Appendix G

Cultural Resources Inventory, Evaluation, and Finding of Effect Report

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CULTURAL RESOURCES INVENTORY AND EVALUATION REPORT FOR THE SANTA CRUZ WATER RIGHTS PROJECT

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Executive Summary

The City of Santa Cruz (City) retained Dudek to complete a cultural resources technical report for the Santa Cruz Water Rights Project (Proposed Project) environmental impact report (EIR). Cultural resources investigations for the Proposed Project include both project-level and programmatic-level analyses.

The Proposed Project includes 11 discontiguous infrastructure components (study area). Since federal permits may be needed and/or federal funding may be used for some of the components and are therefore considered federal undertakings, the City requested that this technical report comply with Section 106 of the National Historic Preservation Act (NHPA) of 1966 and the California Environmental Quality Act (CEQA). Hence 6 of the 11 study area components are included as part of the cultural resources discontiguous Areas of Potential Effect (APEs). Table 1 provides a list of the project components and programmatic components.

Table 1. Project and Programmatic Components

Proposed Project Components	Project Components	Programmatic Components
WATER RIGHTS MODIFICATIONS		
Place of Use	✓	
Points of Diversion	✓	
Underground Storage and Purpose of Use	✓	
Method of Diversion	✓	
Extension of Time	✓	
Bypass Requirement (Agreed Flows)	✓	
INFRASTRUCTURE COMPONENTS		
Water Supply Augmentation Components		
Aquifer Storage and Recovery (ASR)		✓
New ASR Facilities at Unidentified Locations		✓
Beltz ASR Facilities at Existing Beltz Well Facilities	✓	
Water Transfers and Exchanges and Intertie Improvements		✓
Surface Water Diversion Improvements		
Felton Diversion Fish Passage Improvements		✓
Tait Diversion and Coast Pump Station Improvements		✓

Dudek prepared discontiguous Areas of Potential Effect (APEs) maps and performed Section 106 level work for the six project and programmatic components (undertakings) in the study area (aquifer storage and recovery [ASR] at 4 known sites [Beltz ASR]; Felton Diversion fish passage improvements; and Tait Diversion and Coast Pump Station improvements), per NHPA's implementing regulations (36 CFR 800.4). This document includes a delineation of discontiguous APEs and cultural resources inventory to determine the presence or absence of historic properties and potential effects. The results of the assessment show there are no historic properties in the six APEs and low potential for encountering unknown archaeological resources during the planned construction. Dudek recommends a finding of *No Historic Properties Affected* for the six project and programmatic undertakings under Section 106. The CEQA finding for historic built environmental resources for the six project and programmatic components is *no*

impact. The CEQA finding for archaeological cultural resources for the six project and programmatic components is recommended as *Less-than-Significant with Mitigation*.

Regarding the five programmatic components for which Section 106 level analysis was not conducted (new ASR facilities and water transfer and exchanges and intertie improvements); cultural resources inventory information is presented below along with CEQA findings and mitigation measures, where warranted, based on the information available at this time.

For all components of the study area, this report included the following elements: (1) a California Historical Resources Information System (CHRIS) records search conducted at the Northwest Information Center (NWIC) addressing the proposed APE plus a 0.25-mile radius; (2) a Sacred Lands File (SLF) search through the Native American Heritage Commission (NAHC) and outreach to Native American contacts with local information about cultural and tribal cultural resources in the vicinity of the discontiguous APEs; (3) a pedestrian survey of the study area for archaeological and built environment resources.

Within the six components with discontiguous APEs this reports included a historical significance evaluation of two historic era properties containing multiple buildings and structures, and findings related to impacts to cultural resources under CEQA, project effects to historic properties in conformance with Section 106 of the NHPA, and in consideration of all applicable local municipal code and planning documents. Neither built environment property evaluated for historic significance was found to be eligible for listing at the federal, state, or local level.

1 Introduction

This section provides a detailed description of the proposed Santa Cruz Water Rights Project (Proposed Project), and includes information about the location and setting, along with a detailed project description. All project location and project description figures can be found in **Appendix A**. This chapter also presents the regulatory setting, description of the discontiguous areas of potential effect (APEs) and presents project personnel.

1.1 Project Location and Setting

The Proposed Project involves the water system and area of service of the City of Santa Cruz (City) and the water service areas of San Lorenzo Valley Water District (SLVWD), Scotts Valley Water District (SVWD), Soquel Creek Water District (SqCWD), and Central Water District (CWD). The Proposed Project is located within Santa Cruz County (County) and is generally bounded by the unincorporated communities of Aptos and Le Selva Beach on the east, Bonny Doon Road on the west, Boulder Creek on the north, and the Pacific Ocean on the south (**Appendix A**, Figure 1). Additional information about project location and setting is presented below.

1.2 Project Description

This section provides a summary description of the Proposed Project and includes information about the project characteristics.

1.2.1 Introduction

The Proposed Santa Cruz Water Rights Project (Proposed Project) includes proposed modifications to the City's existing water rights to improve flexibility in operation of the City's water system to better use limited water resources, while enhancing stream flows for local anadromous fisheries. The Proposed Project also includes water supply augmentation components and surface water diversion improvements that could be implemented after the water rights modifications are approved. The attached figures show the City's existing water facilities, the expanded place of use, and locations of proposed infrastructure improvements.

As shown in Table 1 in the Executive Summary, the Proposed Project includes components that will be considered in the pending EIR at a "project" level (project component) and components that will be considered at a "programmatic" level (programmatic component), and therefore the pending EIR will be both a project EIR and a programmatic EIR. The subsections below further describe these project components and programmatic components.

1.2.2 Water Rights Modifications

Project components of the Proposed Project include modifications to the City's existing pre-1914 and post-1914 appropriative water rights. The City will pursue changes to its pre-1914 water rights through action by the Santa Cruz City Council and changes to its post-1914 permits and licenses through the filing of change and extension petitions with the State Water Resources Control Board (SWRCB). No change to the authorized amounts of diversions under any of the City's appropriative water rights is proposed as part of the Proposed Project. Overall,

implementation of these modifications would provide the City greater flexibility in the operation of the water system while enhancing stream flows for local anadromous fisheries. The water rights modifications include modifications related to place of use, method of diversion, points of diversion and rediversion, underground storage and purpose of use, extension of time and stream bypass requirements for fish habitat (referred to in this EIR as Agreed Flows).

1.2.3 Water Supply Augmentation Components

1.2.3.1 Aquifer Storage and Recovery

The City's Water Supply Augmentation Strategy portfolio elements include active recharge of regional aquifers referred to as aquifer storage and recovery or ASR. ASR involves using existing infrastructure and potential new infrastructure to inject surface water, treated to drinking water standards, and storage of this water during normal or wet years in local groundwater basins, which would act as underground storage reservoirs. This stored water can then be available for use by the City in drought years via extraction.

The Proposed Project includes the City installing and operating ASR facilities within the Santa Cruz Mid-County Groundwater Basin inside or outside the areas served by the City, and in the Santa Margarita Groundwater Basin outside the areas served by the City. ASR would include new ASR facilities at unidentified locations (referred to as "new ASR facilities" in this report) and Beltz ASR facilities at the existing Beltz well facilities (referred to as "Beltz ASR facilities" in this report). Overall, ASR is a programmatic component of the Proposed Project; however, as a subcomponent of ASR, Beltz ASR facilities are a project component of the Proposed Project. Further planning and analysis are required to determine locations for any potential new ASR facilities.

1.2.3.2 Water Transfers and Exchanges and Intertie Improvements

The City's Water Supply Augmentation Strategy portfolio elements also include passive recharge of regional aquifers by transferring water to other water districts in the area so they can rest their groundwater wells, help the aquifers recover, and potentially store water for use by the City in drought years.

Modification of the City's appropriative water rights would facilitate the opportunity for potential future water transfers and exchanges with neighboring water agencies, including Scotts Valley Water District (SVWD), San Lorenzo Valley Water District (SLVWD), Soquel Creek Water District (SqCWD) and Central Water District (CWD). Water transfers and exchanges and associated interties are evaluated as a programmatic component of the Proposed Project. Such transfers and exchanges would likely be provided for via agreements with defined terms related to timing, volume of water, water year conditions, return of water, etc., that would be developed between the City and one or more of the neighboring agencies. New or improved interties between the water systems of the City and of neighboring water agencies may be needed to facilitate future water transfers and exchanges once City water rights are modified. The Proposed Project anticipates these potential water transfers and exchanges and new and improved interties, which include new or upgraded pipelines and new or upgraded pump stations needed to transfer water between and through the services areas of the referenced water agencies. Specifically, the Proposed Project anticipates a new pipeline and pump station to intertie the water systems of the City and SVWD. Additionally, two segments of replacement piping, an upgraded pump station and two new pump stations are needed to intertie the water systems of the City, SqCWD and CWD.

1.2.4 Surface Water Diversion Improvement Components

Improvements at the Felton Diversion and Tait Diversion and Coast Pump Station are included as programmatic components of the Proposed Project.

1.2.4.1 Felton Diversion Fish Passage Improvements

The Felton Diversion is a surface water diversion/intake on the San Lorenzo River that pumps raw water from the river to the City's Loch Lomond Reservoir. Proposed fish passage improvements at the Felton Diversion would provide for compliance with current fish passage and screening requirements. The modifications would be designed to support use of City water rights while improving passage for coho salmon and steelhead. These improvements may include fish screen replacement, installation of a traveling brush system to keep the fish screens operating at optimum efficiency, and construction of a continuous downstream outmigration bypass route within the existing bypass channel with downstream opening slide gate.

1.2.4.2 Tait Diversion and Coast Pump Station Improvements

The Tait Diversion is located on a fairly straight, low-gradient section of the San Lorenzo River approximately 2.4 miles upstream of the mouth of the river and adjacent to the Coast Pump Station facility. Improvements at the Tait Diversion could include, but would not be limited to, (1) a new or modified intake design with increased capacity to allow the City the option of diverting water under the existing Felton Diversion water rights at either the Felton Diversion or at the Tait Diversion, (2) upstream and/or downstream hydraulic modifications, (3) improvements to the check dam, and (4) any required fish passage upgrades to meet current state and federal fisheries protection criteria. The River Pumps at the Coast Pump Station facility would also require improvements, which could include, but would not be limited to, (1) new pumps and motors, (2) primary and backup power upgrades, which could include upgrades to the Pacific Gas & Electric substation, (3) a new or modified concrete wet well, and (4) a solids handling system.

1.2.5 Standard Operational and Construction Practices

The Proposed Project also includes standard operational and construction practices that would be implemented during project operations and construction activities to minimize environmental impacts. Construction practices No. 24 and No. 25 relate to archaeological resources and human remains as described below:

24. In the event that archaeological resources (sites, features, or artifacts) are exposed during construction activities for the Proposed Project, immediately stop all construction work occurring within 100 feet of the find until a qualified archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards, can evaluate the significance of the find, and whether the archaeological resources qualify as unique archaeological resources, historical resources of an archaeological nature, or subsurface tribal cultural resources. The archaeologist will determine whether additional study is warranted. Should it be required, the archaeologist may install temporary flagging around a resource to avoid any disturbances from construction equipment. Depending upon the significance of the find under CEQA (14 CCR 15064.5[f]; California Public Resources Code, Section 21082), the archaeologist may record the find to appropriate standards (thereby addressing any data potential) and allow work to continue. If the archaeologist observes the discovery to be potentially significant under CEQA, preservation in place or additional treatment may be required.

25. In accordance with Section 7050.5 of the California Health and Safety Code, if potential human remains are found, immediately notify the lead agency staff and the County Coroner of the discovery. The coroner would provide a determination within 48 hours of notification. No further excavation or disturbance of the identified material, or any area reasonably suspected to overlie additional remains, can occur until a determination has been made. If the County Coroner determines that the remains are, or are believed to be, Native American, the coroner would notify the Native American Heritage Commission within 24 hours. In accordance with California Public Resources Code, Section 5097.98, the Native American Heritage Commission must immediately notify those persons it believes to be the Most Likely Descendant from the deceased Native American. Within 48 hours of this notification, the Most Likely Descendant would recommend to the lead agency her/his preferred treatment of the remains and associated grave goods.

Table 2 below provides the corresponding figure number for each of the Study Area components discussed in the preceding section. Figures are located in Appendix A.

Table 2. Study Area Components with Appendix A Figure Numbers

Study Area Components	Appendix A—Figure number
Beltz 8 ASR Facility	4a
Beltz 9 ASR Facility	4b
Beltz 10 ASR Facility	4c
Beltz 12 ASR Facility	4d
City/SVWD Intertie - New Pipeline and Pump Station	4e
City/SqCWD/CWD Intertie - Soquel Village Pipeline	4f
City/SqCWD/CWD Intertie - Park Avenue Pipeline and McGregor Drive Pump Station Upgrade	4f
City/SqCWD/CWD Intertie - Freedom Boulevard Pump Station	4g
City/SqCWD/CWD Intertie - Valencia Road Pump Station	4g
Felton Diversion Improvements	4h
Tait Diversion and Coast Pump Station Improvements	4i

1.3 Regulatory Setting

This study was completed in compliance with federal cultural resources laws and regulations, including Section 106 of the NHPA. Under Section 106, historic and archaeological districts, sites, buildings, structures, and objects are assigned significance based on their exceptional value or quality in illustrating or interpreting history, architecture, archaeology, engineering, and culture. A number of criteria are used in demonstrating resource importance and are described below.

1.3.1 Federal

The NHPA established the NRHP and the President's Advisory Council on Historic Preservation (ACHP), and provided that states may establish State Historic Preservation Officers to carry out some of the functions of the NHPA. Most significantly, for federal agencies responsible for managing cultural resources, Section 106 of the NHPA directs that

> [t]he head of any Federal agency having direct or indirect jurisdiction over a proposed Federal or federally assisted undertaking in any State and the head of any Federal department or independent agency having authority to license any undertaking shall, prior to the approval of the expenditure of any Federal funds on the undertaking or prior to the issuance of any license, as the case may be, take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the NRHP.

Section 106 also affords the ACHP a reasonable opportunity to comment on the undertaking (16 U.S.C. 470f).

Title 36 of the Code of Federal Regulations, Part 800 (36 CFR 800) implements Section 106 of the NHPA. It defines the steps necessary to identify historic properties (those cultural resources listed in or eligible for listing in the NRHP), including consultation with federally recognized Native American tribes to identify resources with important cultural values; to determine whether or not they may be adversely affected by a proposed undertaking; and the process for eliminating, reducing, or mitigating the adverse effects.

The content of 36 CFR 60.4 defines criteria for determining eligibility for listing in the NRHP. The significance of cultural resources identified during an inventory must be formally evaluated for historic significance in consultation with the ACHP and the California State Historic Preservation Officer to determine if the resources are eligible for inclusion in the NRHP. Cultural resources may be considered eligible for listing if they meet one of more of the criteria and possess integrity of location, design, setting, materials, workmanship, feeling, and association.

Regarding criteria A through D of Section 106, the quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, cultural resources, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and that (36 CFR 60.4):

A. Are associated with events that have made a significant contribution to the broad patterns of our history; or
B. Are associated with the lives of persons significant in our past; or
C. Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
D. have yielded or may be likely to yield, information important in prehistory or history.

The 1992 amendments to the NHPA enhance the recognition of tribal governments' roles in the national historic preservation program, including adding a member of an Indian tribe or Native Hawaiian organization to the ACHP.

The NHPA amendments:

- Clarify that properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization may be determined eligible for inclusion in the National Register
- Reinforce the provisions of the Council's regulations that require the federal agency to consult on properties of religious and cultural importance.

The 1992 amendments also specify that the ACHP can enter into agreement with tribes that permit undertakings on tribal land and that are reviewed under tribal regulations governing Section 106. Regulations implementing the NHPA state that a federal agency must consult with any Indian tribe that attaches religious and cultural significance to historic properties that may be affected by an undertaking.

1.3.2 State

1.3.2.1 California Register of Historical Resources

In California, the term "historical resource" includes but is not limited to "any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California" (California Public Resources Code Section 5020.1(j)). In 1992, the California legislature established the California Register of Historical Resources (CRHR) "to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change" (California Public Resources Code Section 5024.1(a)). The criteria for listing resources on the CRHR were expressly developed to be in accordance with previously established criteria developed for listing in the NRHP including associated historic integrity considerations and are enumerated below. According to California Public Resources Code Section 5024.1(c)(1–4), a resource is considered historically significant if it meets at least one of the following criteria:

(1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
(2) Is associated with the lives of persons important in our past.
(3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
(4) Has yielded, or may be likely to yield, information important in prehistory or history.

To understand the historic importance of a resource, sufficient time must have passed to obtain a scholarly perspective on the events or individuals associated with the resource. A resource less than 50 years old may be considered for listing in the CRHR if it can be demonstrated that sufficient time has passed to understand its historical importance (see 14 CCR 4852(d)(2)).

The CRHR protects cultural resources by requiring evaluations of the significance of prehistoric and historic resources. The criteria for the CRHR are nearly identical to those for the NRHP, and properties listed or formally designated as eligible for listing in the NRHP are automatically listed in the CRHR, as are the state landmarks and points of interest. The CRHR also includes properties designated under local ordinances or identified through local historical resource surveys.

1.3.2.2 California Environmental Quality Act

As described further below, the following CEQA statutes and CEQA Guidelines are of relevance to the analysis of archaeological, historic, and tribal cultural resources:

- California Public Resources Code Section 21083.2(g) defines "unique archaeological resource."
- California Public Resources Code Section 21084.1 and CEQA Guidelines Section 15064.5(a) define "historical resources." In addition, CEQA Guidelines Section 15064.5(b) defines the phrase "substantial adverse change in the significance of an historical resource." It also defines the circumstances when a project would materially impair the significance of an historical resource (an element of a "substantial adverse change" to the resource) (see discussion below).
- California Public Resources Code Section 21074(a) defines "tribal cultural resources."
- California Public Resources Code Section 5097.98 and CEQA Guidelines Section 15064.5(e) set forth standards and steps to be employed following the accidental discovery of human remains in any location other than a dedicated ceremony.
- California Public Resources Code Sections 21083.2(b)-(c) and CEQA Guidelines Section 15126.4 provide information regarding the mitigation framework for archaeological and historic resources, including examples of preservation-in-place mitigation measures; preservation-in-place is the preferred manner of mitigating impacts to both unique archaeological resources and "historical resources of an archaeological nature" because it maintains the relationship between artifacts and the archaeological context and may also help avoid conflict with religious or cultural values of groups associated with the archaeological site(s).

Historical Resources

More specifically, under CEQA, a project may have a significant effect on the environment if it may cause "a substantial adverse change in the significance of an historical resource" (California Public Resources Code Section 21084.1; CEQA Guidelines Section 15064.5(b).) If a site is either listed or eligible for listing in the CRHR, or if it is included in a local register of historic resources or identified as significant in a historical resources survey (meeting the requirements of California Public Resources Code Section 5024.1(q)), it is a "historical resource" and is presumed to be historically or culturally significant for purposes of CEQA (California Public Resources Code Section 21084.1; CEQA Guidelines Section 15064.5(a)). The lead agency is not precluded from determining that a resource is a historical resource even if it does not fall within this presumption (California Public Resources Code Section 21084.1; CEQA Guidelines Section 15064.5(a)).

