



**BOARD OF DIRECTORS
SAN LORENZO VALLEY WATER
DISTRICT
REGULAR MEETING
AGENDA
AUGUST 3, 2023**

MISSION STATEMENT: Our Mission is to provide our customers and future generations with reliable, safe and high quality water at an equitable price; to create and maintain outstanding service and community relations; to manage and protect the environmental health of the aquifers and watersheds; and to ensure the fiscal vitality of the San Lorenzo Valley Water District.

Notice is hereby given that a regular meeting of the Board of Directors of the San Lorenzo Valley Water District will be held on **Thursday, August 3, 2023, at 6:30 p.m.**, SLVWD Conference Room, 12788 Highway 9, Boulder Creek, and via videoconference and teleconference.

Any person in need of any reasonable modification or accommodation in order to participate in the meeting may contact the District Secretary's Office at (831) 430-4636 a minimum of 72 hours prior to the scheduled meeting.

This meeting is being conducted as an in-person meeting under the Brown Act, Government Code section 54953, and a quorum of the Board must participate from the location(s) within the District that are identified above. Members of the public may attend the meeting at the identified location(s). Teleconferencing/videoconferencing access as set forth below is being provided as a convenience only and is not guaranteed. The meeting may continue in person even if teleconferencing/videoconferencing capability is disrupted or unavailable.

To join the meeting click the link below, or type it into your web browser.

Webinar/Public link:

<https://us02web.zoom.us/j/85144108029>

+1 346 248 7799

+1 669 900 6833

+1 253 215 8782

Webinar ID: **85144108029**

Agenda documents are available on the District website at www.slvwd.com subject to staff's ability to post the documents before the meeting.

1. Convene Meeting/Roll Call

2. Additions and Deletions:

Additions to the Agenda, if any, may only be made in accordance with California Government Code Section 54954.2 (Ralph M. Brown Act) which includes, but is not limited to, additions for which the need to take action is declared to have arisen after the agenda was posted, as determined by a two-thirds vote of the Board of Directors (or if less than two-thirds of the members are present, a unanimous vote of those members present).

3. Oral Communications:

This portion of the agenda is reserved for Oral Communications by the public on any subject that lies within the jurisdiction of the District and is not on the agenda. Any person may address the Board of Directors at this time. Normally, presentations must not exceed three (3) minutes in length, and individuals may only speak once. Please state your name and town/city of residence for the record at the beginning of your statement. Please understand that the Brown Act limits what the Board can do regarding issues not on the agenda. No action or discussion may occur on issues outside of those already listed on today's agenda. Any Director may request that a matter raised during Oral Communication be placed on a future agenda.

4. Unfinished Business:

Members of the public will be given the opportunity to address each agenda item prior to Board action. Normally, presentations must not exceed three (3) minutes in length, and individuals may only speak once. Please state your name and town/city of residence for the record at the beginning of your statement.

- a. EMERGENCY CONTRACT AMENDMENT- QUAIL HOLLOW ROAD
Discussion and possible action by the Board regarding an amendment for exploratory repair of the Quail Hollow Road mainline repair.

5. New Business:

Members of the public will be given the opportunity to address each agenda item prior to Board action. Normally, presentations must not exceed three (3) minutes in length, and individuals may only speak once. Please state your name and town/city of residence for the record at the beginning of your statement.

- a. 2021-22 STREAMFLOW, SALINITY AND TEMPERATURE MONITORING AND OPERATIONAL GAUGING REPORT
Discussion and possible action by the Board regarding the Temp & Flow report.
- b. VERIZON CELLULAR SITE - CONCEPTUAL AGREEMENT
Discussion and possible action by the Board regarding the proposal to lease space to Verizon Wireless for a communications facility.

6. Consent Agenda:

The Consent Agenda contains items which are considered to be routine in nature and will be deemed adopted by unanimous consent if no Director states an objection. Any item on

the consent agenda will be moved to the regular agenda upon request from an individual Director or a member of the public.

- a. SPECIAL BOARD OF DIRECTORS MINUTES 7.13.23
- 7. Written Communication: None
- 8. Informational Material: None
- 9. Adjournment

The Next Board of Directors Meeting is Scheduled for August 17, 2023.

Certification of Posting

I hereby certify that on July 31, 2023, I posted a copy of the foregoing agenda in the outside display case at the District Office, 13060 Highway 9, Boulder Creek, California, the SLVWD Boardroom, 12788 Highway 9, Boulder Creek, said time being at least 72 hours in advance of the meeting of the Board of Directors of the San Lorenzo Valley Water District (Government Code Section 54954.2). Executed at Boulder Creek, California on July 31, 2023.

Holly B. Hossack, District Secretary

MEMO

DATE: August 3, 2023
TO: Board of Directors, San Lorenzo Valley Water District
FROM: Rick Rogers, District Manager
SUBJECT: Emergency Contract Amendment for Exploratory Repair of Failed Quail Hollow Road Mainline Trench

WRITTEN BY: Rick Rogers/Josh Wolff
PRESENTED BY: Rick Rogers, District Manager

STAFF RECOMMENDATION

Authorize an amendment to the existing expenditure of time and materials (T&M) not to exceed (NTE) \$600,000 for exploration of the failed potable water main trench in Quail Hollow Road

RECOMMENDED MOTION

I move that:

The Board directs the District Manager to amend the existing contract with Anderson Pacific Engineering Construction, Inc. in an amount not to exceed \$600,000.00 for the repair of the failed potable water main in Quail Hollow Road.

BACKGROUND

In 2021 and 2022, the District contracted for the construction of a new 12-inch potable water main in Quail Hollow Road, running from approximately the intersection of Quail Hollow Road and West Zayante Road to the District's

facility at the intersection of Quail Hollow Road and Cumora Lane. This construction was completed in 2022. Backfill of the trench and restoration of the paving was accomplished according to the Santa Cruz County Standard Detail EP-1, which specifies sand bedding for the pipe, 2-sack slurry for backfill, and asphaltic concrete (AC) for surface restoration. Surface restoration included a tee cut as required by EP-1. After construction, Santa Cruz County accepted the paving restoration and the District accepted the potable water main construction.

During the unprecedented storms experienced by the District in January of 2023, the AC installed during the 2022 project was observed to sink. In the immediate aftermath of the storms, the District consulted with Santa Cruz County Public Works (DPW), then executed an emergency contract with Anderson Pacific Engineering Construction, Inc. (APEC) to remove the previously installed steel plates, excavate the previously installed slurry, and restore the roadway in conformance with EP-1. This work proved impossible to complete due to the exceedingly high water table and the presence of large volumes of water flowing less than 2 feet below grade. The District again consulted with DPW; the joint decision was made to backfill the excavation with drain rock, re-install steel plates, and return to the area to make a permanent repair after the subgrade had dried out.

Quail Hollow Road is a heavily traveled commute route, which has resulted in the installed plates regularly being shifted out of position, despite being welded, pinned, and ramped. As such, DPW and District Staff have determined that another attempt should be made to repair the road. APEC has completed several difficult projects for the District on an emergency

basis, leading Staff to identify APEC as the preferred contractor for this repair.

The proposed repair will be exploratory. Neither DPW nor District Staff can completely identify the extent of the failed subgrade, so the plan must be to excavate a portion of the failed AC and subgrade, make a repair, and move on to the next portion of the failure. DPW and Staff agree that this staged and exploratory methodology will provide the greatest probability of a successful repair. In addition, Staff and DPW have determined that the backfill for this repair should not conform to EP-1, as there is some debate as to the contribution of the slurry wedge to the failure. Instead, backfill will be accomplished using sand/native material (this area is in the Sand Hills habitat), Class II aggregate base (AB), and AC.

On June 1, 2023, the Board reviewed the original memo and approved an emergency Contract for Exploratory Repairs of \$250,000 to Anderson Pacific Engineering Construction. Work to date completed has consisted of the following:

- Replaced approximately 250 LF of pipeline trench.
- Excavate the existing slurry backfill and sand pipe bedding and any large voids
- Install sand cement slurry pipe bedding and slurry any adjacent voids. Control groundwater before slurry with well points etc.
- Install 6” dia. perforated plastic pipe, slope to daylight into an inboard ditch at 1% slope +/-100 ft. below work
- Install 6” vertical riser cleanouts at the upper end, turns, and at 100’ spacing.

- Backfill water main and underdrain trenches with Caltrans Permeable Material Class 2 per CSS Section 68-2.02F (3)

In making repairs additional voids have been discovered. Although these voids are not as significant as the first repairs they are large enough to require additional work. There is also an additional location at the entrance of Quail Hollow Ranch Park that requires repairs. It is believed that these areas are not as large as the first repairs however, it will not be determined until exploratory excavation has been performed.

As this damage happened during the unprecedented storms in January 2023, FEMA Grant funding has been requested.

ENVIRONMENTAL REQUIREMENTS

As all work will take place within the existing paved roadway, there are no environmental requirements beyond a prohibition on equipment or vehicles leaving the existing paved roadway.

PRIOR COMMITTEE ACTION

None

FISCAL IMPACT

This work has not been budgeted, based on the emergency nature of the repair. The amended contract provides an NTE value of \$600,000.00. The final cost is difficult to determine given the exploratory nature of the repair.

ATTACHMENTS AND RELEVANT LINKS TO THE DISTRICT WEBSITE

- Original Emergency Contract
- Billable Rates

AMENDMENT #1
EMERGENCY CONSTRUCTION CONTRACT
by and between the
SAN LORENZO VALLEY WATER DISTRICT (District)
and
ANDERSON PACIFIC ENGINEERING CONSTRUCTION, INC. (Contractor)

PREAMBLE

This Amendment to Agreement for Emergency Contract Services (the "Amendment") is made and entered into on this **3rd** day of **August, 2023** ("Effective Date"), by and between **Anderson Pacific Engineering Construction, Inc.** ("Contractor") and the San Lorenzo Valley Water District, a California County Water District ("District"). District and Contractor may be referred to individually as a "Party" or collectively as the "Parties."

RECITALS

- A.** District and Contractor are parties to that certain Agreement for Emergency Contract Services by and between the San Lorenzo Valley Water District (District) and Anderson Pacific Engineering, Inc., dated June 1, 2023, for Emergency Sole Source Services.
- B.** The Parties desire to update the Agreement by revising the not to exceed (NTE) to \$600,000.00 for exploration of the failed potable water main trench in Quail Hollow Road.
- C.** The Parties agree that the billing rates remain the same.

The Parties acknowledge and accept this Amendment as evidenced by the following signatures of their duly authorized representatives. It is the intent of the Parties that this Amendment shall become operative on the Effective Date.

SAN LORENZO VALLEY WATER DISTRICT

ANDERSON PACIFIC ENGINEERING, INC.

Rick Rogers, District Manager
San Lorenzo Valley Water District

Scott Schumacher, Vice President
Anderson Pacific Engineering, Inc.

SAN LORENZO VALLEY WATER DISTRICT
EMERGENCY CONSTRUCTION CONTRACT

AGREEMENT

THIS AGREEMENT (hereafter, “Agreement”) is made on this 25th day of May, 2023 by and between SAN LORENZO VALLEY WATER DISTRICT OF SANTA CRUZ COUNTY, a public agency of the State of California, with its headquarters at Boulder Creek, California, herein referred to as the "District," and ANDERSON PACIFIC ENGINEERING CONSTRUCTION, INC. located at 1370 Norman Avenue Santa Clara, CA 95054 represented by Scott Schumacher, hereafter referred to as the "Contractor" (Telephone: (408) 970-9900, “Emergency” Telephone: Sam Duckworth (408) 318-1691.) District and Contractor are each a “Party” to this Agreement, and are collectively referred to herein as “Parties.”

Emergency/Exigency Sole Source Agreement – This Agreement is being entered into on a sole-source basis during emergency conditions resulting from winter storms with widespread flooding and landslides that have caused extensive failure through of a District-owned utility trench (potable water main), requiring the immediate expenditure of public money to safeguard life, health, property, and essential government services. The purpose of this Agreement is utilize immediately available and responsible contractor services to safeguard and restore essential water services needed for public health and safety by constructing a temporary water main in place of the damaged water main.

Contractor acknowledges that the District must transition to a competitively bid contract once the emergency or exigency ends, or as soon as a “time-and-materials” contract is no longer appropriate.

Contractor shall provide the District with a designated emergency contact available by phone 24-hours per day and 7-days per week.

Project Description – Contractor is to provide labor, equipment and materials on an as needed emergency basis when requested by the District (the “Work”). The Work is described in **Exhibit “A”**, and generally consists of exploration and repair of the failed mainline trench in Quail Hollow Road, and includes, but is not limited to, provision of backfill and paving materials, excavation, evaluation of failure extent, backfill, compaction, traffic control, shoring, reestablishment of alignment of existing pipeline, and asphalt paving.

All the Work shall be performed in accordance with District Standards AWWA Standards, and Santa Cruz County Encroachment Permit Requirements.

Term and Timing Requirements - Period of service under this Agreement will become effective on the date first stated above (“execution date”), and will continue through July 31, 2023 (“termination date”). Time is of the essence for the performance of all Work under this Agreement.

The District may, at its sole discretion, extend this Agreement by written notice given to Contractor no more than 14 days before the termination date.

Compensation - Performance of the Work under this Agreement shall be on a time and material basis in accordance with the labor and equipment rate schedule outlined in **Exhibit “B”**, unless otherwise modified

and mutually agreed in writing. The total compensation for all Work performed under the terms and conditions of this Agreement shall not exceed \$250,000 and zero cents.

Guarantee - Contractor warrants that

- a. All Work shall be performed by personnel who are careful, skilled, experienced, and competent in their respective trades or professions;
- b. Materials and equipment furnished under the Agreement will be of good quality and new unless otherwise required or permitted by the Agreement, the Work will be free from defects not inherent in the quality required or permitted; and
- c. Work shall be performed in a good and workmanlike manner.

Meetings - Contractor shall meet with the District regularly, as specified by the District, to report progress. In addition to the regular progress meetings, coordination meetings may be called by either District or Contractor when either party determines that there is a need to discuss the Work. Contractor shall prepare meeting minutes and submit to District within one week after the meeting.

Correspondence - Contractor shall furnish District copies of any written correspondence between Contractor and other parties pertaining specifically to the Agreement.

Ownership of Materials - All materials which Contractor is required to prepare or develop in the performance and completion of the Work under the Agreement, including without limitation any drawings, specifications, documents, calculations, maps, sketches, notes, reports, data, models and samples, and any and all inventions and copyrightable material contained therein, shall become the sole and exclusive property of District when made or prepared whether delivered to District or not, subject to Contractor's right to use the same to perform the Work under the Agreement. Such materials shall, together with any materials furnished to Contractor by District under the Contract, be delivered to District upon request and in any event upon completion or termination of the Agreement. District and its authorized representatives may use any such materials delivered by Contractor without Contractor's permission.

Confidentiality - Except as otherwise expressly authorized by District, or as necessary for Contractor to perform the Work, Contractor shall not at any time, in any manner whatsoever, either directly or indirectly, disclose to any person or entity any information of any kind or description, whether oral or written, concerning District or any matters affecting or relating to the Work. Contractor shall refer all requests for information regarding the Work to the District representative. Contractor's obligations under this section shall survive the termination of the Contract.

The Contractor acknowledges that certain documents provided under the Contract are subject to disclosure under the Public Records Act.

Termination at District's Option - District shall have the right at any time to terminate, with or without cause, further performance of the Work in whole or in part by written notice to Contractor specifying the date of termination. On the date stated, Contractor shall discontinue performance of the Work and shall preserve work in progress and completed work product, and shall turn over such work product in accordance with District's instructions. If Contractor has completely performed all obligations under the Contract up to the date of termination, Contractor shall be entitled to compensation for costs incurred in performance of the Work prior to termination.

Workers' Compensation Insurance - By its authorized signature hereunder, Contractor certifies that it is aware of the provisions of Section 3700 of the California Labor Code which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and Contractor will comply with such provisions before commencing the performance of the work of this agreement.

Indemnification - To the fullest extent permitted by law, Contractor shall indemnify and hold harmless and defend the District, its directors, officers, employees, agents, or authorized volunteers, and each of them from and against:

- a. Any and all claims, demands, causes of action, damages, costs, expenses, losses or liabilities, in law or in equity, of every kind or nature whatsoever for, but not limited to, injury to or death of any person including District and/or Contractor, or any directors, officers, employees, or authorized volunteers of District or Contractor, and damages to or destruction of property of any person, including but not limited to, District and/or Contractor or their directors, officers, employees, or authorized volunteers, arising out of or in any manner directly or indirectly connected with the work to be performed under this agreement, however caused, regardless of any negligence of District or its directors, officers, employees, or authorized volunteers, except the sole willful misconduct or active negligence of District or its directors, officers, employees, agents, or authorized volunteers;
- b. Any and all actions, proceedings, damages, costs, expenses, penalties or liabilities, in law or equity, of every kind or nature whatsoever, arising out of, resulting from, or on account of the violation of any governmental law or regulation, compliance with which is the responsibility of Contractor;
- c. Any and all losses, expenses, damages (including damages to Contractor's works for the District itself), attorneys' fees, and other costs, including all costs of defense, which any of them may incur with respect to the failure, neglect, or refusal of Contractor to faithfully perform the work and all of the Contractor's obligations under this Agreement. Such costs, expenses, and damages shall include all costs, including attorneys' fees, incurred by the District in any lawsuit to which it is a party.

Contractor shall defend, at Contractor's own cost, expense and risk, any and all such suits, actions, or other legal proceedings of any kind that may be brought or instituted against the District or its directors, officers, employees, agents, or authorized volunteers. District shall notify Contractor of any such suits, actions, claims, or other legal proceedings arising from Contractor's performance of this Agreement within 7 days of District's knowledge of such claim or proceeding, according to the Notice provisions included herein.

Contractor shall pay and satisfy any judgment, settlement, award or decree that may be rendered against the District or its directors, officers, employees, agents, or authorized volunteers, in any and all such suits, actions, or other legal proceedings.

Contractor shall reimburse the District or its directors, officers, employees, or authorized volunteers, for any and all legal expenses and costs incurred - by any of them in connection with any of the duties of Contractor or any actions taken by Contractor pursuant to the terms of this Agreement or in enforcing the indemnity herein provided.

Contractor's obligation to indemnify the District shall not be restricted to insurance proceeds, if any, received by the District, or its directors, officers, employees, agents, or authorized volunteers.

GENERAL CONDITIONS

Licensing Requirements – Contractor shall have a General Engineering License “A.” Contractor shall also have a properly trained and licensed welder on staff, or shall sub-contract any welding work to a properly trained and licensed welder. Contractor shall be registered with the Department of Industrial Relations such that Contractor can be found through the California Department of Industrial Relations’ Public Works Contractor Search tool.

Laws, Regulations and Permits - Contractor shall provide all notices required by law and shall comply with all laws, ordinances, rules and regulations pertaining to the conduct of work performed for the District. Contractor shall be liable for any and all violations of law in connection with work furnished to the District by Contractor. If Contractor or its representatives observe that the construction drawings or specifications are at variance with any law or ordinance, rule or regulation, Contractor shall promptly notify the District in writing and any necessary changes shall be made by written instruction or change order. If the Contractor performs any work with knowledge that it is contrary to any applicable laws, ordinances, rules or regulations and without first giving written notice to the District, the Contractor shall bear all costs arising therefrom.

Prevailing Wage – Contractor shall pay, at a minimum, all employees and sub-contractors who conduct work for the District under this Agreement the prevailing wage for such work in the State of California, as determined by the California Department of Industrial Relations. In no case may Contractor pay any employee or sub-contractor less than the prevailing wage for work performed in furtherance of this Agreement, as such prevailing wage is determined by the California Department of Industrial Relations.

Safety - Contractor shall execute and maintain the Work so as to avoid injury or damage to any person or property. Contractor shall comply with the requirements and specifications relating to safety measures applicable to the particular operations or kinds of work.

In carrying out the Work, Contractor shall at all times exercise all necessary precautions to ensure the safety of employees appropriate to the nature of the work and the conditions under which Contractor’s work is to be performed. Contractor shall be in compliance with all applicable federal, state and local statutory and regulatory requirements including, but not limited to, California Department of Industrial Relations (Cal/OSHA) regulations, and the U.S. Department of Transportation Omnibus Transportation Employee Testing Act. Safety precautions, as applicable, shall include, but shall not be limited to: adequate life protection and life saving equipment; adequate illumination; instructions in accident prevention for all employees, such as the use of machinery guards, safe walkways, scaffolds, ladders, bridges, gang planks, confined space procedures, trenching and shoring, fall protection, and other safety devices; equipment and wearing apparel as necessary or lawfully required to prevent accidents, injuries, or illnesses; and adequate facilities for the proper inspection and maintenance of all safety measures.

Contractor shall be responsible for the safeguarding of all utilities. No less than two working days before beginning work, the Contractor shall call the Underground Service Alert (USA) in order to determine the location of sub-structures. The Contractor shall immediately notify the District and the applicable utility owner if Contractor disturbs, disconnects, or damages any utility.

In accordance with Section 6705 of the California Labor Code, Contractor shall submit to the District specific plans that disclose details of provisions for worker protection from caving ground during

excavations of trenches that are five feet or more in depth (“trench safety plan”). The trench safety plan shall be submitted to and must be accepted by the District before the Contractor may commence excavation. The trench safety plan shall have details showing the design of shoring, bracing, sloping or other provisions to be made for worker protection from the hazard of caving ground. If the trench safety plan varies from the shoring system standards established by Cal/OSHA, the trench safety plan shall be prepared by a California registered civil or structural engineer. As part of the trench safety plan, a note shall be included stating that the registered civil or structural engineer certifies that the trench safety plan complies with the Cal/OSHA Construction Safety Orders, or that the registered civil or structural engineer certifies that the trench safety plan is not less effective than the shoring, bracing, sloping or other provisions of the Cal/OSHA Construction Safety Orders. In no event shall the Contractor use a shoring, sloping, or protective system less effective than that required by the Cal/OSHA Construction Safety Orders. Submission of a trench safety plan in no way relieves the Contractor of the requirement to maintain safety in all areas of the work site at all times. If excavations or trench work requiring a Cal/OSHA permit are to be undertaken, Contractor shall submit its permit with the trench safety plan to the District before work begins.

The names and telephone numbers of at least two medical doctors practicing in the vicinity and the telephone number of the local ambulance service shall be prominently displayed adjacent to telephones.

Invoicing and Payment - On the first day of each month, or the working day closest thereafter, Contractor shall invoice for that portion of the Work performed during the preceding month. All costs, expenses, and other amounts so invoiced shall be substantiated and supported by equipment time slips, invoices, timesheets, receipts, and other documents satisfactory to the District. Such documentation shall include a narrative of the Work performed. Such invoice, after receipt in form satisfactory to the District and verified by the District, shall be paid within 45 days. No payments shall be construed to be an acceptance of defective Work or relieve Contractor of any of its contractual obligations.

Payments may be withheld by District when it reasonably believes that (1) the materials or workmanship are defective, (2) any claim has been filed against Contractor or District arising out of the Work, (3) Contractor has failed to make payments properly to subcontractors, or (4) Contractor has failed to meet a deadline for Work covered by the payment request.

Commercial General Liability and Automobile Liability Insurance - Contractor shall provide and maintain the following commercial general liability and automobile liability insurance:

Coverage - Coverage for commercial general liability and automobile liability insurance shall be at least as broad as the following:

1. Insurance Services Office (ISO) Commercial General Liability Coverage (Occurrence Form CG 0001)
2. Insurance Services Office (ISO) Business Auto Coverage (Form CA 0001), covering Symbol 1 (any auto)

Limits - Contractor shall maintain limits no less than the following:

1. General Liability - Three million dollars (\$3,000,000) per occurrence for bodily injury, personal injury and property damage. If Commercial General Liability Insurance or other form with a general aggregate limit or products-completed operations aggregate limit is used, either the general aggregate limit shall apply

separately to the project/location (with the ISO CG 2503, or ISO CG 2504, or insurer's equivalent endorsement provided to the San Lorenzo Valley Water District) or the general aggregate limit and products-completed operations aggregate limit shall be twice the required occurrence limit.

2. Automobile Liability - One million dollars (\$1,000,000) for bodily injury and property damage each accident limit.

Required Provisions - The general liability and automobile liability policies are to contain, or be endorsed to contain, the following provisions:

1. The District, its directors, officers, employees, agents, and authorized volunteers shall be additional insureds (via ISO endorsement CG 2010, CG 2033, or insurer's equivalent for general liability coverage) as respects: liability arising out of activities performed by or on behalf of Contractor; products and completed operations of the Contractor; premises owned, occupied or used by the Contractor; and automobiles owned, leased, hired or borrowed by the Contractor. The coverage shall contain no special limitations on the scope of protection afforded to the District, its directors, officers, employees, agents, or authorized volunteers.
2. For any claims related to work undertaken by the Contractor pursuant to this Agreement, the Contractor's insurance shall be the primary insurance as respects the District, its directors, officers, employees, agents, or authorized volunteers. Any insurance, self-insurance, or other coverage maintained by the District, its directors, officers, employees, agents, or authorized volunteers shall not contribute to any such claims or to the Contractor's insurance.
3. Any failure to comply with reporting or other provisions of the Contractor's insurance policies, including breaches of warranties, shall not affect coverage provided to the District, its directors, officers, employees, agents, or authorized volunteers.
4. Contractor's insurance shall apply separately to each insured against whom a claim is made or suit is brought, up to and including the limits of the insurer's liability.
5. Each insurance policy required by this Agreement shall state, or be endorsed to state, that coverage shall not be canceled by the insurance carrier or the Contractor, except after thirty (30) days' prior written notice by U.S. mail has been given to the District. In the event that the insurance premium has not been paid by Contractor, coverage may be canceled upon ten (10) days' written notice provided to the District via U.S. mail.

Such liability insurance shall indemnify the Contractor and its sub-contractors against loss from liability imposed by law upon, or assumed under contract by, Contractor or its sub-contractors for damages on account of bodily injury (including death), property damage, personal injury, completed operations, and products liability.

Contractor's general liability policy shall cover bodily injury and property damage liability, owned and non-owned equipment, blanket contractual liability, completed operations liability, explosion, collapse, underground excavation, and removal of lateral support liability.

The automobile liability policy shall cover all owned, non-owned, and hired automobiles.

All such insurance carried by Contractor shall be provided on policy forms and through companies satisfactory to the District.

Deductibles and Self-Insured Retentions - Any deductible or self-insured retention must be declared to and approved by the District. At the option of the District, the insurer shall either reduce or eliminate such deductibles or self-insured retentions.

Acceptability of Insurers – Contractor's insurance shall be placed with insurers holding a current A.M. Best Rating of at least A:VII, or the equivalent, if such equivalent or other rating is approved by the District in its sole discretion.

Workers' Compensation and Employer's Liability Insurance - Contractor and any and all sub-contractors shall insure (or be a qualified self-insured) all of their employees working on or about the construction site, in accordance with the "Workers' Compensation and Insurance Act", Division IV of the Labor Code of the State of California and any Acts amendatory thereof, and any other applicable laws relating to workers' compensation insurance. Contractor shall provide employer's liability insurance with limits of no less than \$1,000,000 per accident, a \$1,000,000 disease policy limit, and a \$1,000,000 disease limit for each employee.

Responsibility for Work - Until the completion and final acceptance by the District of all the work included in and implied by this Agreement, the work shall be Contractor's care and charge, and Contractor shall be solely responsible therefor. Contractor shall rebuild, repair, restore and make good all injuries, damages, re-erctions, and repairs occasioned or rendered necessary by causes of any nature whatsoever.

Contractor shall provide and maintain builder's risk insurance (or an installation floater) covering all risks of direct physical loss, damage to or destruction of the work performed by Contractor in the amount specified in the General Conditions, to insure against such losses until final acceptance of the Contractor's work by the District. Such insurance shall insure, at a minimum, against the perils of fire and extended coverage, theft, vandalism and malicious mischief, and collapse. The District, its directors, officers, employees, agents and/or authorized volunteers shall be named insureds on any such policy. The making of progress payments to the Contractor shall not be construed as creating an insurable interest by or for the District, nor shall such progress payments be construed as relieving Contractor or its subcontractors of responsibility for loss from any direct physical loss, damage, or destruction occurring prior to final acceptance of the Contractor's work by the District.

Contractor shall waive all rights of subrogation against the District, its directors, officers, employees, agents, or authorized volunteers.

Evidences of Insurance - Prior to execution of this Agreement, the Contractor shall file with the District a certificate of insurance (Acord Form 25-S or equivalent) signed by the insurer's representative evidencing the coverage required by this Agreement. Such evidence shall include an additional insured endorsement signed by the insurer's representative and evidence of waiver of rights of subrogation against the District.

Such evidence shall also include confirmation that coverage includes or has been modified to include Required Provisions 1-5.

Contractor shall, upon demand of the District, deliver to the District such insurance policy or policies and the receipts for Contractor's payment of any and all premiums thereon.

Continuation of Coverage - If any of the required coverages expire during the term of this Agreement, the Contractor shall deliver the renewal certificate(s), including the general liability additional insured endorsement and evidence of waiver of rights of subrogation against District, to the District at least ten (10) days prior to the existing insurance policy's expiration date.

Sub-Contractors - In the event that Contractor employs sub-contractors as part of the work covered by this Agreement, it shall be Contractor's responsibility to require and confirm that each sub-contractor meets the minimum insurance requirements specified above.

Independent Contractor - Contractor's personnel performing services under the Agreement shall at all times be under the Contractor's exclusive direction and control and shall be employees of Contractor and not employees of District. Contractor shall pay all wages, salaries and other amounts due its employees in connection with the Contract and shall be responsible for all reports and obligations respecting them, including Social Security tax, income tax withholding, unemployment compensation, worker's compensation, employee benefits and similar matters. Contractor shall defend, indemnify, protect, and hold harmless the District its directors, officers, employees, agents, or authorized volunteers, and each of them, from any and all damages, losses, claims, suits, costs, liabilities, or actions of every kind or description (including attorneys' fees) incurred or brought for, or on account of, Contractor's violation or alleged violation of any of the foregoing requirements.

