportunities and constraints within the datasets. The outputs from this data processing will produce unique layers, including hydrologic data (watershed delineation, stream order, stream length, stream slope, flow directions, flow accumulation), topographic data (slope, relief), and land use (infiltration, permeability, parcel use/ownership). The final output data will come from combining and examining all of the data produced to classify channel segments by various additional criteria, as described in Task 2.

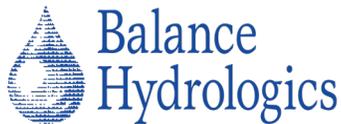
The geodatabase will include metadata for the layers we create and will include data sources, georeferencing, and processing information. The geodatabase will be prepared in a format fit for publication on an online GIS platform by WCA.

In addition to GIS-based analyses, we will manually examine geodatabase elements and analysis results, highlighting features and properties within the shapefiles that have relevance for restoration. The manual portion of our analysis approach will allow for a focus on examining results from historical aerial imagery analyses and historically documented streamflow paths, seeps and springs. Select snapshots of historical aerial imagery will be analyzed to allow for overlay with more-contemporary infrastructure, flowlines, and associated analyses. Comparisons between

---

<sup>6</sup> <https://greenportal.wca.ca.gov/>

<sup>7</sup> <https://pw.lacounty.gov/fcd/StormDrain/index.cfm>



historical streamflow paths, NHD streamflow paths, and flow accumulation-derived streams will show areas between these features that may hold important restoration opportunities.

Examples of our approach using geodatabase analyses, manual examination of results, and field site visits that could lead to concept development (as described in Task 4):

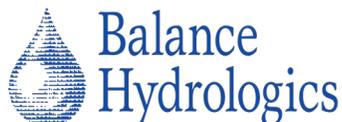
- Geospatial analyses may result in identification of areas of high soil infiltration, coupled with identification of vacant or low-density parcels adjacent to an open-section creek channel, which could guide classification of areas with high potential for floodplain connectivity projects. Subsequent manual examination of historical aerial imagery and historically-documented streamflow paths and seeps/springs may help us identify specific channel segments that have been overlooked. A field site visit will be used to verify the information.
- Geospatial analyses may result in identification of buried stream segments, coupled with historical data that identifies springs or seeps, which could guide classification of areas with high potential for “daylighting”<sup>8</sup>. Subsequent layering of Cal-Adapt temperature forecasts and manual examination of riparian corridor remnants may help us identify specific areas where restoration of a stream segment would include daylighting a reach, restoring it to a natural condition and improving the climate resilience of the neighborhood. A field site visit will be used to verify the information.
- Geospatial analyses may result in identification of road crossings or culverts where historical streamflow paths have been buried, coupled with vicinity to natural channels, which could guide classification of areas with high potential for retrofit BMPs in neighborhoods. Subsequent manual examination may help us identify spaces to accommodate infiltration swales along the street at individual homes, which would provide locations for implementation of TRP’s “urban acupuncture” approach<sup>9</sup> to stormwater management and water quality. A field site visit will be used to verify the information.
- Geospatial analyses may result in identification of road crossings or culverts where historical streamflow paths have been buried, coupled with vicinity to natural channels, which could guide classification of areas with high potential for daylighting. Subsequent manual examination may help us identify whether enough space still exists to unbury the channel and reconnect to upstream or downstream (or both) natural open channel segments, which would provide newly restored channel length, increasing ecological functions and values, and improving water quality. A field site visit will be used to verify the information.

The geodatabase and our manual desktop examination of results will be used to produce and identify a series of spatial analyses results on a sub-watershed and neighborhood basis, potentially including:

---

<sup>8</sup> One municipal “solution” to increased development and street crossing, followed by attendant nuisance flooding, is that urban streams get routed into a closed culvert or pipe and are covered with soils and other materials such as concrete; in essence, streams are buried.

<sup>9</sup> See TRP’s website; one example is <https://www.theriverproject.org/water-la-pilot-panorama-city>



- Watershed characteristics: stream order, drainage density, development upstream/downstream
- Stream characteristics: channel form and pattern, in-channel features, connectivity to floodplain
- Percent “natural” channel (streams in parkland, with natural channel bottoms, in non-developed areas) versus buried extents versus concreted or otherwise constrained channel segments,
- Relative degree of hydromodification
- Stream length and slope per channel segment,
- Percent open space versus impervious cover across each subwatershed (an indicator of degree of urbanization),
- Percent shade and relative impact on water temperature,
- Infiltration potential categorization based on soils and geological mapping,
- Riparian corridor conditions and potential for enhancement,
- Potential for water quality improvements
- Lateral distances to nearest development (possible floodplain reconnection),
- Open space parcel size and position relative to a stream
- Connectivity to or potential to reconnect upstream and/or downstream natural channels,

We will complete a two-day ground-truthing field exercise. Working closely with WCA staff, we will identify a minimum of 20 sites to visit. While in the field, we will record additional observations and work together with WCA to verify or disprove general impressions and considerations gleaned from our desktop analyses.

In sum, our team expertise in synthesizing qualitative and quantitative analysis results (including historical assessments) coupled with our field-based knowledge of geomorphic and hydrologic processes will be used to identify restoration opportunities in the USGR urban (and occasionally semi-urban) environment.

*Deliverable:*

- Draft and final USGR hydrologic-focused geodatabase and associated spatial analyses in .apr and .gdb format that will provide a substantial contribution to understanding hydrologic baseline conditions and restoration possibilities.

Task 2. Hydrologic Opportunities and Constraints Report

Using our spatial database development, analyses and results, the available background information, and coupled with our geomorphic/hydrologic reconnaissance data and observations, we will compile information that characterizes the existing physical condition of smaller tributary segments in each sub-watershed as well as where WCA property is located on the USGR mainstem, at larger tributary confluences, and along the San Gabriel River mainstem in select



locations. Our work will describe the active processes and identify opportunities and constraints for restoration and water quality improvement (especially temperature) projects.

The report will include the mapping methods used to develop the geodatabase, a list of the shapefile layers included in the ArcGIS .apr and .gdb files (including new layers developed during analyses), and a summary of results of completed analyses. We will further present our findings using maps, graphics, illustrations, photographs and/or low-elevation aerial photography, as appropriate, so that WCA and other stakeholders can consider and assist in the prioritization of restoration or management actions.

Geodatabase results coupled with manual analysis and field observations of select sites will be used to compare and contrast potential opportunities and identified constraints. A relative ranking system ("matrix") will be prepared to qualitatively organize and prioritize potential restoration locations by (a) sub-watershed and by (b) restoration potential class that may apply to multiple locations (as defined in Footnote 2). Information summarized in the matrix will also be categorized in the geodatabase, resulting in tables and maps that will include relative prioritization of identified restoration locations and types within the context of WCA and regional watershed management goals.

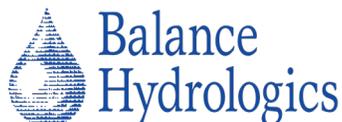
Matrix factors may evolve as analyses, results and field observations are synthesized, and as objectives become more refined via collaborative conversations with WCA.

Possible factors to organize and prioritize locations may include ranking sites according to:

- Relative magnitude (i.e., minor, moderate, major) of restoration or management action needed.
- Relative influence a restoration or management action might have locally, upstream, downstream, or in the community.

Example categories that capture a set of overarching classes of restoration potential include:

- Increase in infiltration potential into the local aquifer,
- Improved longitudinal connectivity between existing natural reaches,
- Revitalized/Reconnected remnant riparian corridors,
- Water quality improvements, especially related to temperature,
- Preservation/enhancement of seep and spring areas,
- Classes of slope (low, medium, high),
- Lateral distance to nearest development.



*Deliverable:*

- Draft and final report that includes geodatabase development methods, analyses and results; discussion of how findings may inform future management decisions regarding water temperature targets, and a matrix that identifies locations where restoration potential is likely to be high relative to other similar locations.

Task 3. Database Submittal and Coordination with WCA

The geodatabase and analysis results will be submitted in DRAFT form for review by WCA staff. We anticipate one round of review and minor revisions to the database and report given the available budget. Coordination with WCA will include selection of field reconnaissance locations based on geospatial analyses, results and desktop investigations. This task also contains a modest number of hours for project management between subconsultants and WCA, including routine correspondence, coordination and invoicing.

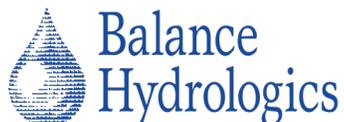
Task 4. Development of Hydrologic Restoration Concepts

The restoration concepts element of the project will focus on developing clear restoration and/or management recommendations at particular example locations that set WCA up with workable concepts and descriptions of potential strategies and projects. The concepts are structured so that they may eventually be adapted and implemented elsewhere, when applicable.

We have found that the development of concise “Project Description Summary Sheets” (PDSS) provides effective underlying support for grant applications or requests for proposals when the decision is made to turn concepts and recommendations into actions and implementations. Project Description Sheets summarize qualitative and quantitative information that explains the restoration concept, and have been used as hand-outs at community meetings in other projects. Each PDSS will describe the existing conditions and problems to be solved, the restoration or management approach and opportunities available, and what objectives would be needed to achieve rehabilitation, preservation, or management goals. In addition, each PDSS includes target conditions and/or success criteria, estimated project implementation timeframe or phasing approach, pre- and post-monitoring recommendations, an order-of-magnitude cost range estimate, and illustrations/graphics/photos that identify the specific problems at the example site location and presents potential solution concepts. Given our team capabilities with WDS and TRP, we propose developing summaries as described above (see the Goleta project abstract which includes a 2-page PDSS example), plus one or two illustrations per concept that further conceptualize the restoration ideas. Each summary will consist of up to 4 pages.

*Deliverable:*

- Draft and final of at least 2, and likely up to 4, project description sheets (depending on the size and scope of the selected example projects) for inclusion in the final report. The sites and/or restoration classes to be included in this deliverable will be chosen based on close coordination with WCA staff.



#### Optional Task 5: Additional Field Reconnaissance

Given the size of the project area (approximately 209 sq mi), there are likely to be upwards of 100 locations or more that could benefit from a site visit, to either identify as having restoration potential or to verify that such potential is not likely at a particular site. We estimate that each additional field day would allow for at least 10 additional site visits, which would require two consultants in the field and processing the collected information. This task is not strictly required but would provide more field-verified information that could be beneficial to WCA's long-term goals, and could be planned for on a 1-day to multi-day basis (see Optional Task in budget for estimated fees per each additional field day).

#### Optional Task 6: Equity Analysis of Restoration Opportunities

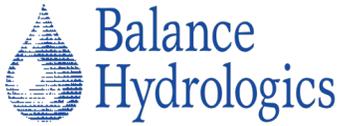
Quantifying distance from parkland is a now common criteria in public health, environmental justice and equity analyses to understand the spatial distribution of ecosystems such as streams and wetlands to different communities. As awareness of the importance of access to nature has increased, the WCA has the opportunity to be a leader in developing tools that include streams, with an eye to interrogating the distribution of these resources in terms of socio-economic factors. The proposed analysis would identify the proximity of existing streams and potential stream restoration sites to disadvantaged and "park poor" communities to inform prioritization of restoration sites.