A "substantial adverse change in the significance of an historical resource" reflecting a significant effect under CEQA means "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired" (CEQA Guidelines Section 15064.5(b)(1); California Public Resources Code Section 5020.1(q)). In turn, CEQA Guidelines section 15064.5(b)(2) states the significance of an historical resource is materially impaired when a project:

1. Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources; or
2. Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or

3. Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA.

Pursuant to these sections, the CEQA inquiry begins with evaluating whether a project site contains any "historical resources," then evaluates whether that project will cause a substantial adverse change in the significance of a historical resource such that the resource's historical significance is materially impaired.

Where a project has been determined to conform with the Secretary of the Interior's Standards, the project's impact on historical resources would be considered mitigated to below a level of significance and, thus, not significant (14 CCR 15126.4(b)(1)). In most cases, a project that demonstrates conformance with the Secretary of the Interior's Standards is categorically exempt from CEQA (14 CCR 15331), as described in the CEQA Guidelines:

> Where maintenance, repair, stabilization, rehabilitation, restoration, preservation, conservation or reconstruction of the historical resource will be conducted in a manner consistent with the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings (Weeks and Grimmer 1995), the project's impact on the historical resource shall generally be considered mitigated below a level of significance and thus is not significant (14 CCR 15126.4(b)(1)).

The Secretary of the Interior's Standards are a series of concepts focused on maintaining, repairing, and replacing historic materials, as well as designing new additions or making alterations. They function as common-sense historic preservation principles that promote historic preservation best practices. There are four distinct approaches that may be applied to the treatment of historical resources:

- **Preservation** focuses on the maintenance and repair of existing historic materials and retention of a property's form as it has evolved over time.
- **Rehabilitation** acknowledges the need to alter or add to a historic property to meet continuing or changing uses while retaining the property's historic character.
- **Restoration** depicts a property at a particular period of time in its history, while removing evidence of other periods.
- **Reconstruction** recreates vanished or non-surviving portions of a property for interpretive purposes.

The choice of treatment depends on a variety of factors, including the property's historical significance, physical condition, proposed use, and intended interpretation. The Guidelines provide general design and technical recommendations to assist in applying the Standards to a specific property. Together, the Standards and Guidelines provide a framework that guides important decisions concerning proposed changes to a historic property.

Unique Archaeological Resources

If it can be demonstrated that a project will cause damage to a unique archaeological resource, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that they cannot be left undisturbed, mitigation measures are required (California Public Resources Code Section 21083.2[a], [b], and [c]).

California Public Resources Code Section 21083.2(g) defines a unique archaeological resource as an archaeological artifact, object, or site about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type.
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Impacts to non-unique archaeological resources are generally not considered a significant environmental impact (California Public Resources Code section 21083.2(a); CEQA Guidelines Section 15064.5(c)(4)). However, if a non-unique archaeological resource qualifies as tribal cultural resource (California Public Resources Code Section 21074(c), 21083.2(h)), further consideration of significant impacts is required. CEQA Guidelines Section 15064.5 assigns special importance to human remains and specifies procedures to be used when Native American remains are discovered. As described below, these procedures are detailed in California Public Resources Code Section 5097.98.

California Environmental Quality Act Assembly Bill 52 Consultation

State Assembly Bill (AB) 52, effective July 1, 2015, recognizes that California Native American prehistoric, historic, archaeological, cultural, and sacred places are essential elements in tribal cultural traditions, heritages, and identities. The law establishes a separate category of resources in the CEQA called "tribal cultural resources" that considers the tribal cultural values in addition to the scientific and archaeological values when determining impacts and mitigation. Public Resources Code Section 21074 defines a "tribal cultural resource" as either:

- Sites, features, places, cultural landscapes, sacred places and objects with cultural value to a California Nature American tribe that is either listed, or determined to be eligible for listing, on the national, state, or local register of historic resources; or
- A resource determined by the lead agency chooses, in its discretion and supported by substantial evidence, to treat as a tribal cultural resource.

The California Public Resources Code Section 21084.2 now establishes that "[a] project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment." The Public Resources Code requires a lead agency to consult with any California Native American tribe that requests consultation and is traditionally and culturally affiliated with the geographic area of a proposed project.

California Health and Safety Code

California law protects Native American burials, skeletal remains, and associated grave goods, regardless of their antiquity, and provides for the sensitive treatment and disposition of those remains. Health and Safety Code Section 7050.5 requires that if human remains are discovered in any place other than a dedicated cemetery, no further disturbance or excavation of the site or nearby area reasonably suspected to contain human remains can occur until the County Coroner has examined the remains (California Health and Safety Code Section 7050.5b). Public Resources Code Section 5097.98 outlines the process to be followed in the event that remains are discovered. If the coroner determines or has reason to believe the remains are those of a Native American, the coroner must

contact the Native American Heritage Commission (NAHC) within 24 hours (California Health and Safety Code Section 7050.5c). The NAHC would notify the most likely descendant (MLD). With the permission of the landowner, the MLD may inspect the site of discovery. The inspection must be completed within 48 hours of notification of the MLD by the NAHC. The MLD may recommend means of treating or disposing of, with appropriate dignity, the human remains and items associated with Native Americans.

1.3.3 Local - Santa Cruz County

1.3.3.1 Santa Cruz County Native American Cultural Sites and Paleontological Resource Protection

Chapters 16.40 (Native American Cultural Sites) and 16.44 (Paleontological Resource Protection) of the Santa Cruz County Code outline methods and regulations for the identification and treatment of cultural and paleontological resources within the County.

1.3.3.2 Santa Cruz County Historic Resources Inventory

Cultural Landmarks in the County of Santa Cruz are termed Historic Resources and are under the aegis of the Planning Department, County of Santa Cruz. A list of Historic Resources is maintained in the County's Historic Resources Inventory, which identifies those Historic Resources located in the unincorporated areas of the County. Historic Resource is defined in Chapter 16:42 Historic Preservation within Title 16: Environmental and Resource Protection as follows (County Code 16.42.030 (I) [Ord. 5061 § 28, 2009; Ord. 4922 § 1, 2008])

> … means any structure, object, site, property, or district which has a special historical, archaeological, cultural or aesthetic interest or value as part of the development, heritage, or cultural characteristics of the County, State, or nation, and which either has been referenced in the County General Plan, or has been listed in the historic resources inventory adopted pursuant to SCCC 16.42.050 and has a rating of significance of NR-1, NR-2, NR-3, NR-4, or NR-5.

In order to be placed on the County Historic Resources Inventory, a property must first be evaluated for its ability to meet one or more of the following criteria: (County Code 16.42.050 Historic Resource Designation [Ord. 4922 § 1, 2008]).

1. The resource is associated with a person of local, State or national historical significance.
2. The resource is associated with an historic event or thematic activity of local, State or national importance.
3. The resource is representative of a distinct architectural style and/or construction method of a particular historic period or way of life, or the resource represents the work of a master builder or architect or possesses high artistic values.
4. The resource has yielded, or may likely yield, information important to history.

1.3.3.3 Santa Cruz County Historic Districts

The County of Santa Cruz defines Historic District as (County Code 16.42.030 (E) [Ord. 5061 § 28, 2009; Ord. 4922 § 1, 2008]):

1. Have character of special historic or aesthetic interest or value; and
2. Represent one or more periods or styles of architecture typical of one or more eras in the history of the County; and
3. Cause such area, by reason of these factors, to constitute a geographically definable area possessing a significant concentration or continuity of sites, buildings, structures, or objects that are unified by past events, or aesthetically by plan or physical development.

1.3.4 Local - City of Santa Cruz

1.3.4.1 Protection of Archaeological Resources.

1. Policy and Purpose. Existing in Santa Cruz are certain deposits and sites of cultural significance believed to have been left by Native Americans and other early inhabitants. These deposits and sites are unique and irreplaceable phenomena of significance in the history of the City and the understanding of the cultural heritage of our land and of all humankind. Such sites have a deep, spiritual significance to Native Americans, especially the native peoples of the State of California, and constitute a precious archaeological and historical heritage, which is fast disappearing as a result of public and private land development. Uncontrolled excavation or modification of these resources would destroy their cultural integrity. This loss would affect future generations and must be prevented in the public interest. Such cultural resources should be preserved in an undisturbed state wherever possible, for future generations who should be more skilled and have access to better methods of study. In order to promote the public welfare, it is necessary to provide regulations for the protection, enhancement, and perpetuation of such sites. This section therefore, is intended to provide a procedure for preserving the valuable cultural resources in the City of Santa Cruz.
2. Developer's Action on Discovery of Artifacts or Remains During Excavation or Development. Any person exercising a development permit or building permit who, at any time in the preparation for or process of excavating or otherwise disturbing earth, discovers any human remains of any age or any artifact or any other object which reasonably appears to be evidence of an archaeological/cultural resource, shall:
    a. Immediately cease all further excavation, disturbance, and work on the project site;
    b. Cause staking to be placed completely around the area of discovery by visible stakes not more than ten feet apart forming a circle having a radius of not less than one hundred feet from the point of discovery; provided, that such staking need not take place on adjoining property unless the owner of the adjoining property authorizes such staking;
    c. Notify the Santa Cruz County sheriff-coroner and the city of Santa Cruz planning director of the discovery unless no human remains have been discovered, in which case the property owner shall notify only the planning director; and
    d. Grant permission to all duly authorized representatives of the sheriff-coroner and the planning director to enter onto the property and to take all actions consistent with this section.
3. Coroner's Action on Discovery of Remains. If human remains are discovered, the Sheriff-Coroner or his/her representative shall promptly inspect the remains to determine the age and ethnic character of the remains, and shall promptly, after making such determinations, notify the planning director.
4. Planning Director's Action on Discovery of Artifacts or Remains. If any artifacts or remains are discovered, the planning director shall cause an on-site inspection of the property to be made. The purpose of the inspection shall be to determine whether the discovery is of an archaeological resource or cultural resource.

If remains have been discovered, the planning director shall consult the sheriff-coroner before making his/her determination. In making a determination, the planning director may also consult with Native American groups, qualified archaeologists, or others with the necessary expertise.

5. Discovery Not an Archaeological/Cultural Resource. Upon determining that the discovery is not of an archaeological/cultural resource, the planning director shall notify the property owner of such determination and shall authorize the resumption of work.
6. Discovery an Archaeological/Cultural Resource. Upon determining that the discovery is of an archaeological/cultural resource, the planning director shall notify the property owner that no further excavation or development may take place until a mitigation plan or other measures have been approved by the director the protection of the site.
7. Mitigation Plan. The property owner or his/her agent shall prepare any required mitigation plan. The mitigation plan shall include conditions necessary or appropriate for the protection of the resource including, but not limited to, conditions on the resumption of work, redesign of the project, or other conditions deemed appropriate by the planning director. The director shall review the mitigation plan and may consult with Native Americans, archaeologists, or other interested persons, to insure proper protection of the resource. When the director is satisfied that the mitigation plan is adequate, the director shall authorize the resumption of work in conformance with the mitigation plan.
8. Referral to Historic Preservation Commission. The planning director may refer to the historic preservation commission the decision whether the discovery is of an archaeological/cultural resource and the decision whether the mitigation plan is adequate to protect the resource. If the director refers the matter to the historic preservation commission, a public hearing shall be held in conformity with the requirements of this title relating to public, hearings.
9. Development on Known Archaeological Sites. No building permit for any earth-disturbing activity shall be issued on parcels identified by resolution of the city council as containing known cultural or archaeological resources, without the owner first obtaining an administrative use permit. The administrative use permit shall be conditioned with appropriate archaeological survey and mitigation procedures such as those prescribed in the Historic Preservation Element and the Local Coastal Land Use Plan.
10. Archaeological Reconnaissance. The city may conduct archaeological reconnaissance on any parcel in the city of Santa Cruz, at the request of or with the consent of the property owner. The city may also as a condition of any permit issued pursuant to this title or as a condition of any building permit issued pursuant to the Santa Cruz Municipal Code, require that an archaeological reconnaissance be conducted on any parcel in the city of Santa Cruz, whenever such requirement is in furtherance of the purposes of this chapter. A fee for such reconnaissance shall be charged to the applicant or property owner as established by resolution of the city council. (Chapter 24.12.430, Ord. 86-13 § 6, 1986: Ord. 85-05 § 1 [part], 1985).

1.3.4.2 Santa Cruz City Historic Building Survey

Cultural resources and landmarks in the City are under the aegis of the Planning and Community Development Department, City of Santa Cruz. The City maintains a list of Historic Landmarks, as well as other built historic resources, in the Historic Building Survey. Historic Landmark is defined in Part 5: Historic Preservation within the Community Design Chapter, as “an individual structure or other feature, or group of structures on a single lot or site, or a site having special aesthetic, cultural, architectural, or engineering interest or value of an historical nature as a ‘landmark’” (Municipal Code Section 24.12.420, amended by Ordinance No. 2003-14, effective April 22, 2003).

In order to become a Historic Landmark, or to be placed on the Historic Building Survey, a property must first be evaluated for local historic significance based on the following criteria (Municipal Code Section 24.12.440, amended by Ordinance No. 2003-14, effective April 22, 2003):

c. The property is either a building, site, or object that is:
    1. Recognized as a significant example of the cultural, natural, archaeological, or built heritage of the city, state, or nation
    2. Associated with a significant local, state, or national event
    3. Associated with a person or persons who significantly contributed to the development of the city, state, or nation
    4. Associated with an architect, designer, or builder whose work has influenced the development of the city, state, or nation
    5. Recognized as possessing special aesthetic merit or value as a building with quality of architecture and that retains sufficient features showing its architectural significance
    6. Recognized as possessing distinctive stylistic characteristics or workmanship significant for the study of a period, method of construction, or use of native materials
    7. Retains sufficient integrity to accurately convey its significance

The district is:

    8. Recognized as a geographically definable area possessing a significant concentration of buildings that are well designed and other structures, sites, and objects which are united by past events or by a plan or physical development
    9. Recognized as an established and geographically definable neighborhood united by culture, architectural styles or physical development

1.3.4.3 Santa Cruz City Historic Districts

The City recognizes two historic districts and several potential historic districts. A City Historic District is evaluated and defined by the following criteria (Municipal Code Section 24.06.120, amended by Ordinance No. 85-05, effective 1985):

1. The proposed historic district is a geographically definable area possessing a significant concentration or continuity of sites, buildings, structures, or objects unified by past events, or aesthetically by plan or physical development
2. The collective value of the historic district taken together may be greater than the value of each individual structure
3. The proposed designation is in conformance with the purpose of the city's historic preservation provisions, set forth in Section 24.12.400 of this title and the city's Historic Preservation Plan and the General Plan

1.3.4.4 Historic Property Zoning Incentives Ordinance

As described by the City of Santa Cruz Department of Planning and Community Development, the Historic Property Zoning Incentive Ordinance (Ord. No. 2012-19) was adopted in December 2012 to expand existing zoning variations for use by individual buildings or properties listed on the Historic Building Survey or contributing buildings or

properties situated within a recognized City Historic District. The ordinance permits several Variations to Development Standards to benefit previously listed properties and incentivize owners of eligible, unlisted properties to participate in local historic preservation efforts. Additionally, these Variations help to ensure that new construction and alterations to existing historic properties within these areas conform to standards that will maintain the integrity of the City's historic landmarks, buildings, sites, objects, and contributing buildings within designated and recognized districts.

1.3.4.5 Historic Alteration and Demolition Permits

Regarding effects on federal and locally significant properties, the Santa Cruz Municipal Code states the following:

> Historic Alteration Permit: The purpose of this permit is to ensure that new construction and alterations are allowed in a manner which retains the integrity of the city's historic landmarks, buildings, sites and districts over time. Administrative historic alteration permits may be approved by the zoning administrator, without a public hearing, for minor alteration projects and accessory structures. Historic alteration permits may be approved by the city historic preservation commission, after a public hearing, for non-minor alteration projects. Such a permit is required before any person shall carry out or cause to be carried out, on the site of a designated landmark, or on the site of a building listed in the City of Santa Cruz Historic Building Survey, or on the site of a structure in an historic overlay district, any material change in exterior appearance of any such site or structure through alteration, construction or relocation. This section of the Zoning Ordinance is also part of the Local Coastal Implementation Plan (Section 24.08.900).

Historic Demolition Permit: The purpose of this permit is to ensure that no person shall demolish or cause to be demolished any building listed on the Santa Cruz Historic Building Survey, any designated historic landmark or any building in an historic overlay district without approval of an historic demolition permit (Section 24.08.1000

1.3.4.6 City of Santa Cruz General Plan 2030

The City of Santa Cruz General Plan 2030 outlines policies to ensure that archaeological, paleontological and built environment resources are safeguarded from the impacts of development within the City by establishing a clear framework for updating cultural sensitivity maps, inventories and zoning ordinances. The document also identifies a third type of cultural resource: historic businesses and enterprises present in the City, called a Traditional Cultural Property, or "TCP".

1.3.4.7 City of Santa Cruz Local Coastal Program, 1994-2005

The City of Santa Cruz Local Coastal Plan, 1994-2005 includes a Cultural Resources Element that outlines the policies and programs to ensure the proper treatment of cultural resources located near the coastal areas of the City.

1.4 Project Personnel

Archaeological Resources: John Schlagheck is an archaeologist with 9 years cultural resources management experience along California's Central Coast with a focus on the greater Monterey Bay and San Francisco Bay areas. Mr. Schlagheck acts as principal investigator, field director, and project manager for projects under local, state

(CEQA), or federal (Section 106) regulations. He meets the Secretary of the Interior's Standards for prehistoric and historical period archaeology and his extensive work experience includes Phase I survey, Phase II evaluation, and Phase III data recovery projects.

Built Environment Resources: Fallin Steffen is an Architectural Historian with 5 years of professional experience in historic preservation, architectural conservation, and cultural resource management in the Monterey Bay Area and Northern California. Ms. Steffen's professional experience encompasses a variety of projects for local agencies, private developers, and homeowners in both highly urbanized and rural areas, including reconnaissance- and intensive-level surveys, preparation of resource-appropriate and city-wide historic contexts, and historical significance evaluations in consideration of the NRHP, CRHR, and local designation criteria. Ms. Steffen meets the Secretary of the Interior's Professional Qualification Standards for Architectural History. She is experienced with interdisciplinary projects spanning private and public development, transportation, and water infrastructure, and maintains experience forming educational sessions about the identification of and best practices for the preservation of historic resources.