Nondiscrimination and Equal Opportunity Employment- During the performance of the Agreement, Contractor shall not discriminate against any person or group of persons on account of race, religious creed, color, national origin, ancestry, physical disability, mental disability, medical condition, genetic information, marital status, sex, gender, gender identity, gender expression, age, or sexual orientation. Contractor confirms that it has an equal employment opportunity policy ensuring equal employment opportunity without regard to race, religious creed, color, national origin, ancestry, physical disability, mental disability, medical condition, genetic information, marital status, sex, gender, gender identity, gender expression, age, or sexual orientation; and that it maintains no employee facilities segregated on the basis of race, religious creed, color, national origin, ancestry, physical disability, mental disability, medical condition, genetic information, marital status, sex, gender, gender identity, gender expression, age, or sexual orientation.

Compliance with Americans with Disabilities Act - Contractor shall not discriminate against, or fail to make reasonable accommodation of any person covered by the Americans with Disabilities Act (ADA) of 1990, 42 U.S.C. §§ 12101-12213, as amended (the "Act"), or fail to comply with any provision of the Act in the course of its performance of its obligations under the Agreement, or in any way connected with District. Contractor shall defend, indemnify, protect, and hold harmless the District its directors, officers, employees, agents, or authorized volunteers, and each of them, from any and all damages, losses, claims, suits, costs, liabilities, or actions of every kind or description (including attorneys' fees) incurred or brought for, or on account of, Contractor's violation or alleged violation of the Act in the course of performance of its obligations under the Agreement, or in any way connected to District by Contractor, its agents, its subcontractors, its subconsultant, or any officers, partners, or employees of any of the foregoing.

Notices – All notices, demands, payments, requests, consents, or other communications which this Agreement either contemplates, authorizes, requires, or permits either party to give to the other party shall be in writing and shall be sent by electronic mail (e-mail) and/or personally delivered, and/or sent by registered or certified U.S. mail, postage pre-paid, return receipt requested, addressed to the respective parties as follows:

To District: San Lorenzo Valley Water District
Attn: District Manager
13060 Hwy 9
Boulder Creek, CA 95006
Email: rogers@slvwd.com

With a Copy to: District Counsel

To Contractor: Scott Schumacher
1370 Norman Avenue
Santa Clara, CA 95054
Email: scott@andpac.com

A change in address may be made by notifying the other party in accordance with this Section.

Governing Law/Venue – The interpretation, validity and enforcement of this Agreement shall be governed by and construed under the laws of the State of California. The appropriate venue for any action brought to enforce or declare its terms shall be brought in the appropriate state or federal court in the County of Santa Cruz.

Severability – Should any provisions herein be found or deemed invalid or in contravention of California law, such provision shall be deemed not a part of this Agreement. All other provisions of this Agreement shall remain valid and enforceable, and shall remain in full force and effect.

Successors and Assigns - This Agreement is binding on the successors, assigns, and heirs of the District and Contractor, respectively.

Non-Assignment – This Agreement shall not be assigned or transferred, nor shall any of Contractor’s rights hereunder be delegated or subcontracted without the prior written consent of the District.

No Third Party Beneficiary – This Agreement shall inure to the benefit of and be binding upon the Parties. This Agreement is not intended to and shall not be for the benefit of third parties who are not expressly included herein.

Headings – The headings contained in this Agreement have been inserted for convenience and ease of reference only, and in no way define or limit the scope or interpretation of this Agreement.

Entire Agreement – This Agreement constitutes the entire agreement between the Parties with respect to the subject matter hereof, and all prior or contemporaneous agreements, understandings, representations, and statements, oral or written, are superseded.

Waiver - No covenant, term or condition, or the breach thereof, shall be deemed waived except by written consent of the Party against whom the waiver is claimed. Any waiver of the breach of any covenant, term, or condition shall not be deemed to be a waiver of any preceding or succeeding breach of the same or any other covenant, term, or condition. Acceptance by District of any performance by Contractor after such time that the performance is due shall not be deemed a waiver of any preceding breach by Contractor other than the failure of performance expressly accepted, regardless of the District's knowledge of such preceding breach at the time of acceptance. No delay or omission by either Party in exercising any relief or power accruing upon non-compliance or failure of performance by the other Party shall impair or be construed as a waiver thereof, unless an intention to waive is expressly set forth in a writing signed by the waiving Party.

Warranties - District and Contractor covenant and represent that each respective Party has the full authority to execute, deliver, and perform this Agreement, and that each Party has fully complied with all requirements imposed by law as necessary for the Party to create a lawful and binding Agreement for the term of this Agreement. Each individual signing this Agreement for the District represents and warrants that he or she has the full power and authority, and legal right, to execute this Agreement on behalf of the District, and that the District has taken all necessary actions to authorize the individual signing on behalf of the District's behalf to do. Each individual signing this Agreement on behalf of Contractor represents and warrants that he or she has the full power and authority, and the legal right, to execute this Agreement on behalf of Contractor, and that Contractor has taken all necessary actions to authorize the individual signing on Contractor's behalf to do so.

Understanding - Each Party hereto acknowledges that the Party has reviewed this Agreement and has had an opportunity to consult legal counsel, and that the normal rule of construction that ambiguities are resolved against the drafting Party shall not be employed in the interpretation of this Agreement or any subsequent amendments hereto.

Counterparts - This Agreement may be executed in counterparts, which, taken together, shall be construed as a single, complete Agreement.

[SIGNATURES ON FOLLOWING PAGE(S)]

IN WITNESS WHEREOF, the Parties, for themselves, do hereby agree to the full performance of the covenants herein and have caused this Agreement to be executed on the date first set forth above.

**SAN LORENZO VALLEY
WATER DISTRICT**

**ANDERSON PACIFIC ENGINEERING
CONSTRUCTION, INC.**

License No.: _____

By: _____
Rick Rogers, District Manager

By: _____
Signature

Name:
Title:

ATTEST:

ATTEST:

By: _____
Holly Hossack, District Secretary

By: _____
Signature

Name:
Title:

APPROVED AS TO FORM:

By: _____
District Counsel

Exhibit "A"

Project Scope of Work

The Project Scope of Work will consist of the following:

1. Set up, maintenance, and breakdown of Traffic Control in conformance with County of Santa Cruz and Caltrans requirements;
2. Removal and replacement of steel plates as needed throughout the project. Plates shall be ramped with cold patch, welded in a minimum of 4 locations 4-inches long per join, and pinned when placed;
3. Remove failed asphalt paving (AC) to expose failed subgrade;
4. Remove additional AC as needed to expose entire subgrade failure volume;
5. Dispose of all removed AC in accordance with local and State requirements;
6. Provide and Replace pipe bedding sand as needed to provide a minimum of 4-inches of bedding below the pipe, bedding alongside the pipe minimum 4-inches to wall of excavation, and 6-inches of bedding above the top of pipe. Compact bedding to 90% Modified Proctor;
7. Provide and Place Class II aggregate base (AB) from top of bedding to bottom of adjacent AC, compact AB to 95% Modified Proctor;
8. Provide and place tack oil on all exposed cut AC faces;
9. Provide and place Type B, ½-inch aggregate AC meeting Santa Cruz County requirements, in lifts of 2-inch maximum thickness to match adjacent existing AC, compact to 95% Modified Proctor
10. Restore roadside drainage as needed; and
11. Restore striping as needed.

Exhibit "B"

Labor and Equipment Rate Schedule

Classification	Billable Rate (ST)	Billable Rate (OT)	Billable Rate (DT)
Construction Specialist	\$ 99.82	\$ 127.85	\$ 155.86
Construction Specialist (Second Shift)	\$ 104.63	\$ 135.05	\$ 165.47
Laborer 1	\$ 98.70	\$ 126.15	\$ 153.61
Labor 1 (Second Shift)	\$ 103.52	\$ 133.37	\$ 163.23
Laborer 2	\$ 98.46	\$ 125.80	\$ 153.13
Laborer 3	\$ 98.30	\$ 125.56	\$ 152.82
Laborer 4	\$ 88.19	\$ 110.37	\$ 132.57
Laborer 6	\$ 100.24	\$ 128.47	\$ 156.69
Laborer 7	\$ 81.94	\$ 101.02	\$ 120.10
Labor App L1	\$ 56.56	\$ 71.28	\$ 89.00
Labor App L2	\$ 81.94	\$ 101.02	\$ 120.10
Labor App L3	\$ 87.39	\$ 109.20	\$ 131.01
Labor App L4	\$ 92.84	\$ 117.38	\$ 141.91

Foreman	\$ 144.20	\$ 190.40	\$ 236.60
Foreman (Second Shift)	\$ 148.94	\$ 197.52	\$ 246.09
Operator 1	\$ 140.29	\$ 184.53	\$ 228.78
Operator 2	\$ 137.87	\$ 180.90	\$ 223.94
Operator 3	\$ 135.52	\$ 177.39	\$ 219.25
Operator 4	\$ 133.34	\$ 174.12	\$ 214.89
Operator 4 (Second Shift)	\$ 140.88	\$ 185.44	\$ 229.98
Operator 5	\$ 131.33	\$ 171.10	\$ 210.86
Operator 6	\$ 129.24	\$ 167.97	\$ 206.68
Operator 7	\$ 127.44	\$ 165.26	\$ 203.07
Operator 8	\$ 125.63	\$ 162.55	\$ 199.48
Operator App L1	\$ 94.90	\$ 117.32	\$ 139.75
Operator App L2	\$ 98.98	\$ 123.45	\$ 147.91
Operator App L3	\$ 103.05	\$ 129.54	\$ 156.05
Operator App L4	\$ 107.14	\$ 135.68	\$ 164.21
Operator App L5	\$ 119.36	\$ 154.02	\$ 188.67

Teamster 1	\$ 109.97	\$ 139.49	\$ 169.01
Teamster 2	\$ 110.45	\$ 140.20	\$ 169.97
Teamster 3	\$ 110.93	\$ 140.93	\$ 170.93
Teamster 4	\$ 111.49	\$ 141.77	\$ 172.04
Teamster 5	\$ 112.04	\$ 142.61	\$ 173.16

Carpenter - General	\$ 134.24	\$ 175.31	\$ 216.37
Carpenter App L1	\$ 74.78	\$ 99.41	\$ 124.05
Carpenter App L2	\$ 83.61	\$ 110.30	\$ 136.98
Carpenter App L3	\$ 91.80	\$ 120.54	\$ 149.28
Carpenter App L4	\$ 95.93	\$ 126.73	\$ 157.53
Carpenter App L5	\$ 117.83	\$ 150.68	\$ 183.53
Carpenter App L6	\$ 121.93	\$ 156.83	\$ 191.73
Carpenter App L7	\$ 126.03	\$ 162.99	\$ 199.96
Carpenter App L8	\$ 130.14	\$ 169.14	\$ 208.16

Cement Mason	\$ 113.13	\$ 147.48	\$ 181.83
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Electrician, Inside Wireman	\$ 144.67	\$ 194.37	\$ 244.08
Electrical Foreman	\$ 156.43	\$ 211.95	\$ 267.45
Electrical App L1	\$ 71.12	\$ 94.63	\$ 118.13
Electrical App L2	\$ 72.99	\$ 97.40	\$ 121.81
Electrical App L3	\$ 83.52	\$ 111.53	\$ 139.56
Electrical App L4	\$ 89.55	\$ 119.83	\$ 150.12
Electrical App L5	\$ 97.01	\$ 129.54	\$ 162.08
Electrical App L6	\$ 105.33	\$ 140.13	\$ 174.93
Electrical App L7	\$ 111.61	\$ 148.65	\$ 185.70
Electrical App L8	\$ 118.02	\$ 157.33	\$ 196.65
Electrical App L9	\$ 125.41	\$ 166.98	\$ 208.55
Electrical App L10	\$ 133.08	\$ 176.91	\$ 220.73

	Billable Rate (ST)	Billable Rate (OT)	Billable Rate (DT)
General Superintendent	\$ 217.50	\$ 326.25	\$ 435.00
Project Manager	\$ 290.00	0	
Project Engineer	\$ 108.75	0	

	Equipment	Rate		
84	CHEVY 2500 PICKUP TRUCK	\$ 47.01		
86	GMC SIERRA 1500 PICKUP TRUCK	\$ 47.01		
87	GMC SIERRA 1500 PICKUP TRUCK	\$ 47.01		
88	GMC SIERRA 2500 PICKUP TRUCK	\$ 47.01		
89	GMC SIERRA 2500 PICKUP TRUCK	\$ 47.01		
92	FORD F150 PICKUP TRUCK	\$ 47.01		
96	FORD F150 PICKUP TRUCK	\$ 47.01		
110	FORD F650 BOBTAIL DUMP TRUCK - 5 CY	\$ 91.68		
112	FORD F650 BOBTAIL DUMP TRUCK - 5 CY	\$ 91.68		
113	2,000 GALLON WATER TRUCK	\$ 68.39		
115	FREIGHTLINER M2 DUMP TRUCK - 5 CY	\$ 91.68		
116	MOROOKA MST-800V	\$ 69.35		
216	GROVE RT-745 CRANE	\$ 201.14		
217	GRADALL 534C FORKLIFT	\$ 62.88		
223	GROVE RT-760 CRANE	\$ 243.76		
224	GROVE RT-58C CRANE	\$ 96.79		
226	GRADALL 534C FORKLIFT	\$ 62.88		
229	GROVE RT-860 CRANE	\$ 213.85		
231	GRADALL 534D-10 FORKLIFT	\$ 98.59		
232	GENIE GS-1930 SCISSOR LIFT	\$ 32.75		
235	GRADALL 534D-9-45 FORKLIFT	\$ 98.59		
236	CAT TH83 FORK LIFT TRUCK	\$ 98.59		
237	CAT TH83 FORK LIFT TRUCK	\$ 98.59		
241	CAT TH83 FORK LIFT TRUCK	\$ 98.59		
300	SAKAI SV201TB-1 PADFOOT WITH BLADE	\$ 64.49		
303	JOHN DEERE 410J BACKHOE LOADER	\$ 99.85		
306	KOBELCO SK140SR EXCAVATOR	\$ 86.71		
322	BOBCAT 773 LOADER	\$ 44.20		
329	KOMATSU WA250 LOADER	\$ 141.28		
331	BOBCAT 773 LOADER	\$ 44.20		
333	HITACHI EX310-LC EXCAVATOR	\$ 109.30		
335	BOBCAT 873 LOADER	\$ 58.40		
338	CAT 330BL EXCAVATOR	\$ 231.49		
345	KOMATSU WA250 LOADER	\$ 141.28		
348	HITACHI EX100 EXCAVATOR	\$ 96.34		
349	BOMAG BW 90AD SMOOTH DRUM ROLLER	\$ 20.16		
351	JOHN DEERE 310E BACKHOE LOADER	\$ 67.96		
353	SULLAIR 185 49HP COMPRESSOR	\$ 35.66		
354	TAKEUCHI TB-016 EXCAVATOR	\$ 12.40		
358	BOBCAT S-185	\$ 58.40		
359	KOMATSU PC400 EXCAVATOR	\$ 261.84		
360	KOMATSU WA380-5 WHEEL LOADER	\$ 195.00		
362	BOMAG BW 90AD SMOOTH DRUM ROLLER	\$ 20.16		
366	DITCH WITCH 3700 TRENCHER	\$ 48.51		
367	KOMATSU PC35 EXCAVATOR	\$ 31.59		
369	KOMATSU PC220 EXCAVATOR	\$ 157.79		
371	CASE CX50B EXCAVATOR	\$ 44.24		
372	CASE CX75 SR EXCAVATOR	\$ 46.26		
373	VOLVO EC240 BLC EXCAVATOR	\$ 140.86		
374	CASE CX50B EXCAVATOR	\$ 44.24		
377	JOHN DEERE 310SG BACKHOE LOADER	\$ 79.14		
378	TAKEUCHI TB-125 EXCAVATOR	\$ 25.05		
383	BOBCAT S-650 SKID-STEER LOADER	\$ 58.40		
384	BOBCAT S-650 SKID-STEER LOADER	\$ 58.40		
385	JOHN DEERE JD-210LE LOADER	\$ 66.35		
386	SWEEPER (BOBCAT) BY QUICK ATTACH	\$ 48.33		
387	BOBCAT S-300 SKID-STEER LOADER	\$ 58.40		
388	JOHN DEERE 410K BACKHOE LOADER	\$ 107.19		
389	CAT D4G XL DOZER	\$ 73.86		
390	CAT CB24 VIBRATORY ROLLER	\$ 50.43		
391	KOBELCO SK140SR EXCAVATOR	\$ 86.71		
393	JOHN DEERE 27D COMPACT EXCAVATOR	\$ 27.79		
394	JOHN DEERE 410K BACKHOE LOADER	\$ 107.19		
395	JOHN DEERE 524K WHEEL LOADER	\$ 118.56		
398	CAT CB24B VIBRATORY ROLLER	\$ 62.74		
399	JOHN DEERE 210L LOADER	\$ 67.29		
416	18-FT TILT-BED TRAILER	\$ 2.08		
532	SULLIVAN D210QV COMPRESSOR	\$ 35.66		
534	SULLIVAN D210QV COMPRESSOR	\$ 35.66		
541	LEROI 200 AIR COMPRESSOR	\$ 35.66		
553	MULTIQUIP GENERATOR 70KW	\$ 46.13		
554	SULLIVAN D210QV COMPRESSOR	\$ 35.66		
555	SULLIVAN D210QV COMPRESSOR	\$ 35.66		
563	500 GALLON WATER TRAILER	\$ 4.34		
564	500 GALLON WATER TRAILER	\$ 4.34		
565	500 GALLON WATER TRAILER	\$ 4.34		
571	SULLAIR 185 49HP COMPRESSOR	\$ 35.66		
572	SULLAIR 185 49HP COMPRESSOR	\$ 35.66		
573	VAC-TRON PMD550DT	\$ 25.00		
575	VAC-TRON PMD550DT	\$ 25.00		
580	500 GALLON WATER TRAILER	\$ 4.34		
581	500 GALLON WATER TRAILER	\$ 4.34		
583	500 GALLON WATER TRAILER	\$ 4.34		
700	BOMAG 815-2 ASPHALT PAVER	\$ 93.49		
1005	CHEVY 3500HD CREW TRUCK - PAVING	\$ 52.99		
1006	CHEVY 2500HD PICKUP TRUCK	\$ 47.01		
1009	CHEVY 3500HD CREW TRUCK - UTILITY	\$ 52.99		
1010	FORD F150 PICKUP TRUCK	\$ 47.01		
1011	CHEVY 3500HD CREW TRUCK - CREW	\$ 52.99		
1017	FORD F150 PICKUP TRUCK	\$ 47.01		
1018	FORD F150 PICKUP TRUCK	\$ 47.01		

1019	FORD F250 CREW TRUCK - UTILITY	\$ 52.99		
1020	FORD F250 CREW TRUCK - UTILITY	\$ 52.99		
1024	FORD F150 PICKUP TRUCK	\$ 47.01		
1026	FORD F250 CREW TRUCK - UTILITY	\$ 52.99		
1028	GMC CANYON PICKUP TRUCK	\$ 47.01		
2001	JLG 8042 SKYTRAK TELEHANDLER	\$ 98.59		
2004	JLG 8042 SKYTRAK TELEHANDLER	\$ 98.59		
2005	TEREX RT-110-10 CRANE	\$ 218.78		
2007	JLG 8042 SKYTRAK TELEHANDLER	\$ 98.59		
3001	BOBCAT S-590 SKID-STEER LOADER	\$ 58.40		
3002	BOBCAT S-590 SKID-STEER LOADER	\$ 58.40		
3003	JOHN DEERE 310SK BACKHOE LOADER	\$ 79.70		
3004	JOHN DEERE 17G FT4 EXCAVATOR	\$ 22.46		
3005	KOBELCO SK230 SR LC-5 EXCAVATOR	\$ 154.78		
3006	BOBCAT S-650 SKID-STEER LOADER	\$ 58.40		
3007	JOHN DEERE 50G EXCAVATOR	\$ 43.66		
3008	HITACHI ZX300LC-6N EXCAVATOR	\$ 210.25		
3009	BOBCAT S-650 SKID-STEER LOADER	\$ 58.40		
3010	BOBCAT S-650 SKID-STEER LOADER	\$ 58.40		
3011	JOHN DEERE 710L BACKHOE LOADER	\$ 126.18		
3012	BOBCAT S-650 SKID-STEER LOADER	\$ 58.40		
3013	WEILER P385B ASPHALT PAVER	\$ 159.45		
3014	KOMATSU PC490LC-11 EXCAVATOR	\$ 334.13		
3015	CAT D6KP LGP DOZER	\$ 107.49		
3016	BOBCAT T-740 TRACK LOADER	\$ 58.40		
3017	BOBCAT S-740 SKID-STEER LOADER	\$ 58.40		
3019	KOMATSU WA320-8 WHEEL LOADER	\$ 164.93		
3020	JOHN DEERE 410L BACKHOE LOADER	\$ 107.19		
3021	JOHN DEERE 245G EXCAVATOR	\$ 145.41		
3022		\$ -		
3023	JOHN DEERE 50G EXCAVATOR	\$ 43.66		
3024	JOHN DEERE 210L LOADER	\$ 67.29		
3025	JOHN DEERE 35G EXCAVATOR	\$ 35.05		
3027		\$ -		
5002	PAVE-MATE PM230 BITUMINOUS DISTRIBUTOR	\$ 11.29		
5004	Wanco WVTM(A) Mini Full Matrix CMS	\$ 14.99		
5005	Wanco WVTM(A) Mini Full Matrix CMS	\$ 14.99		
5008	VAC-TRON LP573SDT	\$ 82.31		
7000	5,000 GALLON WATER TRUCK	\$ 117.01		
7001	FORD F750 BOBTAIL DUMP TRUCK - 5 CY	\$ 91.68		
7002	FREIGHTLINER M2 DUMP TRUCK - 7 CY	\$ 91.68		
7005	FORD F650 BOBTAIL DUMP TRUCK - 5 CY	\$ 91.68		
7006	FORD F650 BOBTAIL DUMP TRUCK - 5 CY	\$ 91.68		
7007	2,000 GALLON WATER TRUCK	\$ 68.39		

MEMO

DATE: August 3, 2023
TO: Board of Directors, San Lorenzo Valley Water District
FROM: Rick Rogers, District Manager
SUBJECT: San Lorenzo Valley Water District Water Year (WY) 2021 & 2022 Streamflow, Salinity and Temperature Monitoring and Operational Gauging Report

WRITTEN BY: Carly Blanchard, Environmental Programs Manager
PRESENTED BY: Carly Blanchard & Chelsea Neill,
Hydrologist/Geomorphologist, Balance Hydrologics

STAFF RECOMMENDATION

Read the memo and review the presentation, which is provided for informational purposes, and discuss as needed.

RECOMMENDED MOTION

The Board accepts the staff report and presentation concerning the Water Year (WY) 2021 & 2022 Streamflow, Salinity and Temperature Monitoring and Operational Gauging Report.

BACKGROUND

In water year (WY) 2014 the District began a long-term stream flow and water quality monitoring program on all of its active diversions to collect and record streamflow/diversion data. The data is used to inform regulatory agencies, assist with operations and establish a baseline for future projects.

In WY2019 a more refined monitoring and diversion-management program was developed, reducing gaging to dry season monitoring and removal of gages on nonoperational diversions. The District also requested to

separate the ecological & operational gauging. These ecological data will be used to evaluate the potential impact of the SLVWD diversions on streamflow and temperature for 'ecological' regulatory purposes, for habitat, and for potential conjunctive-use studies. While the operational data will be used to better understand how its diversions may affect flow and habitat values, insure compliance with water rights bypass requirements, and allow for treatment operators to easily assess diversion flows.

Annually Balance Hydrologics completes a report exploring the data collected during the WY. The attached presentation explains the data collected in WY 21-22 and highlights of the report.

PRIOR COMMITTEE ACTION

None

FISCAL IMPACT

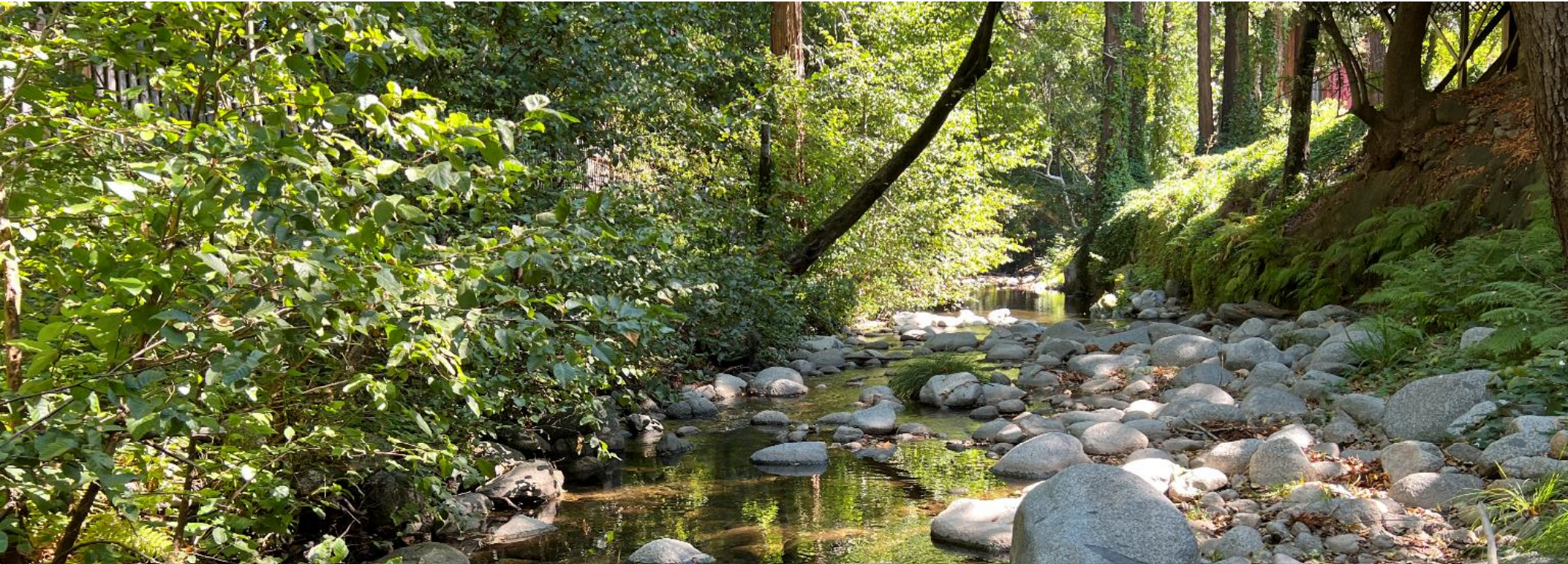
\$44,000

ENVIRONMENTAL IMPACT

None

ATTACHMENTS AND RELEVANT LINKS TO DISTRICT WEBSITE

- Exhibit A: Streamflow, Salinity and Temperature Monitoring and Operational Gauging Presentation
- Exhibit B: Seasonal Streamflow, Temperature and Related Observations for the San Lorenzo Valley Water District's Surface Sources of Community Water Supply: Dry Season 2021 And 2022
- [District Project Page](#)



Dry Season 2021 and 2022 Streamflow and Temperature Monitoring for San Lorenzo Valley Water District

Chelsea Neill, PG, Balance Hydrologics

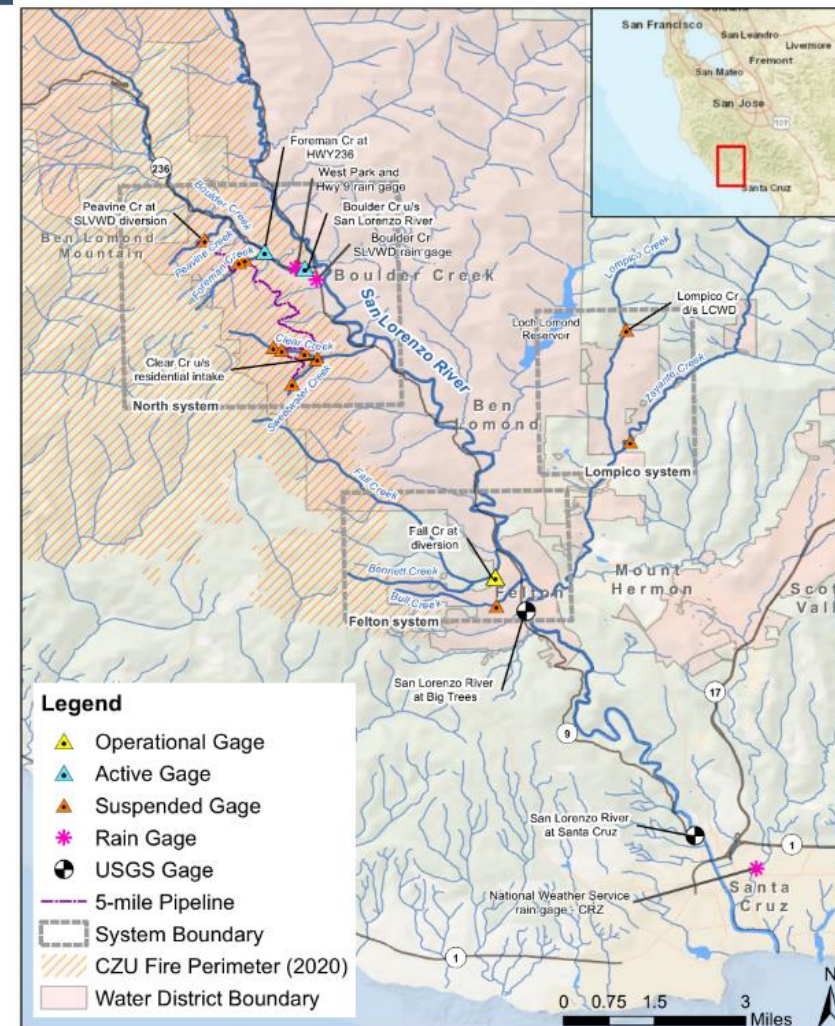


Balance
Hydrologics

3 August 2023

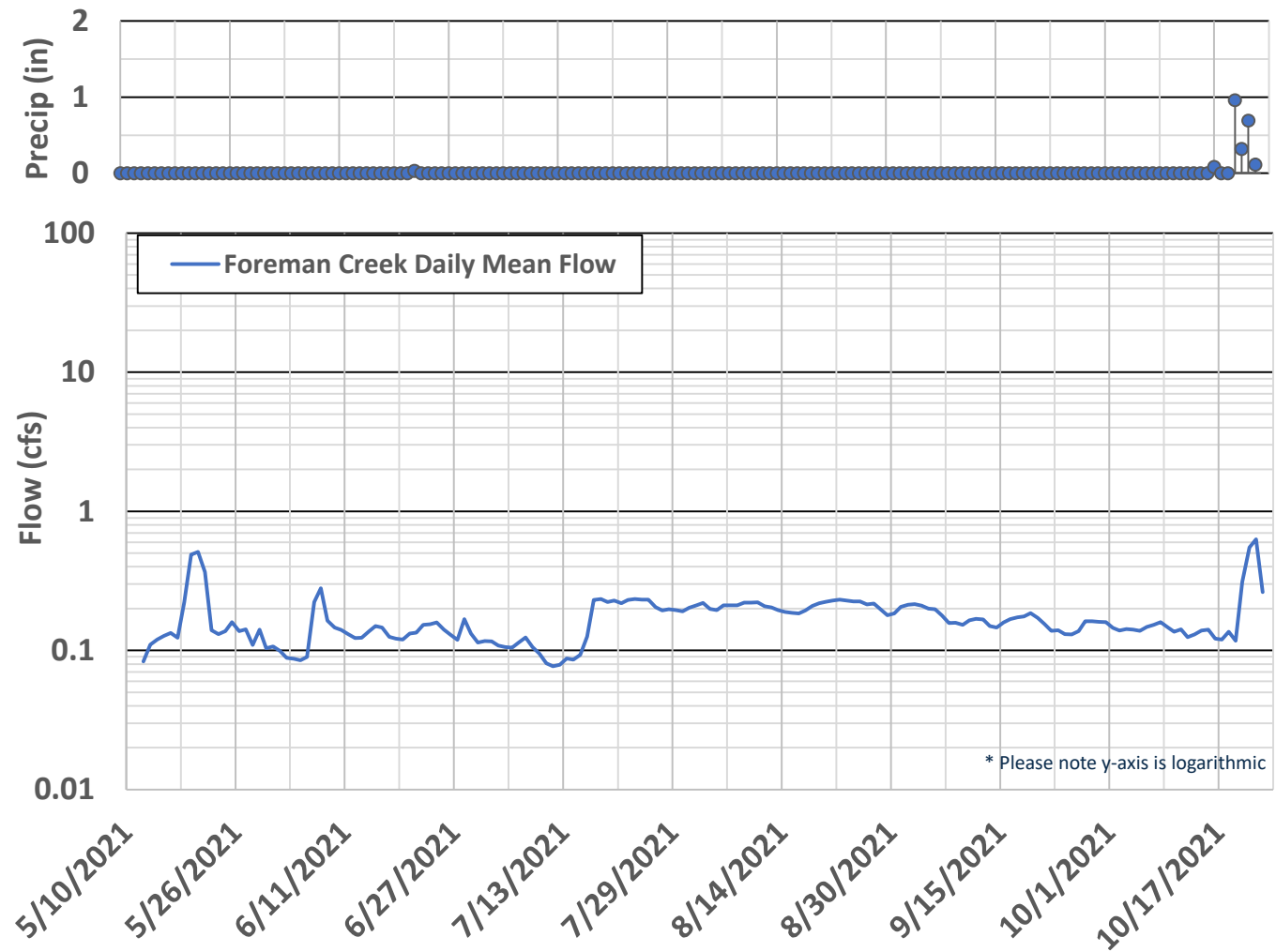
Project History

- Beginning in 2013/2014 Balance operated gages along 9 different creeks for first 5 years of program
- Additional Studies:
 - Boulder Creek survey of temperature and specific conductance (2015)
 - Flow and temperature comparison during North System shutdown (2016)
- In 2021 and 2022 refined monitoring program:
 - ‘Ecological’ Gaging
 - dry season gaging on Foreman and Boulder Creeks (Foreman only in 2021)
 - ‘Operational’ Gaging
 - Real-time gage on Fall Creek