We would utilize the State of California Disadvantaged Community (DAC) Mapping Data, if available, or US Census American Community Survey data, the Los Angeles County Parks and Public Health report<sup>10</sup>, and the Los Angeles County<sup>11</sup> land types GIS layers to identify another set of factors to the classification described in Task 2, where parks are not located but stream restoration opportunities may be present, or where trails may help connect communities to streams or to parks (see Optional Task in budget for estimated fees for this effort).

---

<sup>10</sup> [Park Needs Assessment – RPOSD \(lacounty.gov\)](https://www.lacounty.gov/parksandpublichealth/parkneedsassessment)

<sup>11</sup> <http://egis3.lacounty.gov/dataportal/2015/01/08/la-county-land-types/>

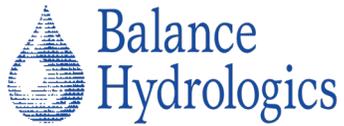


## Task List and Timeline

### Estimated Schedule

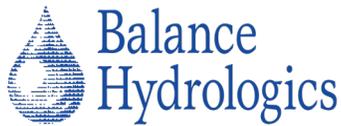
We are prepared to begin work upon a notice to proceed, given that we have a master on-call agreement in place. We will subcontract with TRP and WDS. We have the staffing to complete the project within the schedule proposed in the RFP, as follows:

Project Element	Estimated Schedule
Notice to Proceed, Contracting	January 2023
Geodatabase Dataset Review (Task 1)	February 2023
Geodatabase Development and Analyses (Task 1)	February-June 2023
Field Site Visit (Task 1)	June-July, 2023
Site Selection for Restoration Concept Development (Task 1)	July-August, 2023
Draft Geodatabase and Report Submittal (Task 2 and Task 3)	August-September, 2023
Restoration Concepts Development (Task 4)	August-October, 2023
Draft Submittal of Restoration Concepts (Task 4)	October, 2023
Final Submittal of Project Deliverables: Geodatabase, Report, and Restoration Concepts (All Tasks)	November-December, 2023



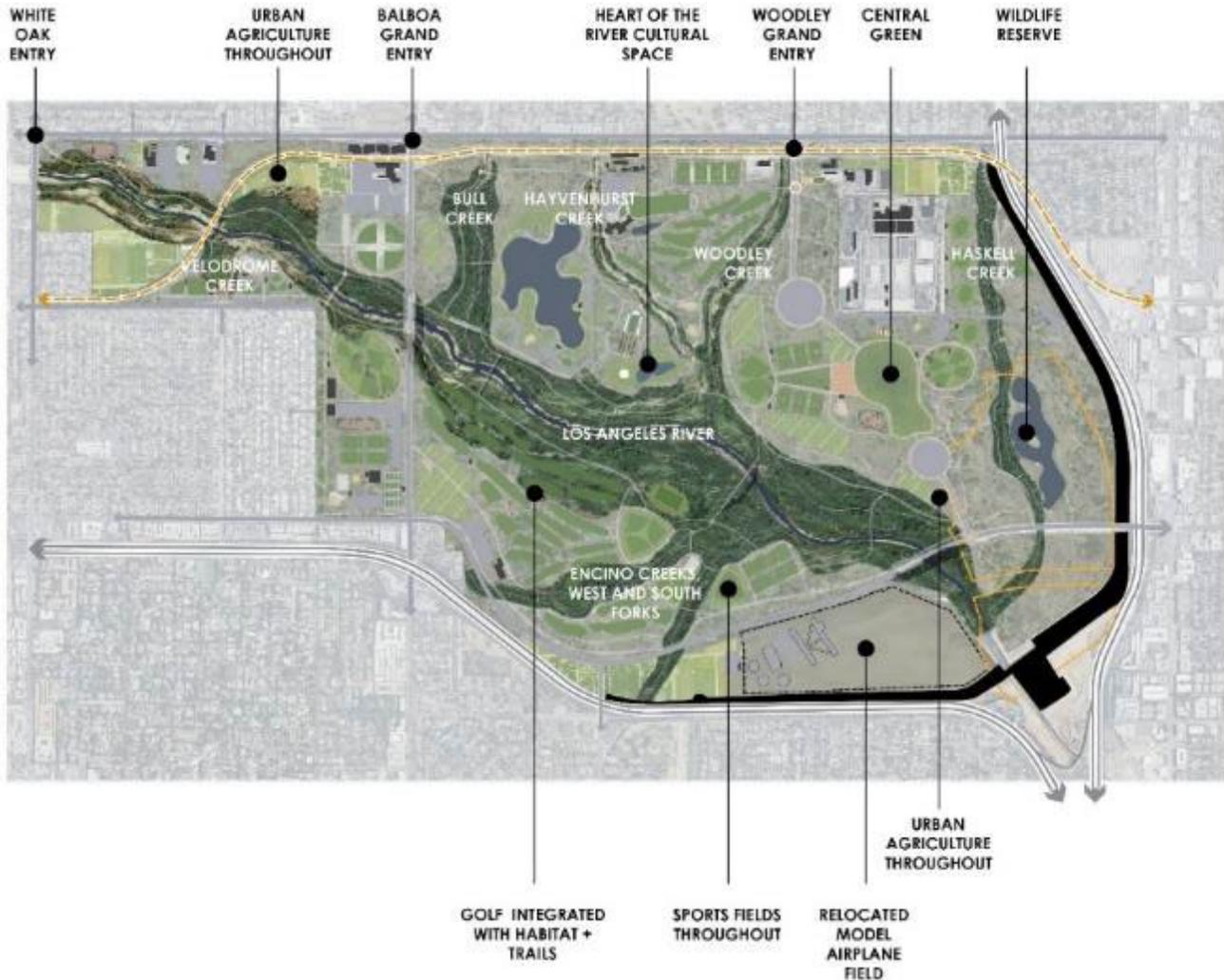
Budget

Table 1. Anticipated Staff Hours by Task									
222176 Upper San Gabriel River Watershed Hydrologic Assessment									
Task Number and Description	Principal II	Sr. Staff Professional	Staff Professional	Sr. Proj Admin	Report Specialist		Sub-consultant The River Project	Sub-consultant Widling Design Studio	Labor Costs For Task
	Hourly Rate	\$237	\$184	\$158	\$135	\$95	\$155	\$130	
Task 1. Hydrologic Spatial Database Development	6	48	132	8			36	30	\$41,670.00
Task 2. Hydrologic Oppportunities and Constraints Report	6	56	16		8		24	30	\$22,634.00
Task 3. Database Submittal and Coordination with WCA	2	25	8				4	8	\$7,998.00
Task 4. Development of Hydrologic Restoration Concepts	8	48	18				24	80	\$27,692.00
<b>Subtotal Hours</b>	22	177	174	8	8		88	148	
<b>Total Hours</b>	<b>625</b>								
							<b>TOTAL LABOR for RFP Tasks</b>		<b>\$99,994.00</b>
								<b>GRAND TOTAL</b>	<b>\$99,994.00</b>
<b>OPTIONAL TASKS</b>									
OPTIONAL Task 1. Additional field reconnaissance (approximate cost per day)	2	12					6	6	\$4,392.00
OPTIONAL Task 2. Equity analysis of restoration opportunities	4	24	16	2	2		16	16	\$12,912.00



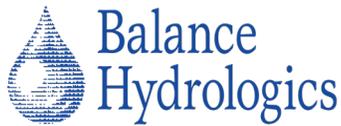
## Portfolio Cut Sheets and Project References

### Sepulveda Basin Restoration Feasibility Study, The River Project, Los Angeles County, Los Angeles, California



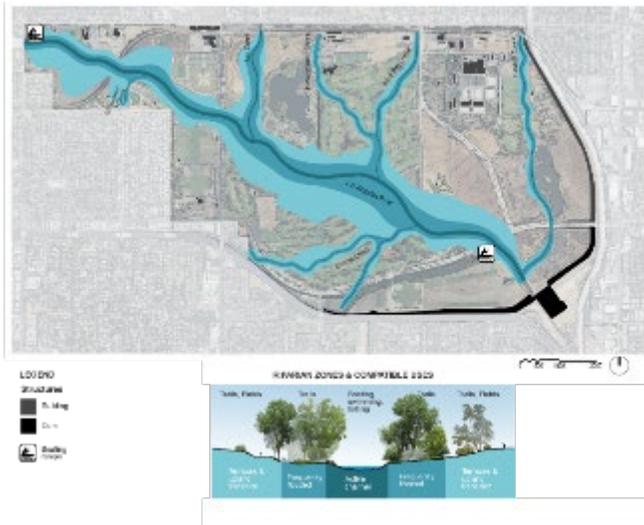
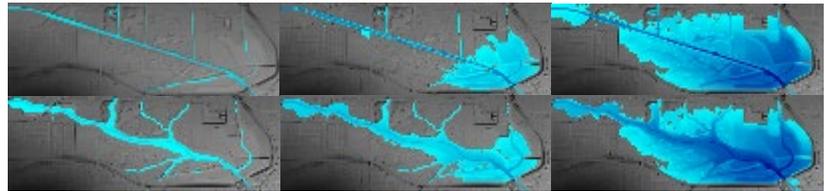
The River Project, Balance Hydrologics, The Wildling Design Studio, and GHD Environmental partnered to complete a restoration feasibility study for the almost 8 miles of the Los Angeles River and tributaries that run within the Sepulveda Basin in Los Angeles, California. The Basin is a flood control reservoir operated by the USACE and an important recreational destination for Los Angeles communities in the San Fernando Valley. Sepulveda Basin will be used for sporting activities during the Los Angeles 2028 Olympics.

This initial study was focused on evaluating the geomorphic, hydrologic, hydraulic, and ecological feasibility of revitalizing the waterways that flow in the Basin toward healthier, more functional ecosystem with improved recreational opportunities. Restoration objectives included increased storage capacity, downstream flood attenuation, improved groundwater recharge potential and enhanced channel dynamics. Design elements were supported by 2D



HEC-RAS hydraulic modeling of existing and proposed conditions. Community engagement included charette exercises to understand existing opportunities and constraints as conceptual project elements were developed, and presentations to various community and agency groups.

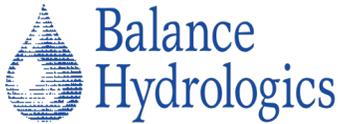
Modeling results and desktop analyses for the proposed conceptual design indicate that restoration of dynamic river and tributary processes are feasible within the Basin. Proposed restoration elements would involve concrete removal, increased meandering, floodplain reconnection, and evolution of new habitat via dynamic channel processes in a broad riparian zone. Storage capacity and downstream flood attenuation would increase, depending on grading limits. Groundwater recharge potential would increase with flows spreading across new floodplains, especially during smaller more frequent stormwater runoff events. At higher flows, the Basin would act similarly to current conditions when flood control dam operations are in effect. Ecological components would include a new plant and tree palette while also improving recreational opportunities in conjunction with plans for



Olympic activities. Park functionality has been reimaged by Wildling Studios to create more inviting and connected areas with the waterways. Future project phases will include studies such as infiltration analyses and hydraulic modeling refinements to support the basis of design, intensive community and agency engagement, refinement of grading plans and planning palette from conceptual through various iterative exercises to a biddable plan set. The initial study was completed in November 2021.