Kathryn Haley is a senior architectural historian with 18 years of professional experience in historic/cultural resource management. Ms. Haley has worked on a wide variety of projects involving historic research, field inventory, and site assessment conducted for compliance with Section 106, NEPA, and CEQA. Ms. Haley specializes in California Register of Historical Resources (CRHR), the National Register of Historic Places (NRHP), evaluations of built environment resources, including water management structures (levees, canals, dams, ditches), buildings (residential, industrial, and commercial), and linear resources (railroad alignments, roads, and bridges). She specializes in managing large-scale surveys of built environment resources including historic district evaluations. She has prepared numerous Historic Resources Evaluation Reports (HRERs) and Historic Property Survey Reports (HPSRs) for the California Department of Transportation (Caltrans). Ms. Haley also worked on the California High-Speed Rail, San Jose to Merced, and Central Valley Wye Project Sections, leading the built environment survey, conducting property specific research, preparing the Draft Historic Architectural Survey Report (HASR), and co-authoring the environmental section for Cultural Resources. She meets the Secretary of the Interior's Professional Qualification Standards for historian and architectural historian. Ms. Haley has also assisted in preparation of Historic Properties Inspection Reports (condition assessments) under the direction of the Naval Facilities Engineering Command (NAVFAC) in accordance with Section 106 and Section 110 of the National Historic Preservation Act. Moreover, Ms. Haley has served as project manager, coordinator, historian, and researcher for a wide variety of projects. She is also experienced in the preparation of National Register nominations and Historic American Building Survey (HABS), Historic American Engineering Record (HAER), and Historic American Landscape Survey (HALS) documents

1.5 Study Scope Limitations

The Proposed Project includes modifications to the City's existing pre-1914 and post-1914 appropriative water rights which are described in Section 1.2.2. Water Rights Modifications. Overall, implementation of these modifications would provide the City greater flexibility in the operation of the water system while enhancing stream flows for local anadromous fisheries. The water rights modifications would not directly result in construction activities that could impact cultural (archaeological or built environment) resources. Therefore, while the water rights modifications component of the Proposed Project is not evaluated in detail in this report, the impact analysis is Section 6 (Impacts Analysis) does address this project component.

In addition to Beltz ASR facilities, the Proposed Project also includes new ASR facilities that could be installed elsewhere within the Santa Cruz Mid-County Groundwater Basin inside or outside the City's service area, and in the Santa Margarita Groundwater Basin outside the City's service area. This component of the Proposed Project is described in detail in Section 1.2.3. Water Supply Augmentation Components. Given that there are not identified locations for these facilities at this time, specific cultural resources data cannot be gathered and existing conditions cannot be established for such new facility sites. However, the programmatic analysis provided in this report addresses these sites, to the extent possible, as further described in Section 1.6 below.

1.6 Project Study Area Components and Area of Potential Effect

The study area for cultural resources takes into account the noncontiguous infrastructure component sites located within Santa Cruz County, as identified in Table 3 below and illustrated on Figure 4. Cultural resources investigations for the overarching study area component sites are provided at a programmatic level in most cases given the early conceptual planning information that is available for most components; however the Beltz ASR component is evaluated at a project level. The programmatic analysis identifies existing cultural resources within the infrastructure component sites, where specific sites are known, and provides mitigation should resources be identified or discovered when programmatic components are implemented in the future.

Additionally, discontiguous areas of potential effect (APEs) have also been prepared for archaeological and built environment cultural resources where the infrastructure component may involve a federal undertaking associated with a federal permit and/or funding, as such federal involvement requires completion of the Section 106 of the NHPA. The APE is the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties. Determination of the APE is influenced by a project's setting, the scale and nature of the undertaking, and the different kinds of effects that may result from the undertaking (36 CFR 800.16(d)).

The APEs presented in Figures 4a, 4b, 4c, 4b, 4h, and 4i follow the maximum possible area of potential effects resulting from the Proposed Project. The APEs encompass 6 of the 11 infrastructure components where a federal nexus is anticipated. The designation of these APEs assumes that all construction activities will be confined to the six project components. The vertical APE is 8 feet; however, the depth of the new Beltz 9 ASR monitoring well will be 300 feet. Also, the depth of the retrofitted wells will be 210 feet at the Beltz 8 ASR site, 230 feet at the Belts 9 ASR site, 362 feet at the Beltz 10 ASR site, and 650 feet at the Beltz 12 ASR site. The area of the greater depth at the well sites is less than two square feet.

It is important to note that all Proposed Project areas were reviewed for potential built environment resources (previously recorded and those that might require recordation and evaluation). All built environment properties that required formal CEQA significance evaluation were completed as part of this report. Eligibility evaluations, finding recommendations, and impacts are addressed in this report.

Table 3. Approach to Cultural Resources

Study Area Components	CEQA Environmental Review Level	Section 106 Level Analysis/APE delineated	New Facility or Upgrade to Existing Facility	Age of Built Environment Structures	Figure Number (Appendix A)
Water Rights Modifications					
No impact to cultural resources					
Water Supply Augmentation Components					
ASR Facilities					
New ASR Facilities	Programmatic	No	New	Exact sites unknown at this time	NA
Beltz 8 ASR Facility	Project	Yes	Upgrade	1971 facility modification 1985, 1998	4a
Beltz 9 ASR Facility	Project	Yes	Upgrade	1998	4b
Beltz 10 ASR Facility	Project	Yes	Upgrade	2004	4c
Beltz 12 ASR Facility	Project	Yes	Upgrade	2012	4d
City/SVWD Intertie – New Pipeline and Pump Station	Programmatic	No	New	Proposed all new components; no existing structures	4e
City/SqCWD/CWD Intertie - Soquel Village Pipeline	Programmatic	No	Upgrade	Existing pipeline, likely over 45 years old	4f
City/SqCWD/CWD Intertie - Park Avenue Pipeline and McGregor Drive Pump Station Upgrade	Programmatic	No	Upgrade	Existing pipeline, likely over 45 years old	4f
City/SqCWD/ CWD Intertie - Freedom Boulevard Pump Station	Programmatic	No	New	Proposed all new components; no existing structures	4g
City/SqCWD/ CWD Intertie - Valencia Drive Pump Station	Programmatic	No	New	Proposed all new components; no existing structures	4g
Surface Water Diversion Improvements					
Felton Diversion Improvements	Programmatic	Yes	Upgrade	1976	4h
Tait Diversion and Coast Pump Station Improvements	Programmatic	Yes	Upgrade	c.1934, altered 1961 and 1984 (Tait Diversion) 1929 (Coast Pump Station)	4i

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2 Background Research

2.1 CHRIS Records Search

In order to identify historic properties located within the study area that might be affected by the Proposed Project, Dudek defined records search areas that includes the discontiguous study area components or points and a 0.25-mile buffer around those delineations for previously recorded resources and cultural reports. On April 27, 2020, Dudek received results of the records search conducted at the Northwest Information Center (NWIC) of the California Historical Resources Information System (CHRIS) at Sonoma State University (NWIC File No. 19-1728). The records search also included a review of the NRHP, CRHR, California Inventory of Historic Resources, historical maps, and local inventories. The results of the Confidential Record Search are included in **Appendix B**.

2.1.1 Summary of Records Search Findings for the Project Study Area

Previous Technical Studies

The records search results indicated 21 previously conducted studies with some coverage reported within the Study Area (Table 4) and 82 previously conducted studies within the 0.25-mile buffer of the study area (**Appendix A**, Figure 4).

Table 4. Previously Conducted Cultural Resources Technical Studies within the Study Area

Report No.	Authors	Year	Title	Publisher
S-003913	William Roop, Leo Barker, and Charlene Detlefs	1977	Cultural Resource Inventory of the Scotts Valley Wastewater Project Service Area	Archaeological Resource Service
S-003913a	Leo Barker and Charlene Detlefs	1977	Historical Synopsis and Site Inventory of Scotts Valley	
S-003964	Ann S. Peak & Associates	1977	Santa Cruz Regional Wastewater Treatment System Project, Santa Cruz County, California	Ann S. Peak & Associates
S-003995	Mara Melandry	1979	Archaeological Survey Report, 04-SCr-1, P.M.10.2/15.8, 04223 - 380331, Landscaping Project in Santa Cruz County	Caltrans, District 04
S-004005	David Chavez	1979	Cultural Resources Assessment of the Pasatiempo/Rollingwoods Wastewater Project Locations, Santa Cruz County, California	
S-004100	Diane C. Watts	1980	Archaeological Survey Report, 04-SCr-17 2.0/2.4, Proposed Median Closure and Shoulder Widening along Route 17, near Sims Road, Santa Cruz County, 04217-101700	California Department of Transportation
S-008134	Stephen A. Dietz	1986	Report of Archaeological Investigations for the Proposed Christian Life Center Church Facility, La Madrona Drive, Santa Cruz County, California, APN 67-183-53 and 67-351-06	Archaeological Consulting and Research Services Inc.

Table 4. Previously Conducted Cultural Resources Technical Studies within the Study Area

Report No.	Authors	Year	Title	Publisher
S-009497	Terry Jones	1987	Archaeological Survey Report for the Proposed Signal Installation and Ramp Widening at the Park Avenue Interchange on Highway 1, City of Aptos, Santa Cruz County	Caltrans, District 4
S-009497a	Terry Jones	1988	Historic Properties Survey Report for the Proposed Signal Installation and Ramp Widening at the Park Avenue Interchange on Highway 1 City of Aptos, Santa Cruz County	Caltrans, District 4
S-012082	Robert Cartier	1990	Cultural Resource Evaluation for Gateway South Assessment District in the City of Scotts Valley, County of Santa Cruz	Archaeological Resource Management
S-017870	Mara Melandry	1996	Historic Property Survey Report and Finding of No Effect, 04-SCR-1, PM 9.2/16.6, 04229-135331, Proposed Pavement Overlay and Other Minor Improvements on Portions of Highway 1 in the Cities of Aptos, Soquel, Capitola and Santa Cruz in Santa Cruz County	Caltrans District 04
S-017870a	Mara Melandry	1996	Archaeological Survey Report for a Proposed Pavement Overlay and Drainage Improvements on Portions of Highway 1 in the Cities of Aptos, Soquel, Capitola and Santa Cruz in Santa Cruz County, 04-Scr-01 PM 9.2/16.6 04229-135331	Caltrans
S-024487	Mary Doane and Trudy Haversat	2001	Preliminary Archaeological Reconnaissance for the Proposed SCMTD Metrobase Facility, on Encinal and River Streets in Santa Cruz, Santa Cruz County, California	Archaeological Consulting
S-024487a	Mary Doane and Trudy Haversat	2002	Preliminary Archaeological Reconnaissance for a Proposed SCMTD Metrobase Facility, on River Street and Golf Club Drive in Santa Cruz, Santa Cruz County, California	Archaeological Consulting
S-035956	Matthew R. Clark	2008	Aptos Transmission Main Relocation Project, National Historic Preservation Act Section 106, Historic Resources Inventory and Subsurface Reconnaissance Plan for Archaeological Resources	Holman & Associates
S-035956a	Charlene Duval, Sandy Lyndon, and Carolyn Swift	2008	Historic Research and Context for Potential Archaeological Sensitivity for the Aptos Transmission Main Relocation Project	Holman & Associates
S-035956b	Matthew R. Clark	2009	Aptos Transmission Main Relocation Project, National Historic Preservation Act Section 106, Subsurface Reconnaissance for Archaeological Resources, Historic Resources Inventory, and Historic Properties Management Plan	Holman & Associates
S-035956c	Matthew R. Clark, Sunshine Psota, and Patricia Paramoure	2013	Aptos Transmission Main Relocation Project: Final Report. Section I: Archaeological Monitoring of Construction and Completion of National Historic Preservation Act Section 106 Compliance; Section II: Historic Artifact Processing, Analysis, and Interpretation.	Holman & Associates

Table 4. Previously Conducted Cultural Resources Technical Studies within the Study Area

Report No.	Authors	Year	Title	Publisher
S-037509	Damon M. Haydu	2010	Cultural Resources Inventory for the Harvey West Segment of the North Coast System Rehabilitation Project, City of Santa Cruz, Santa Cruz County, California.	Applied EarthWorks Inc.
S-047397	Patricia Mikkelsen, Julia Costello, Jerome King, Charlene Duval, Edna Kimbro, and John Berg	2005	Archaeological Survey Report for the Highway 1 High Occupancy Vehicle Lane Widening Project, Santa Cruz, California, SCR-1 PM R7.6/16.8 (KP R12.22/27.02), EA 05-0C7300	Far Western Anthropological Research Group Inc.; Foothill Resources Ltd.
S-047397a	Patricia Mikkelsen	2010	First Supplemental Archaeological Survey Report for the Highway 1 High Occupancy Vehicle Lane Widening Project, Santa Cruz, California, 05-SCR-1 PM R7.24/16.13 (KP R11.67/25.96), EA 05-0C7300	Far Western Anthropological Research Group Inc.

Previously Conducted Cultural Resources Technical Studies within the Study Area

S-003913 and S-003913a

This series of reports included the results of a large area general reconnaissance that covered all of the Scotts Valley wastewater service area, including all of the City of Scotts Valley and some areas adjacent areas within Santa Cruz County (Roop et al. 1977). The coverage therefore included the City/SVWD intertie component of the study area. The effort resulted in the recording of numerous new prehistoric and historical period resources, none of which are in the area of the City/SVWD intertie component.

S-003964

S-003964 is a report from a large area general reconnaissance for improvements to the Santa Cruz regional wastewater treatment system (Peak 1977). The coverage area for the reconnaissance traversed the area of Santa Cruz, Live Oak, Soquel and as far south as Watsonville, and included several components of the study area.

S-003995

This report is the result of a roadside survey of Highway 1 for an extensive landscaping project (Melandry 1979). The survey intersected the City/SqCWD/CWD intertie - Park Avenue pipeline component of the study area. Melandry discussed several known sites adjacent to Highway 1 and reported a new prehistoric site (CA-SCR-214) adjacent to this pipeline component. Jones (1987a; S-009497) conducted subsurface testing at the site location with negative results.

S-004005

S-004005 reports findings from a general surface reconnaissance for new pipelines and facility improvements to the Pasatiempo/Rollingwood Wastewater Treatment System (Chavez 1979). The reconnaissance covered a large area between Pasatiempo and Scotts Valley and included the City/SVWD intertie component of the study area.

S-004100

This report includes cultural resources findings from a Caltrans report on access changes to Highway 17 between Pasatiempo and Scotts Valley (Watts 1980). The survey coverage included the south portion of the City/SVWD intertie component of the study area. No new resources were reported.

S-008134

S-008134 is a parcel level survey of 15.3 acres for a proposed church on La Madrona Drive (Dietz 1986). The location of the proposed development was several hundred feet west of the City/SVWD intertie component. After finding a few chert flakes and trace marine shell remains, Dietz completed over 30 auger probes and one 1 X 1 meter test unit to 90 cm. Findings suggested that the identified shell deposit was not of archaeological origin and the chert flakes were too sparse to justify recording them as a site.

S-009497 and S-009497a

This document is a Caltrans cultural resources report for a project to install signal and ramp improvements at the Highway 1/Park Avenue interchange (Jones 1987a) within the City/SqCWD/CWD intertie - Park Avenue pipeline component of the study area. The archaeological work included intensive surface reconnaissance and subsurface testing (hand augering) within the mapped boundaries of CA-SCR-214, as recorded by Melandry (1979; S-003995). Summarizing his results Jones wrote, "The absence of midden or other archaeological indicators and the extremely low density of shellfish remains indicates that the materials recorded as CA-SCR-214 *do not* in fact constitute an archaeological site" (Jones 1987a: 11 [emphasis added])

S-012082

Cartier (1990) conducted a records search and surface reconnaissance on two acres of property surrounding the Highway 17/Mt. Hermon Road Interchange. The location intersects the extreme north portion of the City/SVWD intertie component of the study area. The reported results were uniformly negative.

S-017870 and S-017870a

These two reports include a historic property survey and an archaeological survey conducted for minor improvements to Highway 1 (Melandry 1996a, 1996b). The coverage area reported in the document included the City/SqCWD/CWD intertie - Park Avenue pipeline component of the study area. Melandry concluded there were no historic properties affected by the proposed improvements.

S-024487 and S-024487a

This series of reports includes archaeological survey coverage for two alternative locations for a new Santa Cruz Metro operations center. S-024487 is for a location not within the study area. S-024487a includes survey coverage of the property immediately south of and possibly slightly overlapping the Tait Diversion and Coast Pump Station component of the study area (Doane and Haversat 2002). They findings were uniformly negative for cultural resources.

S-035956 and S-035956a, b, and c

This series of reports covers four elements of a Section 106 cultural resources compliance effort for the relocation of the Aptos transmission main, a project that included a small portion of the City/SqCWD/CWD intertie - Park Avenue pipeline component of the study area. Specifically, the reports include a historic inventory (Clark 2008), historic context (Duval et al. 2008), subsurface testing report (Clark 2009), and final monitoring report (Clark et al.

2013). While 16 historical period features and 21 historical period isolates were reported for the project in the final monitoring report, none were within or near the Park Avenue pipeline component.

S-037509

Haydu (2010) conducted a cultural resources assessment for a project to install a new water pipeline from the Coast Pump Station to the east terminus of High Street just west of downtown Santa Cruz. The pipeline project area therefore included the Tait Diversion and Coast Pump Station component of the study area. The report concluded that no cultural resources would be impacted by the project.

S-047397 and S-047397a

These two reports are related to a proposed widening project for Highway 1 (Mikkelsen et al. 2005; Mikkelsen 2010). The survey coverage intersects the City/SqCWD/CWD intertie - Park Avenue pipeline component of the study area. No resources were reported within the current discontiguous APEs.

Guerrero 2012 (not included in NWIC records search results)

Guerrero (2012) conducted a records search and surface survey of the entire City/SVWD intertie for NHPA Section 106 and CEQA level environmental review. Results of the survey were negative.

Previously Recorded Cultural Resources

There is one previously recorded resource within the study area and nine additional resources within the 0.25-mile records search buffer (Table 5). The one resource within the study area is CA-SCR-334H (P-44-000406), Highway 1 within Santa Cruz County. CA-SCR-334H is described below Table 5.

Table 5. Previously Recorded Cultural Resources within the Study Area and 0.25-Mile Buffer

Primary	Trinomial	Resource Name	Resource Type	Age	Attributes
Resources within Study Area					
P-44-000406	CA-SCR-000334H	Highway 1 (Santa Cruz County)	Structure	Historic	Highway
Resources within 0.25-Mile Records Search Buffer					
P-44-000038	CA-SCR-000032	Camp Mitchell	Site	Prehistoric	Bedrock milling feature
P-44-000170	CA-SCR-000168/H	Soquel Knolls	Site	Prehistoric, Historic	Lithic scatter, habitation debris, foundations/structure pads, standing structures
P-44-000181	CA-SCR-000179	DOT-04-SCR-1-1	Site	Prehistoric	Lithic scatter, habitation debris
P-44-000216	CA-SCR-000214	Field #2	Site	Prehistoric	habitation debris
P-44-000230	CA-SCR-000228	SCAS 79-408 #1	Site	Prehistoric	Lithic scatter, habitation debris
P-44-000234	CA-SCR-000232	New Brighton State Beach #1	Site	Prehistoric	Lithic scatter, habitation debris

Table 5. Previously Recorded Cultural Resources within the Study Area and 0.25-Mile Buffer

Primary	Trinomial	Resource Name	Resource Type	Age	Attributes
P-44-000377		Southern Pacific Railroad	Structure	Historic	Railroad grades, engineering structure, bridge other
P-44-000855		Cowell Home Ranch District	District	Historic	Quarries, Single family property, ancillary building, industrial building
P-44-001103	CA-SCR-000440H	Old Mill-01H	Site	Historic	Refuse scatter

CA-SCR-334H (P-44-000406)

CA-SCR-334H is Highway 1 within Santa Cruz County. It includes the route and structure of the road and associated features such as culverts and other infrastructure directly related to Highway 1. Most of the associated features are located where Highway 1 is still within a rural context, such as the Davenport area north of Santa Cruz. Fewer associated features are present in relatively urban areas where a greater number of improvements have been made to Highway 1 over time. This resource trends east to west through the City/SqCWD/CWD intertie - Park Avenue pipeline component at the Highway 1/Park Avenue overpass. The Park Avenue pipeline passes under the Highway 1/Park Avenue overpass and therefore does not conflict with the built portion of the resource. There are no Highway 1 associated features at this location.