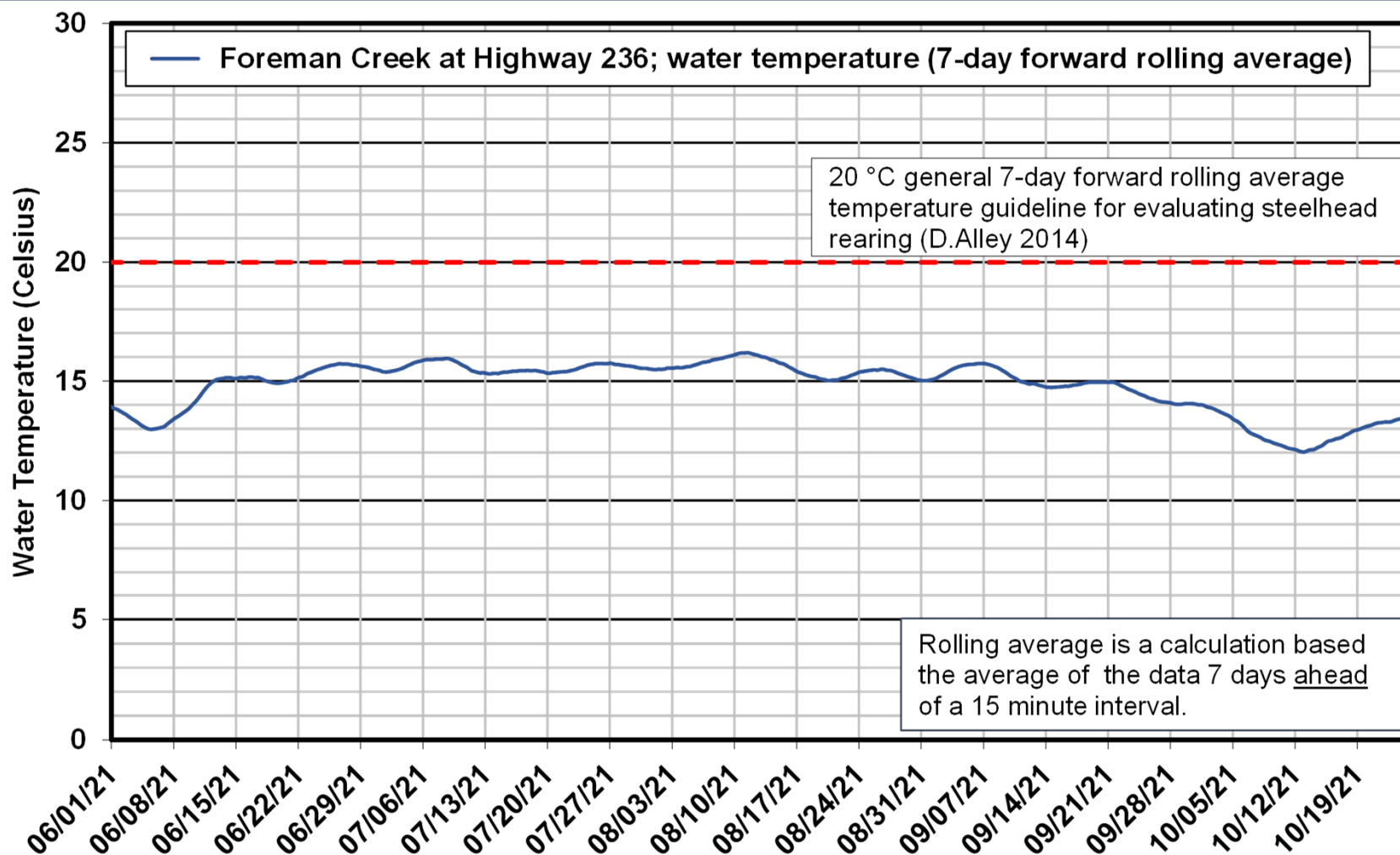


Water Year 2021 Summary of Streamflow

- WY2021 was critically dry year:
- Annual rainfall was 18.75 inches at SLVWD Boulder Creek Rain Gage (37% of average)
- Mean annual flow at the USGS big trees gage was 20.4 cfs (16 % of average)
- Second consecutive dry year
- WY2021 was first post-fire water year

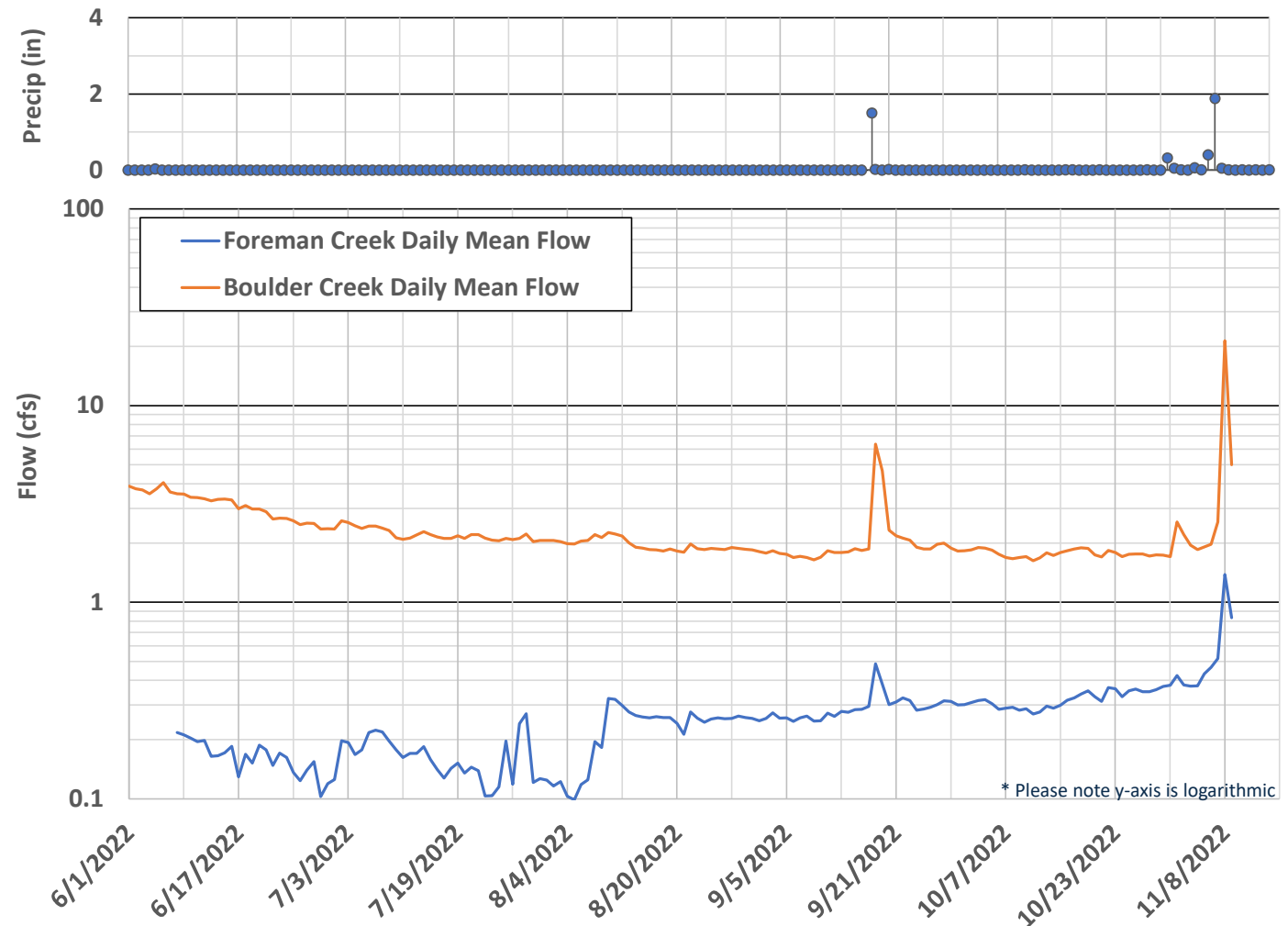


Water Year 2021 Summary of Temperature

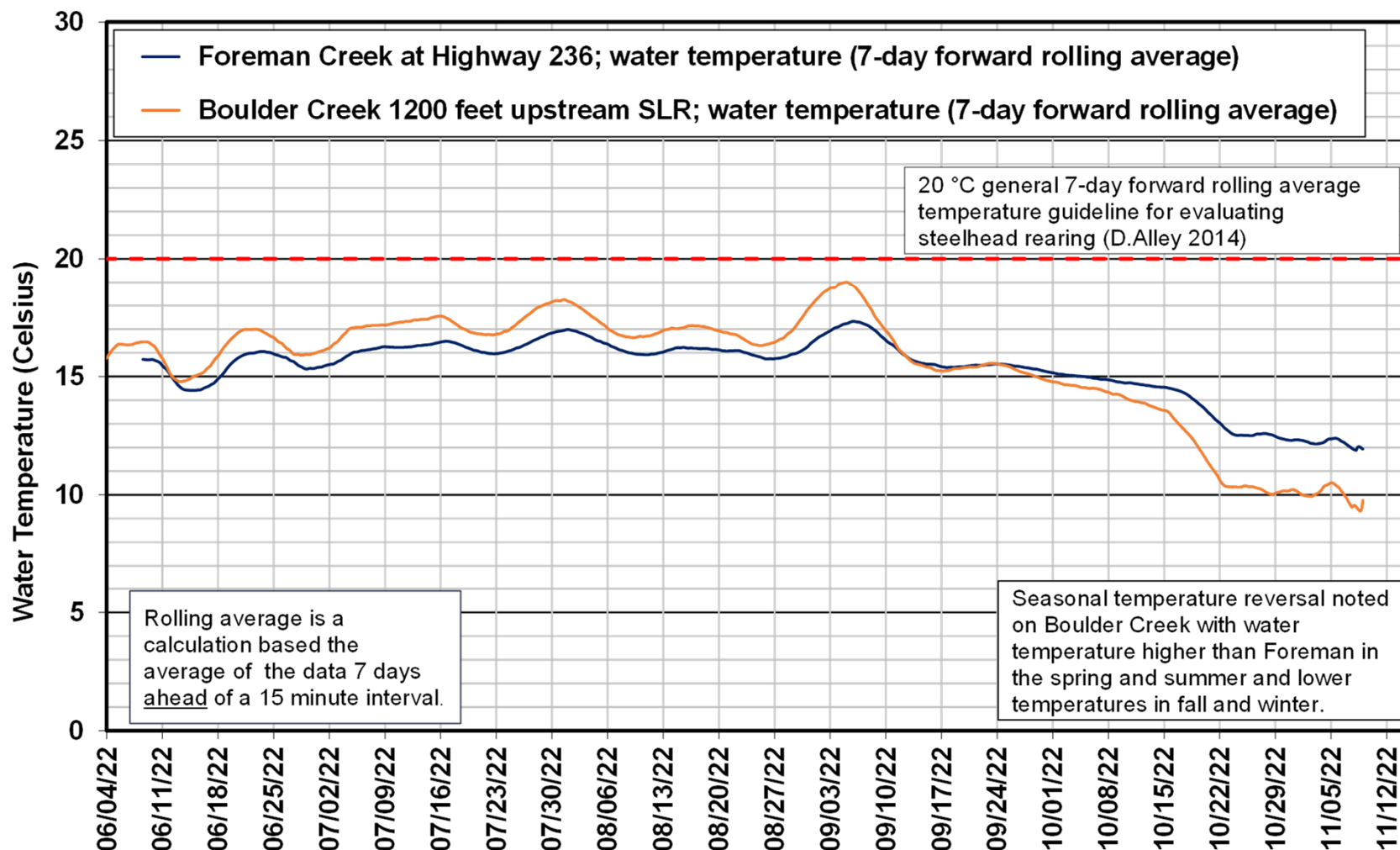


Water Year 2022 Summary of Streamflow

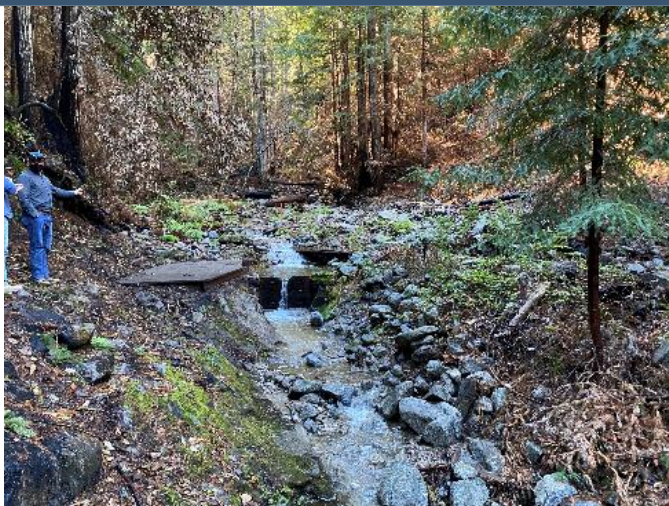
- Water year 2022 was a dry year:
 - Annual Rainfall was 37.08 inches at SLVWD Boulder Creek Rain Gage (74% of average)
 - Mean Annual Flow at USGS Big Trees gage was 68.7 cfs (54% of average)
 - Third consecutive dry year
- Foreman Creek gage was re-installed after being buried in Dec. 2021 debris flow



Water Year 2022 Summary of Temperature



Foreman Creek Debris Flow



December 2, 2021



June 30, 2021

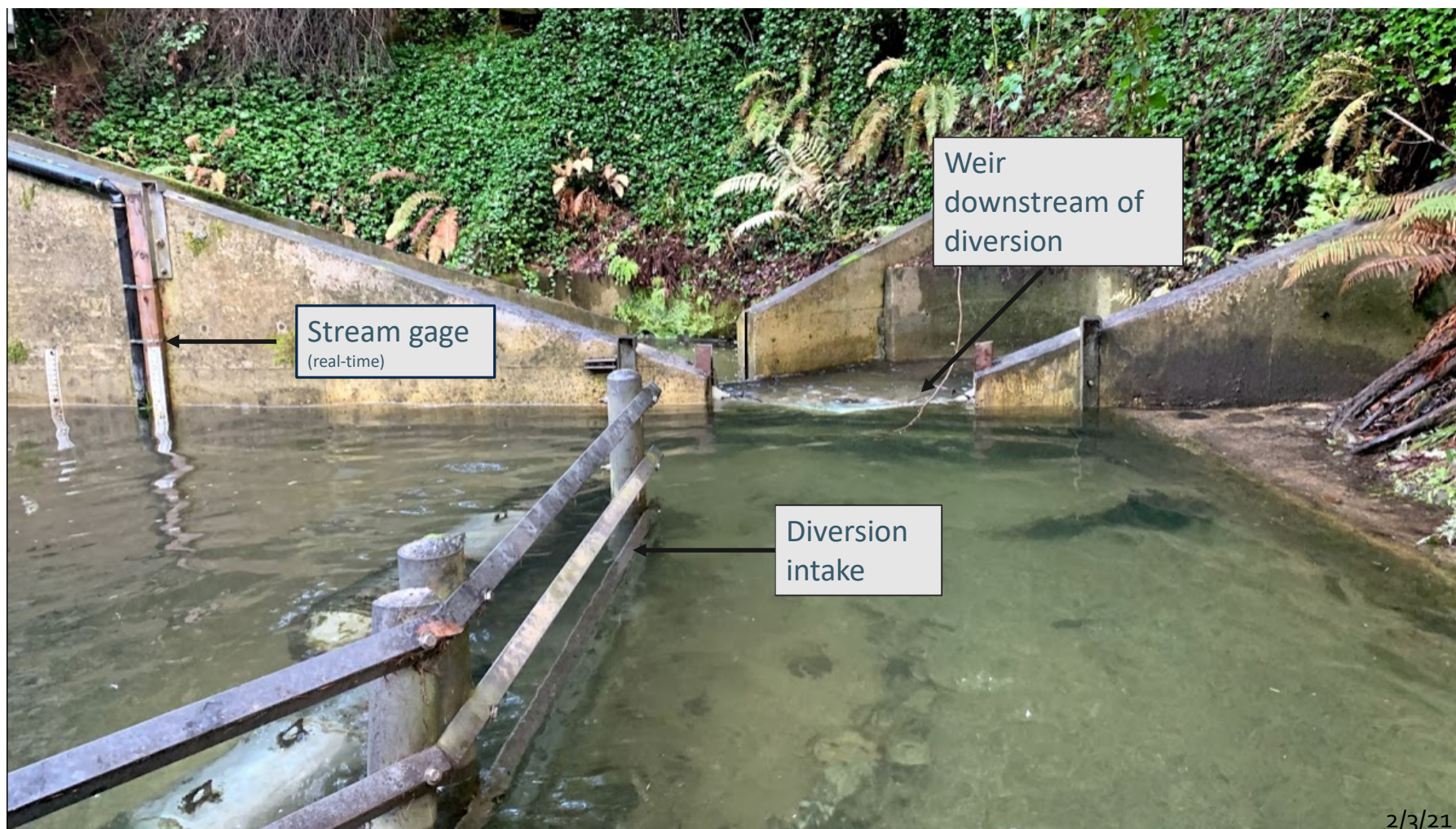


January 19, 2022



January 19, 2022

Fall Creek Operational Gaging



WY2023 Storm Damage

Foreman Creek

Boulder Creek



Water Year 2021 and 2022 Findings

- The gaging program has provided a quantitative baseline of streamflow and temperature over a range of conditions (dry and wet years)
- WY2021 and WY2022 represent consecutive dry years
- Foreman Creek gage was buried in Dec. 2021 debris flow
- Flows in Foreman Creek were slightly lower in WY2021 than WY2022
- Water temperature remained below the 20 degrees Celsius threshold at all gages during WY2021 and WY2022
- Thermal effects from diversion appear to be slight, even during extreme periods of high and low precipitation
- Fall Creek Real-time gage continues to be a valuable asset to District's operations
- Both gages were destroyed in WY2023 high-flows and need to be replaced



Thank you!

Boulder Creek

**SEASONAL STREAMFLOW,
TEMPERATURE AND RELATED
OBSERVATIONS FOR THE
SAN LORENZO VALLEY WATER
DISTRICT'S SURFACE SOURCES OF
COMMUNITY WATER SUPPLY:**

DRY SEASON 2021 AND 2022

Report prepared for:
The San Lorenzo Valley Water District

Prepared by:
Chelsea Neill
Barry Hecht

Balance Hydrologics, Inc.

June 2023

San Lorenzo Valley Water District

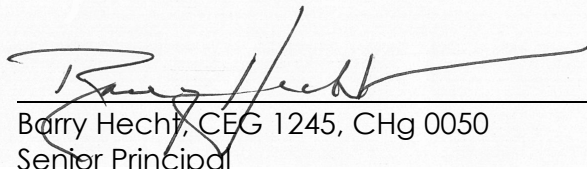
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Seasonal Streamflow, Temperature and Related Observations for the San Lorenzo Valley Water District’s Surface Sources of Community Water Supply: Dry Season 2021 and 2022

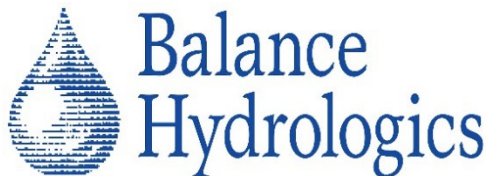
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APPENDICES

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1. INTRODUCTION

The San Lorenzo Valley Water District (SLVWD) has requested that Balance Hydrologics ("Balance") continue to gage flows in channels serving as water sources for the District. SLVWD is using the data to better understand how its diversions may affect flow and habitat values – including sensitive species -- in the San Lorenzo River and its tributaries. This is the ninth year of monitoring. As is typical, after the initial five years of monitoring we refined the monitoring and diversion-management program to address the remaining questions and establish baseline conditions. Changes from the initial pioneer monitoring include:

- Reduced monitoring to dry season gaging (June to November) on Foreman and Boulder Creeks;
- Suspended operation of Peavine and Lompico Creek gages in 2021 after the CZU fire;
- Suspended operation of the Sweetwater Creek, Zayante Creek, Bull Creek and Bennett Creek gages in 2019;
- Suspended operation of the three late-summer San Lorenzo River main stem gages (below Boulder Creek, below Clear Creek, and below Fall Creek) in 2019;
- Separated 'ecological' and 'operational' gaging into two separate projects. The operational gaging and monitoring provide critical information for the SLVWD's operations and diversion management.
 - Continued to monitor the Fall Creek gage, but there will not be any reporting associated with this gage. The observation log is included in **Appendix B**.
 - Suspended the operation of the Clear Creek gage after it was destroyed during the CZU fire in the summer of 2020.

At your request, we did not provide a report at the end of the dry season 2021 monitoring season because there was only one active gage. Balance has prepared this dry season 2021 and 2022 report to provide findings from the more refined ongoing gaging program for both years. This data will be used to evaluate the potential impact of the SLVWD diversions on streamflow and temperature for 'ecological' regulatory purposes, for habitat, and for potential conjunctive-use studies. The study facilitates an ongoing dialogue between the District and resource agencies on a long-term program

to collect the most relevant and essential streamflow, water temperature, and related environmental and diversion data in the San Lorenzo system.

1.1 Background

The SLVWD serves The San Lorenzo Valley (SLV) from two main surface water systems: 1) the North System and 2) the Felton System¹. The locations of these systems are shown in **Figure 1-1**. In the spring and summer months, the SLVWD surface water systems are supplemented with pumped groundwater within the SLV.

Redwood and mixed redwood forest plant communities cover approximately 75% of the San Lorenzo River watershed's land area (SLVWD, 2009). The surface diversions are typically located within the zones of redwood forest.

The San Lorenzo River watershed has been identified by State, Federal and County habitat managers as supporting steelhead (*Oncorhynchus mykiss*) and coho salmon (*Oncorhynchus kisutch*); both are listed sensitive species. Water-resources management in the Valley revolves around sustaining and protecting the habitat needs of these two anadromous salmonid species. Detailed assessment of populations, yearly and seasonal use of the river system, and effects of diversions on water temperature and quality are conducted by SLVWD and its cooperators in tandem with annual hydrologic monitoring.

1.1.1 Watersheds and Service Areas

Within the SLVWD service area, groundwatersheds may differ from topographic (surface) watersheds quite substantially, especially beneath the strongly asymmetrical crest of Ben Lomond Mountain, or in the karstic 'limestone' catchments of Fall, Bull and Bennett creeks. Each watershed may receive variable amounts of inflow from areas not part of its topographic catchment. In several cases, baseflows may be supported from groundwatersheds which are likely 30 to 60 percent larger than that topographic catchment (Hecht, 1978; Johnson, 2009). **Figure 1-2** shows the extent of the topographic and inferred groundwatersheds. **Figure 1-3** shows why the groundwatersheds of the eastern slopes of Ben Lomond Mountain are logically larger

¹ SLVWD also operates the South System, in the Carbonera (Branciforte) watershed. Most of this smaller system lies within the Manana Woods and Pasatiempo neighborhoods. All water distributed in this system is sourced from groundwater, and most return flows are to either the Scotts Valley sewer system or to Carbonera watershed groundwater. It is not discussed further in this report, except in passing.

than the topographic watersheds, an unusual situation, and one unfamiliar to many resource managers. The asymmetry makes it difficult to scale streamflow data based only on topographic drainage areas, especially during dry seasons or dry years. Asymmetry likely allows tributaries draining Ben Lomond Mountain to sustain cool water temperatures again especially during dry seasons (c.f., Hecht 1978; Richardson and others, 2020).

1.1.2 Dry Season Monitoring

During the initial several years of pioneering the gaging program, we recommended the District begin with a full annual record of flow. The initial gaging program helped us understand watershed processes unique to the smaller streams from which SLVWD is diverting water. Beginning in water year 2019, we reduced our scope to monitor and focus on the drier summer and early-fall months (June to November). Following the CZU fire, we monitored only on Foreman Creek during the dry season of 2021. During the dry season of 2022 we monitored both Foreman and Boulder Creeks (**Figure 1-1**).

This monitoring season is critical for understanding the flow and temperature of the creek at (and downstream from) SLVWD diversions, as well as the habitat value during low-flow periods. The dry season monitoring period begins on June 1 and concludes when the first runoff-producing storm occurs. For example, the first significant storm of (annual) water year 2022 was October 22, 2021, so our dry seasonal monitoring period concluded on October 21, 2021.

1.2 **Ambient Conditions**

1.2.1 Conditions for WY2021

Water year 2021 was a drought year and received well below the mean annual precipitation, which resulted in lower-than-average flows. Annual rainfall in 2021 was 18.75 inches according to the SLVWD Boulder Creek rain gage, near the center of the watershed. This is approximately 31 inches less than the average annual rainfall at this location of 50.26 inches. The index rainfall station in Santa Cruz (CRZ), which is considered representative of the southern part of the San Lorenzo watershed, received 14.6 inches of rainfall, about half of its long-term average of 28 inches.² Mean flows for 2021 at the USGS Big Trees gage were approximately 20 cfs, which is 83% less than the mean annual flow of 128 cfs (**Figure 1-4**).

² Both precipitation stations were established in 1906. The Boulder Creek station is considered more representative of the watershed upstream of the Big Trees gage (Felton).

1.2.2 Conditions for WY2022

Water year 2022 showed an increase in precipitation from 2021, although it was still below historic rainfall averages. The annual rainfall for water year 2022 was 37 inches according to the SLVWD Boulder Creek rain gage, approximately 74% of the average annual rainfall at this location. The index Santa Cruz (CRZ) station received 20 inches of rainfall, which is 70% of the mean annual rainfall at this location.

Mean annual flows at the USGS Big Trees gage were approximately 68 cfs, which is 59 cfs less than mean annual flows at this location (**Figure 1-4**). The mean annual flow at USGS gage 11160500, San Lorenzo River at Big Trees, is compared to both long-running precipitation gages (**Figure 1-4**). The USGS flow record at Big Trees extends from about October 1937 to present.

1.3 **Scope and Methods**

Locations of the gages are shown on **Figure 1-1**. Flows measured at these locations are shown as summaries in **Appendix A**.

1.3.1 Gaging Setup

Depth sensors were located within a pool, somewhat out of the main flow path, but not isolated from the stream flow. A staff plate was established and nearby locations for calibration flow measurements were determined. Regular (approximately monthly) visits were performed from June to November to measure flow, observe conditions, and update stage-discharge rating curves, as well as maintain the gage. High-water marks were also noted to inform the gaging record, and to assess whether waves of water and debris released during rupture of small or larger logjams may have affected the channel. On December 13, 2021, a debris flow buried the gage at Foreman Creek. The gage was re-installed on June 8, 2022, at the beginning of the 2022 dry season.

1.3.2 Temperature Logging

At each gaging site, the depth sensors also continuously recorded water temperature. Field measurements of temperature were compared to recorded measurements. Rarely, minor shifts to temperature records were applied to represent chronological reporting more accurately at the gage.