Reference 1	Melanie Winter – Director of The River Project
Phone Number, Email	(818) 980-9660, winter@theriverproject.org

Reference 2	Brian Baldauf, Mountains Recreation & Conservation Authority
Phone Number, Email	(323) 221-9944 x190, brian.baldauf@mrca.ca.gov



Concrete Channel Removal at Goleta Creek and Watershed Management Plan, City of Goleta, Santa Barbara, California

**Concrete Channel Removal, City of Goleta, California** (page 1 of 2)

**Problem:** Concrete channel sections disconnect natural channels/disrupt creek functionality  
**Project:** Remove concrete and restore to a more natural channel condition  
**Location:** Maria Ygnacio, San Jose, Las Vegas, San Pedro, Los Carneros, Glen Annie, El Encanto, Winchester creeks

**General Description of Problem:**  
 As Goleta became more urbanized, channels were straightened, deepened, and stabilized to move water downstream more efficiently and to lessen flood impacts to properties. These changes disconnected and disrupted natural flow patterns and habitat for native aquatic, wildlife and riparian corridor species that depend on the creeks to flourish. Constructing long channel lengths as a flood control technique was widely implemented in Goleta's creeks throughout the 1960s. Today, concrete channels within the City continue to efficiently convey flow and also stabilize channel banks and beds, especially under Highway 101. Some sediment may erode in flat areas or along channel edges as high flows recede and aquatic vegetation may grow where water ponds or trickles during low flow conditions (both may require occasional maintenance). However, concreted channels do not support longitudinal or lateral geomorphic processes that are needed to provide habitat and structure to the channel, nor support ecological processes that are needed for creek ecosystems to thrive. For instance, endangered steelhead fish are generally not able to migrate upstream through a concrete channel during relatively high flow conditions. The amount of energy needed to successfully swim upstream increases sharply during high-velocity conditions, while there are no places to rest and recover. Concrete removal, coupled with redefining the newly-banked reaches to accommodate flood flow naturally, is recommended and would lead to improved longitudinal and lateral geomorphic and ecological functions and values, thereby increasing connectivity, without increasing the risk of flooding.

Goal(s)	Sources of degradation	Objectives to achieve goal(s)	*Cost Estimate:
Remove concrete and restore creek channel	Concrete channels disconnect geomorphic and ecological processes	Remove concrete, redesign natural channel, maintain current flood capacity	\$0K - \$100k \$100k - \$500k \$500k - \$1M \$1M+



**Restoration or Management Approach:**  
 Concrete channel removal and restoration of geomorphic and ecological processes while maintaining flood conveyance capacity may be possible in Goleta creeks. Concrete removal would require off-site disposal. Channel restoration strategies may consist of reducing the channel footprint, constructing appropriate channel bed features based on analogues reaches, constructing channel banks with stable slopes, saving as many existing riparian trees as possible, and planting native riparian corridor trees and understorey species.

\*Based on cost estimates for similar projects, depending on length of concrete removed and channel restoration approach.

The City of Goleta engaged the project team of Dudek and Balance Hydrologics to prepare a Creek and Watershed Management Plan (CWMP) for 12 creeks that intersect the City along the Santa Barbara Coastal Plain. Balance supported Dudek in developing CWMP priorities, management recommendations, and implementation strategies as they relate to water quality, habitat, and protecting and improving the physical functions and values of the City's creeks and watersheds. Field reconnaissance, aerial photo analysis, and other existing information was used to characterize physical

**Concrete Channel Removal, City of Goleta, California** (page 2 of 2)

**Target Conditions/Success Criteria:**

- 1) Restored longitudinal connectivity
- 2) Restored lateral connectivity
- 3) Restored native riparian vegetation
- 4) Increased functions and values

**Implementation Timeframe:**  
 Total project time: 2.5 years per project  
 + Design plans (30%, 60%, 90%, 100%)  
 + Supporting design basis report  
 + Agency engagement and permitting  
 + Implementation/oversight/routine  
 Subsequent monitoring and adaptive management (~5 years)

**Pre- & Post-project monitoring recommendations:**

- 1) Geomorphic and ecological photo points
- 2) Cross-sectional channel surveys
- 3) Plant survival surveys
- 4) High flow site visits

**Channel Restoration Design Elements**

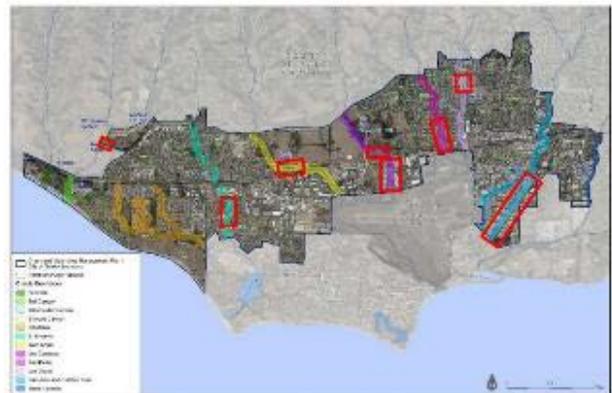
- Redesign channel bed and banks to promote geomorphic and ecological functions and values
- Restore longitudinal and lateral connectivity
- Restore/enhance native riparian vegetation
- Robust planting plan, including mature trees if possible

**Phasing/Order of Implementation**

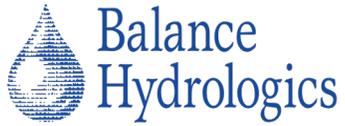
1. Select at rank order of creek(s)/reach(es) to be restored and/or avoided.
2. Develop initial design(s)
3. Apply for project specific permitting based on early design plans and rationale
4. Systematically implement removal and restoration activities (which would likely become more efficient with successive projects)

creek reach qualities in a geodatabase. Geomorphic functionality in reaches was identified and described as relatively unimpaired to impaired along with potential causes of disturbance and degradation, while biological and water quality information was collected and collated by Dudek staff. A series of public and technical advisory committee meetings was used to present information and to solicit input from the public and scientific communities.

Five Project Description Sheets (PDS) were developed for the CWMP to describe geomorphic restoration strategies, either for specific locations or more generally for areas with a specific type of impairment. Each PDS contained the objectives needed to achieve rehabilitation, preservation, or management goals. The management or restoration approach is summarized, along with target conditions and/or success criteria, estimated project implementation

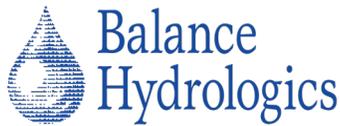


City of Goleta creeks: Red rectangles show approximate concrete channel distribution.



timeframe or phasing approach, pre- and post-monitoring recommendations, cost range estimate, and graphics/photos to illustrate the specific problems at the site location.

<b>Reference</b>	Andy Newkirk, City Planner
<b>Phone Number, Email</b>	(805) 961-7544, anewkirk@cityofgoleta.org



**San Gabriel Mountain Foothills, Hydrologic Opportunities and Parcel Acquisition Prioritization, Watershed Conservation Authority, Los Angeles County, Azusa, California**

Balance completed an assessment-level project for the Watershed Conservation Authority (WCA), considering hydrologic and geomorphic opportunities and constraints for San Gabriel Mountain Foothill land parcels to inform acquisition prioritization for undeveloped and unprotected open spaces within the Wildlands Urban Interface from Sierra Madre to Claremont. Using GIS desktop and aerial imagery analyses, we identified, described, and analyzed the opportunities and constraints at a landscape scale (no field site visits for verification) of each parcel or parcel grouping. The information was summarized via development of a “matrix” (see Table 3.1) that classified a set of

attributes gleaned from the analyses onto a relative scale. The attributes included headwaters/water quality protection, infiltration potential, longitudinal connectivity, riparian corridor/seeps/springs, and other notable characteristics. Finally, we developed a glossary of broad-scale geomorphic and hydrologic processes

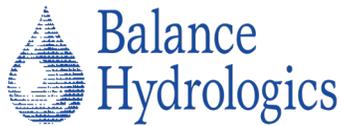
**Table 3.1 Relative Prioritization Factors for Parcel Acquisition from a Geomorphic and Hydrologic Opportunities Perspective.**

(“++” = High Opportunity, “+” = Moderate Opportunity, “blank” = Low Opportunity)

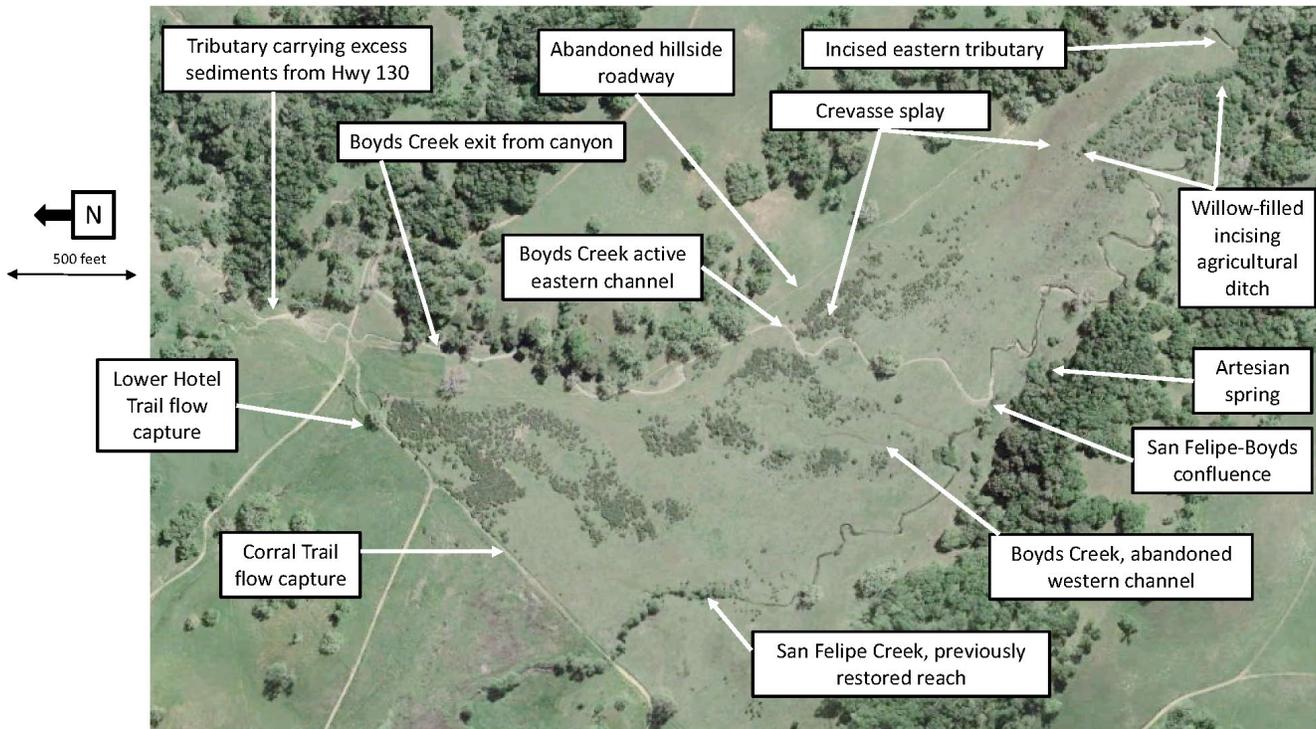
	Headwaters/ Water Quality Protection	Infiltration potential	Longitudinal Connectivity	Riparian Corridor, Seeps or Springs	Other Notable Characteristics	Geomorphic/ Hydrologic Relative Prioritization Score
<b>Sierra Madre-Arcadia-Monrovia Foothills</b>						
5760-027-014 and -013	++		+	+		Moderate
5761-001-001 and 5761-002- 008	++	++	++	++	Alluvial fan	High
5762-002-007	+			+		Low
5764-001-019	++	++	++	++	Alluvial fan	High
5764-031-002, 5765-002-014, 5765-002- 0013, 8689- 008-001, 8689-008-002	+		++	+		Moderate
8503-004-038 and 8503-009- 032	+		+			Low
8501-012-007	+					Low

that described and defined a wide variety of terms, including watershed and stream characteristics, hydromodification, hydroclimatic conditions, and climate change, among others. The memorandum was intended for landscape-scale planning that could contribute to WCA acquisition and conservation goals.