Proximate Recorded Resources within the Study Area

Of the nine previously recorded resources within the 0.25-mile records search buffer, seven are archaeological resources and two are built environment resources. Table 6 lists the proximate archaeological resources with their location relative to the components of the study area. Table 7 lists the built environment resources with their location relative to the components of the study area.

Table 6. Proximate Previously Recorded Archaeological Resources

Resource	Description and Attributes	Resource Location Relative to the Components of the Study Area
P-44-000038 (CA-SCR-000032)	Prehistoric site; Bedrock milling feature	~425 feet east of City/SVWD Intertie on the opposite (east) side of Highway 17 and El Rancho Drive
P-44-000170 (CA-SCR-000168/H)	Prehistoric site with historical period component; Lithic scatter, habitation debris, foundations/structure pads, standing structures (last reported in 1981)	~800 feet west of City/SqCWD/CWD intertie - Soquel Village pipeline
P-44-000181 (CA-SCR-000179)	Prehistoric site; Lithic scatter, habitation debris	~150 feet south of City/SqCWD/CWD intertie - Soquel Village pipeline

Table 6. Proximate Previously Recorded Archaeological Resources

Resource	Description and Attributes	Resource Location Relative to the Components of the Study Area
P-44-000216 (CA-SCR-000214)	Prehistoric stie; Habitation debris	~10 feet west of City/SqCWD/CWD intertie - Park Avenue pipeline
P-44-000230 (CA-SCR-000228)	Prehistoric site; Lithic scatter, habitation debris	~625 feet south of Felton Diversion Site
P-44-000234 (CA-SCR-000232)	Prehistoric site; Lithic scatter, habitation debris	~950 feet south of City/SqCWD/CWD intertie - Park Avenue pipeline
P-44-001103 (CA-SCR-000440H)	Historical period archaeological site (mill); Refuse scatter	~500 feet north of City/SqCWD/CWD intertie - Soquel Village pipeline

The two archaeological resources that are close enough to a study area component to be of concern are CA-SCR-179 (P-4400181) and CA-SCR-214 (P-44-000216). However, both resources have been the subject of subsurface testing and found to be deposits of extremely low integrity or deposits that do not warrant consideration as archaeological sites as described below.

CA-SCR-179 (P-44-000181)

CA-SCR-179 was first recorded in 1979 as prehistoric site with fire-affected rock, chert tools, groundstone and shell midden. Jones (1987b) conducted a survey and test excavation at the site and found very sparse remains that he attributed to a secondary deposit of relocated midden soil.

CA-SCR-214 (P-44-000216)

Jones (1987a) tested CA-SCR-000214 with 10 hand augers and found two small fragments of shell weighing 0.2 grams and no other prehistoric material. The researchers determined that the remains "do not constitute and intact prehistoric deposit" (Jones and Kelly 1987: 5) and attributed the shell to either a redeposit event or modern activity.

Table 7. Proximate Previously Recorded Built Environment Resources

Resource	Description and Attributes	Resource Location Relative to the Components of the Study Area
P-44-000337	Santa Cruz Branch Line; Railroad grades, engineering structure, bridge	~150 feet southeast of the City/SqCWD/CWD intertie - Park Avenue pipeline; ~250 feet north of Beltz 8 ASR Facility; and ~500 feet south of Beltz 10 ASR Facility
P-44-000855	Cowell Home Ranch Historic District; Quarries, Single family property, ancillary building, industrial building	~850 feet west of the Tait Diversion and Coast Pump Station site

2.1.2 Summary of Records Search Findings for the Project APEs

Of the nine resources proximate to the study area, three are proximate to components of the APEs as shown in Tables 6 and 7 above. Specifically, the prehistoric site P-44-000230 (CA-SCR-228) is approximately 625 feet south of the Tait Diversion and Coast Pump Station component; P-44-000337, the Santa Cruz Branch Line is approximately 150 feet southeast of the Santa Cruz/SqCWD/CWD intertie - Park Avenue pipeline and about 250 feet and 500 feet from Beltz 8 ASR and Beltz 10 ASR components, respectively; and P-44-000855, the Cowell Home Ranch Historic District is approximately 850 west of the Tait Diversion and Coast Pump Station component of the APE.

2.2 Native American Coordination

Native American Information Outreach

On March 31, 2020, Dudek sent a request to NAHC for a search of their Sacred Lands File (SLF) for the vicinity of the APE. The SLF is a list of properties important to Native American tribes. On April 1, 2020, Dudek received a letter from the NAHC with **positive** findings from the SLF search with the Costanoan Ohlone Rumsen-Mutsun Tribe listed as the tribal contact in this case. NAHC also provided a list of Native American contacts that might have local knowledge of cultural and tribal cultural resources near the study area.

In order to obtain any relevant information from local tribes, Dudek sent letters via mail and email to all five of the Native American contacts provided by the NAHC on April 6, 2020. On April 7, 2020, Valentin Lopez, Chair of the Amah Mutsun Tribal Band, contacted Dudek. Mr. Lopez requested that a Native American monitor from the Amah Mutsun Tribal Band be hired for all ground-disturbance work within 400 feet of known cultural resource sites. No additional Native American contacts have responded to the outreach letters as of June 4, 2020. A complete record of the Native American outreach effort is included in **Appendix C**.

CEQA AB 52 Consultation

The CEQA lead agency for consultation with local Native American tribes is the City of Santa Cruz. At the time of this report, the City has not received any AB 52 requests from local tribes. The agency regulatory contact for the consultation is Ms. Sarah Easley Perez, Santa Cruz Water Department, 212 Locust Street, Suite C, Santa Cruz, CA 95060, (831) 420-5327; seasleyperez@cityofsantacruz.com.

NHPA Section 106 Consultation

At the time of application to the U.S. Army Corps of Engineers (USACE) for necessary federal entitlements, USACE will be the federal lead agency for compliance with NHPA Section 106 regulations. As part of the application review, USACE will likely conduct a new SLF search and the required Section 106 Native American consultation through the Native American Heritage Commission directly from the USACE District office in San Francisco. The USACE regulatory contact for the Native American consultation will be determined at that time.

2.3 Historic Advocacy Correspondence

On June 2nd, 2020 Dudek, Architectural Historian, Fallin Steffen, sent electronic contact letters to the Santa Cruz Museum of Art and History, the Santa Cruz Museum of Natural History, the San Lorenzo Valley Museum, the Capitola Historical Museum, and the Pajaro Valley Historical Association. The letters briefly described the Proposed Project and requested information about cultural resources near the project area.

Felicia Van Stolk, from the Santa Cruz Museum of Natural History responded on June 3, 2020 and recommended that Dudek reach out to the Amah Mutsun Tribal Band as the Proposed Project is located within their territory. As detailed in Section 2.2 Native American Outreach, Dudek contacted the Amah Mutsun Tribal Band on April 6, 2020 and received a reply on April 7, 2020 from Valentin Lopez, Chair of the Amah Mutsun Tribal Band requesting the need for a Native American monitor from the Amah Mutsun Tribal Band be hired for all ground-disturbance work within 400 feet of known cultural resource sites. A complete record of the Native American outreach effort is included in **Appendix C.**

Lou Arbanas, a volunteer with the Pajaro Valley Historical Association responded on June 3, 2020 that the association did not have knowledge of anything within the Study Area.

Copies of other interested party correspondence are located in **Appendix D**.

2.4 Building Development and Archival Research

Dudek conducted additional background research to arrive at a general understanding of the settlement and development of the Proposed Project area. Below is a summary of research efforts.

Santa Cruz Public Library

Dudek staff viewed digital source material related to the development of water infrastructure in Santa Cruz County. The materials reviewed during this visit were used in the preparation of Section 3: Historic Context and Section 5: Significance Evaluation of this report.

Santa Cruz Water Department Archives

Santa Cruz Water Department staff provided Dudek with a selection of materials related to the development of water infrastructure in Santa Cruz County. These materials were incorporated throughout this report and used in the preparation of Section 3: Historic Context and Section 5: Significance Evaluation of this report.

Historical Newspaper Review

Dudek reviewed historical newspapers from Santa Cruz covering the development of water infrastructure in Santa Cruz County, in an effort to understand the development of the system overall. These documents were used in the preparation of Section 3: Historic Context and Section 5: Significance Evaluation of this report.

Historical Sanborn Map Review

A review of historical Sanborn Map Company fire insurance maps covering the City of Santa Cruz was conducted as part of the archival research effort for the Proposed Project from the following years: 1888, 1892, 1905, 1928, and 1928-1950*.

Historical Aerial Photographs

A review of historical aerial photographs was conducted as part of the archival research effort for the Proposed Project from the following years: 1931, 1940, 1948, 1952, 1964, 1968, 1982, 1993, 2005, 2009, 2010, 2012, 2014, and 2016 (NETR 2020; UCSB 2020).

3 Historic Context

The following historic context addresses relevant themes concerning the history of the water delivery infrastructure in the County. It begins with a pre-historic and ethnographic overview of the County, followed by a discussion of the initial development of the County, then a comprehensive overview of the three phases of City water development. This section then concludes with a discussion of the historical development of some of the smaller, outlying water districts in the County including SLVWD, SVWD, SqCWD, and CWD.

3.1 Environmental Context

The study area includes 11 discontinuous components all lying between 50 and 550 feet above mean sea level between the north shore of Monterey Bay and the Santa Cruz Mountains. The area is traversed by numerous rivers and drainages that trend south from the mountains to the bay. The greater study area includes several vegetation regimes, including the redwood forest regime dominated by redwood (*Sequoia sempervirens*), the hardwood forest regime, and the coastal prairie-scrub mosaic (Küchler 1977). The Natural Resources Conservation Service maps show nine soil types within the greater study area (SoilWeb 2020). Geology of the Study Area is largely marine and nonmarine sedimentary rock of the Miocene, Pleistocene, and Holocene and plutonic rocks of the Mesozoic (USGS 2020). The region has a Mediterranean climate, with warm dry summers and cool wet winters.

3.2 Prehistory

The Project lies within the territory that was occupied by the Costanoan or Ohlone people prior to European contact. The term Costanoan refers to people who spoke eight separate Penutian-stock language groups and lived in autonomous tribelet communities between the vicinities of the City of Richmond in the north to Big Sur in the south. The Awaswas tribelet occupied the Santa Cruz area at the time of European contact (Levy 1978).

New information regarding the lifeways of pre-contact Californians is elucidated through continued ethnographic and archaeological studies. Early European explorers between the 16th and 18th centuries provided the first written descriptions about the native Californians they encountered, although details are sparse. Attempts at systematic ethnographies did not occur until the early 20th century, generations after the effects of missionization and integration had altered Costanoan/Ohlone lifestyles drastically. Many of the studies, such as those conducted by John P. Harrington (1942) and C. Hart Merriam (1967), focused on recording Native languages before they fell into disuse. Information from the archaeological record continues to fill in the gaps of prehistoric lifeways. Archaeologists extrapolate trends in tool use, trade, diet and migration from studies of archaeological sites. Costanoan/Ohlone descendants are often invited to participate in decisions about treatment of their ancestral sites and to educate others about their traditional lifeways.

New archaeological finds continue to fill in the gaps of our understanding of prehistoric lifeways. Jones et al. (2007) presents a synthetic overview of prehistoric adaptive change in the central coast. This temporal framework for the prehistoric era of the greater central California coast spans a period of approximately the last 10,000–12,000 years, a period known as the Holocene, and divides that span into six different periods. Researchers distinguish these periods by perceived changes in prehistoric settlement patterns, subsistence practices, and technological advances. These adaptive shifts are recognized by differences in temporally discrete artifact assemblages, site locations, and site types. Table 8 summarizes the cultural chronology presented by Jones et al. (2007).

Table 8. California Central Coast Chronology

California Central Coast Chronology	
Temporal Period	*Date Range**
Paleo-Indian	pre-8000 cal BC
Millingstone (or Early Archaic)	8000 to 3500 cal BC
Early	3500 to 600 cal BC
Middle	600 cal BC to cal AD 1000
Middle-Late Transition	cal AD 1000-1250
Late	cal AD to 1250-1769

Note:
* Following Jones et al. 2007.

Paleo-Indian

The Paleo-Indian era represents people's initial occupation of the region and is quite sparse across the Monterey Bay region. Evidence of this era is generally found through isolated artifacts or sparse lithic scatters (Bertrando 2004). Farther south, in the San Luis Obispo area, fluted points characterizing this era are documented near the town of Nipomo (Mills et al. 2005) and Santa Margarita (Gibson 1996). No fluted points have been found in the northern central coast—Monterey, Santa Cruz, and San Mateo Counties. Possible evidence for Paleo-Indian occupation is reported at CA-SCR-38/123 at Wilder Ranch (Bryne 2002) and CA-SCR-177 in Scotts Valley (Cartier 1993). The traditional interpretation of Paleo-Indian lifeways is that people were highly mobile hunters who focused subsistence efforts on large mammals. In contrast, Erlandson et al. (2007) proposes a "kelp highway" hypothesis for the peopling of the Americas. Proponents of this model argue that the earliest inhabitants of the region focused their economic pursuits on coastal resources. Archaeological sites that support this hypothesis are mainly from the Santa Barbara Channel Islands. Some scholars hypothesize that Paleo-Indian sites in the Bay Area/northern central coast region may exist but have been inundated as a result of rising ocean levels throughout the Holocene (Jones and Jones 1992).

Millingstone

Settlement in the central coast appears with more frequency in the Millingstone Period. Sites of this era have been discovered in Big Sur (Jones 1993; Fitzgerald and Jones 1999) and Moss Landing (Jones and Jones 1992; Milliken et al. 1999). Assemblages are characterized by abundant millingstones and handstones, cores and core-cobble tools, thick rectangular (L-series) Olivella beads, and a low incidence of projectile points, which are generally lanceolate or large side-notched varieties (Jones et al. 2007). Eccentric crescents are also found in Millingstone components. Sites are often associated with shellfish remains and small mammal bone, which suggest a collecting-focused economy. Newsome et al. (2004) reported that stable isotope studies on human bone, from a Millingstone component at CA-SCR-60/130, indicate a diet composed of 70%–84% marine resources. Contrary to these findings, deer remains are abundant at some Millingstone sites (cf. Jones et al. 2008), which suggests a flexible subsistence focus. Similar to the Paleo-Indian era, archaeologists generally view people living during the Millingstone era as highly mobile.

Early

The Early Period corresponds with the earliest era of what Rogers (1929) called the "Hunting Culture." According to Rogers (1929), the Hunting Culture continues through to what is termed the Middle-Late Transition in the present framework. The Early Period is marked by a greater emphasis on formalized flaked stone tools, such as projectile points and bifaces, and the initial use of mortar and pestle technology. Early Period sites are located in more varied environmental contexts than millingstone sites, suggesting more intensive use of the landscape than practiced previously (Jones and Waugh 1997).

Early Period artifact assemblages are characterized by large side-notched points, Rossi square-stemmed points, and spire-lopped (a), end-ground (b2b and b2c), cap (b4), and rectangular (L-series) Olivella beads. Other artifacts include less temporally diagnostic contracting-stemmed and Año Nuevo long-stemmed points and bone gorges. Ground stone artifacts are less common relative to flaked stone tools when compared with Millingstone-era sites.

Early Period sites are common and often found in estuary settings along the coast or along river terraces inland and are present in both Monterey and Santa Cruz Counties. Coastal sites dating to this period include CA-MNT-108 (Breschini and Haversat 1992a), CA-SCR-7 (Jones and Hildebrandt 1990), and CA-SCR-38/123 (Jones and Hildebrandt 1994).

Archaeologists have long debated whether the shift in site locations and artifact assemblages during this time represents either population intrusion as a result of mid-Holocene warming trends, or an in situ adaptive shift (cf. Mikkelsen et al. 2000). The initial use of mortars and pestles during this time appears to reflect a more labor-intensive economy associated with the adoption of acorn processing (cf. Basgall 1987).

Middle

The trend toward greater labor investment is apparent in the Middle Period. During this time, there is increased use of plant resources, more long-term occupation at habitation sites, and a greater variety of smaller use-specific localities. Artifacts common to this era include contracting-stemmed projectile points, a greater variety of Olivella shell beads, and Haliotis ornaments that include discs and rings (Jones 2003). Bone tools and ornaments are also common, especially in the richer coastal contexts (Jones and Ferneau 2002a; Jones and Waugh 1995), and circular shell fishhooks are present for the first time. Grooved stone net sinkers are also found in coastal sites. Mortars and pestles become more common than millingstones and handstones at some sites (Jones et al. 2007). Important Middle Period sites include CA-MNT-282 at Willow Creek (Jones 2003; Pohorecky 1976), CA-MNT-229 at Elkhorn Slough (Dietz et al. 1988), and CA-SCR-9 and CA-SMA 218 at Año Nuevo (Hylkema 1991).

Jones et al. (2007) discussed the Middle Period in the context of Rogers's (1929) Hunting Culture because it is seen as a continuation of the pattern that begins in the Early Period. The pattern reflects a greater emphasis on labor-intensive technologies that include projectile and plant processing. Additionally, faunal evidence highlights a shift toward prey species that are more labor intensive to capture, either by search and processing time or technological needs. These labor-intensive species include small schooling fishes, sea otters, rabbits, and plants such as acorn. Jones and Haney (2005) offer that Early and Middle Period sites are difficult to distinguish without shell beads due to the similarity of artifact assemblages.

Middle-Late Transition

The Middle-Late Transition corresponds with the end of Rogers' (1929) Hunting Culture. Artifacts associated with the Middle-Late Transition include contracting-stemmed, double side-notched, and small leaf-shaped projectile points. The latter are thought to represent the introduction of bow and arrow technology to the region. A variety of Olivella shell bead types are found in these deposits and include B2, B3, G1, G2, G6, and K1 varieties, notched line sinkers, hopper mortars, and circular shell fishhooks (Jones 1995; Jones et al. 2007). Sites that correspond with this time are CA-MNT-1233 and CA-MNT-281 at Willow Creek (Pohorecky 1976), CA-MNT-1754, and CA-MNT-745 in Priest Valley (Hildebrandt 2006). A greater number of Middle-Late Transition sites are found in San Luis Obispo County to the south.

The Middle-Late Transition is a time that appears to correspond with social reorganization across the region. This era is also a period of rapid climatic change known as the Medieval Climatic Anomaly (cf. Stine 1994). The Medieval Climatic Anomaly is proposed as an impetus for the cultural change that was a response to fluctuations between cool-wet and warm-dry conditions that characterize the event (Jones et al. 1999). Archaeological sites are rarer during this period, which may reflect a decline in regional population (Jones and Ferneau 2002b).