1.4 Gaging Techniques for San Lorenzo Valley Gaging Program

The sections above explain the rationale for selecting locations and controls for gaging, and for beginning the process of adapting the sites, seasons, and techniques of gaging. This section of the report addresses gaging hardware, siting criteria, conventions, and notation.

1.4.1 Objectives—Mesh with Prior Conventional Interagency Standards

We strive to make our measurements as compatible as possible with the formal methods used by the state and federal agencies. In general, these are published as the manuals of the Federal Interagency Sedimentation Program (FISP), which is a compilation of methods from the individual agencies, traditionally updated at intervals of about 5 to 10 years.

Velocities are measured with a bucket-wheel meter, either a full-size Type AA ("Price"), bucket-wheel current meters, or a 60% scale smaller meter ("pygmy meter"), used worldwide for smaller streams, both of which are federal-standard flow meters. Details of the individual measurement made during each routine visit at each of the SLVWD gages during water year 2021 and 2022 are chronicled in **Appendix B** ("Station observer logs"), as well as other observations at each visit deemed significant.

1.4.2 Water Year Terminology

Most flow-measurement programs are conducted for several water years, usually consecutive. A water year is a period of 365 or 366 days beginning on October 1 in the prior calendar year and extending through September 30 of the named year. For example, measurements on October 1, 2020, were made on the first day of water year 2021 (WY2021) while observations made on September 30, 2021 were made on the last day of the water year (WY2021). Measurements made during water year 2021 and water year 2022 focused on seasonal streamflow over the drier spring to summer months. On the central coast of California, dry season monitoring does not completely align with a typical water year, as it extends past September 30 to the first significant rain of the Fall. Absent a formal term for the summer up through the runoff-generating storm, we refer to this ecologically important period simply as "the dry season".

1.5 Acknowledgments for the Gaging Program

The authors would like to thank several individuals who helped formulate and complete this study. Implementation and continued monitoring would not be possible without the

continuing support of the SLVWD leaders and field crews who have been available on short notice.

The gaging plan has been refined several times over the period of monitoring, with meaningful and knowledgeable input from SLVWD district manager Rick Rogers, operations manager James Furtado, then environmental programs manager Jen Michelson and her successor, Carly Blanchard. Mr. Rogers and Ms. Blanchard sit on the technical advisory committee which annually reviews this program as does fisheries consultant Mike Podlech. Sierra Ryan, Water Resource Planner for the County, now leads the TAC after a number of years of offering insightful suggestions and counsel. Senior hydrologist Nick Johnson, consultant to SLVWD for more than 30 years, John Ricker, former County Water Manager, and fisheries consultant Don Alley have all stepped down after years of helpful advice and working with other members to assess technical value, readability and cost-effectiveness of this program.

Finally, our co-workers Jason Parke, John Hardy, and Emma Goodwin, at Balance Hydrologics contributed meaningful observations and thoughts to this report, often working long field hours to meet the challenges of data collection.

2. GAGING DATA

2.1 Northern System Description

Previously, the Northern Division (or "Northern System") consisted of diversions located on the eastern slope of Ben Lomond Mountain from Boulder Creek to south of Brookdale, with multiple diversion boxes that feed into a gravity pipeline (Five-Mile Pipeline, or to the much smaller Peavine Pipeline) and ultimately to SLVWD's Lyon Treatment Plant in Boulder Creek. Much of this infrastructure was destroyed during the 2020 CZU Fire. The Foreman Creek diversion was re-installed and is currently the only active diversion in the North System.

The dry season 2021 and 2022 hydrologic monitoring focuses on gaging SLVWD's Northern System. Active gages include Foreman Creek at HWY 236 and Boulder Creek upstream of San Lorenzo River. The SLVWD diversions are equipped with a well-constructed, functioning outlet weir structure allowing good measurements of streamflow over the weirs. There is no diversion at the Boulder Creek station, which gages a high-value stream and riparian area also receiving inflow from the tributary flows which bypass the Foreman diversion.

2.2 Gaging Results

Plots of 15-minute flows and mean daily values for gaged dry season flows for Foreman Creek and Boulder Creek are shown on **Figures 2-1 to 2-3**. Water temperature and precipitation were plotted to compare natural fluctuations in gages. Measured inflow above the diversions are also plotted as spot measurements to compare to flow past the diversion.

The total estimated diversion from Foreman Creek during dry seasons 2021 and 2022 are shown in **Appendix A**. More detailed information supporting the data are in **Appendix A** (which reports data for individual gages) and **Appendix C** (which summarizes production for the SLVWD).

2.2.1 Foreman Creek Dry Season 2021

Baseflow stayed relatively level throughout the 2021 dry season. There were two spikes in flow in the beginning and end of May, possibly due to diversion maintenance. Flow was approximately 0.15 cfs in June and dropped to 0.10 cfs in July. There was an increase in flow on July 17, 2021, likely due to SLVWD turning off a diversion, thus allowing more flow to pass through the creek. After the diversion was turned off,

flow remained slightly elevated around 0.2 cfs, then decreased to 0.15 cfs towards the end of the dry season. The first storm of the water year occurred on October 22, 2021 and ended dry season monitoring (**Figure 2-1**).

2.2.2 Foreman Creek Dry Season 2022

The gage was re-installed on June 8, 2022, after the previous gage was buried during a debris flow in December 2021. Baseflow remained generally between 0.1 cfs to 0.25 cfs throughout June and July. It appears that SLVWD turned off the diversion on August 10, 2022, and flows increased to around 0.3 cfs. The first storm of the year occurred on September 19, 2022, when flows increased to approximately 1 cfs. Flows quickly receded and returned to baseflow until November 7, 2022, when flows spiked to approximately 3 cfs in response to a rain event. Sensors were removed on November 9, 2022, prior to significant rainstorms (**Figure 2-2**).

2.2.3 Boulder Creek Dry Season 2022

Baseflow was approximately 4 cfs in early June 2022 and receded to just under 2 cfs by the beginning of September. The first storm of the year occurred on September 19, 2022, and flows spiked to approximately 20 cfs. Baseflow stayed relatively constant at just under 2 cfs until the next storm on November 7, 2022, ending the dry season (**Figure 2-3**).

2.3 **Comparison of Diversion to Outflow on Boulder Creek**

During (annual) water year 2022, approximately 430 ac-ft of water was diverted from Foreman Creek. This is higher than that diverted in (annual) water year 2021 (approximately 135 ac-ft). However, less water was diverted during the dry season 2022 (approximately 45 ac-ft) than during the dry season 2021 (approximately 68 ac-ft). See **Appendix A**. for annual and dry season diversion totals, as well as mean daily diversions from Foreman Creek diversion.

Relative percentages of decreased flow were calculated to compare diversions to flow on Boulder Creek during dry season. Boulder Creek dry season flow (Jun 1 to Nov 7, 2022) decreased by 9-15% due to SLVWD diversions on Foreman Creeks during June and July 2022 (**Figure 2-4**).

2.4 Temperature Monitoring

Potential warming of the San Lorenzo River, Boulder Creek and Fall Creek as a result of SLVWD diversions have been of high concern to agency staff. Diversion of cooler water from the tributaries, they fear, could indirectly lead to warming of the three named streams supporting salmonids. We have continued to collect temperature data in water year 2021 and 2022 in support of ecological monitoring specifically concerning salmonids. Summer is a key time for understanding temperature dynamics in these creeks and assessing potential temperature threats for salmonids. One metric for consideration is an average maximum temperature of 20 degrees C, averaged over a week, which biologists Don Alley (i.e., 2015; 2016a) and Michael Podlech (2019) consider the viable maximum temperature limit for steelhead during their summer rearing life stage.

Detailed temperature monitoring and reporting has been conducted by Don Alley in previous years. Don Alley's reports provide a discussion of stream temperature tolerances and thresholds in relation to coho and steelhead life cycles. Biologist Mike Podlech has also systematically analyzed temperature within the San Lorenzo River watershed in support of the SLVWD's conjunctive use study (Podlech, 2019).

2.4.1 Temperature Results

A comparison of temperature data for both active stream gages (Boulder, and Foreman) is shown on **Figure 2-5** for dry season 2022. Overall, temperatures for dry season 2022 in Boulder Creek ranges from 1 to 2 degrees Celsius higher than at the Foreman Creek gages from late spring to September, when there is a relative temperature reversal and Boulder Creek becomes 1 to 2 degrees cooler than Foreman Creek. This temperature reversal has been noted in previous years and confirms our earlier suppositions (Hecht and others, 2018,) that a larger proportion of runoff from groundwater in Boulder Creek occurs during fall and winter months (inflow from groundwater tends to have a more constant temperature, especially late during the dry season).

During the 2021 dry season, only Foreman Creek was monitored so there are no data comparison with other creeks. Overall, water temperatures for Foreman Creek ranged from approximately 10 degrees at the beginning of summer to 17 degrees C in the middle of summer. Such readings are similar to temperatures observed in previous years and during dry season 2022.

It is possible that water temperatures in both Foreman and Boulder Creek were mildly elevated by direct sun upon the creek surfaces due to the effects of the CZU fire (as a result of losses of riparian vegetation to burning or mudflows such as the one on Dec. 21, 2021). If so, effects were not very noticeable, and may have been buffered by slightly higher baseflows, lower direct diversions, and diminished diversion from Peavine Creek and other tributaries. Temperature effects on aquatic biota in Boulder Creek between the Foreman and Boulder Creek gages discussed in this report are complex, also influenced by the vigor of the riparian woodland, seepage into and out of the creek, and by the presence of one or two large temperature-stratified pools which we described and photographed in Balance's earlier WY2015 monitoring report (Hecht and others, 2018) and were initially identified by the staff of the County's Office of Watershed Management in the 1970s.

3. CONCLUSIONS AND RECOMMENDATIONS

- 1) This report describes measurements made during the eighth and ninth year of monitoring flow, temperature, and basic water quality at two of SLVWD's surface water sources. The data and interpretations in the report not only describe 'how the watersheds work', but they can provide quantitative bases for modifying flows in the future, and for adjusting to changing flows associated with wildfire, debris flows, and in general a changing climate, dynamic vegetation and their accompanying effects.
- 2) Water year 2021 and 2022 marks the third and fourth year of a more refined monitoring and diversion-management program, initially developed in 2019. This refined program aims to address the remaining questions and establish baseline conditions.
 - a. The 2021 program included:
 - i. Dry season monitoring from June to November on Foreman Creek;
 - ii. Maintenance and calibration for the year-round Fall Creek gage.
 - b. The 2022 program included:
 - i. Dry season monitoring from June to November on Foreman and Boulder Creeks;
 - ii. Maintenance and calibration for the year-round Fall Creek gage.
- 3) Measurements of flow, water temperature and specific conductance were made at Foreman Creek, downstream from where SLVWD diverts surface water and at Boulder Creek, a tributary to the San Lorenzo River. These metrics are thought to affect steelhead and coho salmon metabolic rates (food requirements), and flow, which affects food drift rate and water temperature in supporting habitat in the San Lorenzo River and its major tributaries. Coho are in a recovery phase with only very limited present use of the watershed. Their identified habitat needs are considered in the recommendations we are making. The gaging array used in 2021 and 2022 was intended to focus on target streams over the dry summer and fall months, which is a crucial time for sensitive species, and is when new hydrologic information will prove beneficial data for habitat management.

The existing 9 years of record will provide a quantitative baseline for evaluating long-term changes in these watersheds, and particularly how ongoing changes may affect the individual tributaries in somewhat different manners. The wealth of measurements, observations, and computations contained in these reports are included to bolster the strength of that baseline.

- 4) Total surface water (stream) diversion totals from Foreman Creek for water year 2021 were approximately 135 acre-feet. Diversion totals increased in WY2022 to approximately 430 ac-ft during water year 2022. See **Appendix A** for annual and dry season diversion totals, as well as mean daily diversions from Foreman Creek diversion. There is no notable change in the water temperature when the diversions are shut-off, suggesting the thermal effects from the diversion are slight (July 2021 and August 2022; **Figures 2-1** and **2-2**). Similar observations have been made during previous years of monitoring, where the temperature does not notably change when the diversions are turned on or off, even during extreme periods of high and low precipitation, or changes in gross diversion rates, such as system shutoff (2016) or the CZU fire (2020). See **Appendix C** for 2020, 2021 and 2022 SLVWD Production Reports.
- 5) Temperature guidelines have been developed to consider when elevated water temperatures are present that cause metabolic stress to steelhead and coho salmon. Water temperatures in steelhead-bearing reaches of tributaries of the San Lorenzo remained below the temperature guidelines developed by Alley and others during the 2021 and 2022 dry season.

Challenges will arise governing late-summer stream temperatures, which may eventually include potential effects of watershed-scale wildfires, large-scale die-offs of over-hanging trees or significant changes in groundwater recharge. Consistently considering water temperature at the reach scale to evaluate potential changes in flow, the overall monitoring program will remain successful in identifying the overall suitability of a given reach to meet habitat goals. The occurrence of temperature-stratified cold pools, possibly abetted by augmented local groundwater recharge, may help add resilience and vigor to the baseline habitat. The continued management of key reaches of the San Lorenzo River will support the long-term success in maintaining control of water temperatures.

- 6) Finally, we recommend continuing the refined gaging program that was created and implemented for water year 2022. This simplified program allows us to understand the flows and temperatures during the driest time of the year. This updated monitoring program will increase understanding of flow and temperature patterns at (and downstream of) SLVWD's diversions, as well as the habitat value during periods of low flow.

4. LIMITATIONS

The monitoring report was prepared in general accordance with the accepted standard of practice of hydrology existing in California for projects of similar scale at the time the investigations were performed. No other warranties expressed or implied, are made.

Data and conclusions presented in this report are based on available observations and measurements. New data or changes in regulatory guidance could influence the plans and/or recommendations, perhaps fundamentally. If additional data should become available, or if we find that observations, measurements, or calculations were in error, we reserve the right to correct and update the data based on new information.

To aid in revisions, we ask that readers who have additional pertinent information/data, who observed changed conditions, or who may note material errors in facts, dates or computations should contact us with their findings as early as possible, so that changes may be made.

Concepts, analyses, findings and interpretations contained in this report have been developed solely for the Seasonal Streamflow, Temperature and Related Observations for the San Lorenzo Valley Water District Surface Sources Supply Monitoring Report – for the exclusive use of San Lorenzo Valley Water District for the purposes of Dry Season Monitoring Report for the 2021 and 2022 Water Years. Information and interpretations presented should not be applied to projects or sites without additional site-specific information, nor should they be used beyond the particular area or reach to which we have applied them. Recommendations presume continuing efforts to minimize bed sedimentation, such as outlined by others in documents such as the San Lorenzo Watershed Plan (Ricker and others, 1979). Use of information outlined in this report beyond the boundaries of the site and these limitations could lead to environmental or structural damage, significant error, and/or to noncompliance with relevant policies, regulations or permits. Balance Hydrologics should be consulted (and expressed written permission should be provided) prior to applying the contents of this report to other projects or for purposes not specifically cited in this report.

5. REFERENCES

- Alley, D., 2014, Bull Creek fishery assessment, Santa Cruz County.
- Alley, D., 2015, Fishery implications of water-temperature data collected in the San Lorenzo River system in 2014: Consulting report to the San Lorenzo Valley Water District, June 2015. 74 p.
- Alley, D., 2016a, Fishery implications of water-temperature data collected in the San Lorenzo River watershed in 2014 and 2015: Draft consulting report to the San Lorenzo Valley Water District, Jan. 2016, 86 p.
- Alley D., 2016b, Draft summary report- Juvenile steelhead densities in the San Lorenzo, Soquel, Aptos and Corralitos watersheds, Santa Cruz County, CA. Prepared for the Santa Cruz County Environmental Health Department. April 2016. 211 p. plus appendices
- Brown, Randall C., 2011, The San Lorenzo Valley Water District -- A History: Book published and copywritten by SLVWD. 357 p.
- CAL FIRE (California Department of Forestry and Fire Protection), 2021, CZU Lightning Complex Fire Incident Report, accessed March 1, 2021, at URL <https://www.fire.ca.gov/incidents/2020/8/16/czu-lightning-complex-including-warnella-fire/>
- California Department of Water Resources, 1966, San Lorenzo River watershed water quality investigation: Bulletin 143-1, 180 p.
- Haynes, A., 2002, Comments on draft San Lorenzo Valley salmonid enhancement plan. Comments from San Lorenzo Valley Water District, June 30, 2002, 5 p.
- Hecht, B., 1978, The hydrology, hydrogeology, water quality and erosion/sedimentation potential of Felton Quarry, Felton, CA: H. Esmaili & Associates report to the Santa Cruz County Planning Department, John Warren, Principal Planner, 58 p. + EIR segments.
- Hecht, B., Donaldson, E., and Krause, A.J., 2014, Bases for hydrologic analysis of Montara-type watersheds: San Vicente and Denniston Creeks, Moss Beach and Princeton areas, Coastside San Mateo County, California: Balance Hydrologics report to Coastside County Water District, 24 p.
- Hecht, B., Neill, C., Parke, J., Ruttenberg, D., and Owens, J., 2019, Streamflow, temperature, and related observations for the San Lorenzo Valley Water District's surface sources of community water supply: Year 4, WY2017, with an appendix by Don Alley: Balance Hydrologics consulting report, project no. 215018. 36 p., 7 tables, 35 figs, 3 appendices + 1 by Don W Alley
- Hecht, B., Parke, J., Ruttenberg, D., Owens, J., and Alley, D., 2018a, Streamflow, temperature, and related observations for the San Lorenzo Valley Water District's surface sources of community water supply: Year 3, WY2016: Balance Hydrologics consulting report, project no. 215018. 40 p., 11 tables, 22 figs, 4 appendices + 1 by Don W Alley
- Hecht, B. and Richmond, S., 2011, The post-fire premium: Increased summer flows promoting salmonid survival following large wildfires in Monterey County. Salmonid Restoration Federation 45th annual conference, San Luis Obispo, California: Balance Hydrologics, Inc. PowerPoint presentation. 28p.

- Hecht, B., Ruttenberg, D., Parke, J., and Owens, J., 2018, Streamflow, temperature, and related observations for the San Lorenzo Valley Water District's surface sources of community water supply: Year 2, 2015. Balance Hydrologics, Inc., consulting report, project no. 215018, with an appendix by Don W. Alley. 10 p., 20 figs, 1 appendix.
- Hecht, B., Woyshner, M., Brown, S., Donaldson, E., Richmond, S., and Owens, J., 2013, Deeply-weathered granitics: Resilient aquifer storage for a changing climate: Presentation and poster at the 26th Biennial California Groundwater Conference, Groundwater Resources Association of California: Sacramento, CA, Oct. 7 through 9, 2013.
- Johnson, N.M., 1984, Estimates of flow in ungaged streams of Santa Cruz County: Santa Cruz County and City long-term water-supply study, 1984. Consulting report prepared by HEA, a division of J.H. Kleinfelder & Associates and EIP Associates, multipaged.
- Johnson, N.M., 2009, San Lorenzo Valley Water District water supply master plan, administrative draft: Consulting report prepared for SLVWD, multipaged.
- Johnson, N.M., 2020, Water availability assessment for the San Lorenzo River Watershed Conjunctive Use Plan: Exponent Consulting report for San Lorenzo Valley Water District, 163 p.
- Johnson, N.M., Hecht, B., and Esmaili, H., 1982, San Lorenzo Valley on-site waste disposal management study: HEA, a division of J.H. Kleinfelder & Associates consulting report. Oct. 1982, 66 p.
- Kennedy Jenks Consultants, 2015, Santa Margarita basin groundwater modeling technical study, 318 p., June 2015
- LaRoques, D., and Angelo, M., 2002, San Lorenzo River Total Maximum Daily Load For Sediment (Including: Carbonera Creek, Lompico Creek, and Shingle Mill Creek) Central Coast Regional Water Quality Control Board. Attachment B to the TMDL order of the same name. Multipaged, 7 appendices.
- Lear, J., Woyshner, M., and Hecht, B., 2010, Availability of water sources for a conjunctive use framework approach to water resources in the San Lorenzo River watershed, Santa Cruz, county, California: Balance Hydrologics, Inc., consulting report prepared for Kennedy/Jenks Consultants and the Santa Cruz County Health Services Agency, 33p.
- Neill, C., and Hecht, B., 2020, Draft Water Year, 2019, Accretion assessment on Bean Creek and adjoining parts of lower Zayante Creek, Balance Hydrologics consulting memo 218237, 5p. plus figures.
- Neill, C., Hecht, B., Parke, J., and Goodwin, E., 2021, Santa Margarita Basin streamflow and accretion assessment, dry season 2020, Balance Hydrologics consulting report 220237, in prep.
- Parke, J., and Hecht, B., 2018, San Lorenzo River longitudinal accretion and hydrochemistry reconnaissance: Balance Hydrologics, Inc. draft report, with contributions from UC Santa Cruz, prepared for County of Santa Cruz, Health Services – Environmental Health, 74 p, incl. 3 attachments.
- Parke, J., and Hecht, B., 2020, Draft San Lorenzo River longitudinal flow accretion and hydrochemistry reconnaissance, summer of Water Year 2019, Balance Hydrologics consulting report 218109, 19 p. plus appendices.

- Parke, J., and Hecht, B., 2021, Eagle Creek preliminary hydrogeological reconnaissance, Santa Cruz County, California: Summer of water years 2018 to 2020: Balance Hydrologics consulting report 218109, prepared for County of Santa Cruz, Department of Health Services – Environmental Health Division. Revised draft, February 19, 2021. 19 p., 2 tables, 11 figures, and 2 appendices.
- Podlech, M., 2019, Fisheries resource considerations for the San Lorenzo River watershed conjunctive use plan: Consulting report prepared for San Lorenzo Valley Water District and the County of Santa Cruz, Health Services- Environmental Health. 52 p.
- Richardson, C. M., Zimmer, M.A., Fackrell, J.K., and Paytan, A., 2020, Geologic controls on source water drive baseflow generation and carbon geochemistry: Evidence of nonstationary baseflow sources across multiple subwatersheds: Water Resources Research, 56, e2019WR026577, <https://doi.org/10.1029/2019WR026577>, 14 p.
- Ricker, J., 1979, Hydrology technical section, San Lorenzo River Watershed Management Plan: Santa Cruz County Planning Department Report, 77 p.
- Ricker, J., and others, 1979, Watershed plan for the San Lorenzo Valley: County of Santa Cruz, Watershed Manager's office. Multipaged.
- San Lorenzo Valley Water District, 2015. Long-term droughts in the San Lorenzo Valley. Agenda Item 13a as reported to the SLVWD Board on June 18, 2015.
- Santa Margarita Groundwater Agency (SMGWA), in prep, Santa Margarita basin groundwater sustainability plan.
- Sylvester, M., and Covay, K., 1978, Stream quality in the San Lorenzo basin, Santa Cruz County, California: U.S. Geol. Survey Water-Resources Investigations 78-19.
- Trotter, R., 1977, Table of measurements of low flows in streams along the Big Sur Coast of Monterey County. Unpublished field work, also included in Black and Veatch reports from the Big Sur Coast of the late 1970s.
- U.S. Geological Survey (USGS), 2019, Specific conductance: U.S. Geological Survey Techniques and Methods, book 9, chap. A6.3, 15 p.

FIGURES

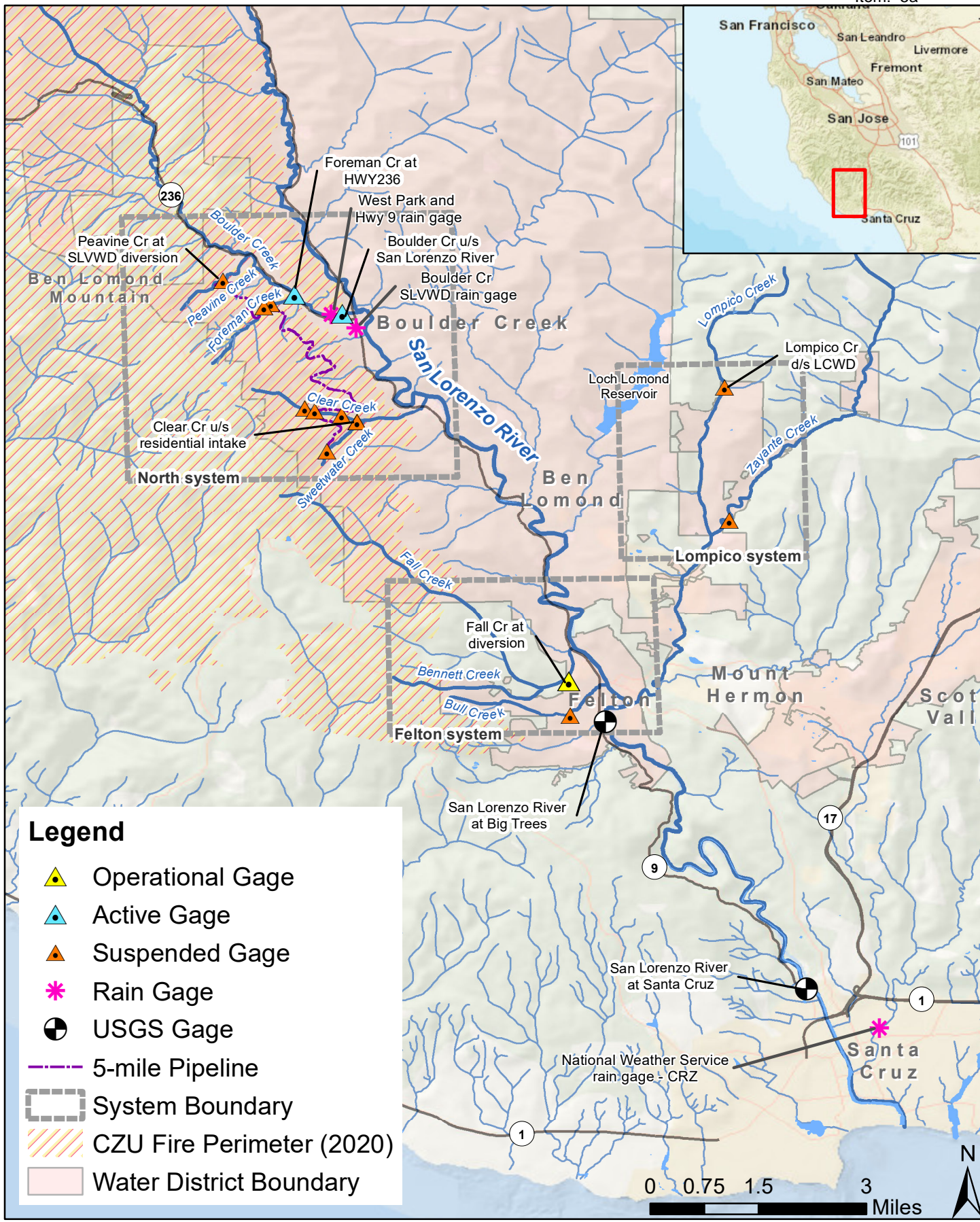


Figure 1-1. Map of SLVWD gaging stations and operational systems, Santa Cruz County, California

San Lorenzo Valley Water District boundary and area burned in the CZU fire also shown

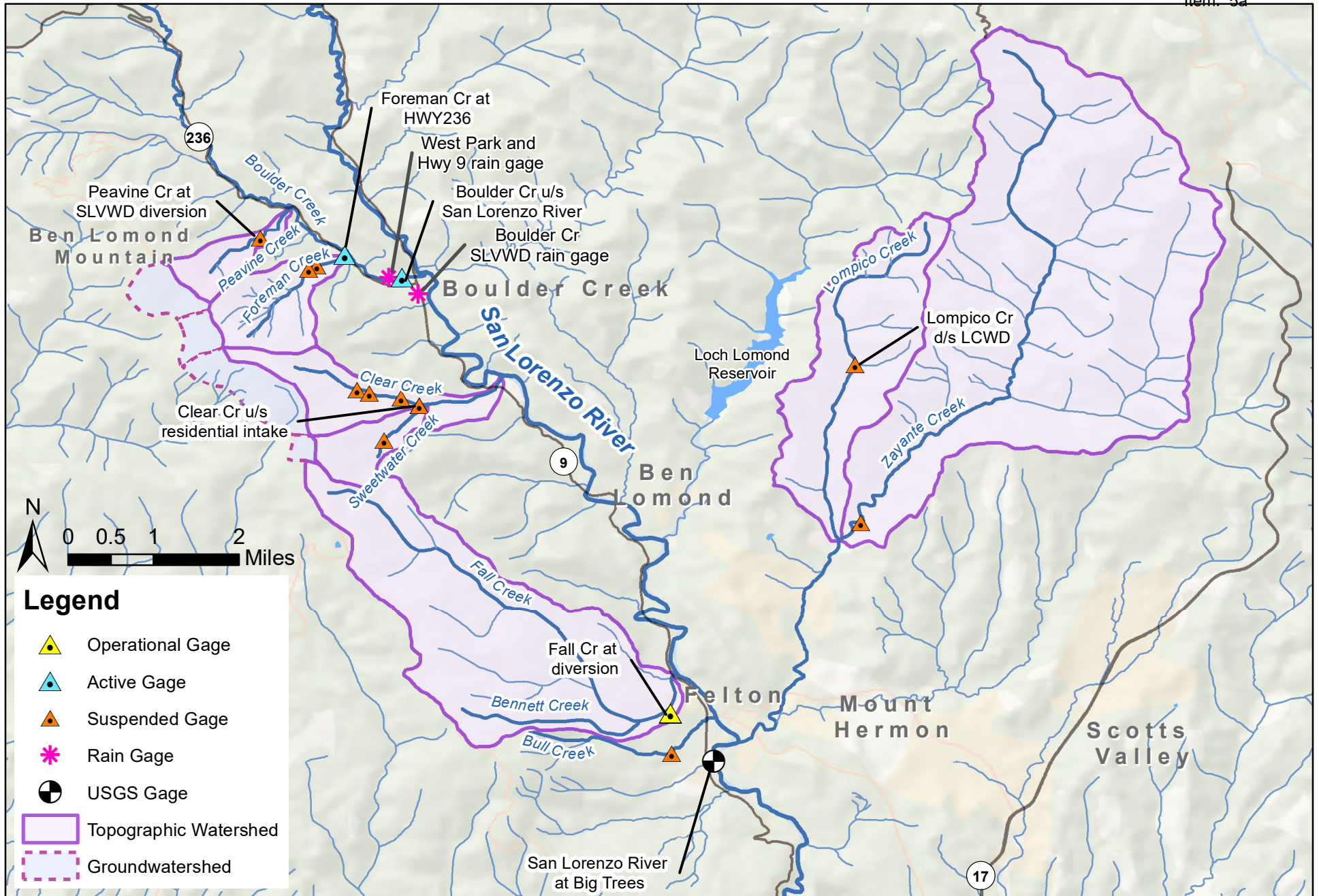


Figure 1-2. Map highlighting topographic watersheds and inferred groundwatersheds in SLVWD's service area of interest. Santa Cruz County, California

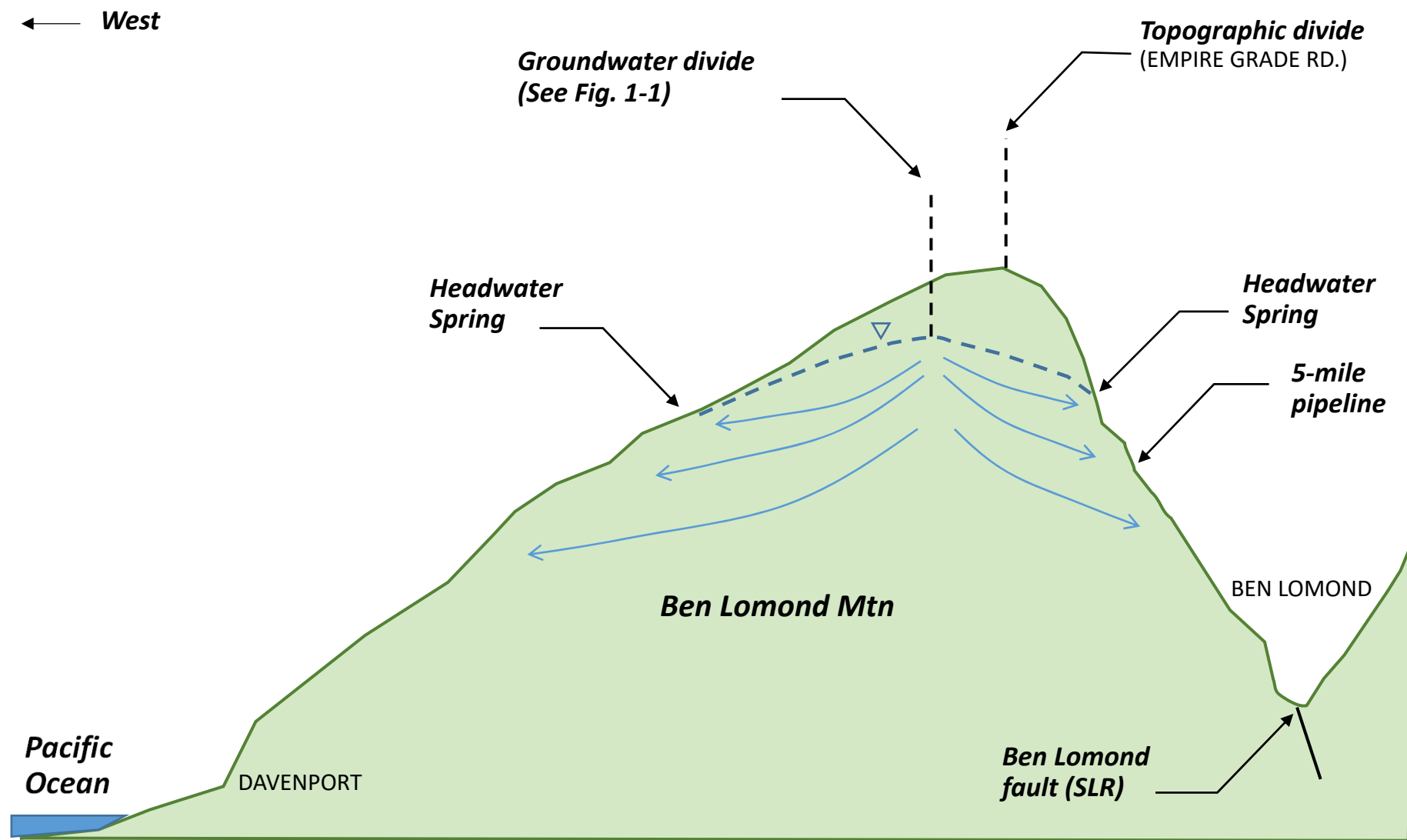


Figure 1-3: Schematic hydrogeologic section through Ben Lomond Mountain. Not to scale. This schematic diagram shows why the groundwatersheds extend to the west of the surface ("topographic") watersheds. Tributaries draining the eastern slope of the mountain receive more groundwater inflow than would be expected based on their topographic watershed area.