<b>Reference</b>	Jane Tsong, Project Manager
<b>Phone Number, Email</b>	(323) 842-2991, jtsong@wca.ca.gov



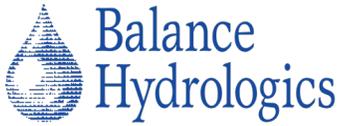
### San Felipe Restoration, Santa Clara Valley Habitat Agency, Santa Clara County, San Jose, California



The Santa Clara Valley Habitat Agency (Habitat Agency) represents multiple stakeholders in providing long-term protection of ecosystems and biodiversity within Santa Clara County. The Habitat Agency contracted with Habitat Restoration Sciences (HRS), Balance Hydrologics, Inc., and Dudek for this design-build project to develop conceptual plans, evaluate the feasibility of restoration opportunities, and implement the selected restoration alternative(s) along San Felipe Creek within Joseph D. Grant County Park.

The restoration design effort was initially conceived of as a riparian corridor enhancement effort, but upon further investigation and assessment of historical disturbances at the landscape scale, Balance led the team through a design process which addressed watershed-wide disturbance holistically. A wide range of restoration elements were applied to the alluvial fan, road, and wet meadow system, including: reconnection of overland flow to the Boyd's Creek alluvial fan, rehabilitation and drainage management along an existing trail, creating instream wood jams, restoring riparian woodland, regrading of channel banks to expand inset floodplain development, and headcut rehabilitation to promote floodplain connectivity and stability. This work will mitigate impacts from historical land-uses and disturbances, enhance aquatic and upland habitats, make San Felipe Creek more resilient to climate change, and provide educational opportunities for the public in an area that is prized as a local resource and area of outstanding beauty.

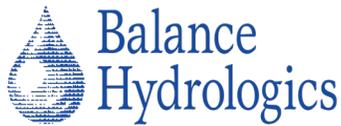
In its role as design lead Balance led multiple stakeholder meetings and successfully achieved buy-in and consensus on design elements. Once this was achieved, we developed 65% level drawings, specifications, and construction notes, as well as a design basis report on the tight timeline desired by the Habitat Agency to meet their implementation



goals. We began construction in August 2018 and major earthwork was completed by the end of September 2018. Balance oversaw and completed final design and as-built documents during construction, with a full-time presence on site during earthwork activities and during construction of the bio-engineered elements. The Design-Build process required close coordination with the contractor, HRS, and the Habitat Agency so that project goals were achieved on-time and within-budget.

A 10-year monitoring program is now underway to evaluate project performance and to facilitate reporting as required by multiple regulatory agencies.

<b>Reference</b>	Nathan Hale (SCVHA) Senior Restoration Ecologist
<b>Phone Number</b>	(669)258-4246, nathan.hale@scv-habitatagency.org



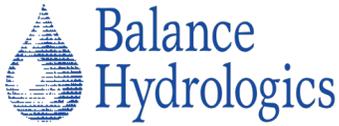
**San Gabriel Mountains Restoration Opportunities in the San Gabriel Canyon and along the Azusa Plain, Watershed Conservation Authority, Los Angeles County, Azusa, California**

Balance completed an assessment-level project for the Watershed Conservation Authority that considered restoration opportunities in the San Gabriel River Canyon below Morris Dam and in the foothill subwatersheds along the Azusa floodplain. A field site visit to the San Gabriel Canyon meander bend, Robert's Creek, Van Tassell Canyon and Fish Canyon



was supplemented by historical aerial image analyses to provide context for existing conditions and the possibility of restoration in these watersheds. Restoration concepts varied from watershed to watershed. One common theme was whether these streams could be restored to provide habitat and refugia for fish populations, which could possibly be achieved by reestablishing connectivity between the mainstem San Gabriel River and the lower gradient sections of the subwatersheds. The San Gabriel River meander bend reach downstream of Morris Dam holds potential, but it has downcut over decades. Gravel augmentation and reconnection of the river with its floodplain were primary considerations for restoration of this reach.

Reference	Jane Tsong, Project Manager
Phone Number, Email	(323) 842-2991, jtsong@wca.ca.gov



Calder Creek Restoration and Vision Concepts, Sebastopol, California

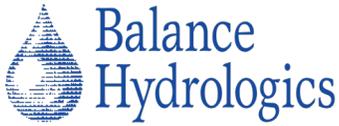


Restoration of Calder creek creates a safe and accessible interface to bring the public back to the water's edge, increases habitat, flood storage and groundwater infiltration. A portion of the existing vertical channel wall is maintained to protect a stand of redwood trees. A deck is cantilevered over this wall, with an overlook crossing the creek at the current outlet location, marking a terminus of an accessible loop trail around the creek. A pedestrian

bridge protects a city sewer main within its alignment, while another bridge is rated for vehicular access. The design modifies an existing sculpture garden and uses the riparian canopy as a backdrop for some of the artwork. The playground and a BBQ area are shifted to accommodate the creek, while the stage is relocated along the creek to create a large central green with seating upslope from performances.

With a geomorphic approach to restoring the channel, wide floodplains also accommodate trails, relaxing, exploration, play and habitat. Preliminary grading focused on an equilibrium stream and accessible pathways, inviting all users to experience the creek. Terracing and some vertical walls area also used to achieve this. The increase in varied terrain creates new sightlines and points of interest within the park.

Reference	Kari Swanstrom, Planning Director
Phone Number	(707) 823-6167



Old Tujunga Wash Restoration at Johnny Carson Park, Burbank, California

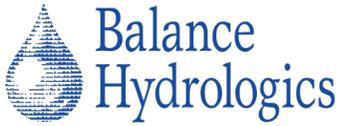


During early project scoping, the City of Burbank expressed a desire to capture runoff from a channel running through Johnny Carson Park for irrigation reuse, with the belief that it was a storm drain for urban runoff. When Jessica Hall provided historical map documentation of the channel as a former stream, the City embraced restoration as a desirable outcome for the park. Jessica led the restoration subconsultant team through conceptual design. This included staffing and presenting at community meetings, performing site visits to reference creeks and co-writing a geomorphic basis of design, and proposing a preliminary design that incorporated the basis of design's hydraulic

geometry. Reference creeks are challenging in hydraulically-altered southern California, forcing the team to consider urbanization effects on sediment availability, slope, changes to channel forming flows and peak flows, and the ecological character of a stream with seasonal flows. In tandem with restoration design, Jessica met with Ah'be to charrette on options for integrating the creek with park play. Construction documents and implementation were led by other staff at RDG subsequent to Jessica's departure. This park project represents a unique success for urban stream restoration in the Los Angeles area.



Reference	Evan Mather, Principal
Phone Number	(213) 694-3800



Tujunga/Pacoima Watershed Plan, California Bay-Delta Watershed Program



Tujunga-Pacoima Watershed Plan

With funding from the California Bay-Delta Watershed Program, The River Project embarked on a major two-and-a-half-year project to develop a comprehensive Watershed Management Plan for the Tujunga and Pacoima Washes, the primary subwatershed of the Los Angeles River.

The Plan identifies multiple benefits including enhancing local water supply and water quality, mitigating flood risk, restoring ecosystem function to Tujunga and Pacoima Washes, reducing heat impacts, expanding biodiversity, and creating community recreation opportunities by linking greenways and neighborhood park space in underserved and climate-vulnerable communities in the area.

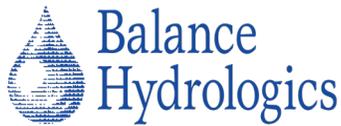
We worked through a consensus process with community members and government agencies to produce: a comprehensive set of Goals & Objectives; a thorough assessment of geophysical, cultural, political, and socio-economic conditions; and a detailed Plan, identifying specific projects to accomplish these goals and improve the healthy functioning of the watershed.

The project included Watershed-U, a six-week workshop to educate community members about interlinked issues, and development of a k-12 curriculum specific to the Tujunga Wash.

The Plan provides a blueprint for recovery of functionality throughout the Los Angeles River Watershed. To date, 20 projects identified as part of the Plan have been completed, including the enhancements to three spreading grounds, the Woodman Avenue Median Retrofit, and the Water LA pilot. 4 are ongoing works in progress, and 5 more have been funded.

For more information about the history and culture of the watershed, read the History and Culture chapter of the Tujunga/ Pacoima Watershed, from the full State of the Tujunga Report. Understanding our history and respecting indigenous practices are fundamental to a sustainable future.

Reference	CALFED Bay-Delta Program, John Lowrie, Mgr. State Watershed Program, Prime: The River Project
Phone Number	john.lowrie@conservation.ca.gov, (916) 324-9013



Water LA Project, City of Los Angeles, California



The 2018 Water LA Report includes an overview, findings, and recommendations from the Water LA program pilot completed in 2014, including plan and policy resources.

Through a case study of a parcel-scale water

management project in the City of Los Angeles, The River Project explored the social, environmental, and economic impacts of retrofitting residential property into spaces of water capture, conservation, and reuse. These interventions transform parcels into spaces that help heal and improve the urban environment and improve quality of life. To highlight the targeted, small-scale nature of these strategies, we refer to this approach as “urban acupuncture.”

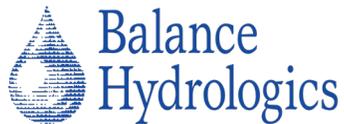


The initial outcomes indicate that if parcel-based techniques were adopted across the region, Los Angeles could reduce the rate of potable water consumption, reduce flood risk, clean streams, and increase local water supply. Hydrologic modeling data indicates that the reworked properties absorb a substantial amount of rainwater into the ground, decreasing pollution in the region’s waterways and recharging the underground aquifers.