Late

Late Period sites are found in a variety of environmental conditions and include newly occupied task sites and encampments, as well as previously occupied localities. Artifacts associated with this era include cottonwood (or canaliño) and desert side-notched arrow points, flaked stone drills, steatite and clamshell disc beads, Haliotis disc beads, Olivella bead types E1 and E2, and earlier used B2, B3, G1, G6, and K1 types. Millingstones, handstones, mortars, pestles, and circular shell fishhooks also continue to be used (Jones et al. 2007). Sites dating to this era are found in coastal and interior contexts. Late Period sites include CA-MNT-143 at Asilomar State Beach (Brady et al. 2009), CA-MNT-1765 at Moro Cojo Slough (Fitzgerald et al. 1995), CA-MNT-1485/H and CA-MNT-1486/H at Rancho San Carlos (Breschini and Haversat 1992b), and CA-SCR-117 at Davenport Landing (Fitzgerald and Ruby 1997).

Coastal sites dating to the Late Period tend to be resource acquisition or processing sites, while evidence for residential occupation is more common inland (Jones et al. 2007).

3.3 Historical Overview of Santa Cruz County

3.3.1 Spanish Period (1769–1822)

The earliest known European exploration of the Monterey Bay was a Spanish envoy mission led by Sebastián Vizcaíno in 1602. The purpose of the voyage was to survey the California coastline to locate feasible ports for shipping, and Vizcaíno had explicit instructions prohibiting the creation of settlements and interacting with local Native Americans. Finding the bay to be commodious, fertile, and extremely favorable for anchorage during eastward voyages from Manila to Acapulco, Vizcaíno named the Bay "Monterey" after the Conde de Monterey, the present Viceroy in Mexico (Chapman 1920: 293-4; Hoover et al. 2002: 225-6).

Despite being mapped as an advantageous berth for Spanish shipping efforts, the epicenter of Spanish settlement in Alta California did not make its way to the Monterey Bay until the second half of the eighteenth century. In an effort to prevent the establishment of English and Russian colonies in northern Alta California, Don Gaspar de

Portolá, the Governor of Baja, embarked on a voyage in 1769 to establish military and religious control over the area. This overland expedition by Portolá marks the beginning of California's Historic period, occurring just after King Carlos III of Spain installed the Franciscan Order to direct religious colonization in assigned territories of the Americas. With a band of 64 soldiers, missionaries, Baja (lower) California Native Americans, and Mexican civilians, Portolá established the Presidio of San Diego, a fortified military outpost, as the first Spanish settlement in Alta California. In July of 1769, Padre-Presidente Franciscan Fr. Junípero Serra founded Mission San Diego de Alcalá at Presidio Hill, the first of the 21 missions that would be established in Alta California by the Spanish and the Franciscan Order between 1769 and 1823, including Mission Santa Cruz (Hoover et al. 2002: 226; Lehmann 2000: 3; Koch 1973: 3).

On their quest to locate the Monterey Bay from the 160-year-old accounts of Sebastián Vizcaíno, the Portolá expedition first reached the present-day territory of Santa Cruz on October 17, 1769. After mistakenly circumventing the Monterey Bay and reaching the San Francisco Bay, the expedition backtracked to San Diego. The following year on May 31, 1770, a second expedition was organized by Portolá resulting in a successful location of the Monterey Bay. However, it would be an additional 21 years before the Franciscan order would establish Mission Santa Cruz in the area near the San Lorenzo River (Koch 1973: 2–3; Hoover et al. 2002: 447-8).

Father Fermín Lasuén, Corporal Luis Peralta, and five soldiers established Mission Santa Cruz on August 28, 1791, as the twelfth mission in the California Mission system. The Spanish Padres converted local Native Americans to Catholicism largely against their will, after which they were known as neophytes. Neophytes were forced to build the mission church and auxiliary structures from local timber, limestone, and adobe, as well as to cultivate wheat, barley, beans, corn, and lentils for their captors. In 1792, neophytes were directed to excavate a ditch for the purposes of carrying water from Tres Ojos de Agua (Three Eyes of Water), a group of three creeks near the modern entrance to the University of California, Santa Cruz campus, down to the Mission site. This ditch and the footpath beside it established the foundation for the future orientation of High Street in the City of Santa Cruz today, and offered the Mission a distinct advantage in a geographic area that often experienced water shortages during the summer months (Hoover et al. 2005: 448; Lehmann 2000: 3-4; SCWD n.d: 1).

From the start, Mission Santa Cruz was plagued by substantial issues. The forced conversion of the local native population by the Spanish Padres resulted in repeated rebellions, violence, desertion, and pestilence at Mission Santa Cruz. In 1793, the neophyte population attacked the Mission guards and burned their station to the ground. In 1798, Padre Fernandez reported that 189 of the approximately 230 neophytes living on the Mission grounds had abandoned the Mission, causing the crops to fail and the livestock to be largely neglected. The Mission also experienced problems wrought by a nearby settlement known as Villa de Branciforte (Lehmann 2000: 3-4).

In 1795, Spain established three self-governing Pueblos in Alta California that, unlike the Missions, would remain free from military and religious oversight. Villa de Branciforte was established in 1797 on the opposite bank of the San Lorenzo River from Mission Santa Cruz along the present-day alignment of both Branciforte Avenue and Branciforte Creek. The 40 settlers of Villa de Branciforte were not provided with the resources promised to build housing or cultivate the land and had to make do with crude dwellings of their own design. In 1803, there were 107 inhabitants, but because the population was made up of former soldiers, artisans, and criminals, they lacked the pertinent skill to farm and sustain themselves. Despite population growth in the initial years, the settlement was quickly deemed a failure by Spain (Lehmann 2000: 4-5).

By 1817, the population of Villa de Branciforte had dwindled to 52 people. In 1818, fearing the attack of the French pirate Hippolyte de Bouchard who had recently attacked the Monterey Presidio, the Mission Padres fled from the Mission Santa Cruz and placed the care of the complex with the remaining inhabitants of Villa de Branciforte. Instead

of securing the Mission, the inhabitants of the Villa looted the valuable items from the complex while the Padres were away, including furniture, doors and flatware. Additionally, just under half of the 410 neophytes living at the Mission fled from the complex during the looting chaos and never returned (Lehmann 2000: 4-5).

3.3.2 Mexican Period (1822–1848)

After more than a decade of intermittent rebellion and warfare, New Spain (Mexico and the California territory) won independence from Spain in 1821. In 1822, the Mexican legislative body in California ended isolationist policies designed to protect the Spanish monopoly on trade, and decreed California ports open to foreign merchants. In addition to eliminating the system of Spanish nobility in California, the Spanish missions across the territory were secularized during this period (Koch 1973: 10; Lehmann 2000: 4).

The secularization of the Spanish Missions meant that all communal mission property was placed in a trust with the intention of being returned to the local Native American population. In Santa Cruz, the land stolen by the Spanish was returned to Native Americans between 1834 and 1839, but a small pox epidemic in 1838 and reoccurring bouts of syphilis caused a massive decline in the Native American population from 284 persons in 1837 to only 71 persons in 1839. This meant that very few eligible Native American recipients remained to receive it, and records indicate that overall, only 25 Native Americans held property in the Santa Cruz area between 1834 and 1849 (Lehmann 2000: 4-5).

Extensive land grants were established in the interior during the Mexican Period, in part to increase the population inland from the more settled coastal areas where the Spanish had first concentrated its colonization efforts. Land grants to citizens covered over 150,000 acres of present-day Santa Cruz County.

The scarcity of water in the future City of Santa Cruz intensified towards the end of the Mexican Period with assistance from a formal decree by the Santa Cruz Alcalde, Don Manuel Rodriguez. In 1844, Rodriguez transferred the rights to the water carried by the 1792 aqueduct to the limited control of the mission and eight adjacent grant-holders. After this point, the growing population in the outlying areas of Santa Cruz became exclusively reliant on water taken from shallow wells and surface sources that were subject to seasonal surge and drought cycles, such as the San Lorenzo River (SCWD n.d.: 1).

3.3.3 American Period (1848–Present)

The Mexican–American War ended with the Treaty of Guadalupe Hidalgo in 1848, ushering California into its American Period. Santa Cruz was designated as one of the 27 original counties of California on February 18, 1850, shortly before California officially became a state with the Compromise of 1850. The new State of California recognized the ownership of lands in the state distributed under the Mexican land grants of the previous several decades (Lehmann 2000: 5; Koch 1973: 35).

As the Gold Rush was picking up steam in 1849, a massive influx of people seeking gold steadily flooded the rural counties of California. The gold fields quickly dried up, causing many new arrivals to refocus on other economic opportunities. In Santa Cruz County, insightful entrepreneurs saw the arrival of opportunity-seeking laborers as a means to harvest the abundant natural resources found throughout the area. The lumber, lime, cement, fishing, tanning, and leisure industries formed the economic foundation of the County (Lehmann 2000: 7).

In the central and southern areas of the County, early settlers took advantage of the fertile soil and temperate climate to establish large farms and dairies. Agricultural products including grain and apples were among the County's earliest and most successful.

Interest in the beauty of the Monterey Bay drew visitors to the County as early as the 1860s, causing beach tourism to emerge as another major industry in the County. Tourism was also responsible for quickening the rate of development along the scenic coastal areas of Santa Cruz County. A rail line running from Gilroy to Santa Cruz by way of Watsonville was completed by 1876, followed shortly thereafter by a narrow gauge line from Santa Cruz to Felton. The completion of the Santa Cruz–Watsonville Railroad allowed for greater mobility to the area from the inland counties of California, by both residents and tourists alike. As the port altogether declined due to lack of use and the ease of transport by train, the beachfront areas of the city presented savvy entrepreneurs with emerging opportunities (Lehmann 2000: 14, 25-6).

By 1893, Harper's Weekly acknowledged the County as a beach destination, promoting beachside institutions like the Neptune Baths built in 1884 by Captain C.F. Miller, and giving the coastal destinations like Camp Capitola the push needed to become a national tourist destination. The economic transition away from the early industries of the County towards tourism during this period helped to alleviate the strain placed on the forests in the north of the County, which had experienced widespread deforestation as a result of early logging and lime production activities in that area. Few old-growth redwood specimens remained in the forests of the Santa Cruz Mountains, and as it became clear that these trees were capable of drawing crowds on their own, their conservation became a dual effort to both save the trees and simultaneously promote Santa Cruz County as a one-stop tourism destination. A tourist to the County could visit the ocean and the big trees in one day with the help of the train (Lehmann 2000: 14).

As the County moved into the 1900s, agriculture and tourism continued as the region's most prominent economic drivers. By the late 1950s, the population began to expand with aid from the establishment of Cabrillo College in 1959 and the University of California at Santa Cruz in the 1965. These higher education facilities brought both students and jobs as the schools became major sources of community employment throughout the County. During the 1980s, a number of technology companies settled in the area due to its close proximity to Silicon Valley. Today, tourism, agriculture, manufacturing, and technology are the key industries that provide the economic base for County's 273,213 residents (U.S. Census Bureau 2019).

3.3.4 Early Development of Water Management in Santa Cruz County

The following context discusses the development of the Santa Cruz Water Department (SCWD), which provides municipal water to residents of the City and surrounding areas within the County. The SCWD water system serves approximately 23,700 residential, commercial, industrial, municipal, and irrigation accounts within approximately 30 square miles, encompassing the entire City and select contiguous County areas (EKI 2011: 9).

Several miles north of the evolving city center at the base of the Santa Cruz Mountains, multiple mountain streams and tributaries carve deep channels and valleys through the dense redwood and oak timberlands. The extensive virgin forests and the rich underground deposits of lime in the Santa Cruz Mountains attracted opportunistic settlers and purveyors in the mid- to late-1800s who sought to harness the power of the mountain streams to move the goods located in the remote area to market (Hoover et al. 2002: 456).

The California Gold Rush of 1848 accelerated the desirability of land across the state, and before long, access to water in the drought-prone region took on the highest level of importance. Instead of adopting an equal water

access structure in the fashion of the eastern United States, the wealth potential of waterways during the Gold Rush shaped California water law into a "first in time, first in right" system known as Prior Appropriation. Under this system, riparian rights were granted to the first person to use a river or tributary for beneficial consumption like mining, farming, milling, or as-needed domestic use. When land in the Santa Cruz Mountains was subdivided and sold, access to the rivers and streams was enormously important. Not only did it mean that the initial use set out for a waterway was the primary use, it also meant that any subsequent uses could not supersede or negatively affect the chief use. The order that claims were recognized during this period established the foundation of the complicated system of water allocation rights still in use today in the County (Pisani 1984: 246–247).

Many of these mountain streams and tributaries were utilized by early landowners and tenant entrepreneurs to make a profit from the natural resources that formed the early economic basis of the County. Several of these mountain creeks still bear the names of the first men who established mills or permanently settled beside them. Majors Creek was named for Joseph L. Majors who established a grist mill on the creek prior to serving as the County Treasurer between 1850 and 1853. Liddell Creek was named for George Liddell who moved to the Santa Cruz Mountains and established a sawmill on the creek in 1851. Newell Creek was named for Addison Newell who established a farm in the steep, v-shaped valley on the banks of the creek in 1867 (Koch 1973: 33–34; D. Clark 2008: 174, 187, 215).

For others, the streams presented pure economic opportunity. The first power sawmill in California was built on Rancho Zayante by Isaac Graham in the 1842 and was driven by the waters of Zayante Creek. Isaac E. Davis and Albion P. Jordan of the Davis and Jordan Lime Company purchased a portion of Rancho Cañada del Rincon in 1853 as a promising quarry site. They also utilized the falling water on the property to process local lumber into fuel for their many kilns. The California Powder Works was established in 1865 on the bank of the San Lorenzo River on a portion of Rancho Carbonera. The Powder Works used the river to grind raw materials used in the production of the first smokeless powder manufactured on the west coast of the United States. By 1868, there were a sizable number of business and industries that relied on water from County waterways to operate, including 12 water-powered lumber mills, 10 steam-powered lumber mills, and 9 shingle mills in operation within the County (D. Clark 2008: 130–131; Hoover et al. 2005: 456; Koch 1973: 36–37; Brown 2011: 4).

As water management techniques were being applied to a variety of industry in the County, the successful technologies developed and used in early natural resource harvesting such as flumes and pumps prompted local residents in Santa Cruz to consider why these were not being put to use for the benefit of drinking water. Furthermore, the up-stream uses of many of these industries that had developed along streams in the Santa Cruz Mountains had resulted in a less than desirable water quality downstream.

3.4 Early Water Development in Santa Cruz City (1864–1917)

3.4.1 Private Development (1864–1916)

Beginning in the 1860s, acute cyclical water shortages and pollution prompted the development of several for-profit water systems in Santa Cruz. By the end of the 1880s, the two surviving major water companies, F.A. Hihn Water Works and the Santa Cruz Water Company, were joined into a single private business that competed with the new municipal water system that began in 1890 for almost three decades before being purchased by the City and integrated into the municipal system in 1916.

3.4.1.1 F.A. Hihn Water Works (1864)

In 1864, prompted by the issue of shortage, young entrepreneurs Elihu Anthony and Fredrick A. Hihn implored the Board of County Supervisors to allow them to dig trenches and lay redwood pipes to transport water throughout Santa Cruz. The "wooden tubes" were chosen as an inexpensive alternative to iron pipes (Santa Cruz Weekly Sentinel 1864a: 2). The source of the water was an 8,000-gallon reservoir on Anthony's property supplied by water from Scott's Creek, and eager recipients of the water could gain access for a fee. (Brown 2011: 1–2; Santa Cruz Weekly Sentinel 1864: 2).

By 1876, the 1864 system was known as the F.A. Hihn Water Works, and it was the largest provider of water in the newly chartered City, with Dodero and Carbonera Creeks constituting its primary sources. The company predated the incorporation of Santa Cruz by 2 years (Koch 1973: 35; Brown and Dunlap 1956: 14; City of Santa Cruz 2020).

3.4.1.2 The Santa Cruz Water Company (1866)

In 1866 a new, fee-based, private water supply company was founded to share in the lucrative profits of the F.A. Hihn Water Works. A man named E. Morgan acquired rights to the waters of the San Lorenzo River in 1866, just prior to the town of Santa Cruz being officially incorporated later that year. He used these rights to install a section of pipework conveying water to the area known then as the "The Flats," which comprises the modern area of Pacific Avenue and Front Street (SCWD n.d.: 1).

In 1876, Morgan sold his system to a wealthy man from San Francisco named H.K. Lowe. Under Lowe's guidance, the Santa Cruz Water Company incorporated in July 1876 and began construction on a pumping station on the San Lorenzo River approximately 1 mile upstream from the City, as well as a new reservoir located on High Street. Morgan retained 50 company shares and became the resident engineer and superintendent of the Santa Cruz Water Company. By the end of 1876, the company had also installed a Branciforte Creek diversion to deliver water via a pipeline to a new reservoir located at the base of School Street. As the City continued to grow and the steam-powered pumping plant installed on the San Lorenzo River became the source of repeated water-quality concerns, the Santa Cruz Water company acquired partial water appropriation rights to the Majors (then called Cojo Creek) in 1881. After the acquisition, the company scrapped the whole San Lorenzo pumping plant for $800 (Santa Cruz Weekly Sentinel 1877a: 1; 1877b: 2; SCWD n.d.: 1).

For the next several years, the Santa Cruz Water Company focused its attention on the construction of a pipeline to divert water from Majors Creek. This effort was very costly and the company slipped into dire financial condition. In August 1886, the company along with all of its appurtenances was sold to the City, financed through the sale of bonds from the Bank of Santa Cruz and the Anglo-Californian Bank. Hihn bitterly opposed the issuance of the bonds and contested their legality in court. The matter reached the Supreme Court and the election in favor of the bonds was declared invalid in 1887. By this time however, the City had already operated the water system for over a year when it was re-conveyed to private owners in 1887 (Santa Cruz Weekly Sentinel 1882: 3; SCWD n.d.: 1; Santa Cruz Surf 1890a: 1).

The City voted again in March 1888 to put up the bonds necessary to purchase the Santa Cruz Water Company system from the private owners. However, while the City was in the process of securing the bonds for the purchase, the Santa Cruz Water Company system was covertly sold to F.A. Hihn in a private, backroom transaction before the City could obtain legal ownership. Hihn quickly consolidated the Santa Cruz Water Company system with his own system of works. This transaction effectively severed any opportunity the City had of acquiring an established water works system with which to launch their own public water system (Santa Cruz Daily Surf 1888a: 3, 1888b: 2; Santa Cruz Surf 1890a: 1).

F.A. Hihn continued to operate the consolidated system as the Santa Cruz Water Company and expanded the service area east into the Seabright neighborhood until his death in 1913 (SCWD n.d.: 1).

3.4.2 Public Development (1890–1917)

During the 1880s, the rising price of these fee-based water systems like the F.A. Hihn Water Works and the Santa Cruz Water Company prompted the City to explore their own, city-owned, public water option. After several disappointing attempts to acquire an existing system of water works, the City revised its approach and began planning to build a diversion system and storage reservoir from the ground up, prompting the development of the first municipal water project in Santa Cruz, the Laguna Creek Dam and the Cowell Reservoir. This project led the way for other ambitious water system development in the City including several other north coast stream diversions and the first pumping plant on the San Lorenzo River. In 1916, the City acquired the rights to the Santa Cruz Water Company and began to tie in the systems as one, forming the basis of the modern SCWD system used today.