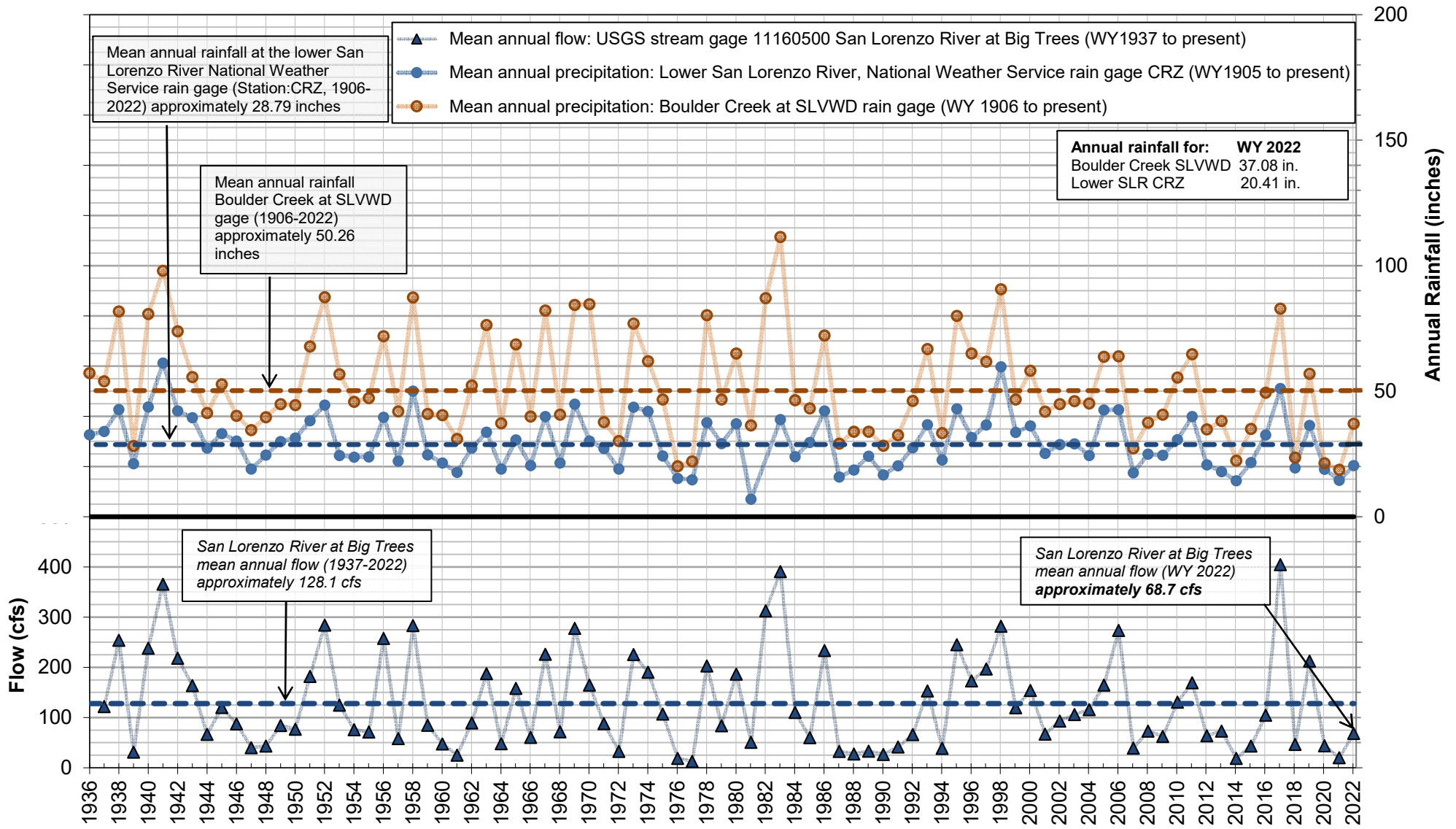
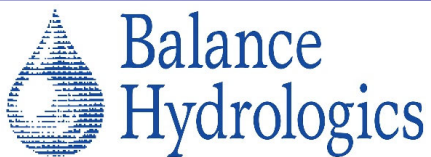


Figure 1-4. Comparison of historic annual rainfall in San Lorenzo Basin to annual streamflow at USGS Gage 11160500, San Lorenzo River at Big Trees, Santa Cruz County, CA



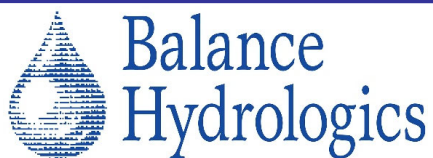
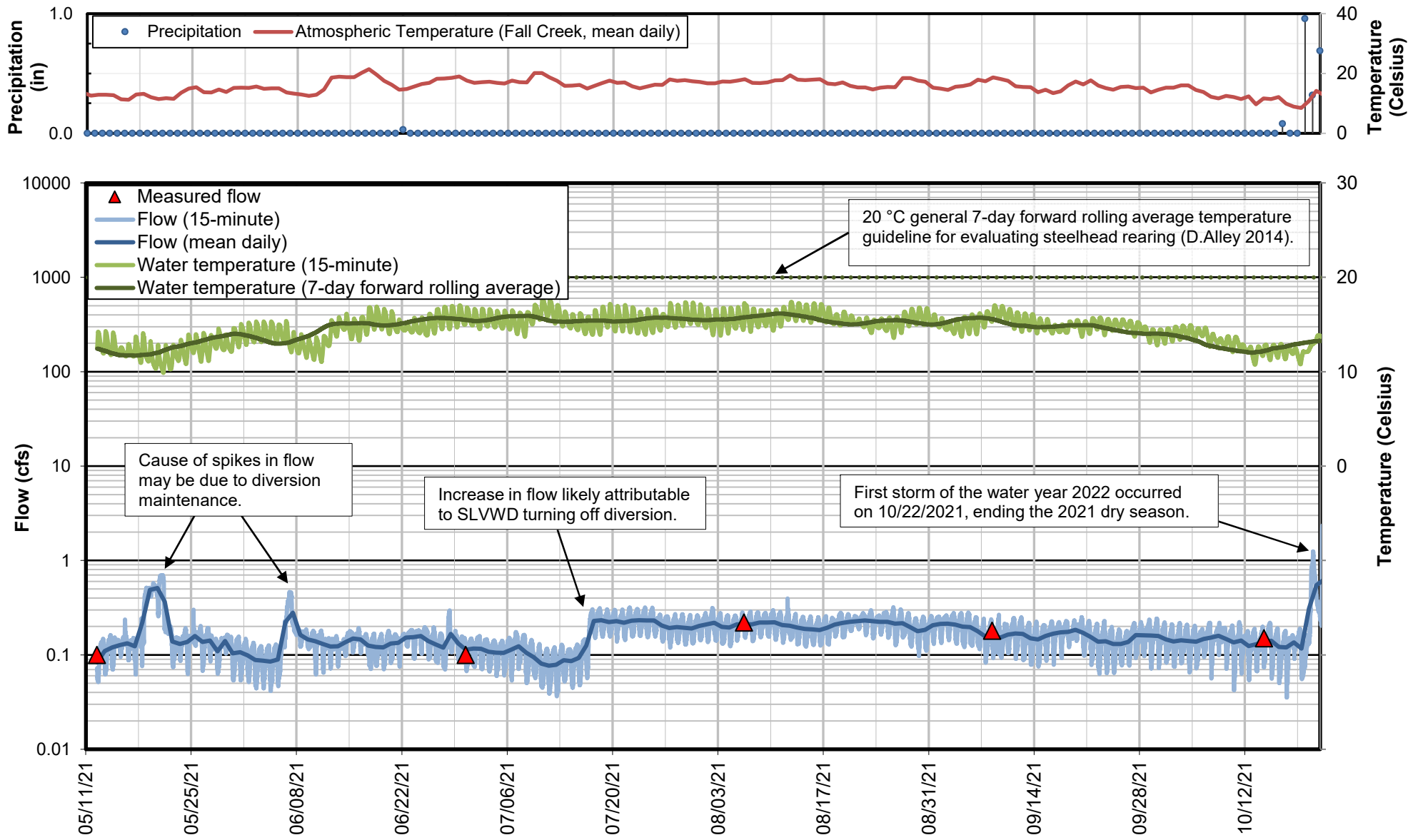


Figure 2-1. Flow and water temperature at Foreman Creek gage just upstream of Highway 236, dry season 2021, Santa Cruz County, CA Precipitation data from SLVWD downtown Boulder Creek gage.

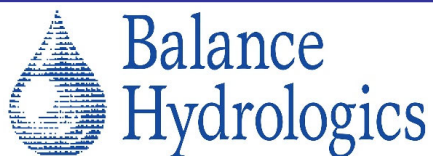
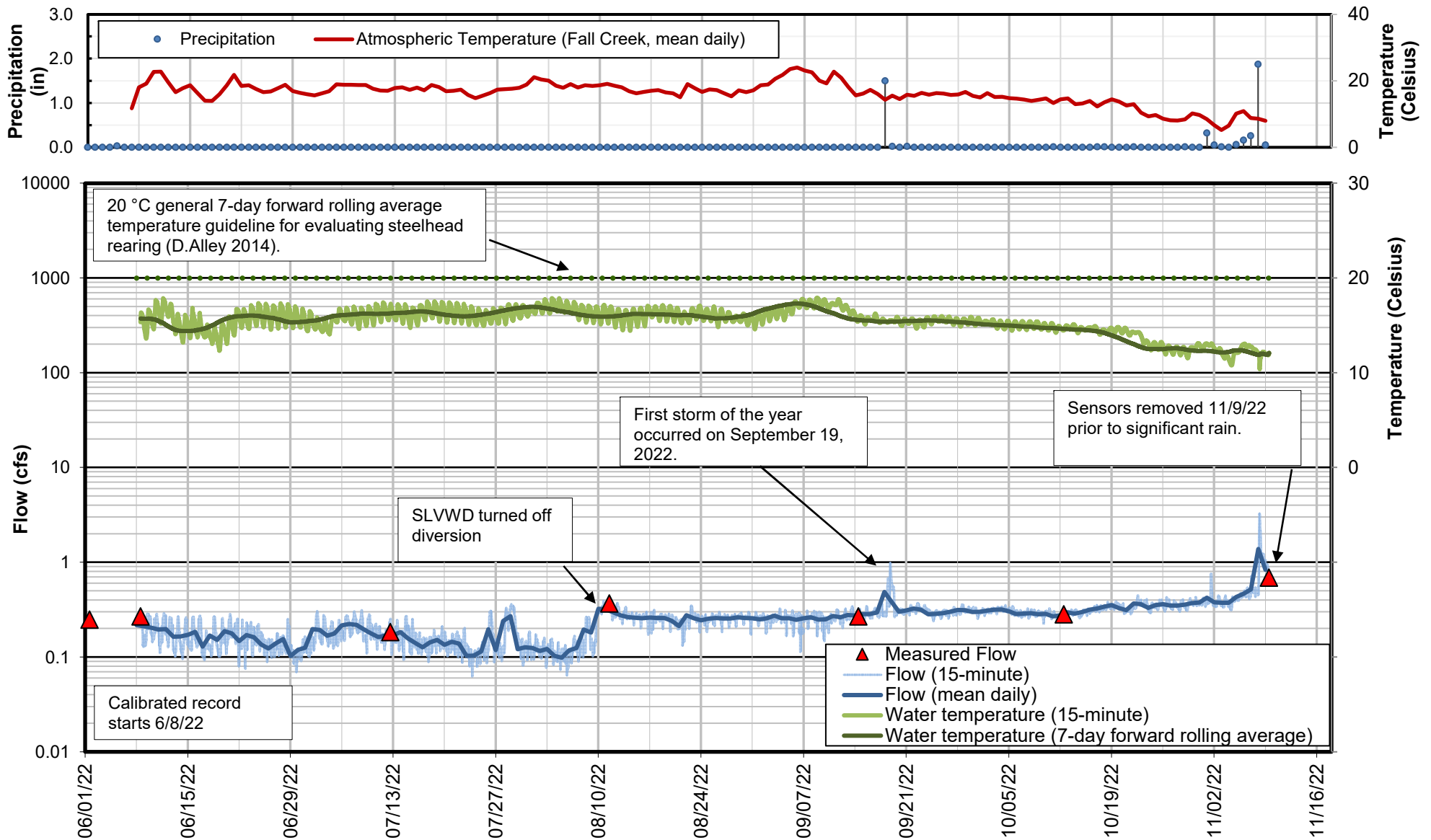


Figure 2-2. Flow and water temperature at Foreman Creek gauge just upstream of Highway 236, dry season 2022, Santa Cruz County, CA Precipitation data from SLVWD downtown Boulder Creek gauge.

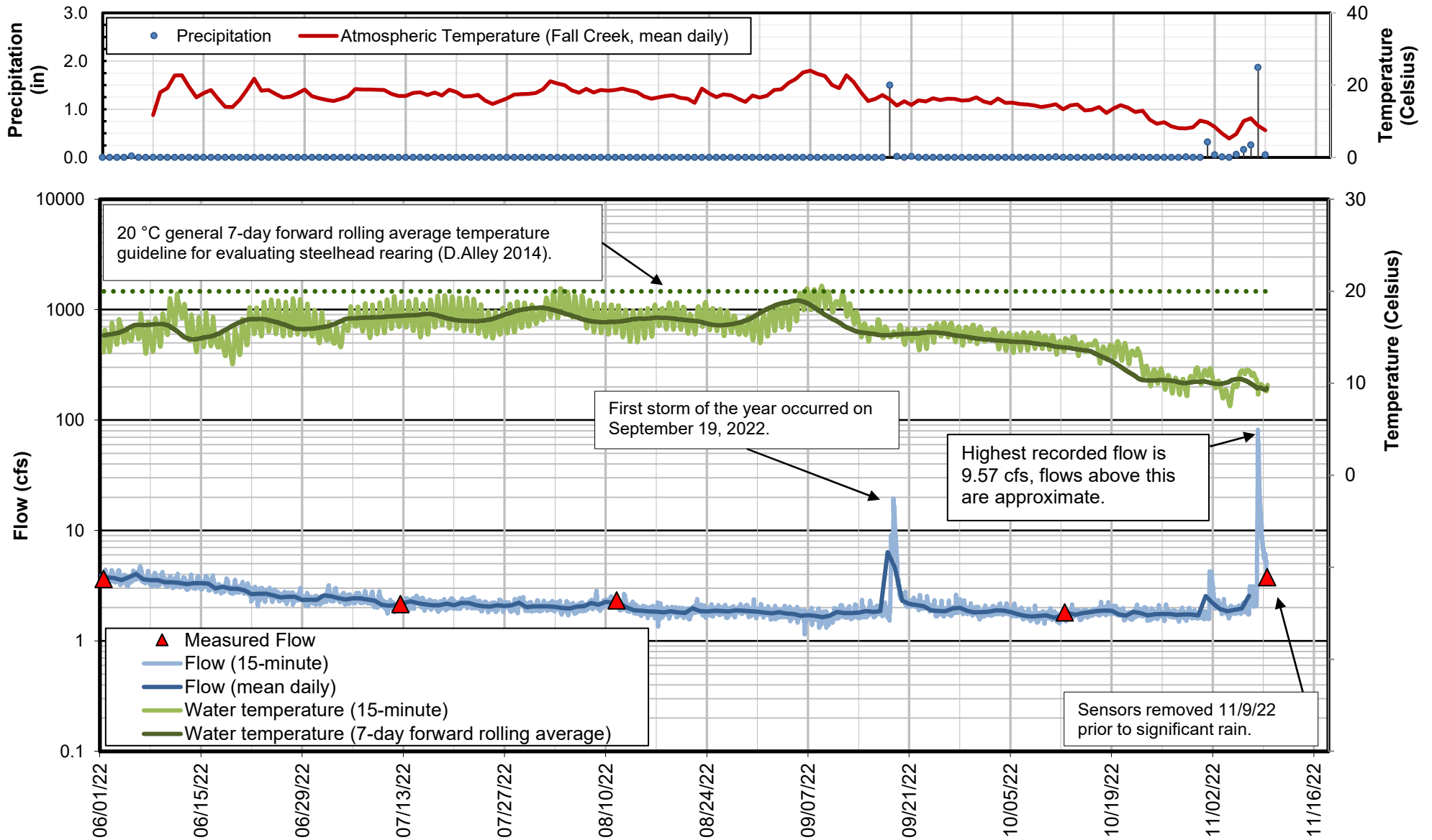
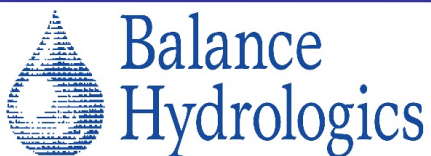
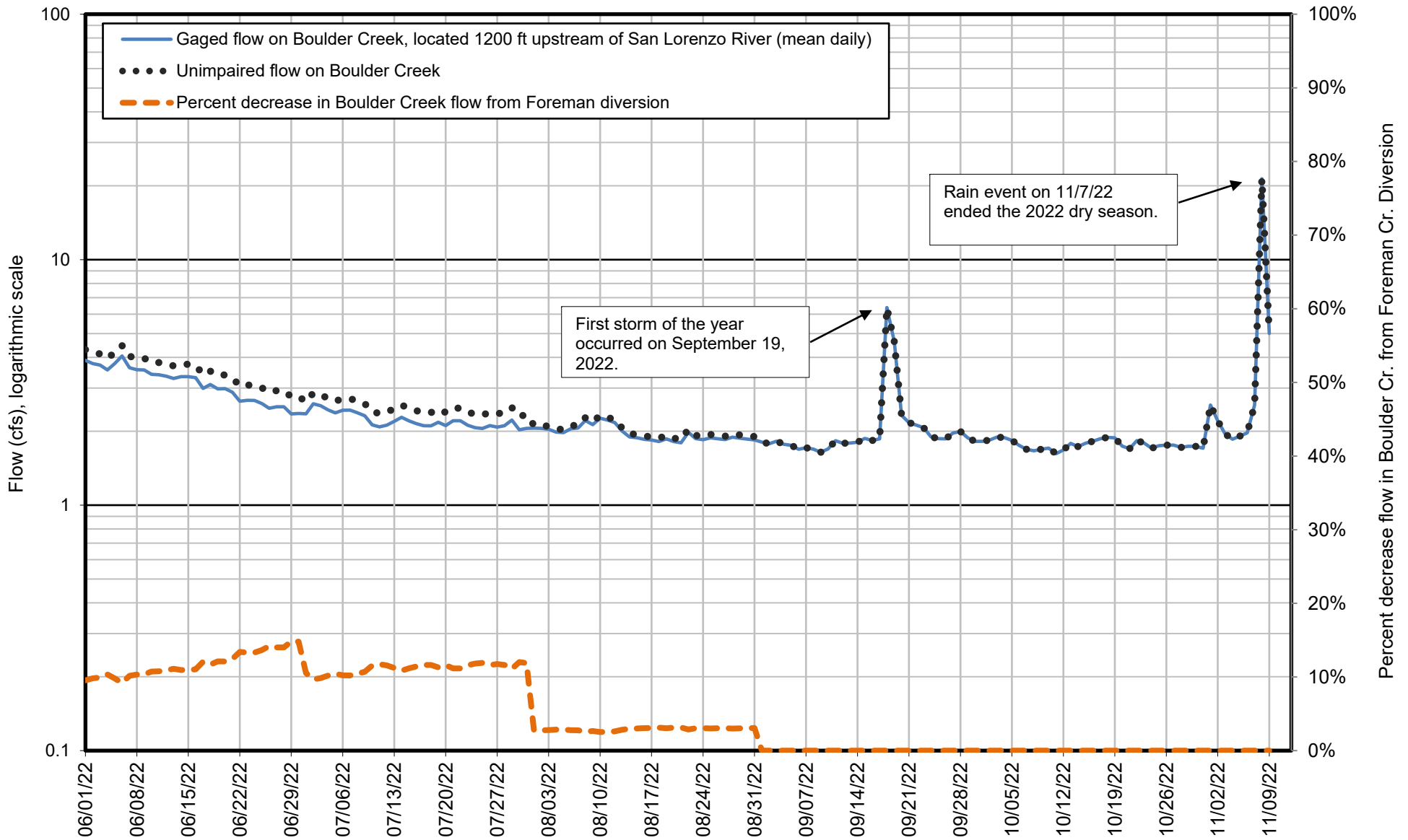


Figure 2-3. Flow and water temperature at lower Boulder Creek approximately 1200 feet upstream from San Lorenzo River, dry season 2022, Santa Cruz County, CA
 Precipitation data from SLVWD downtown Boulder Creek gage.





Source: SLVWD diversion data

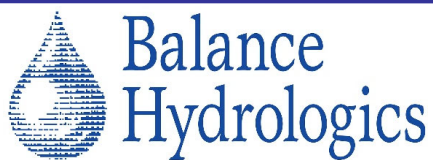


Figure 2-4. Mean daily flow on Boulder Creek and diversions on Foreman Creek, dry season 2022, Santa Cruz County, California. Diversion rates are compared to flow in Boulder Creek.

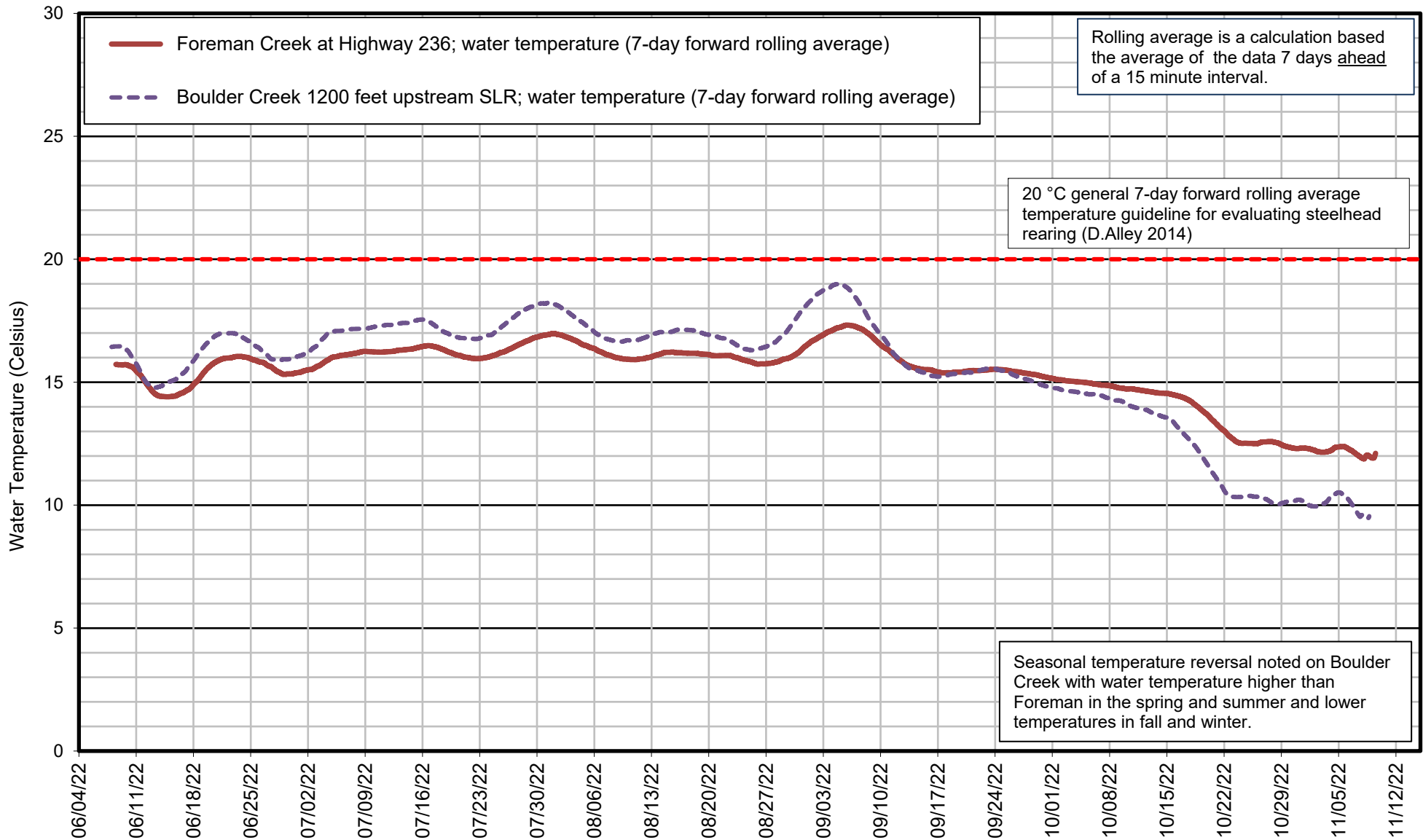
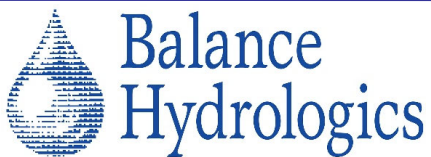


Figure 2-5. 7-day forward rolling average of water temperature: Foreman Creek and Boulder Creek dry season 2022, Santa Cruz County, CA



APPENDICES

APPENDIX A
Index of Gaging Forms

Stream and Station

Dry Season:	2021
Stream:	Foreman Creek
Station:	Foreman Creek just upstream of HWY 236
County:	Santa Cruz County, CA

Form 2A-21
Annual Hydrologic Record: Foreman Creek
Estimated daily flow downstream of diversion
box Dry Season, 2021

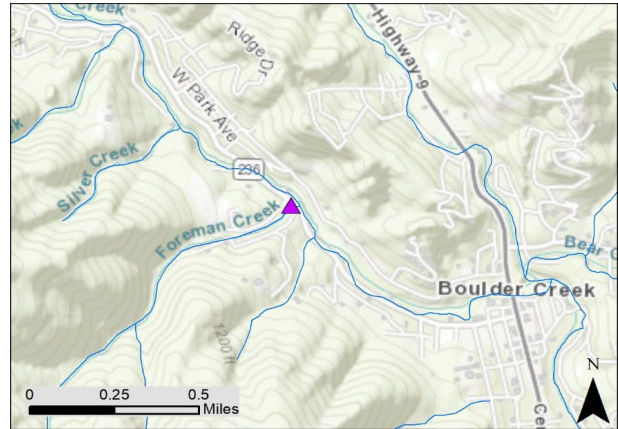
Station Location and Watershed

Latitude: 37.130239, Longitude:-122.134474 (WGS84), Santa Cruz County, CA. Gage is approximately 3,340 feet downstream of Foreman Creek Diversion and 130 feet upstream of the confluence with Boulder Creek, adjacent to Boulder Brook Rd in Boulder Creek. Gage was previously located approximately 350 feet downstream of the Foreman Creek diversion however was buried in gravel and cobble during the high-flows of WY2017. Land use is watershed lands managed by SLVWD. Surface watershed area is 0.9 square miles; groundwatershed is larger.