Homes retrofitted by the Water LA Program:

- Reduced water use by 54.7 gallons per capita per day, a 25% reduction
- Captured and treated an estimated 1.2 million gallons of water in a year with average rainfall
- Provide 18,175 square feet of native plants and trees for habitat, shade, air quality enhancements, carbon sequestration, and aesthetic benefits
- Cost an average \$5,200 per household in labor and materials

<b>Reference</b>	Client: CA Coastal Conservancy, David Hayes, Project Manager Prime: The River Project
<b>Phone Number</b>	dhayes@scc.ca.gov, (510) 286-0736



## Project Team

Balance Hydrologics (Balance) will lead a small multidisciplinary team of highly qualified professionals with a wide range of experience in southern California watersheds, including two project partners: The Wildling Design Studio (WDS; Jessica Hall) and The River Project (TRP; Melanie Winter). Balance and WDS are small businesses. WDS and TRP are women-owned. TRP is a non-profit organization and is based in Los Angeles. Balance does work throughout California and has two staff members who are dedicated to Southern California projects, though neither currently live in Los Angeles County.

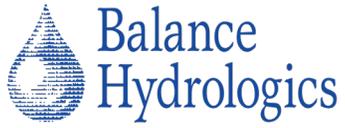
Balance will serve as the technical lead, bringing our deep expertise in hydrologic, geomorphic and water resources engineering to WCA's planning and restoration goals for the Upper San Gabriel River watershed and its tributaries (USGR). Balance will manage the day-to-day operations of the project, take the lead in assembling and analyzing the GIS database, and will be the main point of contact with WCA. A principal goal of Balance's work is to provide planners, engineers, biologists, and land managers with thorough, science-based analyses that identify significant watershed processes. Our typical project approach uses a well-defined field study coupled with intensive desktop analyses and professional expertise to meet desired project-specific outcomes. Results from such studies help form and guide development of restoration design and management planning approaches with our clients.

WDS specializes in a design and planning approach with the conviction that livable cities and development depend upon thoughtful incorporation of natural processes that shape and maintain ecosystems into the urban fabric. Jessica Hall of WDS will bring a subwatershed-to-neighborhood scale landscape architecture perspective with her planning and restoration design expertise. She will assist the team in the development of the design concepts, helping integrate the concepts into the surrounding landscape.

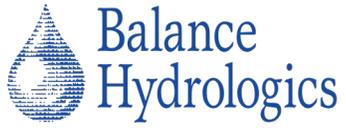
TRP specializes in identifying opportunities to create a climate-resilient future for Los Angeles County by reclaiming our rivers, creeks, and surrounding watershed lands, and in developing tools and completing studies that provide adaptation and policy direction to local organizations and communities. Melanie Winter will bring her visionary perspective and will provide deep-seated local knowledge, community consensus-building, and implementation expertise that will help lay out a framework for paths forward that include building climate resilience into urban Los Angeles County.

Together, our team specializes in assessing waterways from a hydrologic and geomorphic perspective to develop restoration concepts and management directions that are creative and achievable while working within a framework of urban environment opportunities and constraints.

We have the project experience and staff capacity to develop a spatial database that can be used to explore relevant hydrologic features in the USGR". The database will be structured to be flexible and user-friendly, able to identify and assess locations and conditions in support of hydrologic restoration potential and stormwater management benefits



at the sub-watershed to neighborhood scale, and with the ability to support WCA and regional watershed management decisions over time.



Resumes

**Summary of Experience**

Mr. Brown applies his experience in geomorphology and geologic mapping to watershed and environmental issues involving stream corridors, floodplains, and surface/ground water interaction. He has recently led several major projects assessing the effects of urbanization on streamflow and channel stability. Other projects have included hydrogeologic interpretation of groundwater sources and flowpaths, geomorphic basis-of-design for stream and wetland restoration; assessment of physical stream characteristics affecting habitat, and baseline hydrologic assessment and monitoring. Mr. Brown is the technical and quality assurance lead for Balance's real-time monitoring and early-warning systems. He specializes in integrating monitoring data with real-time applications for flood-warning systems, water-rights compliance, and water-diversion operations.

**Relevant Experience**

**Los Angeles River Restoration, Sepulveda Basin Feasibility Study, Los Angeles County, California.** Mr. Brown provided principal technical oversight for Balance's efforts in assessing restoration feasibility of the Los Angeles River through the 2,000-acre Sepulveda Basin. The river corridor and basin are managed for flood control by USACE, and by Los Angeles City Parks and Recreation Department for recreation. Project components included stakeholder charettes to generate feedback and landscape and park amenity analyses and visioning by our project partners. Modeling indicated that restoration of river dynamics would improve infiltration rates at low flows and would delay dam overtopping at high flows. The feasibility and vision report was completed in late 2021, and additional funding is being sought for additional project phases.

**San Gabriel River Restoration Concepts, Los Angeles County, California.** Mr. Brown was the Principal-in-Charge to assess geomorphic and hydrologic opportunities and constraints for the Watershed Conservation Authority in support of potential restoration efforts. Project deliverables included an existing conditions narrative for each site, accompanying annotated figures and suggested restoration possibilities.

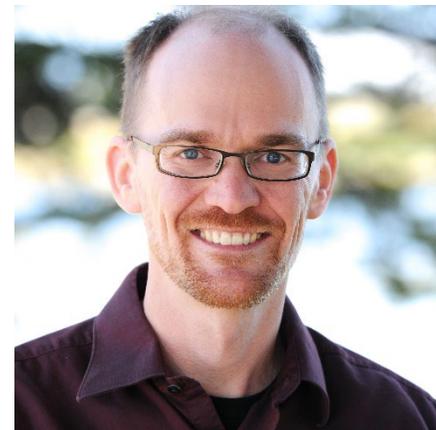
**Newhall Ranch Geomorphic Services, Newhall Land and Farming Company, Valencia, California.** Mr. Brown was Balance's project manager and lead geomorphologist for this watershed-scale and hydromodification study for Newhall Ranch as part of the LA Regional Water Quality Control Board permitting process for a large, mixed-use development planned within the lower portion of the Santa Clara River watershed.

**Upper Penitencia Creek Mitigation and Restoration Design, City of San Jose, Santa Clara County, California.** Mr. Brown led the effort to develop a geomorphic basis for design for an urbanized section of the creek. Recognizing the geologic setting of the reach at the distal end of an alluvial fan, the design incorporated a multi-threaded channel that would remain resilient under a variety of sediment and flow conditions.

**Dos Pueblos Creek Restoration, California Rangeland Trust, Gaviota, Santa Barbara, California.** Mr. Brown was the lead geomorphologist providing geomorphic assessment and restoration design services to the California Rangeland Trust (CRT) to prepare a

**SCOTT R. BROWN, P.G.**

Principal Hydrologist/Geologist

**Education:**

M.S., Geology, University of Wisconsin-Madison, 2001

B.A., Geology, Gustavus Adolphus College, 1998

**Registered Professional Geologist:**

California #8722

restoration plan for the Dos Pueblos Creek, located on the Gaviota coastline in Santa Barbara County.

**California Department of Water Resources (DWR) Permitting Master Services Agreement, Hydrology and Geomorphology Support.** Mr. Brown is the principal-in-charge for this master services agreement. The team assists Dudek (Prime) and DWR by designing hydro-geomorphic assessments in support of permitting efforts related to DWR rodent burrow remediation initiatives along canals and with developing geomorphically sound channel maintenance projects and procedures which minimize the need for mitigation.

**Arroyo Sequit Creek Post-Woolsey Fire Geomorphic Study at Leo Carillo State Campground, Los Angeles County, California.** Mr. Brown served as Principal-in-Charge for a reconnaissance-level geomorphic assessment for the campground. The geomorphic report documented historical conditions to understand the land-use context, existing geomorphic conditions at the campground, and identification of potential restoration concepts that could serve as the basis for grant funding applications. Restoration concepts included gabion removal replaced by a log-crib wall and bank laybacks, re-establishment of historical flow pathways, and streamwood bioengineering at a downstream gravel bar.

**Post-Woolsey Fire Geomorphic Study in the Santa Monica Mountains for the National Park Service, Los Angeles County, California.** Mr. Brown served as Principal-in-Charge for a field reconnaissance to assess the stability of the sites via geomorphic and hydrologic interpretation of first-year post-fire channel and hillslope conditions in light of the possibility of near-term post-fire rainfall-runoff leading to elevated rates of erosion and the potential loss of Chumash Nation artifacts through channel bank or hillslope erosion processes. Recommendations for adaptive management strategies to be considered immediately post-fire included: raking soils to break up repellent layers; install additional jute netting; install logs or straw wattles upslope of the middens; place logs, boulders and soils as bank protection and plant willow poles and sycamore seedlings to help stabilize; initiate revegetation by planting native ground cover and tree species; and continued site monitoring.

**Geomorphic Support for a Comprehensive Goleta Creek and Watershed Management Plan, Santa Barbara County, Goleta, California.** Mr. Brown served as Principal-in-Charge for the geomorphic assessment in the development of the Creek and Watershed Master Plan (CWMP) for the City of Goleta that included priorities, management recommendations, and implementation strategies related to protecting and improving the physical functions and values of the City's creeks and watersheds. Project components included participation in public and technical meetings, field-based reconnaissance of portions of 12 coastal watersheds that traverse the City to characterize the physical qualities of each stream, text preparation of geomorphic existing conditions and impairments, development of Project Description Sheets that describe geomorphic restoration strategies, either for specific locations or more generally for areas with a specific type of impairment, that include the objectives needed to achieve rehabilitation, preservation, or management goals.

**Sisquoc River Channel Management Plans and Sediment Study, Santa Barbara County, California.** Mr. Brown led a study to characterize the geomorphology of a reach of the Sisquoc River and the magnitude of channel change over time in response to high-flow events through aerial photograph analysis. Balance used this information to guide mitigation channel design within a reach of active aggregate mining in order to maintain adequate fish passage. The study was part of the Sisquoc-Santa Maria Rivers Specific Plan, emphasizing aggregate extraction, wildfires within the watershed, and how these changes affected mitigation channel design and longevity.

**Special Area Management Plan (SAMP), San Juan and San Mateo Watersheds, Orange County, California.** Mr. Brown played a key technical role in the baseline surface-water and groundwater monitoring and assessment for the project, as well as issues of sediment transport and erosion control. Mr. Brown also led an effort to assess existing stream erosion caused by upstream urbanization, and recommended erosion- and hydromodification-control measures to reduce these effects. Approximately 14,000 acres have been designated as a Special Area Management Plan within which plans and permitting are being coordinated to maximize watershed-scale functions and minimize cumulative wetland and channel impacts.

**Mountain Bike Trail Erosion Assessment at El Corte De Madera Preserve, San Mateo County, California.** Mr. Brown was involved in developing the framework of a bed-conditions study for the Midpeninsula Regional Open Space District. The project was a multi-year study to evaluate: 1) existing stream conditions; 2) sediment sources; and 3) effectiveness of sediment reduction conservation efforts for roads and trails in their El Corte de Madera Creek Open Space Preserve.

**Summary of Experience**

Dr. Senter is the technical and marketing lead for our Southern California office, applying principles of fluvial geomorphology and watershed hydrology to a wide range of environmental issues. Anne specializes in hydrologic and geomorphic restoration designs that promote dynamic channel features to support aquatic and terrestrial species in healthy stream corridors. Field skills include geomorphic and hydrologic assessments of degraded channel conditions; evaluation of riverine environments at the interface of coasts, lagoons, and lakebeds; geomorphic/hydrology monitoring of pre- and post-project conditions; and stream flow and sediment transport gaging and water quality monitoring. Anne also manages or participates in master planning/water resources planning; regulatory planning documentation; FEMA technical reviews; development of stormwater, hydromodification and bioretention basin operations; and environmental impact analyses and water supply assessments. She is an effective project manager and communicator, working with watershed stakeholders to identify scientifically sound solutions for complex environmental issues and with regulatory agencies to help move project designs from concept to completion.