3.4.2.1 The Laguna Creek Dam and the Cowell Reservoir (1890)

In July 1888, the Common Council secured the water rights to the Laguna Creek. "The Laguna," the *Santa Cruz Sentinel* reported, "is a rushing, roaring mountain stream, entirely rock bound and tree shaded above the falls where it is proposed to take the water out (Santa Cruz Sentinel 1888: 2)." The stream was capable of supplying 1.4 million gallons towards a City-owned water works. Plans were finally in motion for the construction of the first city-owned water works, supplied through a new pipeline by the waters of Laguna Creek, with reserve storage in a new City reservoir on Henry Cowell's ranch property known as the Cowell Street Reservoir, which was located roughly at the present site of the U.C. Santa Cruz Arboretum. The *Santa Cruz Surf* reported with excitement that the new project would mean open, municipal water so that each citizen of Santa Cruz could finally "quench his thirst with free water without 'dropping a nickel in the slot'" (Santa Cruz Surf 1890a: 1).

The bonds required to fund the construction of the City water works were secured within the following year, and in July 1889, a civil engineer named G.S. Schussler issues a report in favor of the project that valued the proposed undertaking at $260K (Santa Cruz Surf 1889a: 3, 1889b: 3).

The prominent San Francisco firm Risdon Iron Works was selected as the contractor, who were known for producing the great iron pipes for steam ships. The *Santa Cruz Surf* reported that work on the dam on Laguna Creek and the dam at the reservoir site would be completed by the San Francisco contracting firm Kelso and Dare (Santa Cruz Surf 1889c: 3).

On September 30, 1890, the *Santa Cruz Surf* reported that the reservoir and the pipeline of the City water works were nearly complete. The article published an in-depth description of the new Laguna Creek Dam (Exhibit 1), stating that (Santa Cruz Surf 1890b: 3):

> The dam across Laguna Creek just above the Henneuse place is one of the finest pieces of rubble stone work in the county and not to be excelled anywhere. The granite rocks used in its construction were taken from the bed of the creek, some of them weighing as much as two tons. The water will first be diverted from the Laguna at this point into a flume 3x4 feet and one hundred feet in length, also built of solid masonry. This is nearly level and terminates in a basin two feet lower, and into which the sand and sediment which may be carried in the water in a time of storm will settle. Gates are provided by means of which this basin can be cleared as often as required. From here the water will enter the 14-inch main through which it will be carried to the storage reservoir. This pipe follows the canyon of the Laguna creek as nearly as possible to the county road a distance of about three miles.

Exhibit 1. The earliest known photograph of the Laguna Creek Masonry Dam published in the Santa Cruz Surf in 1892 (Santa Cruz Surf 1892: 2).

On October 18, 1890, the last pipe connecting the Laguna Creek to the new Cowell Street Reservoir (Exhibit 2) was put into position. The pipeline emptied into the reservoir for storage and eventual distribution to the homes and businesses of Santa Cruz (Santa Cruz Surf 1890c: 3).

Exhibit 2. The earliest known photograph of the Cowell Street Reservoir published in the *Santa Cruz Surf* in 1892 (Santa Cruz Surf 1892: 2).

3.4.2.2 Reggiardo Creek Diversion (Flume 1891, Dam 1912)

A 965-foot-long flume was completed in 1891 connecting the west branch of Laguna Creek, colloquially known as Reggiardo Creek, to the main Laguna Creek by emptying out water to the north of the Laguna Creek Dam. The new flume was intended to help supplement the municipal supply from Laguna Creek, as the year-old Laguna Creek Dam was quickly inundated with sediment and less water than expected was being captured by the system overall (Santa Cruz Surf 1892: 2).

In 1912, R.S. Tait, the water superintendent, announced that a dam had been completed on Reggiardo Creek in order to aid in the supply of daily drinking water sourced from Laguna Creek. The level of Laguna Creek had been significantly reduced by a lack of rainfall in the watershed area, causing the supply of water in the impoundment to drop below sufficient levels to support the community (SC Evening News 1912: 2).

3.4.2.3 High Street Distribution Reservoir (1904)

In 1894, the City purchased a parcel of land located on the south side of High Street between present-day Laurent and Storey Streets for the construction of a Distribution Reservoir. The Cowell Reservoir was constructed to hold 60 million gallons, but it was carved into a porous limestone formation known as karst that caused approximately 1 million gallons of leakage daily. The Distribution Reservoir was intended to serve are a secondary reservoir for the Cowell Reservoir to preserve the water that was otherwise lost before it could be pumped into the distribution system (Santa Cruz County Assessor 1894; SCMU 2016: 1).

The site for the Distribution Reservoir overlapped Dodero Spring Creek (then called Meyrick Brook) and provided the added benefit of impounding a percentage of the water from this source while temporarily storing the water impounded from the City Water Works on Laguna and Reggiardo Creeks. The survey and specifications for the new reservoir were completed in 1895 and the Santa Cruz Sentinel reported that the reservoir would have a capacity of 2.5 million gallons and cover three-quarters of an acre. Construction on the reservoir began in 1904 and it was completed later that year (Santa Cruz Sentinel 1895: 3, 1903: 4, 1904: 3).

3.4.2.4 Liddell Spring Diversion (1913)

Discussions about securing the title to Liddell Spring and utilizing it as a source of municipal water were gathering support in the City government beginning early in 1913. By July 1913, a pipeline between Liddell Spring and the main municipal pipeline from Laguna Creek was operational, and, at a rate of 590,000 gallons per day, was out-producing all the other existing municipal water sources (SC Evening News 1913a: 1).

3.4.2.5 Crossing Street Pump Station (1913)

In 1913, a new well was drilled on the San Lorenzo River at Crossing Street, just north of the present intersection of Highway 1 with the river. It was equipped by a 75-horsepower, 5-inch, three-step centrifugal pump that was installed by the United Iron Works. The pump was capable of pumping 500 gallons per minute and cost $1844 dollars at the time of installation (SC Evening News 1913b: 1).

3.4.2.6 Acquisition of the Santa Cruz Water Company System (1913–1916)

Fredrick Hihn passed away in 1913 and his ownership of the Santa Cruz Water Company passed to his children. By 1916, the City had acquired the Santa Cruz Water Company system, and assumed full legal ownership of all components, which included rights to water being drawn from Branciforte Creek, Carbonera Creek, Majors Creek, and the San Lorenzo River (SCWD n.d.: 2; Monterey American 1913: 7; SC Evening News 1914: 1).

3.5 Interwar Water Development in Santa Cruz (1918–1939)

Water development during the early twentieth century interwar period in Santa Cruz was dominated by publicly funded projects. As the population increased in the eastern, mid-county areas such as Live Oak, small, private for-profit systems developed beginning in the 1930s to meet the increased demand in these neighborhoods that were otherwise unserved by the existing Santa Cruz infrastructure.

3.5.1 Public Development (1918–1939)

Public development during this period was predominantly focused on the repair and upgrade of existing system components. Although upgrades and additions were added to the several major facilities to increase the ability to store and improve the overall quality of municipal water during this period, with projects such as the Bay Street Reservoir in 1924 and the New Crossing Street Pumping Plant in 1929, the output was not widely increased between 1917 and 1930. Service began expanding into the areas to the east outside of the City with focused initiatives like the East Side Water Extension during this period (Brown and Dunlap 1956: 1-2).

3.5.1.1 The Bay Street Reservoir (1924)

The Bay Street reservoir was completed in 1924 and was located 1 mile southeast of the Cowell Street Reservoir on a site to the east from the present intersection of Bay Street and Meder Street. The 35-million-gallon capacity open-air tank was built to replace the Cowell Street reservoir. The Bay Street reservoir was constructed of stone and lined with concrete and was intended to be much more capable of reserving water accumulated from the surface stream sources for use during the dry summer and fall months (Exhibit 3) (SCMU 2016: 1).

Exhibit 3. Construction of the Bay Street Reservoir in 1924 (SCPL 1924).

3.5.1.2 Crossing Street Pumping Plant (1929)

In 1929, the City completed a new, modern pumping plant on the Lorenzo River on the southern side of Crossing Street across from the 1913 Crossing Street Pumping Plant site (Exhibit 4). Once complete, the plant went by the same name as its predecessor until it eventually was known simply as the Municipal Pumping Plant. Today, it is called the Coast Pump Station.

The new facility was designed by City engineer Roy Fowler and consisted of a pumping plant capable of producing 6 million gallons of potable water in a 24-hour period from the San Lorenzo River. The plant operated with the help of "diesel engines, pumps, motors, generators, and all other necessary auxiliary equipment" (SC Evening News 1928: 8). The plant also treated the water with chlorine, making it safer to drink (SCWD n.d.: 3; Brown and Dunlap 1956: 1; SC Evening News 1928: 8, 1929: 7).

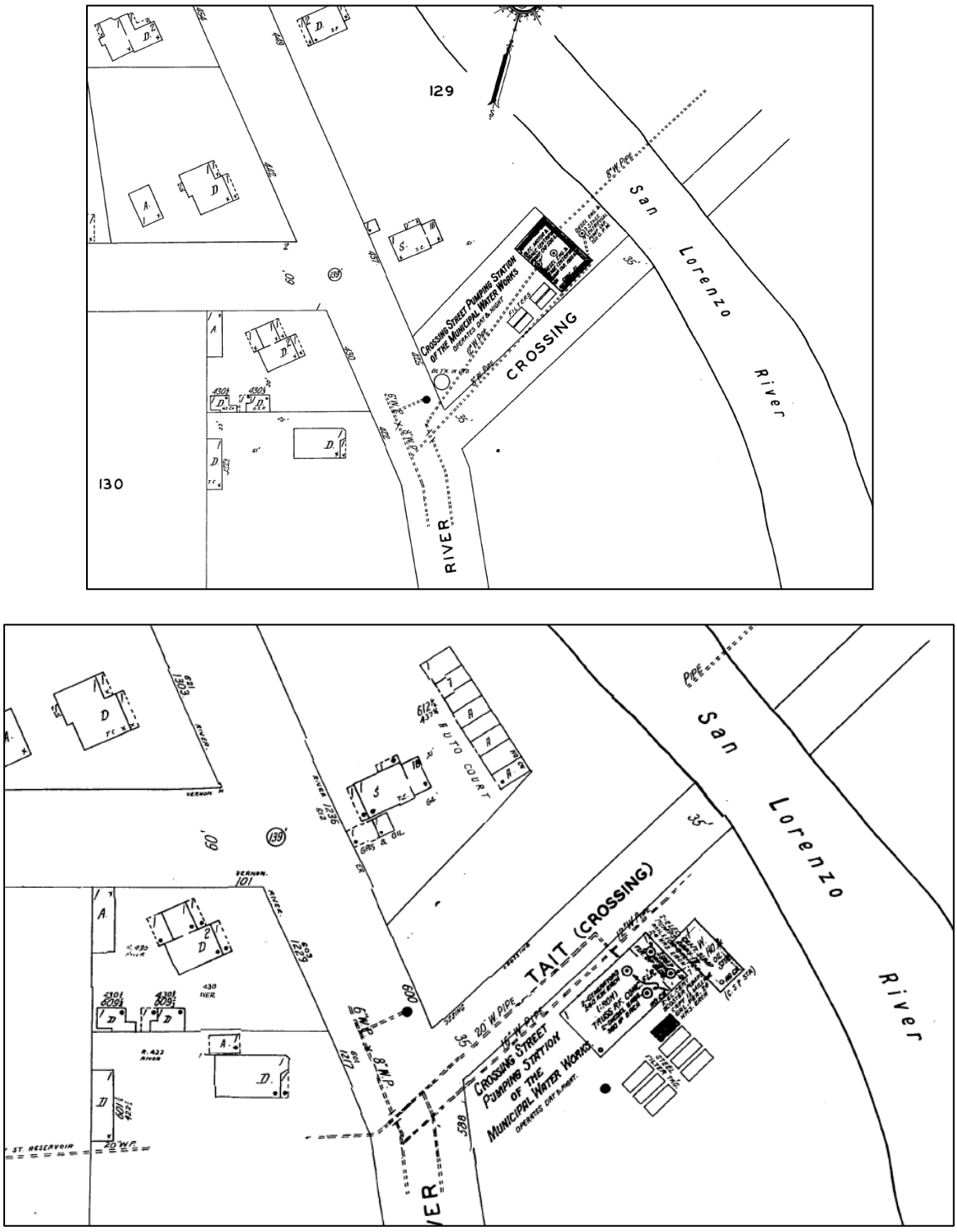

Exhibit 4. Comparison of the 1928 Sanborn Map (top) showing the old Crossing Street Pumping Plant and the 1928-1950 Sanborn Map showing the new facility completed in 1929 in approximately 1945 (Sanborn Map Company 1928: 103, 1928-1950: 103)

The low rainfall in winter 1931 prompted the City to drill four more wells at the site of the Crossing Street Pumping Plant. One of the wells was located at the site of the pumping plant on the west side of the river, while the remaining three were drilled on the east bank. This increased the output of the municipal water supply greatly and allowed for expansion into other parts of the City. In 1934, the City boasted in the *Santa Cruz Sentinel* that 63.4 million gallons of water had earned the City a profit of $11,119 during April 1934 (Brown and Dunlap 1956: 14; SC Evening News 1931: 5; Santa Cruz Sentinel 1934b: 7).

In 1945, Crossing Street was renamed Tait Street for Water Superintendent R.S. Tait. A photograph of the Municipal Pumping Plant included in the 1956 investigative report into the Santa Cruz area water supply projects by engineers Brown and Dunlap demonstrates how the plant appeared during this period (Exhibit 5) (Santa Cruz Sentinel 1945: 8).

SANTA CRUZ MUNICIPAL PUMPING PLANT. Building houses low and high lift pumps and engine-driven generators. Pressure type filters are at right of building.

Exhibit 5. The Municipal Pumping Plant as it appeared in 1956 (Brown and Dunlap 1956: 18).

3.5.1.3 East Side City Water Extension (1934)

In 1934, work began on what was known as the East Side Water Extension, to extend the municipal water service into the Seabright and Live Oak areas of Santa Cruz via a new pipeline. Santa Cruz East Side residents C. W. Raisch, E. Brandt, George Ellison, Edith H. Evans, and Nathan Menderson donated the private property to the City needed for a right-of-way, and the pipeline extended from the municipal system to the areas of the City located on the east side of the San Lorenzo River. Additionally, two 1,000,000-gallon tanks were placed in De Laveaga Park in the north of the City as a reservoir for this branch of the system (Santa Cruz Sentinel 1933: 7, 1934a: 9).

3.5.2 Private Development (1936–1939)

In areas of the county that were not serviced by the municipal system, private systems such as the Beltz system were developed by residents to provide water for other residents of the area.

3.5.2.1 Beltz Water Company (1936)

In 1936, the County granted Iowa native, Charles Lemar Beltz, the rights to begin operating a private water system in the area of the County roughly bounded by Capitola Road to the north, Rodeo Gulch and Corcoran's Lagoon to the west, the bay to the south, and 41st Avenue to the east. The ambitious service area of the Beltz system covered approximately 25% of the Live Oaks district with water sourced from ground wells located throughout the district and conveyed through pipelines situated beside Live Oak roads (Santa Cruz Sentinel 1936: 8, 1947: 1; SC Evening News 1936: 2).

3.6 Post-War Growth (1945–1984)

Many of the post-war water projects in Santa Cruz can be characterized as repair of existing infrastructure and expansion of the overall water system to support rapid population growth. The years following World War II provoked westward migration and an increase in birth rates, causing the population of California to increase from 6.95 million to 10.65 million between 1940 and 1950. In Santa Cruz, the growth of the community from 27,430 to 41,680 between 1940 and 1950 caused the common seasonal water shortages during dry months to become problematic in regard to growth and potential for community expansion (SCPL n.d.: 1).

In 1945, the state recognized a water shortage in Santa Cruz and authorized an investigation of available water resources. In 1946, the acute nature of the water crisis prompted the community to request a survey to determine an inventory of the available groundwater supply and plan for growth in the future. Completed In 1948, the survey determined that although the San Lorenzo pumping plant was running at full capacity, 24 hours per day during the dry summer of 1947, the river was so low that the entire run was being diverted through the pumps and into the City mains for consumption (SWRB 1953: 57; Brown and Dunlap 1956: 1–2).

Prompted by these concerns, in 1953, the State Water Resources Board released a report that inventoried available surface and underground water sources in the County and projected increased water utilization that exceeded the available water in Pajaro Valley, the Soquel Creek area, and the coastal area around and including Santa Cruz. The report identified requirements for supplemental water for Santa Cruz and areas served by the City of Santa Cruz Water Department (SWRB 1953: 57).

The County formed the Santa Cruz County Flood Control and Water Conservation district in 1955 and hired Creegan & D'Angelo Civil Engineers in 1956 to complete an extensive survey identifying dam sites, groundwater sources, and additional steps to improve control of the water supply throughout the County to compete with the City's proposals. The report asserted that population growth was a major concern for the water supply in the City because "the City of Santa Cruz has current water requirements which equal the capacity of the existing water supply system during a relatively dry era. Should an exceptionally dry season be experienced, there would be a serious water shortage in the City of Santa Cruz" (Creegan and D'Angelo 1957: 8).

Present supplies were determined to be insufficient for standard rates of population growth, including years that rainfall was considered more plentiful. Despite the rate of water consumption in the service area tripling between the mid-1930s and mid-1950s, there had been no additions to the municipal water supply during that time. Creegan & D'Angelo would also serve as the engineers for the Santa Cruz County Flood Control and Water Conservation District Advisory Committee, and ultimately, their recommendation to the council to remedy the current water crisis in the City was a dam on Newell Creek (Santa Cruz Sentinel 1953: 1, 1954: 1, 1958a: 4).

3.6.1 Public Development (1945–1984)

During the post-war era, a number of general obligation and revenue bonds helped to fund a wide range of water-related projects in Santa Cruz, including routine maintenance and transmission line replacements, but also projects such as the Newell Creek Dam and the Graham Hill Treatment Plant. The need for these projects was driven by the need for more water to support a growing, post-war population, but the use of bonds allowed for flexibility to project for future growth. In 1974, the *Santa Cruz Sentinel* surmised that "successful bond issues in 1958, 1963 and in 1967 reflected public confidence in the water administration and a recognition of the needs for more water, apparently, for there was relatively little difficulty getting approval" (Santa Cruz Sentinel 1974: 1–2).

3.6.1.1 Construction of Newell Creek Dam (1960, modified in 1985)

As a surface water storage on Newell Creek became a distinct reality following the recommendations of Creegan and D'Angelo, City Water Department Director, Weston Webber, voiced his support for the project in 1957. Ultimately, of the five proposed dams, only the Newell Creek Dam would come to fruition (Santa Cruz Sentinel 1957a: 1, 1957b: 13, 1957c: 12).