Period of Record

Gage was previously installed on December 6, 2013 and then re-installed October 3, 2014 due to high amounts of gravel and inter-gravel flow through the gaged location. During the high-flow of WY17 the gage was buried and deemed non-recoverable. Gage was moved downstream on May 26, 2017 just upstream of HWY236. Previous debris flows which overwhelmed the diversion occurred in 1982 and 1998. Gage was converted to a seasonal gage in November 2018.

Station Location Map



Dry Season 2021 Daily Mean Flow, not including inter-gravel flow (cubic feet per second)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV ⁵
1									0.10	0.12	0.21	0.21	0.15	1.08
2									0.09	0.12	0.22	0.22	0.14	0.74
3									0.09	0.11	0.20	0.21	0.14	0.28
4									0.09	0.11	0.19	0.20	0.14	0.17
5									0.09	0.11	0.21	0.20	0.14	0.18
6									0.22	0.11	0.21	0.18	0.15	0.16
7									0.28	0.12	0.21	0.16	0.15	0.15
8									0.16	0.11	0.22	0.16	0.16	0.14
9									0.15	0.09	0.22	0.15	0.15	1.41
10									0.14	0.08	0.22	0.16	0.14	0.61
11									0.13	0.08	0.21	0.17	0.14	0.47
12									0.12	0.08	0.20	0.17	0.12	
13									0.12	0.09	0.20	0.15	0.13	
14									0.14	0.09	0.19	0.15	0.14	
15									0.15	0.09	0.19	0.16	0.14	
16									0.15	0.13	0.18	0.17	0.12	
17									0.13	0.23	0.19	0.17	0.12	
18									0.12	0.23	0.21	0.18	0.14	
19									0.12	0.22	0.22	0.19	0.12	
20									0.13	0.23	0.22	0.17	0.31	
21									0.13	0.22	0.23	0.16	0.55	
22									0.15	0.23	0.23	0.14	0.63	
23									0.15	0.23	0.23	0.14	0.26	
24									0.16	0.23	0.23	0.13	6.50	
25									0.14	0.23	0.22	0.13	7.21	
26									0.13	0.21	0.21	0.14	3.24	
27									0.12	0.19	0.22	0.16	2.22	
28									0.17	0.20	0.20	0.16	1.75	
29									0.13	0.19	0.18	0.16	1.54	
30									0.11	0.19	0.19	0.16	1.34	
31									-	0.20	0.21	-	1.19	-
MEAN									0.14	0.16	0.21	0.17	0.95	0.49
MAX. DAY									0.28	0.23	0.23	0.22	7.21	1.41
MIN. DAY									0.09	0.08	0.18	0.13	0.12	0.14
cfs days									4.1	4.9	6.5	5.0	29.3	5.4
ac-ft									8.2	9.7	12.8	9.9	58.2	10.7
gallons									2,660,000	3,150,000	4,180,000	3,230,000	19,000,000	3,490,000

Daily mean flow is only reported seasonally from June 1, 2021 to November 11, 2021

Monitors' Comments

- Daily values with more than 2 to 3 significant figures result from electronic calculations. No additional precision is implied.
- Mean daily values are cumulated from 96 to 15-minute measurements of stage; several stage shifts have been applied to account for changes in bed conditions over the course of the monitoring program.
- The gage is located just upstream of the HWY 236 overpass and likely includes flow that would have likely not been recorded at the previous gage locations due to the coarse nature of the bed, and intervening drainage area.
- Diversion activities upstream may influence the gaged flow.
- The first significant rain of water year 2021 occurred on 10/12/21. Flow not reported past 11/11/2021. Totals calculated for November are partial, as they do not include the last 19 days of the month.

Dry Season 2021 Totals		
<i>Seasonal totals calculated from 6/1/21 to 11/11/21</i>		
Mean seasonal flow	0.34	(cfs)
Max. seasonal flow	7.21	(cfs)
Min. seasonal flow	0.08	(cfs)
Seasonal total	55.2	(cfs-days)
Seasonal total volume	109	(ac-ft)
Seasonal total volume	35,710,000	gallons

Balance Hydrologics, Inc. 931 Mission St., Santa Cruz, CA 95060 (831) 457-9900; fax: (831) 457-8800
 Balance Hydrologics, Inc. 800 Bancroft Way, Suite 101, Berkeley, CA 94710 (510) 704-1000; fax: (510) 704-1001

Water Year: 2021
Stream: Diversion from Foreman Creek
Station: Foreman Creek at the SLVWD diversion box
County: Santa Cruz County, CA

Form 2D-21
Annual Hydrologic Record: Foreman Creek
Estimated daily diversion at Foreman Creek diversion
WY2021

WY 2021 Daily Mean Flow (cubic feet per second)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV
1	0.00	0.00	0.04	0.11	0.42	0.55	0.51	0.33	0.21	0.07	0.00	0.00	0.00	0.86
2	0.00	0.00	0.04	0.11	0.42	0.55	0.51	0.33	0.21	0.07	0.00	0.00	0.00	0.86
3	0.00	0.00	0.04	0.11	0.42	0.55	0.51	0.33	0.21	0.07	0.00	0.00	0.00	0.86
4	0.00	0.00	0.04	0.11	0.42	0.55	0.51	0.33	0.21	0.07	0.00	0.00	0.00	0.86
5	0.00	0.00	0.04	0.11	0.42	0.55	0.51	0.33	0.21	0.07	0.00	0.00	0.00	0.86
6	0.00	0.00	0.04	0.11	0.42	0.55	0.51	0.33	0.21	0.07	0.00	0.00	0.00	0.86
7	0.00	0.00	0.04	0.11	0.42	0.55	0.51	0.33	0.21	0.07	0.00	0.00	0.00	0.86
8	0.00	0.00	0.04	0.11	0.42	0.55	0.51	0.33	0.21	0.07	0.00	0.00	0.00	0.86
9	0.00	0.00	0.04	0.11	0.42	0.55	0.51	0.33	0.21	0.07	0.00	0.00	0.00	0.86
10	0.00	0.00	0.04	0.11	0.42	0.55	0.51	0.33	0.21	0.07	0.00	0.00	0.00	0.86
11	0.00	0.00	0.04	0.11	0.42	0.55	0.51	0.33	0.21	0.07	0.00	0.00	0.00	0.86
12	0.00	0.00	0.04	0.11	0.42	0.55	0.51	0.33	0.21	0.07	0.00	0.00	0.00	0.86
13	0.00	0.00	0.04	0.11	0.42	0.55	0.51	0.33	0.21	0.07	0.00	0.00	0.00	0.86
14	0.00	0.00	0.04	0.11	0.42	0.55	0.51	0.33	0.21	0.07	0.00	0.00	0.00	0.86
15	0.00	0.00	0.04	0.11	0.42	0.55	0.51	0.33	0.21	0.07	0.00	0.00	0.00	0.86
16	0.00	0.00	0.04	0.11	0.42	0.55	0.51	0.33	0.21	0.07	0.00	0.00	0.00	0.86
17	0.00	0.00	0.04	0.11	0.42	0.55	0.51	0.33	0.21	0.07	0.00	0.00	0.00	0.86
18	0.00	0.00	0.04	0.11	0.42	0.55	0.51	0.33	0.21	0.07	0.00	0.00	0.00	0.86
19	0.00	0.00	0.04	0.11	0.42	0.55	0.51	0.33	0.21	0.07	0.00	0.00	0.00	0.86
20	0.00	0.00	0.04	0.11	0.42	0.55	0.51	0.33	0.21	0.07	0.00	0.00	0.00	0.86
21	0.00	0.00	0.04	0.11	0.42	0.55	0.51	0.33	0.21	0.07	0.00	0.00	0.00	0.86
22	0.00	0.00	0.04	0.11	0.42	0.55	0.51	0.33	0.21	0.07	0.00	0.00	0.00	0.86
23	0.00	0.00	0.04	0.11	0.42	0.55	0.51	0.33	0.21	0.07	0.00	0.00	0.00	0.86
24	0.00	0.00	0.04	0.11	0.42	0.55	0.51	0.33	0.21	0.07	0.00	0.00	0.00	0.86
25	0.00	0.00	0.04	0.11	0.42	0.55	0.51	0.33	0.21	0.07	0.00	0.00	0.00	0.86
26	0.00	0.00	0.04	0.11	0.42	0.55	0.51	0.33	0.21	0.07	0.00	0.00	0.00	0.86
27	0.00	0.00	0.04	0.11	0.42	0.55	0.51	0.33	0.21	0.07	0.00	0.00	0.00	0.86
28	0.00	0.00	0.04	0.11	0.42	0.55	0.51	0.33	0.21	0.07	0.00	0.00	0.00	0.86
29	0.00	0.00	0.04	0.11	0.42	0.55	0.51	0.33	0.21	0.07	0.00	0.00	0.00	0.86
30	0.00	0.00	0.04	0.11	-	0.55	0.51	0.33	0.21	0.07	0.00	0.00	0.00	0.86
31	0.00	-	0.04	0.11	-	0.55	-	0.33	-	0.07	0.00	-	0.00	-
MEAN	0.00	0.00	0.04	0.11	0.42	0.55	0.51	0.33	0.21	0.07	0.00	0.00	0.00	0.86
MAX. DAY	0.00	0.00	0.04	0.11	0.42	0.55	0.51	0.33	0.21	0.07	0.00	0.00	0.00	0.86
MIN. DAY	0.00	0.00	0.04	0.11	0.42	0.55	0.51	0.33	0.21	0.07	0.00	0.00	0.00	0.86
cfs days	0.00	0.00	1.31	3.31	12.29	17.13	15.16	10.24	6.23	2.27	0.00	0.00	0.00	25.82
ac-ft	0.00	0.00	2.60	6.56	24.38	33.98	30.07	20.31	12.36	4.51	0.00	0.00	0.00	51.21
gallons	0	0	847,400	2,137,150	7,942,000	11,071,000	9,798,000	6,618,000	4,026,250	1,468,950	0	0	0	16,685,000

Monitor's Comments

- Daily diversion estimated based on reported monthly production for "Foreman Creek" totals, as provided by SLVWD.
- Monthly production divided by days per month to estimate daily diversion rates. Additional precision provided for reference and may not represent actual flow on day as reported above.
- Daily values with more than 2 to 3 significant figures result from electronic calculations. No additional precision is implied.

2021 Annual and Dry Season Totals		
Annual totals calculated from 10/1/20 to 9/30/21		
Dry season totals calculated from 6/1/21 to 11/30/21		
ANNUAL	SEASONAL	units
Mean annual flow	0.19	Mean seasonal flow 0.19 (cfs)
Max. daily flow	0.55	Max. seasonal flow 0.86 (cfs)
Min. daily flow	0.00	Min. seasonal flow 0.00 (cfs)
Total	67.9	Seasonal total 34.32 (cfs-days)
Total Volume	135	Seasonal total volume 68.07 (ac-ft)
Total Volume	43,908,750	Seasonal total volume 22,180,200 (gallons)

Balance Hydrologics, Inc. 931 Mission St, Santa Cruz, CA 95060 (831) 457-9900; fax: (831) 457-8800
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Stream and Station

Dry Season:	2022
Stream:	Foreman Creek
Station:	Foreman Creek just upstream of HWY 236
County:	Santa Cruz County, CA

Form 2A-22

**Annual Hydrologic Record: Foreman Creek
 Estimated daily flow downstream of diversion box
 Dry Season 2022**

Station Location and Watershed

Latitude: 37.130239, Longitude:-122.134474 (WGS84), Santa Cruz County, CA. Gage is approximately 3,340 feet downstream of Foreman Creek Diversion and 130 feet upstream of the confluence with Boulder Creek, adjacent to Boulder Brook Rd in Boulder Creek. Gage was previously located approximately 350 feet downstream of the Foreman Creek diversion however was buried in gravel and cobble during the high-flows of WY2017. Land use is watershed lands managed by SLVWD. Surface watershed area is 0.9 square miles; groundwatershed is larger.



Period of Record

Gage was previously installed on December 6, 2013 and then re-installed October 3, 2014 due to high amounts of gravel and inter-gravel flow through the gaged location. During the high-flow of WY17 the gage was buried and deemed non-recoverable. Gage was moved downstream on May 26, 2017 just upstream of HWY236. Previous debris flows which overwhelmed the diversion occurred in 1982 and 1998. Gage was converted to a seasonal gage in November 2018. Gage was buried during the December 2021 debris flow and re-installed June 8, 2022.

Dry Season 2022 Daily Mean Flow, not including inter-gravel flow (cubic feet per second)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV ⁵
1										0.13	0.12	0.25	0.30	0.42
2										0.20	0.12	0.26	0.31	0.38
3										0.19	0.12	0.27	0.32	0.37
4										0.17	0.10	0.26	0.32	0.38
5										0.18	0.10	0.26	0.30	0.43
6										0.22	0.12	0.25	0.28	0.47
7										0.22	0.13	0.26	0.29	0.52
8									0.22	0.22	0.20	0.26	0.29	
9									0.21	0.20	0.18	0.25	0.28	
10									0.20	0.18	0.32	0.25	0.29	
11									0.20	0.16	0.32	0.27	0.27	
12									0.20	0.17	0.30	0.26	0.28	
13									0.16	0.17	0.28	0.28	0.30	
14									0.17	0.18	0.26	0.28	0.29	
15									0.17	0.16	0.26	0.28	0.30	
16									0.18	0.14	0.26	0.29	0.32	
17									0.13	0.13	0.26	0.30	0.33	
18									0.17	0.14	0.26	0.49	0.34	
19									0.15	0.15	0.26	0.38	0.35	
20									0.19	0.13	0.24	0.30	0.33	
21									0.18	0.14	0.21	0.31	0.31	
22									0.15	0.14	0.28	0.33	0.37	
23									0.17	0.10	0.26	0.32	0.36	
24									0.16	0.10	0.24	0.28	0.33	
25									0.14	0.11	0.25	0.29	0.35	
26									0.12	0.20	0.26	0.29	0.36	
27									0.14	0.12	0.26	0.30	0.35	
28									0.15	0.24	0.26	0.32	0.35	
29									0.10	0.27	0.26	0.31	0.36	
30									0.12	0.12	0.26	0.30	0.37	
31									-	0.13	0.26	-	0.38	-
MEAN									0.16	0.17	0.23	0.29	0.32	0.42
MAX. DAY									0.22	0.27	0.32	0.49	0.38	0.52
MIN. DAY									0.10	0.10	0.10	0.25	0.27	0.37
cfs days									3.8	5.1	7.0	8.7	10.0	3.0
ac-ft									7.5	10.1	13.9	17.3	19.8	5.9
gallons									2,440,000	3,310,000	4,520,000	5,640,000	6,450,000	1,920,000

Daily mean flow is only reported seasonally from June 8, 2022 to November 7, 2022

Monitors' Comments

- Daily values with more than 2 to 3 significant figures result from electronic calculations. No additional precision is implied.
- Mean daily values are cumulated from 96 on 15-minute measurements of stage; several stage shifts have been applied to account for changes in bed conditions over the course of the monitoring program.
- The gage is located just upstream of the HWY 236 overpass and likely includes flow that would have likely not been recorded at the previous gage locations due to the coarse nature of the bed, and intervening drainage area.
- Diversion activities upstream may influence the gaged flow.
- The first significant rain of water year 2022 occurred on 11/7/2022, flow is not reported past this date. Totals calculated for November are partial, as they do not include the last 23 days of the month.

Dry Season 2022 Totals		
<i>Seasonal totals calculated from 6/8/22 to 11/7/22</i>		
Mean seasonal flow	0.25	(cfs)
Max. seasonal flow	0.52	(cfs)
Min. seasonal flow	0.10	(cfs)
Seasonal total	37.6	(cfs-days)
Seasonal total volume	75	(ac-ft)
Seasonal total volume	24,280,000	gallons

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Water Year: 2022
Stream: Diversion from Foreman Creek
Station: Foreman Creek at the SLVWD diversion box
County: Santa Cruz County, CA

Form 2D-22
Annual Hydrologic Record: Foreman Creek
Estimated daily diversion at Foreman Creek diversion
WY2022

WY 2022 Daily Mean Flow (cubic feet per second)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV
1	0.00	0.86	0.70	1.11	1.38	0.93	0.80	0.60	0.41	0.28	0.06	0.00	0.00	0.00
2	0.00	0.86	0.70	1.11	1.38	0.93	0.80	0.60	0.41	0.28	0.06	0.00	0.00	0.00
3	0.00	0.86	0.70	1.11	1.38	0.93	0.80	0.60	0.41	0.28	0.06	0.00	0.00	0.00
4	0.00	0.86	0.70	1.11	1.38	0.93	0.80	0.60	0.41	0.28	0.06	0.00	0.00	0.00
5	0.00	0.86	0.70	1.11	1.38	0.93	0.80	0.60	0.41	0.28	0.06	0.00	0.00	0.00
6	0.00	0.86	0.70	1.11	1.38	0.93	0.80	0.60	0.41	0.28	0.06	0.00	0.00	0.00
7	0.00	0.86	0.70	1.11	1.38	0.93	0.80	0.60	0.41	0.28	0.06	0.00	0.00	0.00
8	0.00	0.86	0.70	1.11	1.38	0.93	0.80	0.60	0.41	0.28	0.06	0.00	0.00	0.00
9	0.00	0.86	0.70	1.11	1.38	0.93	0.80	0.60	0.41	0.28	0.06	0.00	0.00	0.00
10	0.00	0.86	0.70	1.11	1.38	0.93	0.80	0.60	0.41	0.28	0.06	0.00	0.00	0.00
11	0.00	0.86	0.70	1.11	1.38	0.93	0.80	0.60	0.41	0.28	0.06	0.00	0.00	0.00
12	0.00	0.86	0.70	1.11	1.38	0.93	0.80	0.60	0.41	0.28	0.06	0.00	0.00	0.00
13	0.00	0.86	0.70	1.11	1.38	0.93	0.80	0.60	0.41	0.28	0.06	0.00	0.00	0.00
14	0.00	0.86	0.70	1.11	1.38	0.93	0.80	0.60	0.41	0.28	0.06	0.00	0.00	0.00
15	0.00	0.86	0.70	1.11	1.38	0.93	0.80	0.60	0.41	0.28	0.06	0.00	0.00	0.00
16	0.00	0.86	0.70	1.11	1.38	0.93	0.80	0.60	0.41	0.28	0.06	0.00	0.00	0.00
17	0.00	0.86	0.70	1.11	1.38	0.93	0.80	0.60	0.41	0.28	0.06	0.00	0.00	0.00
18	0.00	0.86	0.70	1.11	1.38	0.93	0.80	0.60	0.41	0.28	0.06	0.00	0.00	0.00
19	0.00	0.86	0.70	1.11	1.38	0.93	0.80	0.60	0.41	0.28	0.06	0.00	0.00	0.00
20	0.00	0.86	0.70	1.11	1.38	0.93	0.80	0.60	0.41	0.28	0.06	0.00	0.00	0.00
21	0.00	0.86	0.70	1.11	1.38	0.93	0.80	0.60	0.41	0.28	0.06	0.00	0.00	0.00
22	0.00	0.86	0.70	1.11	1.38	0.93	0.80	0.60	0.41	0.28	0.06	0.00	0.00	0.00
23	0.00	0.86	0.70	1.11	1.38	0.93	0.80	0.60	0.41	0.28	0.06	0.00	0.00	0.00
24	0.00	0.86	0.70	1.11	1.38	0.93	0.80	0.60	0.41	0.28	0.06	0.00	0.00	0.00
25	0.00	0.86	0.70	1.11	1.38	0.93	0.80	0.60	0.41	0.28	0.06	0.00	0.00	0.00
26	0.00	0.86	0.70	1.11	1.38	0.93	0.80	0.60	0.41	0.28	0.06	0.00	0.00	0.00
27	0.00	0.86	0.70	1.11	1.38	0.93	0.80	0.60	0.41	0.28	0.06	0.00	0.00	0.00
28	0.00	0.86	0.70	1.11	1.38	0.93	0.80	0.60	0.41	0.28	0.06	0.00	0.00	0.00
29	0.00	0.86	0.70	1.11	1.38	0.93	0.80	0.60	0.41	0.28	0.06	0.00	0.00	0.00
30	0.00	0.86	0.70	1.11	-	0.93	0.80	0.60	0.41	0.28	0.06	0.00	0.00	0.00
31	0.00	-	0.70	1.11	-	0.93	0.80	0.60	-	0.28	0.06	-	0.00	-
MEAN	0.00	0.86	0.70	1.11	1.38	0.93	0.80	0.60	0.41	0.28	0.06	0.00	0.00	0.00
MAX. DAY	0.00	0.86	0.70	1.11	1.38	0.93	0.80	0.60	0.41	0.28	0.06	0.00	0.00	0.00
MIN. DAY	0.00	0.86	0.70	1.11	1.38	0.93	0.80	0.60	0.41	0.28	0.06	0.00	0.00	0.00
cfs days	0.00	25.82	21.57	34.52	40.03	28.74	24.93	18.59	12.31	8.60	1.81	0.00	0.00	0.00
ac-ft	0.00	51.21	42.79	68.47	79.40	57.01	49.46	36.88	24.41	17.05	3.59	0.00	0.00	0.00
gallons	0	16,685,000	13,942,000	22,309,000	25,869,000	18,575,000	15,594,000	12,015,000	7,953,000	5,555,000	1,169,200	0	0	0

Monitor's Comments

- Daily diversion estimated based on reported monthly production for "Foreman Creek" totals, as provided by SLVWD.
- Monthly production divided by days per month to estimate daily diversion rates. Additional precision provided for reference and may not represent actual flow on day as reported above.
- Daily values with more than 2 to 3 significant figures result from electronic calculations. No additional precision is implied.

2022 Annual and Dry Season Totals		
Annual totals calculated from 10/1/21 to 9/30/22		
Dry season totals calculated from 6/1/22 to 11/30/22		
ANNUAL	SEASONAL	units
Mean annual flow	Mean seasonal flow	0.12 (cfs)
Max. daily flow	Max. seasonal flow	0.41 (cfs)
Min. daily flow	Min. seasonal flow	0.00 (cfs)
Total	Seasonal total	22.71 (cfs-days)
Total Volume	Seasonal total volume	45.05 (ac-ft)
Total Volume	Seasonal total volume	14,677,200 (gallons)

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Stream and Station

Dry Season: 2022
Stream: Boulder Creek
Station: Boulder Creek, approximately 1200 ft upstream of the San Lorenzo River
County: Santa Cruz County, CA

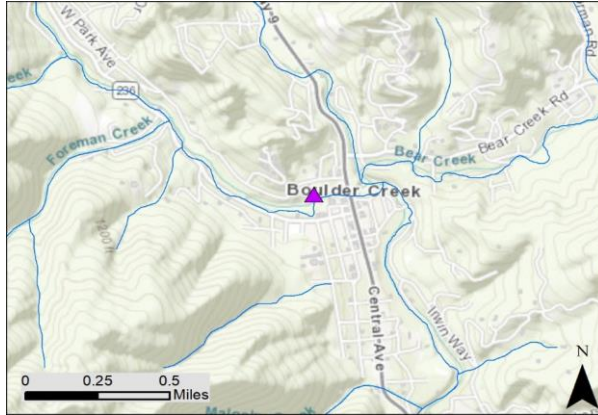
Station Location and Watershed

Latitude: 37° 7'34.75"N, Longitude: 122° 7'29.45"W, Santa Cruz County, CA. Gage is located approx. 400 feet upstream from Highway 9 in downtown Boulder Creek where former USGS gage was located. Land use is primarily rural residential with portions of public lands managed by local and state agencies, including SLVWD. Surface watershed area is approximately 11.3 square miles. Probably draws from a larger groundwatershed beneath Ben Lomand Mountain.

Period of Record

Gage was installed on April 15, 2014. Gaging sponsored by the San Lorenzo Valley Water District (SLVWD). Gage was converted to a seasonal gage in November 2018.

Form 3A-22
Annual Hydrologic Record: Boulder Creek
Estimated daily flow upstream of Highway 9
Dry Season 2022



Dry Season 2022 Daily Mean Flow (cubic feet per second)

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV ⁶
1									3.89	2.36	2.06	1.81	1.82	2.56
2									3.77	2.59	2.05	1.78	1.84	2.20
3									3.72	2.54	2.04	1.82	1.89	1.95
4									3.55	2.44	1.98	1.77	1.88	1.86
5									3.77	2.37	1.97	1.75	1.84	1.91
6									4.05	2.44	2.04	1.69	1.75	1.97
7									3.63	2.44	2.06	1.71	1.69	2.56
8									3.56	2.38	2.21	1.69	1.66	
9									3.55	2.31	2.13	1.64	1.69	
10									3.41	2.12	2.26	1.69	1.71	
11									3.40	2.08	2.22	1.83	1.62	
12									3.35	2.12	2.17	1.79	1.68	
13									3.28	2.19	2.00	1.79	1.78	
14									3.34	2.28	1.90	1.80	1.73	
15									3.34	2.20	1.88	1.87	1.79	
16									3.31	2.15	1.85	1.83	1.82	
17									2.99	2.11	1.84	1.86	1.86	
18									3.10	2.10	1.82	6.38	1.89	
19									2.98	2.18	1.86	4.64	1.88	
20									2.98	2.11	1.82	2.32	1.74	
21									2.88	2.21	1.80	2.17	1.70	
22									2.65	2.21	1.98	2.12	1.83	
23									2.67	2.12	1.87	2.07	1.79	
24									2.67	2.07	1.85	1.90	1.71	
25									2.59	2.05	1.88	1.87	1.75	
26									2.48	2.11	1.86	1.86	1.76	
27									2.52	2.08	1.85	1.97	1.76	
28									2.52	2.11	1.89	2.00	1.72	
29									2.35	2.22	1.87	1.88	1.74	
30									2.36	2.03	1.86	1.82	1.74	
31									-	2.06	1.84	-	1.71	-
MEAN									3.16	2.22	1.96	2.10	1.77	2.14
MAX. DAY									4.1	2.6	2.3	6.4	1.9	2.56
MIN. DAY									2.35	2.03	1.80	1.64	1.62	1.86
cfs days									95	69	61	63	55	15
ac-ft									188	136	120	125	109	30
gallons									61,200,000	44,400,000	39,200,000	40,800,000	35,400,000	9,700,000

Daily mean flow is only reported seasonally from June 1, 2022 to November 7, 2022.

Monitors' Comments

- Daily values with more than 2 to 3 significant figures result from electronic calculations. No additional precision is implied.
- Mean daily values are cumulated from 96 15-minute measurements of stage; several stage shifts have been applied to account for changes in bed conditions over the course of the monitoring program.
- Flow measurements are imprecise due to boulders in the cross section.
- Diversion activities upstream may influence the gaged flow.
- Gage was destroyed over the winter of water year 2019. Gage was reinstalled on July 11, 2019.
- The first significant rain of water year 2022 occurred on 11/7/22. Flow not reported past this date. Totals calculated for November are partial, as they do not include the last 23 days of the month.

Dry Season 2022 Totals		
<i>Seasonal totals calculated from 6/1/22 to 11/7/22</i>		
Mean seasonal flow	2.23	(cfs)
Max. seasonal flow	6.38	(cfs)
Min. seasonal flow	1.62	(cfs)
Seasonal total	357	(cfs-days)
Seasonal total volume	708	(ac-ft)
Seasonal total volume	230,700,000	(gallons)

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APPENDIX B

Station Observer Logs 2021 and 2022

Data preliminary, subject to revision

**Table B1. Station observer log; Foreman Creek at HWY 236
San Lorenzo Valley Water District, Dry Season 2021**

Site Conditions				Water Quality Observations				High-Water Marks		Remarks			
Date/Time (mm/dd/yr)	Observer(s)	Stage (staff plate) (feet)	Hydrograph (R/F/S/B)	Measured Discharge downstream of diversion (cfs)	Estimated Discharge (cfs)	Instrument Used (AA/PY)	Estimated Accuracy (e/g/f/p)	Water Temperature (oC)	Specific Conductance at field temp. (µmhos/cm)	Specific Conductance at 25C (at 25 oC)	Estimated stage at staff plate (feet)	Inferred dates? (mm/dd/yr)	Remarks
5/12/21 11:45	jp	11.97	B	0.10	-	PY	f	15	150	196	12.6	-	Bed has aggraded about 0.3 ft with sand and gravel, however gaged pool is okay. Cleaned and reinstalled stilling well and sensors. Cleared debris and gravel from outlet of gaged reach. Sensor is in approximately 0.4 ft of water.
6/30/21 11:41	jh	11.98	B	0.10	0.1	PY	f	15.8	162.9	197.9	-	-	Water clear; fine sediment has settled around stilling well; some flow bypassing gage pool at right bank (approximately 5 gpm). Measurement includes all flow in channel.
8/6/21 11:20	jp	12.04	B	0.22	-	PY	f	15.6	165	201	-	-	Visual estimate of flow 0.2 to 0.3 cfs, measured flow twice due to slight turbulence in the cross section. There was no debris in the gaged pool outlet. Recent debris on the staff plate at 12.05 ft.
9/8/21 10:06	jp	12.015	B	0.18	-	PY	f	15.9	166	201	12.09	recent	Staining on staff plate up to 12.09 ft, about 17 gpm was being routed around the gage due to slight erosion around the bank. Reinforced the bank to make sure the flow was going to the gage. Measurement includes all flow in channel.
10/14/21 13:20	jp	12.01	B	0.15	-	PY	f	13.5	149	192	-	-	Reconfigured channel at the gage - about half the flow was going around the gage. Measurement includes all flow in channel.
11/11/21 10:45	jp	12.12	B	0.40	-	PY	f	12.7	147	193	12.7	recent	Water is flowing approximately 3 to 5 gpm around gage, west flow is accounted for. Channel has scoured some with higher flow. At 9:55, cleared leaf blockage under sensor, a pulse of sand went through the gage reach. Stilling well is partially full of sand, removed and cleaned stilling well.
12/2/21 12:59	cn	12.04	B	...	0.18	VIS	p	-	-	-	1 ft above water surface	recent	Water is clear; fresh sand deposition observed downstream of gage on right bank. See sand deposited upstream around boulder but has been partially washed away, high-water mark is debris caught on boulders. Removed loggers and replaced with new sensor.