**Relevant Experience**

**Los Angeles River Restoration, Sepulveda Basin Feasibility Study, Los Angeles County, California.** In partnership with The River Project and The Wilding Studio, Dr. Senter managed Balance's efforts in assessing restoration feasibility of the Los Angeles River through the 2,000-acre Sepulveda Basin. The river corridor and basin are managed for flood control by USACE, and by Los Angeles City Parks and Recreation Department for recreation. Project components included stakeholder charettes to generate feedback and landscape and park amenity analyses and visioning by our project partners. Anne developed design parameters for the LA River corridor and multiple tributaries that feed into the basin that were converted into a topographic model surface. Modeling indicated that restoration of river dynamics would improve infiltration rates at low flows and would delay dam overtopping at high flows. A feasibility report was completed in late 2021, and additional funding and support is being sought for additional project phases.

**Vernal Pool-Swale Wetland Restoration, Central Valley, California.** Acreage in the Central Valley was found to be converted from wetlands to agricultural production by NRCS in violation of the 1985 National Food Security Act. Dr. Senter managed this project, which resulted in creation of 50 vernal pool and swale acres and 125 upland acres. Project components included a soils analysis, a ground penetration radar (GPR) study, implementation of a hydrologic monitoring program, and a hydrologic sufficiency analysis using the Pond-IT modeling program to establish hydrologic success criteria. The soils and GPR analyses verified that the area contained subsurface calcified hardpan layers, which indicates suitability of the area for wetland restoration. Anne supported the project engineers in wetland design development and construction observations, and construction was completed in 2022. A 3-year monitoring program is ongoing, with signs of early ponding success in WY2023.

**ANNE SENTER, PhD**

Geomorphologist/Hydrologist



**Education:**

Ph.D., Wood Dynamics. Hydrologic Sciences, University of California, Davis, 2017

M.S., Watershed Hydrology and Fluvial Geomorphology. Hydrologic Sciences, University of California, Davis, 2008

B.S., Earth System Science. Environmental Sciences, San Francisco State University, 2005

**Professional Affiliations:**

American Geophysical Union

Geological Society of America

Union of Concerned Scientists

**San Gabriel River Restoration Concepts, Los Angeles County, California.** Dr. Senter conducted a site visit to the San Gabriel River Canyon below Morris Dam, Robert's Creek, Van Tassell Canyon and Fish Canyon to assess geomorphic and hydrologic opportunities and constraints for the Watershed Conservation Authority in support of potential restoration efforts. Project deliverables included an existing conditions narrative for each site, accompanying annotated figures and suggested restoration possibilities.

**San Gabriel River Watershed Foothills Hydrologic and Geomorphic Assessment of Land Parcels for Acquisition Prioritization, Los Angeles County, California.** The Watershed Conservation Authority (WCA) asked Balance Hydrologics to assess the hydrologic and geomorphic opportunities and constraints of land parcels that have not yet been developed along the San Gabriel Mountain Foothills, in support of WCA developing a prioritization list for acquisition, conservation and possible restoration. Project components included review of landscape-scale attributes such as historical hydrologic conditions, infiltration potential, fire perimeters, existing conservancy lands, groundwater basin boundary, debris basin locations, soils and geology information, watershed extents, and storm runoff potential via StreamStats. Dr. Senter developed project deliverables that included a narrative for each parcel or parcel group, a matrix with a relative scoring framework of high/moderate/low for hydrologic and geomorphic potential, and a glossary of broad-scale geomorphic and hydrologic processes that form existing conditions in the study area. Matrix factors included headwaters/water quality potential, infiltration potential, longitudinal connectivity, riparian corridor/seeps/springs, and other notable characteristics such as alluvial fan, tributary, meander bend, and continuity across watersheds.

**Geomorphic Support for a Comprehensive Goleta Creek and Watershed Management Plan, Santa Barbara County, Goleta, California.** Dr. Senter provided geomorphic expertise as a project partner to Dudek in developing a Creek and Watershed Master Plan (CWMP) for the City of Goleta that included priorities, management recommendations, and implementation strategies related to protecting and improving the physical functions and values of the City's creeks and watersheds. Project components included participation in public and technical meetings, field-based reconnaissance of portions of 12 coastal watersheds that traverse the City to characterize the physical qualities of each stream, text preparation of geomorphic existing conditions and impairments, development of Project Description Sheets that describe geomorphic restoration strategies, either for specific locations or more generally for areas with a specific type of impairment, that include the objectives needed to achieve rehabilitation, preservation, or management goals.

**Rattlesnake Creek Geomorphic Integrity Study for the City of Poway, San Diego County, California.** Dr. Senter was project manager in an investigation of active erosion as indicated by failing grade-control structures, channel bed knickpoints, and collapsing channel banks. Historical and existing conditions were used to identify previous and current drivers of channel instability. Two conceptual alternative solutions were developed in 2020 meant to improve the integrity of and stabilize the project reach based on field reconnaissance, elevational surveying, and aerial imagery analysis, supported by a geomorphic basis of design report. The City selected the braided-channel option and asked Balance to develop a 30% design plan and basis of design report for this concept, which was submitted to the City for review in late 2022. Grant funding will be pursued to move this project forward to eventual completion.

**Arroyo Sequit Creek Post-Woolsey Fire Geomorphic Study at Leo Carrillo State Campground, Los Angeles County, California.** Arroyo Sequit Creek, which includes the California State Parks Leo Carrillo Campground on the watershed's alluvial fan adjacent to the Pacific Ocean, was burned in the November 2018 Woolsey Fire. Dr. Senter performed a reconnaissance-level geomorphic assessment for the campground. The geomorphic report documented historical conditions to understand the land-use context, existing geomorphic conditions at the campground, and identification of potential restoration concepts that could serve as the basis for grant funding applications. Restoration concepts included gabion removal replaced by a log-crib wall and bank laybacks, re-establishment of historical flow pathways, and streamwood bioengineering at a downstream gravel bar.

**Post-Woolsey Fire Geomorphic Study in the Santa Monica Mountains for the National Park Service, Los Angeles County, California.** The November 2018 Woolsey Fire burned a significant amount of National Park Service (NPS) land along the Southern California coast, including two Chumash Nation archeological midden sites. Dr. Senter conducted a field reconnaissance to assess the stability of the sites via geomorphic and hydrologic interpretation of first-year post-fire channel and hillslope conditions in light of the possibility of near-term post-fire rainfall-runoff leading to elevated rates of erosion and the potential loss of Chumash Nation artifacts through channel bank or hillslope erosion processes.

### Summary of Experience

Dr. Lynch specializes in fluvial geomorphology, GIS applications, and streamflow gaging. She has extensive experience applying numerical models to investigate changes in channel morphology and erosion, along with field experience, including sample collection, geomorphic assessments, and hydrologic monitoring. Brigid is experienced in data acquisition, managing large datasets, technical writing, and data analysis and visualization.

### Relevant Experience

**Quantifying Meadow Restoration Effectiveness using Machine Learning Models, Nevada County, California.** Balance has partnered with the Truckee River Watershed Council (TRWC) on a multi-year effort to monitor and quantify restoration effectiveness in Perazzo and Lacey Meadows. Dr. Lynch is using machine learning models that analyze remotely-sensed, satellite-based vegetation indices, along with several climate datasets, to quantify pre- and post-restoration hydrologic conditions in the meadow. This work represents an exciting path forward to determining the long-term effects of restoration projects using innovative technology.

**Using Wildfires to Restore Rivers and Fight Future Fires, Mariposa County, California.** Dr. Lynch is developing a framework for using post-fire erosion and increased sediment fluxes as a mechanism for stream restoration. Fires are responsible for a large amount of long-term sediment delivery to channels; the objective of this work is to trap post-fire sediment loads in appropriate locations to restore channel-floodplain connectivity. Dr. Lynch is using HEC-RAS rain-on-grid modeling to identify areas suitable for this type of restoration within a recently burned watershed.

**Wheatridge Wind Farm Hydraulic Modeling, Morrow County, Oregon.** Dr. Lynch conducted a hydraulic analysis to model the 100-year floodplain for a portion of the Wheatridge Wind Farm site. HEC-RAS rain-on-grid modeling was used to develop the floodplain across several watersheds surrounding the proposed wind turbines and roadways.

**Midpeninsula Regional Open Space District, San Mateo County, California.** Dr. Lynch is supporting this multi-year study to evaluate existing stream conditions, sediment sources, and the effectiveness of sediment reduction conservation efforts for roads and trails in El Corte de Madera Creek, La Honda, and Russian Ridge Open Space Preserves.

**Stivers Lagoon Restoration, Fremont, Alameda County Flood Control and Water Conservation District, Alameda County, California.** Dr. Lynch is supporting a restoration design for approximately 40 acres of floodplain along Mission Creek and off-channel enhancements to restore Stivers Marsh. The project represents a rare opportunity in Fremont in the urban East Bay to relieve flooding downstream on Mission Creek, by creating an extensive mosaic of off-channel features including floodplain terraces, seasonal and perennial ponds, and increase groundwater levels to restore and support adjacent marsh areas.

**Granite Geomorphic Monitoring, Morrison Creek, Sacramento, California.** Dr. Lynch assisted with longitudinal profiles and cross-sections effort for Morrison Creek- a previously

### Brigid Lynch, Ph.D.

Geomorphologist / GIS Analyst



### Education:

Ph.D. Geological Sciences

Indiana University, 2021

B.S. Geological Sciences

University of Michigan, 2013

### Professional Affiliations:

American Geophysical Union

Geological Society of America

CSDMS Terrestrial Working Group

Gilbert Club

restored channel- for the purpose of monitoring the effects of restoration and determining the geomorphic “health” of the project.

**Knightsen Wetland Restoration and Flood Protection Project, East Contra Costa County Habitat Conservancy, Contra Costa County, California.** The Knightsen Wetland Restoration and Flood Protection Project is a multi-objective effort on a 645-acre parcel to attenuate flooding in the community of Knightsen, restore a mosaic of wetland and upland habitats for special status species, and to provide water-quality benefits to the Delta. Dr. Lynch provided visualization graphics to describe and simplify complex processes, while communicating key details.

**Contra Costa County Hydrologic Data Acquisition and Maintenance, Contra Costa County Public Works Department, California.** Dr. Lynch provides field support for an urban streamflow and rainfall monitoring network within Contra Costa County for the Public Works Department. The work includes developing and maintaining stream gage and rain gage stations, surveying channel cross-sections, and manual measurements at high flow during storms.

**Streambank Stabilization Study, Minnesota.** Dr. Lynch estimated streambank recession and sediment loss rates using satellite imagery. These calculations were used in a larger stream restoration and water quality project.

**Geohazard Risk Assessment, Southwest Region, United States.** Dr. Lynch integrated GIS data sets to provide geohazard risk assessments along natural gas pipelines. Geohazards included flooding, channel erosion, slope failure, and seismic hazards. She assessed hazards along interstate pipelines and performed on-site field verification. Dr. Lynch provided final risk rankings to the client to incorporate into an Integrity Management Plan, and remediation recommendations were detailed for sites with significant risk.