In 1958, the University of California Regents announced that they were considering the Cowell Ranch in the City of Santa Cruz as the site of a future University of California Campus. The City would be required to provide services and facilities for the prospective University community, which early figures suggested was to include around 2,500 students. In anticipation of the Water Revenue Bond Election in November 1958 to approve the bonds necessary to construct the Newell Creek Dam, a new water treatment plant, and pipelines to transport the water, the Santa Cruz Sentinel published an article outlining the impact of the proposed bonds. In reference to the speculative University in the City, the closing paragraph of the article states that "University officials know that the present water supply of Santa Cruz is inadequate, even for normal needs. Failure to correct this situation could end all chance of the selection of Santa Cruz as the University site." (Santa Cruz Sentinel 1958b: 1, 1961a: 1, 1961b: 1).

On November 5, 1958, the voters of the City of Santa Cruz approved $5.5 million in water revenue bonds necessary for the City to purchase 2,162 acres of land in the Newell Creek watershed from the San Lorenzo Valley Water District and build a dam on the site. Creegan & D'Angelo designed the earthfill dam (SCWD n.d.: 2; Santa Cruz Sentinel 1958a: 4).

Contractors Williams and Burrows Inc. of Belmont, California, began the construction of the Newell Creek Dam and preparation for the creation of Loch Lomond in 1960. The early stages of planning and execution were made more difficult by the narrow valley, allowing only one road for ingress and egress for equipment and supplies. The construction of the 195-foot-tall earthfill dam began with a "grout curtain" that pushed concrete 100 feet into the bedrock to fill any fissures or imperfections, ensuring a structurally sound base. The height and width of the dam's crest was first determined by the reinforced concrete ends. The embankment was then built up using successive layers of random fill from the immediate area, compacted with sheepsfoot tampers above and around

the 300 feet of impervious material at the core of the embankment. Four construction personnel lost their lives in October 1960 during the layered construction of the embankment. A brass plaque commemorating these men was commissioned and remains today on the southwest elevation of the Control House (Santa Cruz Sentinel 1960a: 15, 1960b, 1).

The Newell Creek Dam was completed and filling steadily with water by 1961; however, the recreation area on the resulting reservoir was yet to be built. Keeping with the Scottish naming tradition started by Scotsman John Burns when he christened the mountain Ben Lomond in the 1850s, the reservoir was dedicated Loch Lomond during two days of festivities on July 27 and 28, 1963 (Santa Cruz Sentinel 1963: 1).

By 1964, the City distributed a notice to bid on the construction of the Loch Lomond Recreation Development. With the help of a $149,000 state grant, the Loch Lomond Recreation Area was completed by the spring of 1965. It included picnic areas, a concessions building, parking areas, two docks, and a boat launch. An all-weather road leading from Lompico to the Recreation Area was a crucial improvement constructed during this phase of the Project. It allowed visitors to experience the new recreation activities available at Loch Lomond, while simultaneously comprehending the realities of water storage and use in the county (Santa Cruz Sentinel 1964a: 3).

During the early 1980s, a survey completed by the Division of Safety of Dams demonstrated that the spillway at Newell Creek Dam did not meet the newest safety criteria for probable maximum flood conditions. A portion of the 1984 funds allocated for modifications and upgrades to the municipal system for were apportioned toward the upgrade of the dam's spillway wall. The upgrades were implemented in 1985 and included heightening the Newell Creek Dam spillway wall and the installation of a permanent aerator system (SCWD n.d.: 2; Santa Cruz Sentinel 1984: 3).

3.6.1.2 Graham Hill Water Treatment Plant (1960, Upgraded in 1987)

The Graham Hill Water Treatment Plant was a water filtration and treatment facility completed in 1961 and located beside Graham Hill Road. It was planned and completed during the same period as the Newell Creek Dam and also funded by the same water revenue bonds that helped to build the dam. The plant was designed with a capacity to treat 12-million gallons of water per day. Among other sources which have been added since the plant's initial construction, water derived from the coastal watersheds including Laguna Creek, Reggiardo Creek, Liddell Spring and Majors Creek is transported through a blend of gravity and pumping to the Graham Hill Water Treatment Plant to be filtered and treated before distribution as drinking water (SCWD n.d.: 3; SCMU 2016: 1; Santa Cruz Sentinel 1961c: 16).Raw water from the San Lorenzo River and Loch Lomond Reservoir are also treated at the Graham Hill Water Treatment Plant.

The Graham Hill Treatment Plant was upgraded and enhanced in 1987 following a push for major upgrades throughout the municipal system beginning in 1984 (See section 1.4.1.5 Infrastructure Upgrades (1984) for more information) (SCMU 2016: 1).

3.6.1.3 Tait Diversion Intake (Added 1961, Reconfigured in 1983)

The Tait Diversion, as it called today, is presently located just upriver from the Coast Pump Station. Together, the combined Tait Diversion and Coast Pump Station facility continues to be one of the most important sources of water for the City. Surface diversion rights for the San Lorenzo River date back to 1924 at what is now the Coast Pump Station but was first known as the Crossing Street Pumping Plant and later the Municipal Pumping Plant (see sections 1.2.2.4 and 1.3.1.2). Accounts of a functional diversion across the river near the pumping plant date back to at least 1930s. A photograph included in the 1956 investigative report into Santa Cruz area water supply projects

by engineers Brown and Dunlap included a photograph of the existing diversion on the site during this period (Exhibit 6).

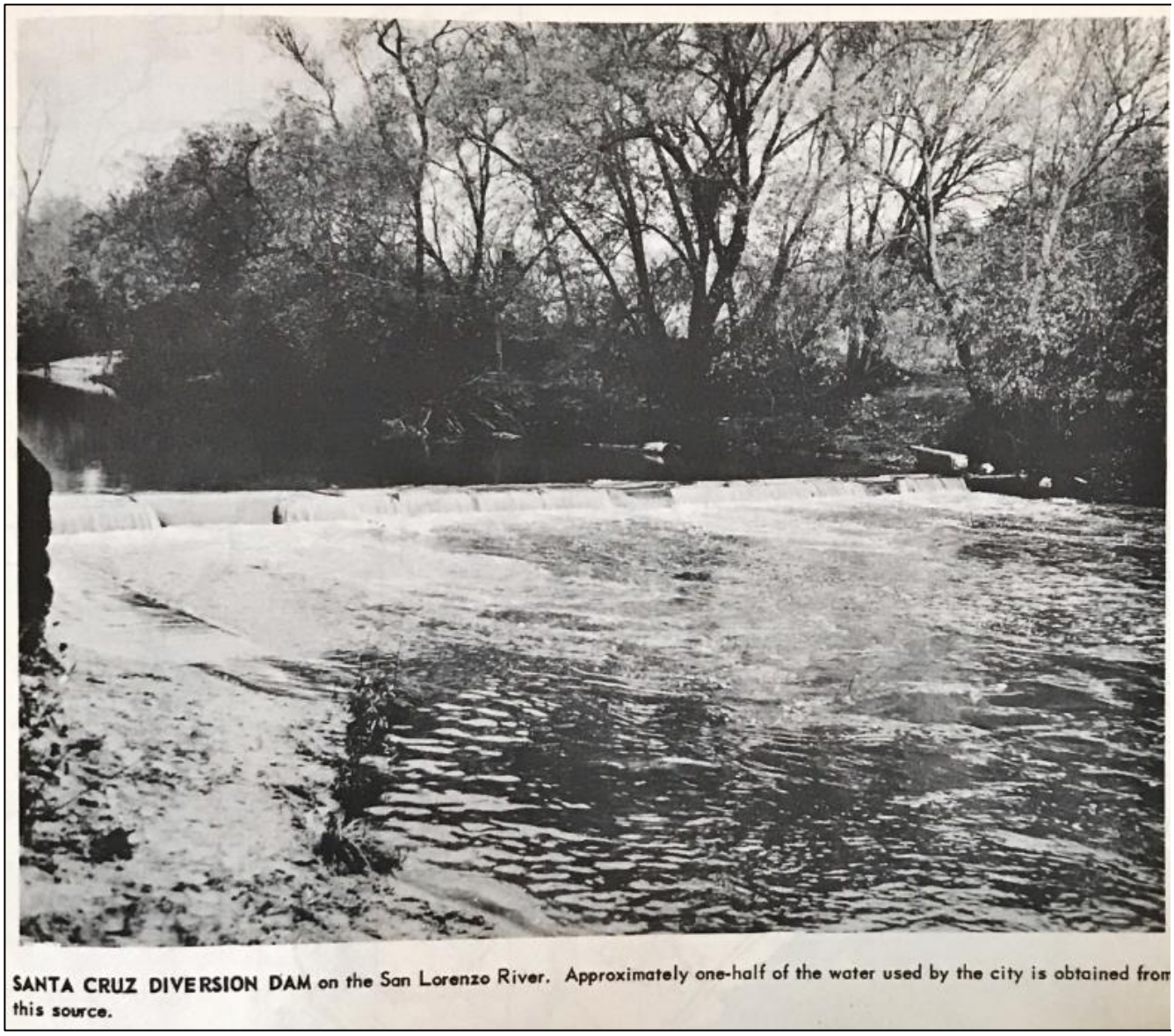

Exhibit 6. Existing diversion dam across the San Lorenzo River in 1956 (Brown and Dunlap 1956: 15)

By 1960 when the large-scale modernization campaign across the City was in progress, a design for a new intake structure on the existing pumping plant diversion dam was also planned. The new intake integrated the existing dam (age unknown) into the design for a new, modern intake located on the east bank of the river that was complete with a spillway fish ladder and new 20" and 24" transmission pipelines (Santa Cruz Sentinel 1934b: 7; Brown and Caldwell 1960: 1).

In 1983, the intake was again redesigned. The new design relocated the intake from the east bank of the river to the west bank while simultaneously upgrading all electrical controls and switch gear and relocating it above flood levels (SCWD n.d.: 3; Dewante and Stowell 1983: 3).

3.6.1.4 Felton Diversion Station (1976)

The Felton Diversion was installed on the San Lorenzo River north of Henry Cowell State Park and completed in 1976. James M. Montgomery of Consulting Engineers Inc. designed the diversion structure and the contractors for the project were the Dan Captuo Company. The structure is comprised of a permanent concrete foundation spanning the river containing an inflatable rubber dam. The inflatable dam, or bladder, can be raised to maintain and impoundment for the diversion of water which is transported by pipeline to supplement storage at Loch Lomond. The inflatable dam can also be lowered to control the flow of water during a storm surge or other similar event. The structure also includes a fish-screened intake structure, a conventional sump and high-lift pump station, a fish ladder, and a control building (JMM 1969: c-3, 1970: VII-2; Santa Cruz Sentinel 1976: 13).

3.6.1.5 Infrastructure Upgrades (1984)

In January of 1982, a powerful storm caused flooding throughout the Santa Cruz County. It was discovered that a main pipeline from Loch Lomond had burst and was leaking at an alarming rate. Although the damaged section of pipeline was relocated and repaired by the end of the year, the event renewed community attention to the potential for the aging components of the municipal system to require upfront repair and maintenance (Santa Cruz Sentinel 1982: 1, 8; Cardona and Associates 1982).

In 1984, the Santa Cruz Water Department received $11.7 million dollars through private Certificates of Participation in order to fund upgrades and modernizations to the water infrastructure system throughout the City. The upgrades were wide-spread and included the renovation and upgrade of the Graham Hill Water Treatment plant, the construction of a laboratory to monitor water quality, new storage tanks in the Rolling Wood service area, enlarging the capacity of the Beltz Water Treatment plant to 2-million gallons daily, and improvements to the Newell Creek Dam spillway (SCWD n.d.: 2; Santa Cruz Sentinel 1984: 3).

3.6.2 Private Systems Acquisition (1967-1969)

The City of Santa Cruz purchased several private water systems between 1967 and 1969, including the Beltz Water Company, the Rolling Woods Utilities Inc., and Pestana Water Systems. These companies and their service infrastructure were all located in areas of Santa Cruz that had been only recently come into the City's sphere of influence. The acquisition of these systems allowed the City to organize reliable water distribution services to areas such as Live Oak (SCMU 2016: 2)

3.6.2.1 Beltz Water Company Acquisition (1967)

Charles Beltz passed away in 1947 and left the operation of the Beltz Water Company to his only son, Chester Beltz. Under the supervision of his son, the company developed a both a wider, and more dense service area in response to the massive post-war population growth in the County. To accommodate the overall population growth of the County from 45,057 residents in 1940 to 120,882 residents in 1970, many of the larger agricultural properties and larger estates within the Beltz service area in Live Oak were subdivided to accommodate new, residential development. By 1955, the Beltz Water Company system included six source wells that allowed the system to accommodate incremental growth from 900 customers in 1955 to approximately 1,500 customers by 1967 (Santa Cruz Sentinel 1947: 1, 1955: 18, 1967a: 4, 1967b: 5, 1967c: 24; SCPL n.d.: 1; UCSB 2020).

The Beltz Water company entered into negotiations with the City of Santa Cruz beginning in 1965 to set a price for the purchase of the Beltz system. When the City of Santa Cruz finally purchased the Beltz Water Company System in 1967 for $245,000, the acquisition equipped the City with an additional source of groundwater from six existing wells (Exhibit 7). However, due to inadequate means to treat the high levels of iron and manganese in the Beltz well water, after the purchase, the wells were temporarily discontinued. Instead, the Beltz conveyance infrastructure was tied into the existing municipal system and customers began receiving water on July 1, 1967 (Santa Cruz Sentinel 1967a: 4, 1967b: 5, 1967c: 24).

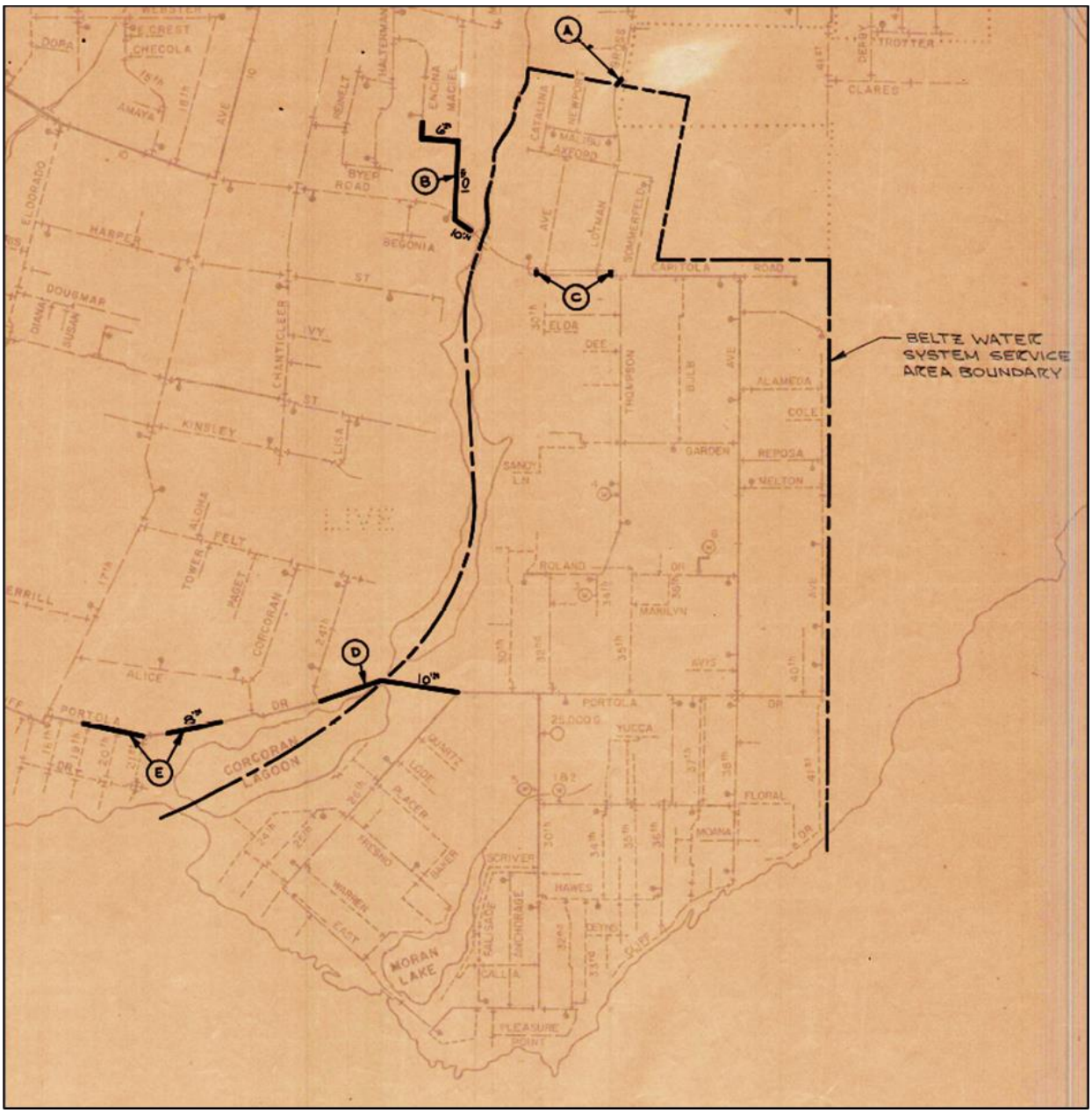

Exhibit 7. Boundary of the Beltz service area and location of existing wells in 1967. The letters show some of the tie-ins built by the Santa Cruz Water Department to utilize the Beltz infrastructure (SCWD 1967: D)

In 1972, an Iron and Manganese removal treatment plant was constructed at the site of well 6 located off Roland Avenue that allowed for the treatment of 1,000,000 gallons of water daily for use in the eastern section of the municipal system. In 1973, it was announced by Water Department director, Wes Webber, that the site containing

well 6 would also receive a new well in anticipation of expansion of the new treatment plant when possible to increase the daily output of the Beltz system overall. This expansion of the plant took place in 1985 and was funded in part by the $11.7 million in funds allocated for major upgrades throughout the municipal system during the mid-1980s (Santa Cruz Sentinel 1973: 15; SCWD 1985: G-4).

3.6.2.2 Pestana Water Company (Founded 1961, Acquired 1969)

John Pestana founded the Pestana Water Company in 1961 to serve the modest Santa Cruz Gardens subdivision located in the hills north of Live Oak. Pestana, along with his brother, Ernie Pestana, were part owners of a sub developer from Santa Clara County responsible for the construction of the Santa Cruz Gardens subdivision in the early 1960s. In 1962, Chester Beltz, owner of the Beltz Water Company, was hired to operate the Pestana Water Company system (Santa Cruz Sentinel 1961d: 10, 1961e: 28, 1969a: 3).

The Pestana Water Company was sold to the City for $36,615 in November 1969. The purchase of the three-well system added 243 customers to the municipal service system. The City immediately improved the pump operating the system, which was only capable of pumping 286 gallons per minute. In 1971, a pipeline was constructed to connect the Pestana system to the City main (Santa Cruz Sentinel 1969a: 3, 1969b: 4).

3.6.2.3 Rolling Woods Utilities Inc. (Founded 1963, Acquired 1969)

Rolling Woods Utilities Inc. was formed in 1963 to serve the Rolling Woods subdivision located in the hills beside Graham Hill Road north of Pasatiempo. The City purchased the company in 1969, at which time the service area extended to 135 customers (Santa Cruz Sentinel 1969b: 4, 1969c: 13).