Notes:

Observer Key: cn = Chelsea Neill; dt = Denise Tu; jp = Jason Parke; eg = Emma Goodwin; jh= John Hardy

Stage: Water level observed at outside staff plate

Hydrograph: Describes stream stage as rising (R), at peak (P), falling (F), steady (S), baseflow (B), diversion (D), not spilling (NS) or uncertain (U).

Instrument: If measured, typically made using a standard (AA) or Pygmy (PY) bucket-wheel ("Price-type") current meter or 5 gallon bucket (bkt), plastic bag (bag), If estimated, from rating curve (R) or visual (V).

Estimated measurement accuracy: Excellent (E) = +/- 2%; Good (G) = +/- 5%; Fair (F) = +/- 9%; Poor (P) estimated percent accuracy given

High-water mark (HWM): Measured or estimated at location of the staff plate

Specific conductance: Measured in micromhos/cm in field; then adjusted to 25degC by equation $(1.8813774452 - [0.050433063928 * \text{field temp}] + [0.00058561144042 * \text{field temp}^2]) * \text{Field specific conductance}$

Data preliminary, subject to revision

**Table B2. Station observer log; Foreman Creek at HWY 236
San Lorenzo Valley Water District, Dry Season 2022**

Site Conditions				Water Quality Observations					High-Water Marks		Remarks		
Date/Time (mm/dd/yr)	Observer(s)	Stage (staff plate) (feet)	Hydrograph (R/F/S/B)	Measured Flow downstream of diversion (cfs)	Estimated Flow (cfs)	Instrument Used (AA/PY)	Estimated Accuracy (e/g/t/p)	Water Temperature (oC)	Specific Conductance at field temp. (µmhos/cm)	Specific Conductance at 25C (at 25 oC)	Estimated stage at staff plate (feet)	Inferred dates? (mm/dd/yr)	Remarks
6/1/22 14:40	jp	0.39 (depth in culvert, temp staff plate)	B	0.25	-	PY	f	16.7	152	181	see notes	-	High-water mark from recent debris flow is about 2 ft above the top of the culvert under HWY236, approx 12 ft above bed. Mud coats the culvert roof from pressurized aperture flow. Channel is more incised and wider. Previous raing curve is no longer valid, old staff is burried by boulders.
6/8/22 13:28	jp	6.14 (0.39 depth in culvert)	B	0.27	-	PY	f	16.7	149	178	-	-	Reinstalled gage across from previous gage just downstream of concrete block. Had to excavate about 1 ft of sand and gravel to install the gage. Attached gage to bolt sticking out of concrete. Zero flow at approximatly stage of 5.79
7/12/22 14:50	cn	6.13	B	0.18	-	PY	g	17.8	157	182	-	-	Water is clear, no recent higher flow.
8/11/22 12:21	jp	6.19	B	0.37	-	PY	g	16.6	144	172	-	-	Staining on staff plate below current stage at 6.12 - diversion might be off. Returned after measuring flow at Boulder Cr for an additional set of stage measurements and download. Stage fluctuated from 6.187 - 6.190.
9/14/22 11:10	cn	6.19	B	0.27	0.27	PY	g	15.5	140.6	171.8	-	-	Water clear, smells like burning rubber, cross section had laminar flow.
10/12/22 11:37	jp	6.22	B	0.28	-	PY	g	14.5	146.5	183	6.26	-	Higher flow than expected. Staining on staff plate at 6.235, slight possible high-water mark at 6.26
11/9/22 11:45	jp, sf	6.27	F	0.69	-	PY	g	11.3	130	176	6.27	-	Localized deposition in the gaged pool and localized scour at the gage. Measured flow in culvert, all other possible cross sections are turbulent.

Notes:
Observer Key: cn = Chelsea Neill; dt = Denise Tu; jp = Jason Parke; eg = Emma Goodwin; jh= John Hardy
Stage: Water level observed at outside staff plate
Hydrograph: Describes stream stage as rising (R), at peak (P), falling (F), steady (S), baseflow (B), diversion (D), not spilling (NS) or uncertain (U).
Instrument: If measured, typically made using a standard (AA) or Pygmy (PY) bucket-wheel ("Price-type") current meter or 5 gallon bucket (bkt), plastic bag (bag), If estimated, from rating curve (R) or visual (V).
Estimated measurement accuracy: Excellent (E) = +/- 2%; Good (G) = +/- 5%; Fair (F) = +/- 9%; Poor (P) estimated percent accuracy given
High-water mark (HWM): Measured or estimated at location of the staff plate
Specific conductance: Measured in micromhos/cm in field; then adjusted to 25degC by equation $(1.8813774452 - [0.050433063928 * \text{field temp}] + [0.00058561144042 * \text{field temp}^2]) * \text{Field specific conductance}$

Data preliminary, subject to revision

**Table B3. Station observer log; Boulder Creek upstream of HWY 9
San Lorenzo Valley Water District, Dry Season 2022**

Site Conditions				Water Quality Observations				High-Water Marks		Remarks			
Date/Time (mm/dd/yr)	Observer(s)	Stage (staff plate) (feet)	Hydrograph (R/F/S/B)	Measured Flow (cfs)	Estimated Flow (cfs)	Instrument Used (AA/PY)	Estimated Accuracy (e/g/f/p)	Water Temperature (oC)	Specific Conductance at field temp. (umhos/cm)	Specific Conductance at 25C (at 25 oC)	Estimated stage at staff plate (feet)	Inferred dates? (mm/dd/yr)	Remarks
6/1/22 12:43	jp	0.795-0.7	B	3.63	-	PY	f/g	15.4	199	244	4.0	-	Reinstalled gage at same location as previous gage - rating curve will still be valid. Staining on staff plate at 1.38 to 1.41. Downstream reach near HWY9 has aggraded with sand, there is localized scour at the gage. Riffle just downstream of the gage looks about the same as previous years.
7/12/22 14:02	cn	0.70	B	2.15	-	PY	g	18.3	112	127	-	-	Water is clear, cross section had laminar velocity through cross section.
8/11/22 12:40	jp	0.675-0.680	B	2.32	-	PY	g	19.4	194	235	-	-	Recent hip chain thread in the creek. No high-water mark, cobbles influenced verticals in measurements. No leaves in the riffle downstream influencing the gage. Returned after visiting Foreman Cr to take another set of stage observations and download.
9/14/22 10:01	cn	0.63	B	1.71	1.60	PY	f	15.3	114	140	-	-	Water is clear, water level was slightly obscured by hose clamp during first stage reading. Stage rose during measurement. Stage was 0.68-0.69 at 10:42 am.
10/12/22 12:43	jp	0.63	B	1.81	-	PY	f	14.5	183	229	0.65	-	Stage dropped slightly during visit to 0.615 at 1:43 pm.
11/9/22 12:45	jp, sf	0.82	B	3.77	-	PY	g/f	9.9	161	227	1.01	11/9/2022	Cobbles and boulders present in cross section. Water has moderate to light turbidity with slight tanin color.

Notes:

Observer Key: cn = Chelsea Neill; dt = Denise Tu; jp = Jason Parke; eg = Emma Goodwin; jh= John Hardy; sf= Sarah Faraola

Stage: Water level observed at outside staff plate

Hydrograph: Describes stream stage as rising (R), at peak (P), falling (F), steady (S), baseflow (B), diversion (D), not spilling (NS) or uncertain (U).

Instrument: If measured, typically made using a standard (AA) or Pygmy (PY) bucket-wheel ("Price-type") current meter or 5 gallon bucket (bkt), plastic bag (bag), If estimated, from rating curve (R) or visual (V).

Estimated measurement accuracy: Excellent (E) = +/- 2%; Good (G) = +/- 5%; Fair (F) = +/- 9%; Poor (P) estimated percent accuracy given

High-water mark (HWM): Measured or estimated at location of the staff plate

Specific conductance: Measured in micromhos/cm in field; then adjusted to 25degC by equation $(1.8813774452 - [0.050433063928 * \text{field temp}] + [0.00058561144042 * \text{field temp}^2]) * \text{Field specific conductance}$

**Table B4. Station observer log; Fall Creek just upstream of the SLVWD diversion- OPERATIONAL GAGE
San Lorenzo Valley Water District, Water Year 2021**

Site Conditions			Streamflow				Water Quality Observations			High-Water Marks		Remarks		
Date/Time (mm/dd/yr)	Observer(s)	Stage (v-notch new) (feet) (R/F/S/B)	Hydrograph	Reported diversion at the Felton plant during measurement (cfs)	Measured Flow upstream of v-notch (cfs)	Estimated flow based on diversion and measured flow (cfs)	Instrument Used (AA/PY)	Estimated Accuracy (e/g/l/p)	Water Temperature (oC)	Specific Conductance at field temp. (µmhos/cm)	Specific Conductance at 25C (at 25 oC)	Estimated stage at staff plate (feet)	Inferred dates? (mm/dd/yr)	Remarks
10/22/20 13:42	jp	1.91	B	-	-	-	-	-	-	-	-	2.0 to 2.04	recent	Observed low level recent high-water marks of debris on the staff plate.
12/3/20 13:02	jp	1.89	B	-	1.37	-	PY	f	-	-	-	-	-	Bridge over v-notch was removed, gage at v-notch looks good, cleared debris from upstream gage after measurement, stage dropped to 4.72
1/25/21 14:45	jp	1.94	-	-	-	-	-	-	-	-	-	-	-	Removed pressure transducers prior to large storm. Foot bridge over weir has been removed making removal of the weir prior to the storm unlikely.
2/3/21 15:00	jp	2.36	-	-	-	-	-	-	9.6	169	240	5.6 upstream gage	-	Reinsert pressure transducers. No debris in the riffle downstream of the upstream gage. Weir is in place and leaking 1-2 gpm from about 14 different places and about 30 gpm from a single spot.
6/21/21 11:33	jp	1.86	B	0.67	1.47	0.80	PY	g/e	13.6	191	245	2.1 v-notch 5.05 upstream gage	-	Observed v-notch leaking around sides approximately 23 gpm however not leaking underneath. No debris downstream of upstream gaged reach. Note Felton Treatment Plant was diverting 290 gpm at 11am-12pm.
8/27/21 13:36	jp	1.75	B	0.61	1.02	0.41	PY	g/e	15.4	200	245	5.37 upstream gage	-	V-notch leakage appears to be minimal 5-7 gpm. Head on the v-notch is 0.4 ft. Unable to access downstream, very laminar cross section for flow measurement about 40 ft upstream of v-notch. SLVWD is diverting 275 gpm during flow measurement.

Notes:

Observer Key: jp = Jason Parke; cn= Chelsea Neill; dt = Denise Tu; jh= John Hardy

Stage: Water level observed at outside staff plate

Hydrograph: Describes stream stage as rising (R), at peak (P), falling (F), steady (S), baseflow (B), diversion (D), not spilling (NS) or uncertain (U).

Instrument: If measured, typically made using a standard (AA) or Pygmy (PY) bucket-wheel ("Price-type") current meter or 5 gallon bucket (bkt), plastic bag (bag). If estimated, from rating curve (R) or visual (V).

Estimated measurement accuracy: Excellent (E) = +/- 2%; Good (G) = +/- 5%; Fair (F) = +/- 9%; Poor (P) estimated percent accuracy given

High-water mark (HWM): Measured or estimated at location of the staff plate

Specific conductance: Measured in micromhos/cm in field; then adjusted to 25degC by equation $(1.8813774452 - [0.050433063928 * \text{field temp}] + [0.00058561144042 * \text{field temp}^2]) * \text{Field specific conductance}$

Flow is measured upstream of diversion and weir. Measured flow includes all flow in the channel upstream of the diversion.

Data preliminary, subject to revision

**Table B5. Station observer log; Fall Creek just upstream of the SLVWD diversion- OPERATIONAL GAGE
San Lorenzo Valley Water District, Water Year 2022**

Date/Time <i>(mm/dd/yr)</i>	Site Conditions				Streamflow			Water Quality Observations				High-Water Marks		Remarks
	Observer(s)	Stage (V-notch new) <i>(feet)</i>	Hydrograph <i>(R/F/S/B)</i>	Reported diversion at the Felton plant during measurement <i>(cfs)</i>	Measured Flow upstream of v-notch <i>(cfs)</i>	Estimated flow based on diversion and measured flow <i>(cfs)</i>	Instrument Used <i>(AA/PY)</i>	Estimated Accuracy <i>(e/g/f/p)</i>	Water Temperature <i>(oC)</i>	Specific Conductance at field temp. <i>(µmhos/cm)</i>	Specific Conductance at 25C <i>(at 25 oC)</i>	Estimated stage at staff plate <i>(feet)</i>	Inferred dates? <i>(mm/dd/yr)</i>	
11/17/21 12:45	jp	2.04	B	-	-	-	-	-	-	-	-	-	-	V-notch is bowed and leaning downstream, leakage was visible on the downstream side of the weir. Downloaded barometric sensors.
1/27/22 14:30	jp	2.71	B	0	8.96	8.96	PY	g	10.8	180	246	4.69	1/29/22	There is about 20-40 gpm of leakage on the downstream side of the weir through the flash boards. Coordinated with SLVWD to turn off the diversion during flow measurement. Water is about 0.07 ft from the larger concrete 120 deg v-notch (rectangle above the removable weir). Removable weir has bowed downstream about 0.15 ft. Diversion turned back on at 15:36 - reported diversion rate is 9.1 gpm. (Note: Seems like a larger dip in stage than 9 gpm would cause). Stage height lowered to 2.69 feet at 15:36.
5/6/22 11:43	jp	2.18	B	0.89	4.17	3.28	PY	g	13.5	161	205	~1 ft above water surface	-	Minimal leakage visible around or under the weir. Diversion was constant during the flow measurement. Flow cross section was good/laminar.
8/11/22 14:24	jp	1.972	B	0.56	2.07	1.51	PY	g	16.9	222	263	none	-	Staining on staff plate above stage at 2.01 ft. Good laminar flow cross section about 400 ft upstream of diversion. Weir is leaking at 10-15 gpm or more - there is no plastic or barrier at the weir flash boards. Stage slightly higher at 1.984 upon arrival at 13:56.
10/24/22 12:51	jp	2.79	B	0.48	1.54	1.06	PY	g	11.5	198	266	0.1 ft above water surface	-	Diversion rate during measurement was 214 gpm from 12:14 to 12:55. On 10-20-22 stage rose in the on-line record from 1.92 to 2.83. Based on high-water marks at the gage and upstream about 300 ft there was elevated flow and not an adjustment of the sensors or leakage rate of the weir. Weir is leaking 30+ gpm on the downstream side through the flashboards.

Notes:

Observer Key: jp = Jason Parke; cn= Chelsea Neill; dt = Denise Tu; jh= John Hardy

Stage: Water level observed at outside staff plate

Hydrograph: Describes stream stage as rising (R), at peak (P), falling (F), steady (S), baseflow (B), diversion (D), not spilling (NS) or uncertain (U).

Instrument: If measured, typically made using a standard (AA) or Pygmy (PY) bucket-wheel ("Price-type") current meter or 5 gallon bucket (bkt), plastic bag (bag), If estimated, from rating curve (R) or visual (V).

Estimated measurement accuracy: Excellent (E) = +/- 2%; Good (G) = +/- 5%; Fair (F) = +/- 9%; Poor (P) estimated percent accuracy given

High-water mark (HWM): Measured or estimated at location of the staff plate

Specific conductance: Measured in micromhos/cm in field; then adjusted to 25degC by equation $(1.8813774452 - [0.050433063928 * \text{field temp}] + [0.00058561144042 * \text{field temp}^2]) * \text{Field specific conductance}$

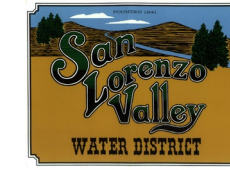
Flow is measured upstream of diversion and weir. Measured flow includes all flow in the channel upstream of the diversion.

APPENDIX C

SLVWD Production Reports, Calendar Years 2020, 2021 and 2022



Water Production in Gallons 2020



Source	January	February	March	April	May	June	July	August	September	October	November	December	Totals
Rainfall Operations 13057 Hwy9													0.00
Operations Rainfall Running Total by Water Year Oct-Sept	2.15	0.02	2.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.69	2.65	4.34
WTP Effluent Total	28,198,000	22,356,000	16,480,000	16,794,000	22,576,500	16,281,000	13,973,000	6,713,000	-	-	-	847,400	144,218,900
WTP Back-Wash Total	404,000	280,000	192,000	267,000	220,000	118,000	92,000	65,000	0	0	0	0	1,638,000
WTP Total Production to System	27,794,000	22,076,000	16,288,000	16,527,000	22,356,500	16,163,000	13,881,000	6,648,000	0	0	0	847,400	142,580,900
Surface Water Sources													
Foreman Creek	15,433,738	11,229,884	6,622,451	4,558,248	10,123,990	7,107,579	5,476,450	0	0	0	0	847,400	61,399,740
Peavine Creek + Hydro	540,689	1,625,535	1,423,351	1,601,237	3,129,910	2,262,820	1,082,426	0	0	0	0	0	11,665,968
Clear Creek	7,091,744	5,532,349	4,945,319	6,220,509	5,461,560	4,075,561	4,393,274	0	0	0	0	0	37,720,315
Sweetwater Creek	4,727,829	3,688,232	3,296,879	4,147,006	3,641,040	2,717,040	2,928,850	0	0	0	0	0	25,146,877
Sub-Total (Streams)	27,794,000	22,076,000	16,288,000	16,527,000	22,356,500	16,163,000	13,881,000	0	0	0	0	847,400	135,932,900
Wells (North)													
Olympia No. 2	162,000	1,413,000	392,000	1,765,000	4,249,000	8,122,000	7,670,000	0	26,080,000	11,501,000	9,669,000	9,938,000	80,961,000
Olympia No. 3	0	149,000	0	0	9,000	4,127,000	4,894,000	0	17,334,000	8,944,000	10,189,000	6,268,000	51,914,000
Sub Total Olympia Wells	162,000	1,562,000	392,000	1,765,000	4,258,000	12,249,000	12,564,000	0	43,414,000	20,445,000	19,858,000	16,206,000	132,875,000
Quail Well No. 4-A	0	4,920,000	7,942,000	3,763,000	8,749,000	9,673,000	9,464,000	0	18,696,000	8,389,000	7,821,000	6,890,000	86,307,000
Quail Well No. 5-A	0	0	0	727,700	2,883,700	4,473,700	6,681,800	0	13,049,400	5,643,200	5,564,900	10,393,000	49,417,400
Sub Total Quail Wells	0	4,920,000	7,942,000	4,490,700	11,632,700	14,146,700	16,145,800	0	31,745,400	14,032,200	13,385,900	17,283,000	135,724,400
Sub-Total Wells (North)	162,000	6,482,000	8,334,000	6,255,700	15,890,700	26,395,700	28,709,800	0	75,159,400	34,477,200	33,243,900	33,489,000	268,599,400
Sub Total North System Total Production	27,956,000	28,558,000	24,622,000	22,782,700	38,247,200	42,558,700	42,590,800	0	75,159,400	34,477,200	33,243,900	34,336,400	404,532,300
South System Groundwater Wells													
Pasatiempo Wells													
Pasatiempo 5 A	2,785,500	4,061,500	4,082,400	8,268,700	5,359,400	7,528,200	5,721,000	0	12,801,800	6,838,600	6,845,400	3,594,900	67,887,400
Pasatiempo 7	724,000	1,059,000	1,061,000	1,077,000	1,398,000	1,946,000	1,511,000	0	2,971,000	0	548,000	1,728,000	14,023,000
Pasatiempo 8	1,611,000	2,549,220	2,728,970	2,871,800	3,519,210	4,714,870	3,770,540	0	8,226,250	3,796,630	2,867,290	2,701,420	39,357,200
Sub Total Pasatiempo Sources	5,120,500	7,669,720	7,872,370	12,217,500	10,276,610	14,189,070	11,002,540	0	23,999,050	10,635,230	10,260,690	8,024,320	121,267,600
North South Combined	33,076,500	36,227,720	32,494,370	35,000,200	48,523,810	56,747,770	53,593,340	0	99,158,450	45,112,430	43,504,590	42,360,720	525,799,900
Manana Woods WTP													
Well 1 - OFFLINE													0
Combined Pasatiempo & Manana Woods So	5,120,500	7,669,720	7,872,370	12,217,500	10,276,610	14,189,070	11,002,540	0	23,999,050	10,635,230	10,260,690	8,024,320	121,267,600
Total ALL Wells North/South/Manana	5,282,500	14,151,720	16,206,370	18,473,200	26,167,310	40,584,770	39,712,340	0	99,158,450	45,112,430	43,504,590	41,513,320	389,867,000
North/South/Manana Combined (All Sources)	33,076,500	36,227,720	32,494,370	35,000,200	48,523,810	56,747,770	53,593,340	0	99,158,450	45,112,430	43,504,590	42,360,720	525,799,900
FELTON SYSTEM													
Kirby Plant Effluent	7,388,000	7,420,000	7,835,000	8,003,000	9,548,000	10,687,000	10,965,000	0	25,602,000	12,172,000	5,595,000	9,532,000	114,747,000
Kirby Plant Filter Effluent	6,356,480	6,271,050	6,691,610	6,762,790	7,278,160	10,323,330	9,560,840	0	22,360,120	10,537,905	4,959,562	7,536,292	98,638,139
Kirby Combined Springs	3,454,375	3,083,714	3,327,781	3,191,631	2,988,057	2,861,935	2,834,152	0	2,075,138	1,926,984	2,428,698	2,983,657	31,156,122
Kirby Plant Influent	7,501,470	7,417,310	7,927,330	7,910,260	9,466,457	10,370,703	10,606,970	0	24,617,540	11,599,780	6,058,300	8,697,230	112,173,350
Kirby Return Clarif	249,590	265,560	359,130	319,170	350,390	483,970	494,970	0	1,165,940	443,590	201,530	512,700	4,846,540
Felton Total Production Plant Eff + 2" Ber	7,517,880	7,565,060	7,979,797	8,169,035	9,776,652	10,974,951	11,219,948	0	26,220,962	12,419,613	5,797,820	9,668,479	117,310,197
Fall Creek	4,023,419	4,258,068	4,410,669	4,600,517	6,540,339	7,518,921	7,757,662	0	23,136,575	9,973,045	3,699,813	5,761,080	81,680,108
Bennett Spring	2,748,900	2,436,236	2,546,192	2,285,888	1,699,456	1,546,116	1,556,588	0	904,332	1,610,444	1,620,916	1,884,212	20,839,280
Bull 1 & 2	1,216,996	1,142,196	1,277,584	1,383,800	1,797,444	1,795,948	1,874,488	0	2,555,916	612,612	1,314,984	1,616,428	16,588,396
2" Bennett	129,880	145,060	144,797	166,035	228,652	287,951	254,948	0	618,962	247,613	202,820	136,479	2,563,197
Felton Source Totals	8,119,195	7,981,560	8,379,242	8,436,240	10,265,891	11,148,936	11,443,686	0	27,215,785	12,443,714	6,838,533	9,398,199	121,670,981

121,670,981

3/1/2023

		2020											
North System		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Streams		27,794,000	22,076,000	16,288,000	16,527,000	22,356,500	16,163,000	13,881,000	0	0	0	0	847,400
North Wells		162,000	6,482,000	8,334,000	6,255,700	15,890,700	26,395,700	28,709,800	0	75,159,400	34,477,200	33,243,900	33,489,000
South Wells		5,120,500	7,669,720	7,872,370	12,217,500	10,276,610	14,189,070	11,002,540	0	23,999,050	10,635,230	10,260,690	8,024,320
Lompico													
North Total		33,076,500	36,227,720	32,494,370	35,000,200	48,523,810	56,747,770	53,593,340	0	99,158,450	45,112,430	43,504,590	42,360,720
Gallons													
Felton System													
Fall Creek		4,023,419	4,258,068	4,410,669	4,600,517	6,540,339	7,518,921	7,757,662	0	23,136,575	9,973,045	3,699,813	5,761,080
Springs Combin		3,454,375	3,083,714	3,327,781	3,191,631	2,988,057	2,861,935	2,834,152	0	2,075,138	1,926,984	2,428,698	2,983,657
2" Bennett		129,880	145,060	144,797	166,035	228,652	287,951	254,948	0	618,962	247,613	202,820	136,479
Felton Total		7,607,674	7,486,842	7,883,247	7,958,183	9,757,048	10,668,807	10,846,762	0	25,830,675	12,147,642	6,331,331	8,881,216
Manana Woods													
Well 1		0	0	0	0	0	0	0	0	0	0	0	0
Total		0	0	0	0	0	0	0	0	0	0	0	0
Total Monthly Production		40,684,174	43,714,562	40,377,617	42,958,383	58,280,858	67,416,577	64,440,102	0	124,989,125	57,260,072	49,835,921	51,241,936

1 Acre Foot is equal to exactly 43,560 cubic feet, or to 325,851 U.S. gallons

Acre Feet	Felton System												
325,851	Fall Creek	12.347	13.068	13.536	14.118	20.072	23.075	23.807	0.000	71.004	30.606	11.354	17.680
	Bennett Spring	8.436	7.477	7.814	7.015	5.215	4.745	4.777	0.000	2.775	4.942	4.974	5.782
	Bull 1 & 2	3.735	3.505	3.921	4.247	5.516	5.512	5.753	0.000	7.844	1.880	4.036	4.961
	2" Bennett	0.399	0.445	0.444	0.510	0.702	0.884	0.782	0.000	1.900	0.760	0.622	0.419
	Felton Total Acre Feet	24.917	24.495	25.715	25.890	31.505	34.215	35.119	0.000	83.522	38.188	20.987	28.842



**Water Production in Gallons
2021**



Source	January	February	March	April	May	June	July	August	September	October	November	December	Totals
Rainfall Operations 13057 Hwy9													0.00
Operations Rainfall Running Total by Water Year Oct-Sept	8.07	1.67	2.98	0.05	0.00	0.03	0.00	0.00	0.00	7.51	2.08	17.38	26.97
WTP Effluent Total	2,161,150	7,942,000	11,202,000	9,950,000	6,733,000	4,190,250	1,482,950	-	-	-	16,685,000	14,170,000	74,516,350
WTP Back-Wash Total	24,000	109,000	131,000	152,000	115,000	164,000	14,000	0	0	0	0	228,000	937,000
WTP Total Production to System	2,137,150	7,833,000	11,071,000	9,798,000	6,618,000	4,026,250	1,468,950	0	0	0	16,685,000	13,942,000	73,579,350
Surface Water Sources													
Foreman Creek	2,137,150	7,942,000	11,071,000	9,798,000	6,618,000	4,026,250	1,468,950	0	0	0	16,685,000	13,942,000	73,688,350
Peavine Creek + Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0
Clear Creek	0	0	0	0	0	0	0	0	0	0	0	0	0
Sweetwater Creek	0	0	0	0	0	0	0	0	0	0	0	0	0
Sub-Total (Streams)	2,137,150	7,942,000	11,071,000	9,798,000	6,618,000	4,026,250	1,468,950	0	0	0	16,685,000	13,942,000	73,688,350
Wells (North)													
Olympia No. 2	9,088,000	7,181,000	1,190,000	4,333,000	7,865,000	8,794,000	11,213,000	14,831,000	14,000,000	4,967,000	322,000	1,914,000	85,698,000
Olympia No. 3	4,371,000	3,045,000	2,103,000	2,896,000	5,193,000	5,695,000	7,188,000	8,180,000	7,933,000	6,129,000	0	0	52,733,000
Sub Total Olympia Wells	13,459,000	10,226,000	3,293,000	7,229,000	13,058,000	14,489,000	18,401,000	23,011,000	21,933,000	11,096,000	322,000	1,914,000	138,431,000
Quail Well No. 4-A	8,395,000	3,493,000	3,623,000	5,301,000	7,705,000	7,988,000	8,270,000	8,737,000	8,191,000	8,352,000	1,836,000	6,066,000	77,957,000
Quail Well No. 5-A	5,717,800	2,521,700	2,728,200	3,918,000	5,820,900	5,226,000	4,959,600	5,445,500	4,648,800	4,548,800	1,294,700	5,413,300	52,243,300
Sub Total Quail Wells	14,112,800	6,014,700	6,351,200	9,219,000	13,525,900	13,214,000	13,229,600	14,182,500	12,839,800	12,900,800	3,130,700	11,479,300	130,200,300
Sub-Total Wells (North)	27,571,800	16,240,700	9,644,200	16,448,000	26,583,900	27,703,000	31,630,600	37,193,500	34,772,800	23,996,800	3,452,700	13,393,300	268,631,300
Sub Total North System Total Production	29,708,950	24,182,700	20,715,200	26,246,000	33,201,900	31,729,250	33,099,550	37,193,500	34,772,800	23,996,800	20,137,700	27,335,300	342,319,650
South System Groundwater Wells													
Pasatiempo Wells													
Pasatiempo 5 A	4,016,300	3,098,300	3,372,000	7,592,300	5,495,100	4,315,400	133,500	5,160,800	5,824,900	7,612,400	2,955,100	3,208,900	52,785,000
Pasatiempo 7	1,072,000	1,208,000	1,261,000	1,564,000	1,986,000	1,797,000	2,947,000	2,142,000	2,030,000	1,820,000	804,000	1,710,000	20,341,000
Pasatiempo 8	2,719,630	2,422,390	2,609,430	3,285,910	4,288,420	3,755,290	6,147,690	5,013,200	4,881,300	5,606,860	2,285,900	2,482,790	45,498,810
Sub Total Pasatiempo Sources	7,807,930	6,728,690	7,242,430	12,442,210	11,769,520	9,867,690	9,228,190	12,316,000	12,736,200	15,039,260	6,045,000	7,401,690	118,624,810
North South Combined	37,516,880	30,911,390	27,957,630	38,688,210	44,971,420	41,596,940	42,327,740	49,509,500	47,509,000	39,036,060	26,182,700	34,736,990	460,944,460
Manana Woods WTP													
Well 1 - OFFLINE													0
Combined Pasatiempo & Manana Woods S	7,807,930	6,728,690	7,242,430	12,442,210	11,769,520	9,867,690	9,228,190	12,316,000	12,736,200	15,039,260	6,045,000	7,401,690	118,624,810
Total ALL Wells North/South/Manana	35,379,730	22,969,390	16,886,630	28,890,210	38,353,420	37,570,690	40,858,790	49,509,500	47,509,000	39,036,060	9,497,700	20,794,990	387,256,110
North/South/Manana Combined (All Source	37,516,880	30,911,390	27,957,630	38,688,210	44,971,420	41,596,940	42,327,740	49,509,500	47,509,000	39,036,060	26,182,700	34,736,990	460,944,460
FELTON SYSTEM													
Kirby Plant Effluent	5,772,000	12,379,000	14,732,000	14,928,000	16,765,000	15,376,000	15,875,000	13,599,000	8,855,000	8,579,000	13,691,000	8,765,000	149,316,000
Kirby Plant Filter Effluent	4,988,240	10,731,940	12,835,250	12,846,200	14,539,050	13,294,250	13,767,990	11,722,140	7,635,620	7,312,960	11,902,270	7,410,760	128,986,670
Kirby Combined Springs	2,351,059	3,176,710	3,795,408	2,615,635	3,267,155	2,843,596	2,843,708	2,601,828	2,743,614	2,850,316	3,448,773	3,460,410	35,998,212
Kirby Plant Influent	5,648,390	11,714,910	14,094,977	14,053,743	15,807,330	14,301,360	14,887,160	12,867,270	8,695,170	8,385,630	2,611,680	18,431,680	141,499,300
Kirby Return Clarif	288,760	483,770	543,160	549,100	596,650	626,680	683,160	615,720	309,050	288,570	599,220	513,640	6,097,480
Felton Total Production Plant Eff + 2" Be	5,915,345	12,489,351	14,868,110	15,102,132	17,011,850	15,642,764	16,116,404	13,913,206	9,086,857	8,756,211	13,814,789	8,868,583	151,585,602
Fall Creek	3,382,105	8,974,630	10,911,459	12,139,800	13,533,744	12,511,286	13,079,668	10,946,895	6,103,617	5,747,642	10,069,235	5,043,956	112,444,037
Bennett Spring	1,349,392	1,744,336	2,241,008	1,489,268	2,061,488	1,897,676	1,831,852	1,840,080	1,893,188	1,941,060	2,119,084	2,068,968	22,477,400
Bull 1 & 2	1,524,424	1,768,272	1,130,228	1,126,367	1,205,667	1,477,300	1,433,168	1,352,384	1,291,796	1,351,636	1,751,816	1,671,780	17,084,838
2" Bennett	143,345	110,351	136,110	174,132	246,850	266,764	241,404	314,206	231,857	177,211	123,789	103,583	2,269,602
Felton Source Totals	6,399,266	12,597,589	14,418,805	14,929,567	17,047,749	16,153,026	16,586,092	14,453,565	9,520,458	9,217,549	14,063,924	8,888,287	154,275,877