**High Consequence Area / Moderate Consequence Area and Class Location Pipeline Analysis, Southeast Region, United States.** Dr. Lynch digitized structures in GIS along natural gas pipelines and used GIS modeling to classify pipelines according to pipeline integrity management requirements.

**Renewable Energy Suitability GIS Model, Minneapolis, Minnesota.** Dr. Lynch co-developed a suitability model in GIS to calculate the suitability of several renewable energy resources, including solar, wind, geothermal, and renewable natural gas. The model integrated geologic, climatic, and demographic datasets to calculate the suitability of each renewable energy resource at a particular site or between multiple locations. The tool aimed to assist clients in strategic decision-making to implement renewable energy infrastructure.

**Quantifying tributary response to canyon incision in southwestern Peru to unravel climate and uplift signals in the Central Andes.** Dr. Lynch led two field campaigns in Peru to constrain the timing, rate, and magnitude of surface uplift in the Central Andes. She collected 30+ sediment samples from tributary basins across a range of topographic and climatic regions and measured concentrations of  $^{10}\text{Be}$  cosmogenic radionuclides in the samples to estimate basin-averaged erosion rates. She then built river incision models and calibrated them with these erosion rates. The models constrain the timing of river incision, which directly correlates to phases of surface uplift across the Central Andes. She found that uplift has advanced from the coast inland over the past ~60 Myr, with the most recent uplift occurring within the Western Cordillera between ~6.5 – 1 Ma. Her research also highlighted the significant role of climate in controlling river incision and mountain evolution.

**Nazca Ridge subduction amplifies canyon incision, Central Andes, southern Peru.** Dr. Lynch used GIS to analyze the channel morphology of tributary basins across southern Peru to better understand how the subduction of the Nazca Ridge, a submarine ridge on the Nazca Plate, affects surface uplift and canyon incision. She remotely measured channel steepness, knickpoint elevations, and incision depths for 100+ tributary basins and used patterns in these metrics to investigate the effect of ridge subduction. She found that Nazca Ridge subduction drives surface uplift along the Peruvian coast and displaces lower-crustal material as it subducts, driving additional river incision at its leading edge. Her work highlights the utility of tributary basins for addressing a wide range of geomorphic questions.

### Summary of Experience

Camille is a Civil Engineer-in-Training with experience in one- and two- dimensional hydraulic modeling, FEMA floodplain mapping, dam break simulations, hydraulic structure design, and stormwater management. She has a background in hydrology, geology, and environmental fluid mechanics. At Balance, she contributes hydrologic and hydraulic modeling, GIS, and CAD design in collaboration with state and federal agencies and other stakeholders. In addition to her design and modeling work, Ms. Pauley conducts fieldwork: streamflow and sediment gaging, site reconnaissance, and surveying. She is currently working towards her professional licensure in Civil Engineering.

### Relevant Experience

**Redwood Creek Floodplain Site Assessment, Golden Gate Parks Conservancy, Marin County, California.** Balance Hydrologics is leading a multi-year effort to monitor and assess approximately 1.5 river miles of Redwood Creek in Mount Tamalpais State Park and prepare channel and floodplain restoration designs. The main goal of this project is to evaluate geomorphic and hydrologic processes and develop design alternatives to increase late-season base flows for the enhancement of critical Coho habitat. Ms. Pauley developed a two-dimensional HEC-RAS hydraulic model of existing conditions and design alternatives in order to evaluate the effectiveness of potential restoration options. Ms. Pauley also prepared plan sets of the conceptual designs to communicate the design alternatives to the project team and associated stakeholders.

**Madonna Creek Hydrologic and Hydraulic Analysis, Midpeninsula Regional Open Space District, San Mateo County, California.** Ms. Pauley was the Project Manager for the hydrologic and hydraulic study of Madonna Creek. Ms. Pauley performed a supplementary total station survey of the site and combined the data with LiDAR and previous surveying efforts in order to develop a digital elevation model of Madonna Creek and its floodplain. Using this digital elevation model, Ms. Pauley developed a set of hydrologic and hydraulic models to evaluate restoration options for two dams and their associated reservoir ponds. The work included a HEC-HMS model following San Mateo County standards to simulate hydrographs for relevant storm events, as well as a two-dimensional HEC-RAS model to predict inundation depths and extents. The conclusions of Balance's study will ultimately help guide potential restoration and maintenance activities to improve aquatic habitat and reduce risk to nearby infrastructure.

**"Falls" Reach of Moraga Creek, Restoration Design and Permitting Support, Moraga, Contra Costa County, California.** Ms. Pauley assisted the Balance team in developing designs and providing permitting and technical assistance for the restoration of a 200-foot reach of Moraga Creek in the town of Moraga. Challenges presented by this site and property status have led to the team employing a number of design elements to satisfy the many stakeholders involved, blending both biotechnical and more traditional geotechnical engineered solutions to this over steepened area of incised channel. Ms. Pauley prepared hydrologic and hydraulic (H&H) modeling for the reach in order to assess channel dynamics and evaluate the effectiveness of the proposed design.

### CAMILLE PAULEY, CFM

Engineer/Hydrologist



### Education:

B.Eng., Environmental Engineering,  
Thayer School of Engineering at  
Dartmouth College, 2021

B.A., Engineering Sciences modified with  
Earth Sciences, Dartmouth College, 2021

### Certified Floodplain Manager:

US-22-12197

### Professional Affiliations:

Registered Civil EIT: California #174298,  
New Hampshire # 7457

**FEMA National Technical Review Panel, Nationwide.** Ms. Pauley serves on a technical review team to verify the cost-effectiveness and technical feasibility of submitted BRIC and FMA grant applications to FEMA nationwide. Ms. Pauley reviews applications related to flood risk reduction during the initial review phases.

**Concord-Lake Sunapee Rail Trail, Merrimack County, New Hampshire.** Ms. Pauley worked with a Cook Engineering Design Center team at Dartmouth College to design a section of the Concord-Lake Sunapee Rail Trail parallel to the Warner River. In collaboration with the project team, Ms. Pauley contributed to the design of boardwalk crossings, drainage structures, and overall trail alignment. These contributions included development of a hydraulic model and analysis that provided information on water surface elevations and velocities to inform the trail design and to estimate impacts to natural resources and existing infrastructure within the floodplain. Ms. Pauley coordinated with representatives from the State of New Hampshire to identify pertinent wetland considerations and permitting requirements. Additionally, Ms. Pauley used GIS tools to develop an accurate, publicly available web resource to provide information about the existing sections and on-going projects of the Concord-Lake Sunapee Rail Trail.

**Letter of Map Revision (FEMA LOMR), Stonewood Project, City of Oakley, California.** Ms. Pauley performed the hydrologic and hydraulic (H&H) modeling and supported the Letter of Map Revision (LOMR) for a Special Flood Hazard Area located in the City of Oakley. All modeling, surveying and design is consistent with FEMA protocols under the National Flood Insurance Program, and the project package was used to revise the effective floodplain map.

**Cypress Preserve Wetland and Habitat Mitigation and Restoration, Oakley, California.** Ms. Pauley serves as the Project Manager for the 250-acre restoration and mitigation project that incorporates grading for new seasonal and perennial wetlands and giant garter snake ditch habitat, in addition to enhancing and preserving the ecological resources present on the sensitive Delta fringe area. Ms. Pauley coordinates with the project geotechnical engineers, biologists, archaeologists, and habitat conservancy representatives to ensure that the project design is cohesive with the objectives of the project team and associated stakeholders and is in compliance with the relevant permitting requirements.

**Opus One Culvert Replacement and Channel Restoration, Napa County, California.** Balance Hydrologics developed the plan set design and documentation to daylight a portion of an undersized pipe and replace the remaining pipe with a properly aligned and sized pipe in order to improve channel functionality and prevent future flooding. Ms. Pauley is involved in the post-project monitoring phase of this work, including survey documentation and geomorphic assessment and reporting.

**Southwest Dixon Stormwater, Dixon, California.** Ms. Pauley supported the modeling efforts behind the stormwater and flood control management strategies and infrastructure for the Dixon Southwest Specific Plan Area. Phase 1 included developing a Storm Drain Master Plan and hydraulic modeling to identify facility sizing, and Phase 2 expanded the effort to additional parcels. Balance completed hydrologic and hydraulic models for both phases, which addressed pre-project and post-project conditions using HEC-HMS. Pipe and detention infrastructure were modeled using the XP-STORM platform.

**Voices Charter School Stormwater Control Plan, City of Morgan Hill, California.** Ms. Pauley supported the design and sizing of the on-site drainage and stormwater infrastructure for the Voices Charter School, including an underground pipe, pump, and filter designed to satisfy required water quality treatment, hydromodification mitigation, and peak flow control for storm events. Ms. Pauley developed a hydrologic/hydraulic model using the HEC-HMS software package. Ms. Pauley then helped to summarize the design work and system behavior results into a Stormwater Runoff Management Plan for the project.

**Hydrology and Drainage Report, Bridle Gate Project, City of Brentwood, California.** Ms. Pauley was the project manager for the design of stormwater infrastructure for the Bridle Gate Project in the City of Brentwood, Contra Costa County. Ms. Pauley completed water quality and hydromodification sizing per the County C.3 guidelines (using the County IMP Calculator) and developed a HEC-HMS model to analyze peak flow attenuation control analysis, per County methodologies.

## Wildling Design Studio

California Certified Small Business CA SB#2022177

- EIN 85-2444434, DUNS 118184437, NAICS 541320

### About

Wildling Design Studio was launched as a landscape architecture practice in 2019 to highlight a design and planning approach based on the conviction that livable cities and development depend upon thoughtful incorporation of nature and natural processes into the urban fabric. Wildling's name hints at the ethos that truly resilient design respects the wildness of natural processes.

### Design Philosophy

Recognizing the wildness of natural processes and working with them to bring a truly resilient nature back into urban development drives Wildling's ethos. Wildling Design Studio looks to our relationship with nature, and the fundamental natural processes that shape and maintain ecosystems, as drivers of design and planning. Each project is a testimonial to a relationship with the land, nature, and the processes which sustain us while we seek balance with our human needs and desires.

### JESSICA HALL, ASLA

- Registered Landscape Architect
- California #5780

Jessica is a landscape architect and the principal of Wildling Design Studio (Wildling). Jessica's career has spanned multiple disciplines and sectors including the fields of architecture, primary and university-level education, landscape architecture and the non-profit, agency, and private sectors. For the last twenty years, she has cultivated expertise to reestablish natural systems, particularly streams and related watershed processes, back into urban environments. Her work has received public honors and media attention. She also serves as the Policy and Restoration Director for the 501(c)3 California Urban Streams Partnership (CUSP), and is currently working within that organization to restore small streams in the Bay Area as well as develop and execute workshops with the organization's board.