154,275,877
3/30/2023

		2021												
North System		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Gallons	Streams	2,137,150	7,942,000	11,071,000	9,798,000	6,618,000	4,026,250	1,468,950	0	0	0	16,685,000	13,942,000	
	North Wells	27,571,800	16,240,700	9,644,200	16,448,000	26,583,900	27,703,000	31,630,600	37,193,500	34,772,800	23,996,800	3,452,700	13,393,300	
	South Wells	7,807,930	6,728,690	7,242,430	12,442,210	11,769,520	9,867,690	9,228,190	12,316,000	12,736,200	15,039,260	6,045,000	7,401,690	
	Lompico													
	North Total	37,516,880	30,911,390	27,957,630	38,688,210	44,971,420	41,596,940	42,327,740	49,509,500	47,509,000	39,036,060	26,182,700	34,736,990	
	Felton System													
	Fall Creek	3,382,105	8,974,630	10,911,459	12,139,800	13,533,744	12,511,286	13,079,668	10,946,895	6,103,617	5,747,642	10,069,235	5,043,956	
	Springs Combin	2,351,059	3,176,710	3,795,408	2,615,635	3,267,155	2,843,596	2,843,708	2,601,828	2,743,614	2,850,316	3,448,773	3,460,410	
	2" Bennett	143,345	110,351	136,110	174,132	246,850	266,764	241,404	314,206	231,857	177,211	123,789	103,583	
	Felton Total	5,876,509	12,261,691	14,842,977	14,929,567	17,047,749	15,621,646	16,164,780	13,862,929	9,079,088	8,775,169	13,641,797	8,607,949	
	Manana Woods													
	Well 1	0	0	0	0	0	0	0	0	0	0	0	0	
	Total	0	0	0	0	0	0	0	0	0	0	0	0	
Total Monthly Production	43,393,389	43,173,081	42,800,607	53,617,777	62,019,169	57,218,586	58,492,520	63,372,429	56,588,088	47,811,229	39,824,497	43,344,939		

1 Acre Foot is equal to exactly 43,560 cubic feet, or to 325,851 U.S. gallons

Acre Feet	Felton System												
325,851	Fall Creek	10.379	27.542	33.486	37.256	41.534	38.396	40.140	33.595	18.731	17.639	30.901	15.479
	Bennett Spring	4.141	5.353	6.877	4.570	6.326	5.824	5.622	5.647	5.810	5.957	6.503	6.349
	Bull 1 & 2	4.678	5.427	3.469	3.457	3.700	4.534	4.398	4.150	3.964	4.148	5.376	5.131
	2" Bennett	0.440	0.339	0.418	0.534	0.758	0.819	0.741	0.964	0.712	0.544	0.380	0.318
	Felton Total Acre Feet	19.639	38.661	44.250	45.817	52.318	49.572	50.901	44.356	29.217	28.288	43.161	27.277
	Bene+2"Bennett	4.581	5.692	7.295	5.105	7.084	6.642	6.363	6.611	6.522	6.501	6.883	6.667
	Kirby	15.058	32.969	36.955	40.712	45.234	42.929	44.538	37.745	22.696	21.787	36.277	20.610



Water Production in Gallons
2022



Source	January	February	March	April	May	June	July	August	September	October	November	December	Totals
Rainfall Operations 13057 Hwy9													0.00
Operations Rainfall Running Total by Water Year Oct-Sept	0.81	0.11	2.11	3.04	0.00	0.03	0.00	0.00	1.54	0.06	2.88	19.71	22.65
WTP Effluent Total	22,672,000	26,210,000	18,849,000	15,728,000	12,151,000	8,038,000	5,615,000	1,194,200	-	-	-	11,677,000	122,134,200
WTP Back-Wash Total	363,000	341,000	274,000	134,000	136,000	85,000	60,000	25,000	0	0	0	169,000	1,587,000
WTP Total Production to System	22,309,000	25,869,000	18,575,000	15,594,000	12,015,000	7,953,000	5,555,000	1,169,200	0	0	0	11,508,000	120,547,200
Surface Water Sources													
Foreman Creek	22,309,000	25,869,000	18,575,000	15,594,000	12,015,000	7,953,000	5,555,000	1,169,200	0	0	0	11,508,000	120,547,200
Peavine Creek + Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0
Clear Creek	0	0	0	0	0	0	0	0	0	0	0	0	0
Sweetwater Creek	0	0	0	0	0	0	0	0	0	0	0	0	0
Sub-Total (Streams)	22,309,000	25,869,000	18,575,000	15,594,000	12,015,000	7,953,000	5,555,000	1,169,200	0	0	0	11,508,000	120,547,200
Wells (North)													
Olympia No. 2	0	0	1,516,000	49,000	299,000	3,759,000	6,449,000	11,072,000	12,385,000	8,507,000	7,682,000	3,146,000	54,864,000
Olympia No. 3	0	0	1,398,000	26,000	916,000	1,718,000	2,637,000	6,293,000	6,863,000	5,786,000	5,525,000	2,212,000	33,374,000
Sub Total Olympia Wells	0	0	2,914,000	75,000	1,215,000	5,477,000	9,086,000	17,365,000	19,248,000	14,293,000	13,207,000	5,358,000	88,238,000
Quail Well No. 4-A	434,000	178,000	463,000	1,727,000	5,581,000	7,893,000	8,956,000	9,365,000	9,095,000	8,651,000	8,843,000	5,258,000	66,444,000
Quail Well No. 5-A	332,600	133,900	354,600	1,305,300	3,836,500	5,381,900	5,149,200	4,193,400	3,923,700	3,748,200	3,824,000	6,130,800	38,314,100
Sub Total Quail Wells	766,600	311,900	817,600	3,032,300	9,417,500	13,274,900	14,105,200	13,558,400	13,018,700	12,399,200	12,667,000	11,388,800	104,758,100
Sub-Total Wells (North)	766,600	311,900	3,731,600	3,107,300	10,632,500	18,751,900	23,191,200	30,923,400	32,266,700	26,692,200	25,874,000	16,746,800	192,996,100
Sub Total North System Total Production	23,075,600	26,180,900	22,306,600	18,701,300	22,647,500	26,704,900	28,746,200	32,092,600	32,266,700	26,692,200	25,874,000	28,254,800	313,543,300
South System Groundwater Wells													
Pasatiempo Wells													
Pasatiempo 5 A	817,500	203,000	2,873,600	6,595,600	4,530,000	4,590,800	2,892,400	4,393,700	4,922,200	3,685,900	3,249,700	2,501,200	41,255,600
Pasatiempo 7	253,000	74,000	1,024,000	1,257,000	1,488,000	1,420,000	1,871,000	1,497,000	1,683,000	1,244,000	1,091,000	1,640,000	14,542,000
Pasatiempo 8	613,730	152,360	63,010	277,931	347,917	368,816	505,694	405,210	469,135	6,852,377	2,965,880	1,393,410	14,415,470
Sub Total Pasatiempo Sources	1,684,230	429,360	3,960,610	8,130,531	6,365,917	6,379,616	5,269,094	6,295,910	7,074,335	11,782,277	7,306,580	5,534,610	70,213,070
North South Combined	24,759,830	26,610,260	26,267,210	26,831,831	29,013,417	33,084,516	34,015,294	38,388,510	39,341,035	38,474,477	33,180,580	33,789,410	383,756,370
Manana Woods WTP Well 1 - OFFLINE													0
Combined Pasatiempo & Manana Woods Sources	1,684,230	429,360	3,960,610	8,130,531	6,365,917	6,379,616	5,269,094	6,295,910	7,074,335	11,782,277	7,306,580	5,534,610	70,213,070
Total ALL Wells North/South/Manana	2,450,830	741,260	7,692,210	11,237,831	16,998,417	25,131,516	28,460,294	37,219,310	39,341,035	38,474,477	33,180,580	22,281,410	263,209,170
North/South/Manana Combined (All Sources)	24,759,830	26,610,260	26,267,210	26,831,831	29,013,417	33,084,516	34,015,294	38,388,510	39,341,035	38,474,477	33,180,580	33,789,410	383,756,370
FELTON SYSTEM													
Kirby Plant Effluent	14,632,000	14,174,000	19,254,000	20,940,000	21,370,000	21,313,000	21,180,000	15,832,000	15,192,000	13,153,000	10,770,000	15,404,000	203,214,000
Kirby Plant Filter Effluent	12,741,100	12,221,660	16,697,830	18,182,197	18,642,283	18,585,500	18,457,080	13,664,730	13,096,990	11,398,240	9,305,644	13,362,196	176,355,450
Kirby Combined Springs	2,023,080	1,589,574	2,039,241	3,242,173	3,440,468	2,787,095	3,016,620	3,824,170	3,186,669	2,929,320	3,353,959	3,288,287	34,720,656
Kirby Plant Influent	13,495,920	13,236,640	18,002,040	19,270,800	19,844,754	19,843,156	19,389,410	15,186,530	14,707,090	12,920,580	10,719,220	9,358,390	185,974,530
Kirby Return Clarif	565,220	528,660	721,560	789,680	576,820	709,020	752,080	724,440	679,530	551,250	510,040	862,660	7,970,960
Felton Total Production Plant Eff + 2" Be	14,767,642	14,305,949	19,416,955	21,107,369	21,595,501	21,559,560	21,502,664	16,083,286	15,404,648	13,300,836	10,890,542	15,521,109	205,456,061
Fall Creek	12,320,613	12,299,800	16,664,650	16,820,333	17,216,063	17,712,845	17,344,510	11,326,143	11,377,555	9,889,840	7,206,289	11,515,949	161,694,590
Bennett Spring	1,300,024	969,408	1,280,576	1,961,256	2,602,176	2,154,988	2,329,272	2,856,612	2,132,651	2,193,506	2,476,181	2,571,844	24,828,494
Bull 1 & 2	1,226,720	973,896	1,109,284	1,280,917	1,000,292	632,107	687,348	967,558	1,054,018	1,380,673	1,305,954	1,273,472	12,892,239
2" Bennett	135,642	131,949	162,955	167,369	225,501	246,560	322,664	251,286	212,648	147,836	120,542	117,109	2,242,061
Felton Source Totals	14,982,999	14,375,053	19,217,465	20,229,875	21,044,032	20,746,500	20,683,794	15,401,599	14,776,872	13,611,855	11,108,966	15,478,374	201,657,384

201,657,384

3/1/2023

		2022											
		Lyon Plant Off Line due to Low Flows											
North System	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Streams	22,309,000	25,869,000	18,575,000	15,594,000	12,015,000	7,953,000	5,555,000	1,169,200	0	0	0	11,508,000	
North Wells	766,600	311,900	3,731,600	3,107,300	10,632,500	18,751,900	23,191,200	30,923,400	32,266,700	26,692,200	25,874,000	16,746,800	
South Wells	1,684,230	429,360	3,960,610	8,130,531	6,365,917	6,379,616	5,269,094	6,295,910	7,074,335	11,782,277	7,306,580	5,534,610	
Lompico													
North Total	24,759,830	26,610,260	26,267,210	26,831,831	29,013,417	33,084,516	34,015,294	38,388,510	39,341,035	38,474,477	33,180,580	33,789,410	
Gallons													
Felton System													
Fall Creek	12,320,613	12,299,800	16,664,650	16,820,333	17,216,063	17,712,845	17,344,510	11,326,143	11,377,555	9,889,840	7,206,289	11,515,949	
Springs Combin	2,023,080	1,589,574	2,039,241	3,242,173	3,440,468	2,787,095	3,016,620	3,824,170	3,186,669	2,929,320	3,353,959	3,288,287	
2" Bennett	135,642	131,949	162,955	167,369	225,501	246,560	322,664	251,286	212,648	147,836	120,542	117,109	
Felton Total	14,479,335	14,021,323	18,866,846	20,229,875	20,882,032	20,746,500	20,683,794	15,401,599	14,776,872	12,966,996	10,680,790	14,921,345	
Manana Woods													
Well 1	0	0	0	0	0	0	0	0	0	0	0	0	
Total	0	0	0	0	0	0	0	0	0	0	0	0	
Total Monthly Production	39,239,165	40,631,583	45,134,056	47,061,706	49,895,449	53,831,016	54,699,088	53,790,109	54,117,907	51,441,473	43,861,370	48,710,755	

1 Acre Foot is equal to exactly 43,560 cubic feet, or to 325,851 U.S. gallons

Acre Feet	Felton System												
325,851	Fall Creek	37.811	37.747	51.142	51.620	52.834	54.359	53.228	34.759	34.916	30.351	22.115	35.341
	Bennett Spring	3.990	2.975	3.930	6.019	7.986	6.613	7.148	8.767	6.545	6.732	7.599	7.893
	Bull 1 & 2	3.765	2.989	3.404	3.931	3.070	1.940	2.109	2.969	3.235	4.237	4.008	3.908
	2" Bennett	0.416	0.405	0.500	0.514	0.692	0.757	0.990	0.771	0.653	0.454	0.370	0.359
	Felton Total Acre Feet	45.981	44.115	58.976	62.083	64.582	63.669	63.476	47.266	45.349	41.773	34.092	47.501

MEMO

DATE: August 3, 2023

TO: Board of Directors, San Lorenzo Valley Water District

FROM: Rick Rogers, District Manager

SUBJECT: Conceptual Approval - Proposal to Lease Space to Verizon
Wireless for Installation of a Wireless Communications Facility

WRITTEN BY: Rick Rogers, District Manager

PRESENTED BY: Rick Rogers, District Manager

STAFF RECOMMENDATION

Discuss the possibility of leasing a small area at the District's Lyon Water Treatment Plant for the installation of a Wireless Communications Facility and give concept approval.

RECOMMENDED MOTION

I move that the District approves the concept of a lease agreement with Verizon Wireless for the installation of a Wireless Communications Facility at the District's Lyon Water Treatment Facility.

BACKGROUND

In February 2023 the District was contacted by Sequoia Development Services Inc. inquiring if the District was interested in leasing approximately 750 sq. ft. of land at either the District's Lyon Water Treatment Plant or Huckleberry Tank site in Boulder Creek. Of the two sites, the Huckleberry

site is problematic with the neighborhood and protected environment as it is sands hills, leaving Lyon as a good location with ample flat ground.

The lease proposed is an initial term of five (5) years plus four (4 - 5 years) automatic renewal options for a total of twenty-five (25) years. The rent for the lease was proposed as an annual rent amount of Fifteen Thousand Dollars (\$15,000.00) to be paid in equal monthly installments commencing at the start of construction, a 10% increase per term (every five years).

District Staff have been in nonbinding discussions with a Sequoia Development Services representative for Verizon Wireless. After in-field meetings and rent discussions, District staff countered starting rent annually at \$17,000, which is in line with other wireless sites.

In recent discussions with Sequoia Verizon Wireless, they want to start with architectural design, survey, draft lease, and preliminary title report at an estimated cost of \$10,000 and have requested concept approval from the District before moving forward.

Local Public Safety is very supportive of the installation of another wireless communications facility in the San Lorenzo Valley/Boulder Creek Area as service is so unreliable. However wireless communications facilities can be controversial in populated neighborhoods as these towers have electronic equipment and antennas that receive and transmit cell phone signals using radiofrequency (RF) waves. As part of the permitting process, public

outreach will be required. The Lyon Water Treatment Plant area is sparsely populated.

ENVIRONMENTAL REQUIREMENTS

Unknown at this time

PRIOR COMMITTEE ACTION

None

FISCAL IMPACT

Revenue positive (lease agreement) now-water rate revenue

ATTACHMENTS AND RELEVANT LINKS TO THE DISTRICT WEBSITE

Sequoia Development Services Inc. draft lease agreement.



February 7, 2023

San Lorenzo Valley Water District
13060 Hwy 9
Boulder Creek, CA 95006-9119

Re: Letter of Interest - Proposal to Lease Space to Verizon Wireless for Installation of a
Wireless Communications Facility

Verizon Wireless site: "Hwy 9 & Hwy 236-SLVWD Madrone", 365 Madrone Dr, Boulder Creek,
CA 95006, APN: 081-011-07

Dear Property Owner:

Sequoia Deployment Services, Inc. is an authorized representative for Verizon Wireless. Verizon Wireless is researching properties in the vicinity to locate a wireless communications facility (cell-site) in order to improve the wireless cell phone coverage in the surrounding commercial and residential areas. This letter is to confirm the interest of Verizon Wireless to lease space on the property located at: 365 Madrone Dr, Boulder Creek, CA 95006, APN: 081-011-07 for the purpose of installing a wireless telecommunications facility (cell site).

- Lease Premises: Proposed lease area is approximately 25' x 30' (750 sq. ft) and will include the lease area for a monopine tree, equipment cabinets and emergency back-up generator behind a wood fence enclosure. See attached Site Map for Lease area location.
- Use: Construction, operation and maintenance of a cell-site for the transmission and reception of radio communications signals.
- Term: Verizon Wireless proposes an initial term of five (5) years plus four (4) - (5 year) automatic renewal options for a total of twenty-five (25) years. Verizon Wireless may terminate the lease at each annual anniversary by providing Landowner with six (6) months' notice.
- Rent: Verizon Wireless proposes an annual rent amount of Fifteen Thousand Dollars (\$15,000.00) to be paid in equal monthly installments commencing at the start of construction. 10% increase per term (every five years).
- Commencement: Start of Construction.
- Testing: Prior to lease commencement, Landowner shall provide access allowing Verizon Wireless to conduct any necessary inspections, surveys, and tests to determine the suitability of the property for Verizon Wireless.
- Access: 24-hours-a-day, 7-days-a-week.

1 SPECTRUM POINTE DR, SUITE 130, LAKE FOREST, CA 92630
TELEPHONE: 949.278.7747 FACSIMILE: 949.753.7203

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- Utilities: At Verizon Wireless's expense, power and telco will be brought to the leased premises.
- Title: A Memorandum of Lease will be recorded.
- Insurance: Each party will maintain comprehensive general liability on an occurrence form in the amount of \$2,000,000.00 per occurrence and \$4,000,000.00 in the annual aggregate for bodily injury and property damage. Each party shall be included as an additional insured on the other party's insurance policy.
- Contingency: The lease is contingent upon the ability of Verizon Wireless to obtain permits and use the premises as a communications facility.
- Confidentiality: Landowner will keep the terms and conditions contained herein, and the details of ensuing negotiations confidential between the parties.

This letter is intended to be a nonbinding letter of interest entered into solely for the purpose of reflecting the interest of the parties in negotiating with one another and to summarize the basic business terms being proposed for the lease agreement. No portion of this letter is to be considered legally binding nor shall the provisions of this letter constitute any form of representation or warranty from one party to the other. The final lease agreement is subject to the review and approval of Verizon Wireless, and contingent upon Verizon Wireless's signature.

If the terms of this letter of interest are acceptable concerning the proposed lease, please sign below in the place provided to evidence your agreement and return a copy of this letter so that we can begin the process of preparing mutually acceptable legal documents for yours and Verizon Wireless's signature.

I look forward to your response regarding this proposal and would be happy to provide additional information. I can be reached at 949-278-7747 or bob.ballmaier@sequoia-ds.com.

Sincerely,



Robert Ballmaier
Authorized Representative for Verizon Wireless

Acceptance:

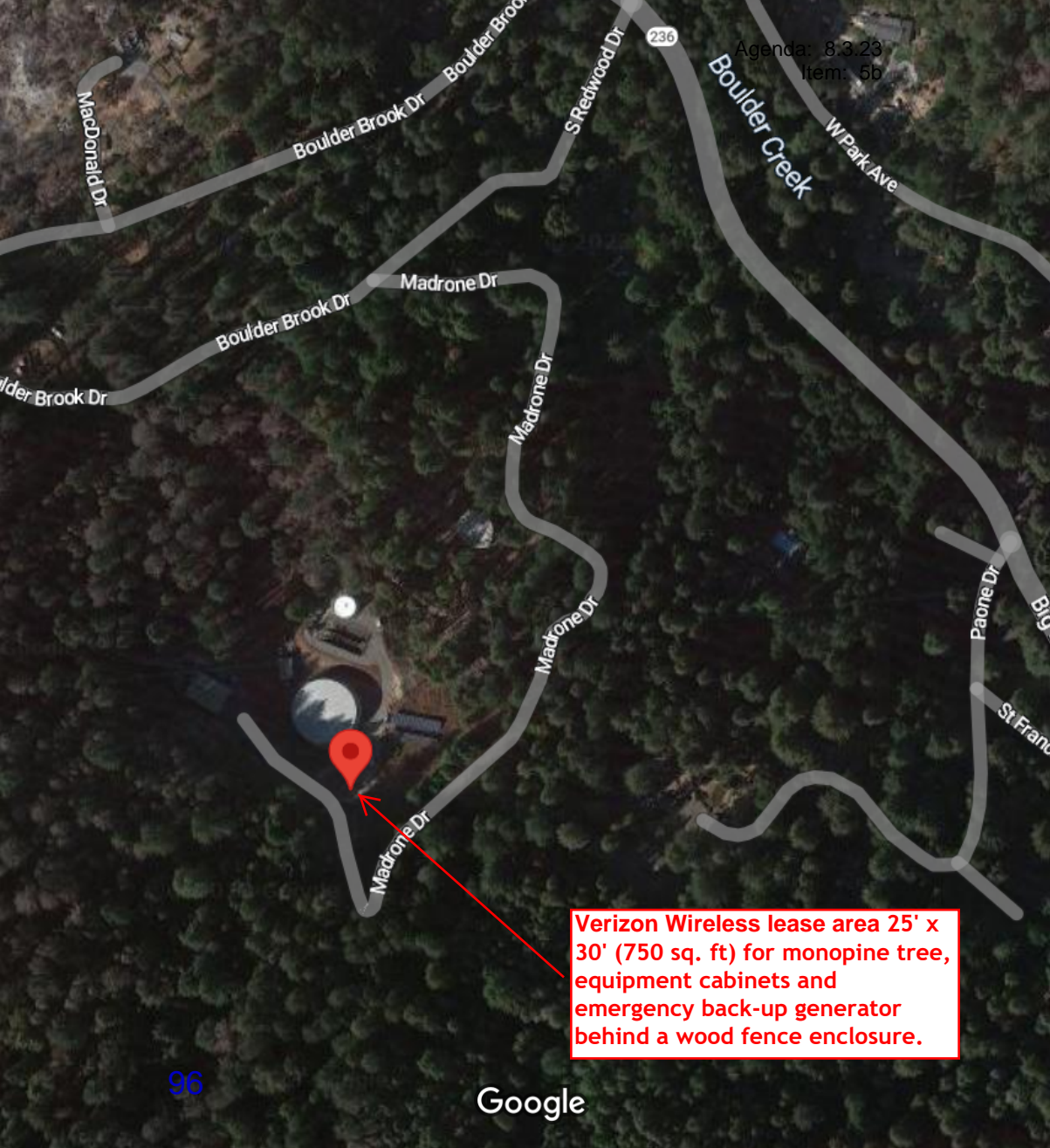
The undersigned agrees that the terms of this letter of interest are acceptable concerning the proposed lease.

Name: _____

Phone #: _____

Date: _____

Email: _____



Verizon Wireless lease area 25' x 30' (750 sq. ft) for monopine tree, equipment cabinets and emergency back-up generator behind a wood fence enclosure.





**BOARD OF DIRECTORS
SAN LORENZO VALLEY WATER
DISTRICT
SPECIAL MEETING
MINUTES
JULY 13, 2023**

Thursday, July 13, 2023, at 6:00 p.m., SLVWD Conference Room, 12788 Highway 9, Boulder Creek, and via videoconference and teleconference.

**1. Convene Meeting: 6:07 p.m.
Roll Call**

Board Members Present:

Mark Smolley, President
Jeff Hill, Vice President
Jayme Ackemann, Director
Bob Fultz, Director
Gail Mahood, Director

Staff Present:

Rick Rogers, District Manager
Kendra Reed, Director of Finance & Business Services
Holly Hossack, District Secretary

2. Additions and Deletions: None

3. Oral Communications:

L. Farris, Felton, referred to the Consumer Confidence Report and noted a discrepancy in the Lead and Copper.

B. Holloway, Boulder Creek, suggested a bond would help with money for the District it is the fairest charge to the public. He also noted that the Fish Ladder is an unfunded mandate.

4. New Business:

a. 2023 CALIFORNIA SPECIAL DISTRICTS ASSOCIATION (CSDA) BOARD OF DIRECTORS ELECTION

Pres. Smolley introduced this item and started the discussion with the Board regarding the candidates.

A motion was made and seconded to vote for Vince Ferrante.

All present voted in favor of the motion. The motion passed.

b. SLVWD WORKSHOP - RATE STUDY/COST OF SERVICE KICK-OFF MEETING

K. Reed introduced this item and introduced Melissa Elliott, Theresa Jurotich, and Lindsay Roth with Raftelis, presenters for the Rate Study/Cost of Service.

Presentation by Raftelis.

Discussion by the Board regarding:

- Outreach is very important
- Additional meetings with the public
- When will information on alternative scenarios be available?
August/September timeframe
- Capital analysis
- Financial Plan comes first, followed by the cost of service, and rates structures
- Rate authorization is the Board telling staff what is going on the Prop 218 information
- The District can hold as many public meetings as they want
- The schedule is anticipated and flexible
- Workshops need to come after the rates are announced
- Focus on unbundling the rates/where is the money going
- Transparency regarding where the money is going/Restricted fund
- Financial Plan - basis for a 5 yr. budget/forecasting
- Financial sustainability/rates are defensible
- Different rate structure comparison; tiered and fixed
- Tiered rates/how are costs determined/demand analysis (peak service)
- Identify subgroups for outreach
- Conservation
- Sustainability
- Modeling for financial plans for use in budgeting
- Bonds

Time limits will start at 3 minutes.

Public Comment Period

B. Holloway, Boulder Creek, said he looked at Raftelis past work. He brought up elevation charges. He reminded the Board that the District receives tax money so we don't need as much fixed rate money as Santa Cruz does.

J. Mosher, Felton, wants to move to tiered rates based on use. The needs of low and fixed income residents. You need to get out and talk to folks. Operating and Capital costs.

B. Fultz said that the Board President has the authority to extend the amount of time that each member of the public has to speak. President Smolley acknowledged that he is aware of that but would prefer to stay with the 3 minutes and allow an additional turn to speak.

L. Farris, Ben Lomond, is concerned that the date for the rate increase vote will be during the winter holidays. He questioned the benchmark data, how do we compare with other Districts in how we spend the money. He questioned if it is a concern that we are in the process of hiring a new general manager.

C. Dzendzel said that she would like to hear more from J. Mosher and B. Holloway.

Discussion by the Board regarding:

- More time for the public to speak
- The study design is not necessarily what we are going to use
- The new GM will be happy that they don't have to deal with this process

B. Holloway, spoke again. Seasonal rates, don't work very well in his opinion. He spoke about the pipe and well in his neighborhood for fire protection. He doesn't want confusing line items on every single bill.

J. Mosher, spoke again. The operating capital item should have an estimate for repair, replacement, etc. impact from disasters on the operating budget. Compare with districts that are more like us than Santa Cruz. Give the public information on what the District is thinking about doing and the option to respond.

Discussion by the Board regarding:

- Low income assistance could come out of the property taxes
- Property tax money needed for Capital Improvement
- Comparisons to other Districts should not be the usual suspects. We are mountainous, spread out, and the most expensive homes in California. Utilities are unique, comparisons are not always needed or necessary in a rate study.

5. **Adjournment:** 7:56 p.m.

Minutes approved: _____

Holly B. Hossack, District Secretary