### EDUCATION

#### Master of Landscape Architecture

AZ, 2012

College of Environmental Design  
California State Polytechnic University,  
Pomona, CA

#### Bachelor of Arts, Architecture

Princeton University, Princeton, NJ

### RELEVANT TRAINING

#### Binational River Restoration Workshop, Yuma,

**River Restoration Shortcourse: Fluvial Geomorphic + Ecological Processes**, Provence, France, 2008

**Stream Assessment & Restoration Design**, Los Angeles, CA, 2006\* (Note: conceived and organized this workshop)

**Appreciating and Identifying Native Grasses**, Hemet, CA 2005

**Riparian Ecology and Restoration Workshop**, Santa Maria, CA, 2003

**Sustainable Design**, UC Extension, Los Angeles, CA 1999

### PRACTICE AREAS

- Landscape Architecture
- Ecosystem-based Design + Restoration
- Participatory Design + Planning
- Research + Writing

## REPRESENTATIVE PROJECTS

**Calder Creek Naturalization and Vision Planning, Sebastopol, CA. Project Team: Waterways Restoration Institute (WRI), Wildling Design Studio. Completed 2022.** In 2021 Wildling's Jessica Hall and WRI received a Switzer Environmental Leadership Grant to facilitate the transfer and application of restoration technical knowledge honed by WRI founder A. L. Riley to Switzer Environmental Fellow Jessica Hall. The team researched historical conditions of the creek to inform potential channel naturalization scenarios, including a geomorphically-driven stream naturalization scenario for Calder Creek through Ives Park which has been approved by the City Council for design. The team produced a preliminary grading plan that was modeled by GHD, who is working under a separate contract with the City of Sebastopol to evaluate hydrology for the watershed. WRI and Wildling are also developing vision-level scenarios for daylighting Calder Creek through a busy intersection, while resolving existing traffic flow issues; through constrained downtown areas; and at the entry to Railroad Forest which is prone to flooding.

**Los Angeles River Restoration Feasibility Study at Sepulveda Basin, Los Angeles, CA. Project Team: The River Project, Balance Hydrologics, GHD, Wildling Design Studio, and SALT. Completed 2022.** Jessica began this project while staff at GHD and completed the work as Wildling Design Studio in a subconsultant role. As part of consultant team to The River Project, co-wrote grant and collaborated on this feasibility study and vision plan to fully naturalize the Los Angeles River and tributaries within the Sepulveda Basin, including leading the public design charrette, and collaborating with the team on visioning channel morphology and associated habitats, as well as appropriately siting recreational amenities within functioning river systems. Jessica's knowledge of southern California river systems and historical references provided background to quickly locate pertinent reference sites for understanding the social, ecological, and geomorphic conditions likely to present at the Basin, which is reflected in imagery for the project.

**Old Tujunga Wash Restoration at Johnny Carson Park, Burbank, CA. Project Lead: Ah'be (now MIG) Landscape Architects, RDG, CWE. Conceptual Design completed approximately 2009. Project implementation completed approximately 2015.** During early project scoping, the City of Burbank expressed a desire to capture runoff from a channel running through Johnny Carson Park for irrigation reuse. When Jessica Hall provided historical map documentation of the channel as a former stream, the City embraced restoration as a desirable outcome for the park. Jessica led the restoration subconsultant team through conceptual design including community meetings, geomorphic basis of design, stream alignment and restoration design concept. Construction documents and implementation were led by other staff at RDG subsequent to Jessica's departure. This park project represents a unique success for urban stream restoration in the Los Angeles area.

**Ballona Creek Historical Ecology Project. Los Angeles, CA. Roles: Project creator, research team contributor. Completed approximately 2011.** While at the Santa Monica Bay Restoration Commission, Jessica, having already mapped historical streams in GIS, conceived the idea of undertaking a more thorough historical ecology study for the Ballona Creek watershed modeled after work conducted by teams led by SFEI and others. She initiated conversations internally about this project, which was not ultimately funded until after her departure. The work was led by a team including UCLA, CSUN and others. Jessica contributed historical research to support the analysis and report production by this larger team.

**Ballona Creek Greenway Plan and Projects. Los Angeles and Culver City, CA. Project Lead: Jessica Hall at SMBRC and subsequently RDG. Project Team: RDG, Far West Engineering. Completed 2011.** Jessica conceived and led this landscape and restoration planning project with intensive monthly stakeholder creek walks and design charrettes culminating in a vision and "early action" greenway plan for naturalization of the entire eight miles of the channelized Ballona Creek and tributaries. The project included H&H modeling led by Roger Leventhal of Far West Engineering, in which he and Jessica worked iteratively within HEC-RAS to obtain viable channel cross-sections for regulatory flood capacity requirements. The project won a Westside Urban Forum Honor award in the Planning category. The study was undertaken to inform an Army Corp Restoration

Feasibility study that was underway at the time, as well as to facilitate top-of-channel greenway projects within the flood control right way implemented by other agencies.

**Development of Bankfull Regional Relationships in the Los Angeles Area for Application in Local Stream Restoration Projects. Haden, Allen and Hall, Jessica. Urban Coast Volume 2, Issue 1, Coastal Research Institute (a partnership of LMU Seaver College of Science and Engineering & The Bay Foundation), Los Angeles, CA. November 2010. While in an agency staff role, Jessica** conceived and managed the L.A. Basin Regional Curve Assessment, led by Natural Channel Design (Flagstaff, AZ) to survey and analyze bankfull geometry at multiple streams in the Los Angeles Region in order to determine if bankfull regional relationships were present. Jessica performed the initial investigation of potential reference sites, and served as part of the survey team. The report was completed in 2006 and this paper describing the process and findings was published by Allen Haden of Natural Channel Design and Jessica Hall in 2010.



### Summary of Experience

Melanie Winter is the founder and director of The River Project (TRP), a non-profit dedicated to just and equitable watershed-based, climate-resilient planning in Los Angeles since 2000. A Burbank native and lifelong autodidact with wide-ranging interests and an inherent capacity for systems thinking, she has dedicated her life to advancing policy and practice in

water and land-use for over 25 years. The River Project works collaboratively to design and implement holistic policies, projects and programs that multi-solve for climate and other intersecting challenges.

Ms. Winter has been instrumental to the movement to restore the LA River. She spearheaded the Coalition for a State Park at Taylor Yard, whose success led to the acquisition and development of Rio de Los Angeles State Park and the Bowtie. She was one of a handful of people to complete the 3-day kayak excursion which secured the river's protection under the Clean Water Act.

Ms. Winter served as Friends of the Los Angeles River's first executive director from 1996 – 2000, where she produced the River through Downtown Conference, designed their education and water quality monitoring programs, tripled their membership and budget, and brought national attention to the river.

### MELANIE WINTER

Founder & Director, The River Project

<https://www.riverproject.org/>

12026 Hoffman St. #304

Studio City, California 91604

818-980-9660



### RELEVANT WATERSHED AND CLIMATE-RESILIENCE PLANNING PROJECTS

**Sepulveda Basin Restoration Feasibility Study.** Ms. Winter led the restoration feasibility study of the Los Angeles River and tributaries within the Sepulveda Basin. The resulting Vision Plan restores ecosystem function to 8 miles of River and tributaries, increases recreational opportunities, improves public access, expands biodiversity, increases potential for groundwater recharge, and adds flood storage and attenuation to reduce downstream flood hazards. If implemented as envisioned, it would be the first concrete channel removal along the Los Angeles River corridor.

**Award-winning Tujunga/Pacoima Watershed Plan.** The stakeholder-driven Plan received the American Planning Association's "Innovation in Green Community Planning" award in 2009. Developed through a consensus process, the Plan identifies multiple benefits including enhancing local water supply and water quality, mitigating flood risk, restoring ecosystem function to Tujunga and Pacoima Washes, reducing heat impacts, expanding biodiversity, and creating community recreation opportunities by linking greenways and neighborhood park space in underserved and climate-vulnerable communities in the area. The project included a K-12 curricula, a Watershed-U, a robust decision support system, and three dozen priority projects, 2/3 of which have since been implemented.

**Taylor Yard and Rio de Los Angeles State Park.** Ms. Winter spearheaded the Coalition for a State Park at Taylor Yard which stopped a proposed industrial development at the site, and produced the park's design template, ultimately implemented in partnership between the City and the State. The River Project guided the development of a surface and groundwater model for the LA River through the Elysian Valley; which stands on its own and was incorporated into the State Coastal Conservancy's Multi-Objective Feasibility Study of Taylor Yard, both of which continue to inform planning efforts at Taylor Yard. TRP also worked with local youth and artists to create the interpretive projects at Rio de Los Angeles State Park.

**Hydrodynamic Study for Restoration of the Tujunga Wash** TRP led the effort to examine the long-term potential for functional ecosystem restoration of one of the region's most dynamic waterways. The study included development of a never-before-completed hydrodynamic model for Tujunga Wash that was subsequently adopted for use by the USACE.

**Sepulveda Basin Habitat Restoration.** TRP successfully removed 8 acres of invasive Arundo and castor bean, 180 invasive trees, 164 palms, and several hundred shopping carts from the soft-bottom reach of the LA River in Sepulveda Basin; and conducted pre- and post-project water quality and avifauna surveys.

January 19, 2023 - Item 15

**RESOLUTION 2023-06**

**RESOLUTION TO APPROVE EXECUTIVE OFFICER OR DESIGNEE TO NEGOTIATE AND ENTER INTO CONTRACT FOR SPATIAL DATASET AND CONCEPT DEVELOPMENT FOR TRIBUTARIES OF THE MID/UPPER SAN GABRIEL RIVER FOR THE UPPER SAN GABRIEL RIVER TECHNICAL ASSISTANCE PROJECT.**

**WHEREAS**, the Watershed Conservation Authority (WCA) has been established as a joint powers agency between the Rivers and Mountains Conservancy (RMC) and the Los Angeles County Flood Control District (District); and

**WHEREAS**, the Watershed Conservation Authority (WCA) has further been established to focus on projects which will provide open space, habitat restoration, and watershed improvement projects in both the San Gabriel and Lower Los Angeles Rivers watershed; and

**WHEREAS**, this action will approve Executive Officer or Designee to negotiate and enter into contract for spatial dataset and concept development for tributaries of the Mid/Upper San Gabriel River for the Upper San Gabriel River Technical Assistance Project; and

**WHEREAS**, the proposed action is exempt from the provisions of the California Environmental Quality Act; NOW

*Therefore be it resolved that* the WCA hereby:

1. **FINDS** that this action is consistent with the purposes and objectives of the WCA.
2. **FINDS** that the actions contemplated by this resolution are exempt from the environmental impact report requirements of the California Environmental Quality Act (CEQA).
3. **ADOPTS** the staff report dated January 19, 2023.
4. **APPROVES** Executive Officer or Designee to negotiate and enter into contract for spatial dataset and concept development for tributaries of the Mid/Upper San Gabriel River for the Upper San Gabriel River Technical Assistance Project.

*~ End of Resolution ~*

//

Motion: \_\_\_\_\_ Second: \_\_\_\_\_

Ayes: \_\_\_\_\_ Nays: \_\_\_\_\_ Abstentions: \_\_\_\_\_

Passed and Adopted by the Board of the  
**WATERSHED CONSERVATION AUTHORITY**  
On January 19, 2023

\_\_\_\_\_  
Herlinda Chico  
Governing Board Chair

ATTEST: \_\_\_\_\_  
Elizabeth St. John  
Deputy Attorney General