3.7 The San Lorenzo Valley Water District (1941)

Several miles north of Santa Cruz at the base of the Santa Cruz Mountains, the San Lorenzo River carves a deep valley through the dense redwood and oak timberlands. The communities located in the various valleys within the Santa Cruz Mountains owe their existence to the select industries that sought to profit from the wealth of raw resources found here. The extent of the virgin forests in the San Lorenzo Valley and the rich underground deposits of lime attracted opportunistic settlers and purveyors who sought to harness the power of the San Lorenzo River and its many tributaries to move their goods to market locally, throughout California, and the world.

By 1899, Boulder Creek in the San Lorenzo Valley was the fifth largest shipper of timber in the country. As the San Lorenzo Valley was settled in the mid-1800s, populations in Ben Lomond, Brookdale, and Boulder Creek formed their own water systems. The number of vacation homes increased in the early 1900s and as a result, many of these small subdivisions in the San Lorenzo Valley developed their own water systems. These water systems were supplied by nearby springs and creeks by way of flumes or pipelines and were designed to serve the needs of residents who occupied their vacation homes only a few weeks a year. When the County population doubled between 1900 to 1940 from 21,512 to 45,057 persons and more people moved permanently into the valley, the existing water systems became inadequate (SLVWD 2020; SCPL n.d.: 1).

Frequent droughts between 1912 and 1939 convinced San Lorenzo Valley leaders to form a water district to better control water, to serve the needs of the valley. After one failed attempt to form a county water district by election in 1939, the SLVWD was formed by the voters on April 3, 1941. Negative voter returns from the towns of Felton and

Scotts Valley left those areas out of the district boundaries, which included Bear Creek, Boulder Creek, Alba, and Ben Lomond school districts, and part of the Sequoia school district (SLVWD 2020).

In 1959, the SLVWD signed an agreement with the City, in which the SLVWD sold the City its timber and mineral rights to the Newell Creek watershed, in exchange for right to a share of the water stored by Newell Creek Dam (SLVWD 2020; Brown 2011: 161).

Today, the SLVWD supports a population of approximately 35,000 people across roughly 60 square miles of service area encompassing the towns and communities of Ben Lomond, Boulder Creek, Brookdale, Felton, Lompico, and Zayante. The system also includes sections of the City of Scotts Valley, including two subdivisions (the Pasatiempo Pines and Manana Woods) and two mobile home parks (Vista del Lago and Spring Lakes) (SLVWD 2020; SVWD 2020).

3.8 Central Santa Cruz County Water District (1950)

A proposition to organize the Central Santa Cruz County Water District (CSCCWD) encompassing the Oakdale and Pleasant Valley School Districts in south Santa Cruz County was adopted by vote in 1950. Today, the district is known by its shortened name, the Central Water District (CWD) (CWD 2020).

In 1951, $140,000 in obligation bonds were approved by the district voters to fund the construction of a system of waterworks for the district comprised of a well, storage facilities, and distribution infrastructure. In 1953, the district agreed to purchase the Valencia Water Works from owners Jesse and Fern Nicholson for $1,500, which served approximately 24 customers at the time. The CSCCWD was serving about 80 customers by the end of 1953 (CWD 2020).

The district experienced multiple upgrades beginning in 1978. Early in 1978, one-way interties were installed at two locations between the CSCCWD and the SqCWD systems to provide emergency water from the CSCCWD system down gradient to the SqCWD system. The first was located near Huntington Drive and the second on Soquel Drive near Freedom Boulevard. Additional CSCCWD upgrades installed during this period were funded by monies from the California State Safe Drinking Water Bond Law (1976), and included the drilling of "well #10, the Valencia Booster Pump Station, a telemetering system, and approximately 24,560 feet of mainline piping (CWD 2020)." The District completed its modernization campaign by shortening its official name to the Central Water District (CWD) in December 1980. In 2016, the CWD maintained 892 service connections (CWD 2020).

3.9 Scotts Valley Water District (1961)

The Scotts Valley Water District was formed by a vote in 1961 under the County Water District Law, Division XII of the California Water Code (Section 30000 et seq.). The 1961 district formation merged multiple small water supply systems that had been servicing the 6 square-mile district encompassing most of the incorporated area of Scotts Valley, but also some unincorporated territory as well. Today, the district provides service to approximately 10,700 people by way of 4,200 service connections (SVWD 2020; State of California 2020).

3.10 Soquel Creek Water District (1961)

The Soquel Creek County Water District was formed by a local vote in 1961 according to the provisions of County Water District Law, Division XII of the California Water Code (Section 30000 et seq.). The purpose of the District was to implement water management and flood control services. The flood control services were discontinued 3 years later when the Soquel Creek County Water District acquired the Monterey Bay Water Company. The word "County" was removed from the name of the district in 1983 and the district was henceforth known as the Soquel Creek Water District (SqCWD). Today, SqCWD maintains four service areas supplied completely by groundwater sources which provides water to approximately 40,400 customers (SqCWD 2020; State of California 2020).

3.10.1 The Monterey Bay Water Company

Prior to its purchase by the Soquel Creek County Water District in 1964, the Monterey Bay Water Company (MBWC) serviced a large portion of south Santa Cruz County through the gradual purchase of multiple existing systems overtime (Santa Cruz Sentinel 1964b: 18).

MBWC formed in 1942 when the state railroad commission authorized the sale of the Aptos Water Company to the two directors of MBWC, James Harris and George Cooper. By 1943, the MBWC was servicing homeowners in the Rio Del Mar, Aptos, Monte Toyon, Opal Cliffs, and the Monterey Bay Heights neighborhoods. In 1943, MBWC purchased the Soquel-Capitola water distribution system which served approximately 600 customers in Soquel and Capitola areas and featured infrastructure components that had been originally installed by F.A. Hihn beginning in the 1870s and 1880s. In 1952, the MBWC purchased the Seacliff Water Works, which along with its subsidiary, the LaSelva Beach Water company, provided water to the developed neighborhoods in a five-mile strip along the Monterey Bay from 41st Avenue south to LaSelva Beach (Santa Cruz Sentinel 1942: 1, 1943: 1, 1952: 1, 1968: 3)

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4 Field Survey

4.1 Methods

Archaeological Resources: Dudek Archaeologist John Schlagheck, M.A., RPA, conducted an archaeological surface reconnaissance of all 11 components of the study area on May 6, 2020. Mr. Schlagheck conducted the reconnaissance using standard archaeological procedures and techniques. All field practices met the Secretary of Interior's standards and guidelines for a cultural resources inventory. The land area was surveyed in pedestrian transects with approximately 5-meter spacing. Where hard surfaces obscured the soil, Mr. Schlagheck closely examined the soil in adjacent areas. All field notes, photographs, and records related to the current study are on file at the Dudek office in Santa Cruz, California.

Built Environment Resources: During the surface reconnaissance for archaeological resources, John Schlagheck also completed a thorough photo documentation of all built environment elements within the study area. Dudek Architectural Historian Fallin Steffen, MPS, conducted an in-depth review of the photo documentation as part of preliminary assessment to determine if any built environment resources warranted historic significance evaluation. The photo documentation shows specific structural details to contextualize the built environment elements within the surrounding portion of the APE and areas adjacent to the APE. Ms. Steffen was able to view the structural details, spatial relationships, observed alterations, and examining any historic landscape features via the photo documentation of the APE. All field notes, photographs, and records related to the current study are on file at the Dudek office in Santa Cruz, California.

4.2 Results

4.2.1 Archaeological Resources

Dudek found no archaeological soil (midden) or material commonly used as raw materials for prehistoric tool manufacture such as chert or obsidian. Similarly, no other evidence for use of the study area during prehistoric times (such as charred faunal remains, marine shell, modified rocks, or charcoal) was observed. Other than the built environment elements discussed below, no historical period materials except modern debris (plastic, glass, and metal fragments) were found in the study area. Specific results of the reconnaissance by study area component are discussed below. As indicated in Section 1.6, new Santa Cruz ASR facility sites are not described given that there are no identified locations for these facilities at this time.

4.2.1.1 Water Supply Augmentation Components

ASR Facilities (4 Known Components)

As indicated in Section 1.2, Project Description, there are no definitive sites identified to date for new ASR facilities, and therefore, site-specific conditions cannot be described for such sites.

The four Beltz ASR components are within the relatively flat coastal plain between the foothills of the Santa Cruz Mountains and the north shore of Monterey Bay. Very similar soil conditions exist in all four components. Specifically, the native soil within and adjacent to these components is gray brown sandy loam extensively mixed with modern fill material likely associated with facility construction and maintenance. In several areas, such as gravel/rock driveways, the modern fill constitutes 100% of the soil. Very high rodent activity within and near all four components provided excellent views of the soil and soil ejected from the subsurface.

City/SVWD Intertie – New Pipeline and Pump Station (1 Component). The route of this component trends north to south and follows La Madrona drive from the proposed pump station near the Mt. Hermon Road/Highway 1 interchange south to Sims Road. The proposed pump station site is on land that appears to have been mechanically leveled in the past. The area contains brown gray sandy loam with considerable rock content and modern debris. The presence of only light vegetation and rodent activity provided excellent views of the soil and material ejected from the subsurface.

Regarding the linear pipeline portion of this component, exposed soil along the west side of the La Madrona Drive provided excellent views of native soil. Over much of the length of the intertie, La Madrona Drive is cut into the native grade from a few feet to as much as 25 feet, with severe slopes rising west of the roadside. This indicates that much of the component is significantly below the native grade. This point is further illustrated by the presence of nearly vertical bedrock exposures just west of La Madrona Drive in numerous locations. Native soil was visible in several locations near the bedrock, but much of that material appears to have eroded down to lower elevations from the native grade above. Where La Madrona Drive is not cut into the slope, the soil is heavily mixed with modern fill material near the numerous private driveways. The native soil in this component is medium gray sandy loam with variable rock content. The component crosses two small unnamed east trending tributaries to Carbonera Creek, a perennial waterway that flows south, immediately east of Highway 17. The northernmost drainage is located approximately 700 feet south of Silverwood Drive, and the second drainage is about 0.5 miles further south at Via Vinca (road). Both drainages are crossed by concrete bridges with road surfaces approximately 20 feet above the bottom of the drainage bed. Both drainages contained minimal flowing water at the time of the survey.

City/SqCWD/CWD Intertie – Soquel Village and Park Avenue Pipelines and McGregor Drive Pump Station Upgrade (2 Components). Both of these components are on relative flat ground within or very near the Highway 1 right-of-way. The Soquel Village component is north of Highway 1 and crosses Soquel Creek at the Porter Street Bridge. West of the River, the proposed pipeline route reaches the central portion of Soquel Village via Walnut Street and Daubenbiss Avenue. In this area views of the soil included front yard areas and small areas within planting strips along the streets. Soil in these areas is a medium gray brown sandy loam mixed with potting soil, gravel, and crushed rock. East of Porter Street the proposed pipeline route follows Main Street to Soquel Drive. In this area, there are several undeveloped areas that provide very good views of the soil. Soil in these areas is medium gray sandy loam with some rocks.

The Park Avenue pipeline component includes Park Street south from Soquel Drive and under the Highway 1 overpass. The overpass is the only portion of Highway 1 (recorded resource P-44-000406) that intersects the APE; hence there is no actual conflict between this component and Highway 1. Over much of the length of Park Avenue, the road is cut into the native slope such that minor cut banks are present in several areas. Very good views of the soil were found throughout this component. The soil in this area is brown gray sandy loam mixed with imported materials and covered in some areas by landscaping treatments such as wood chips.

East of Park Avenue the pipeline follows the route of the McGregor Drive right of way south of Highway 1 to the McGregor Dive Pump Station on the southeast corner of McGregor Drive and entrance to New Brighton State Beach.

The State Beach entrance road, McGregor Drive, and the Pump Station pad all appear to be built up from the natural grade that slopes down moderately from Highway 1 to the south. The south edge of the Pump Station pad is a nearly vertical six-foot retaining wall and there is evidence of engineered fill on both the east and west sides of the pad.

City/SQCWD/CWD Intertie – Freedom Boulevard and Valencia Road Pump Stations (2 Components). The new pump station component at Freedom Boulevard is located just northeast of the Highway1/Freedom Boulevard interchange near the intersection of Freedom Boulevard and Soquel Drive. Since it is not clear which area adjacent to the intersection will be used for the new facility, the surveyor conducted a general surface reconnaissance at all four adjacent roadside areas. The soil in all locations was heavily disturbed sandy loam with considerable amounts of gravel and crushed rock.

The new pump station component at Valencia Road is located near the intersection of Valencia Road and Huntington Drive, which is a "T" intersection. There appears to be two adjacent locations for a new facility. Due to severe downslope at the north end of the intersection, the survey only included the area south of Huntington Drive and east of Valencia Road. This area appears minimally disturbed and likely contains mostly native soil. The soil is a medium gray sandy loam that was sterile for evidence of archaeological resources. Views of the soil in this location were excellent for the purpose of this reconnaissance.

4.2.1.2 Surface Water Diversion Improvements

Felton Diversion Improvements (1 Component)

This component appears to have been built up from the west bank of the San Lorenzo River anywhere from a few feet to as much as 30 feet, making most of the working area of the facility completely artificial. The flat area where improvements are planned is clearly not in situ native soil. The submerged areas of the component also contain numerous at grade structures that serve to channelize water into the pump station when the intake is active. The surrounding soil is exposed on the north and south and appears to be mostly fill material with a recent cover of light vegetation.

Tait Diversion and Coast Pump Station Improvements (1 Component)

This component is situated between River Street and the west bank of the San Lorenzo River. The west bank of the river has undergone major bank stabilization efforts and flood control modification. This is evidenced by riprap, high quantities of engineered fill material extending from the riverbank to River street, and retaining walls surrounding the pump station on the north and east sides. On the east side of the pump station, facing the river, the ground appears to have been leveled from about 5 to 10 feet above the natural grade. The east bank of the river also appears highly modified by stabilization and flood control efforts but does not have infrastructure as close to the river channel. Areas of exposed soil on the west bank show mostly engineered fill material with some small areas of native soil possibly west of the large central building at the Coast Pump Station. In that area, rodent activity provided excellent views of the soil and soil ejected from the subsurface.

4.2.2 Built Environment Resources

Dudek identified and recorded two properties at least 45 years of age that are located within the noncontiguous project APEs, the Beltz 8 ASR facility site and the Tait Diversion and Coastal Pump Station combined facility. These built environment properties required recordation and evaluation for historical significance to assess potential impacts to CEQA historical resources and assess potential adverse effects under Section 106 for the Proposed Project. The Significance Evaluation (Section 5) provides a detailed physical description of structures located at

each site and a significance evaluation under NRHP, CRHR, Santa Cruz City, and SCCHRI criteria. The complete DPR523 form set for each resource is located in **Appendix E**. As shown in Table 9 below, although there are two other study area components, the City/SqCWD/CWD intertie (Soquel Village and Park Avenue pipelines), that likely contain structures over the age of 45, these components are analyzed in this report at a programmatic level and therefore not formally recorded or evaluated for historical significance in this report. Section 6 of this report addresses necessary mitigation measures that will be required for these two study area components should they be pursued in the future.

Table 9. Summary Table Built Environment Properties

Study Area Components	CEQA Environmental Review Level	Section 106 Level Analysis/APE delineated	Age of Built Environment Resource	Formally Evaluated as part of this report	Figure Number (Appendix A)
ASR Facilities					
New ASR Facilities	Programmatic	No	Unknown	No	NA
Beltz 8 ASR Facility	Project	Yes	1971 facility modification 1985, 1998	Yes	4a
Beltz 9 ASR Facility	Project	Yes	1998	No	4b
Beltz 10 ASR Facility	Project	Yes	2004	No	4c
Beltz 12 ASR Facility	Project	Yes	2012	No	4d
City/SVWD Intertie – New Pipeline and Pump Station	Programmatic	No	Proposed all new components; no existing structures	No	4e
City/SqCWD/CWD Intertie - Soquel Village Pipeline	Programmatic	No	Existing pipeline, likely over 45 years old	No	4f
City/SqCWD/CWD Intertie - Park Avenue Pipeline and McGregor Drive Pump Station Upgrade	Programmatic	No	Existing pipeline, likely over 45 years old	No	4f
City/SqCWD/CWD Intertie - Freedom Boulevard Pump Station	Programmatic	No	Proposed all new components; no existing structures	No	4g
City/SqCWD/CWD Intertie - Valencia Road Pump Station	Programmatic	No	Proposed all new components; no existing structures	No	4g
Felton Diversion Improvements	Programmatic	Yes	1976	No	4h
Tait Diversion and Coast Pump Station Site	Programmatic	Yes	c.1934, altered 1961 and 1984 (Tait Diversion) 1929 (Coast Pump Station)	Yes	4i

5 Significance Evaluation (Built Environment)

This section provides descriptions and evaluations of the Beltz 8 ASR facility, and the Tait Diversion and Coast Pump Station combined facility under the NRHP, CRHR, and City or SCCHRI designation criteria. A physical description of each property and its development history is provided below. The significance evaluation was prepared by Dudek Architectural Historians Fallin Steffen, MPS, and Kathryn Haley, MA, who both meet the Secretary of the Interior's Professional Qualification Standards for architectural history. The complete DPR523 form set for each property is located in **Appendix E**.

5.1 Beltz 8 ASR Facility

The Beltz 8 ASR facility is located on a municipal property located in the County and demonstrates a layered development history. The first well on the site, Beltz 6, was developed between 1952 and 1967 during the Beltz Water Company operation period before the City acquired the system. The Iron and Manganese Removal Plant was designed by Kingman Engineers and completed in 1971 and subsequently expanded in 1985. Beltz 6 was damaged in the 1989 Loma Prieta earthquake and later replaced by Beltz 8 in 1998. Presently the site contains the Iron and Manganese Removal Plant, Beltz 8, and limited landscaping (NETR 2020; SCWD 1967: D).

5.1.1 Site Access

The Beltz 8 ASR facility is located on a mid-block parcel surrounded by a chain-link fence. The fence is fitted with privacy slats, secures the perimeter of the entire property, and features a recessed gated entry to the site, which can be accessed by a private drive way off of 38th Avenue just north of Roland Drive (Exhibit 8).

Exhibit 8. Beltz 8 access driveway off 38th Avenue showing point of entry (red arrow), view looking northwest (Google Earth 2020).

5.1.2 Iron and Manganese Removal Plant (1971)

The Iron and Manganese Removal Plant contains a Control Building, two pressure filters, a combination aerator and sump pump, and a wash water recovery tank.

Control Building

The Control Building is a simple utilitarian-style building constructed from flat concrete bricks that features a gabled roof complete with vertical wood siding in the gable end (Exhibits 9 and 10). The 1985 addition to the south end of the building is also constructed of concrete brick and features a shed roof that extends from the south elevation of the building. Entry to the building is accessed via one of three simple metal doors, two of which feature a single small window. Otherwise, the building does not contain any fenestration. Metal conduit is present in sizable quantities on the exterior painted surface of the building.

Exhibit 9. Control Building, east elevation, view looking west (IMG_0217).

Exhibit 10. Control Building, west elevation, view looking southeast (IMG_0222).

Pressure Filters

The two cylindrical pressure filters are cylindrical tanks that measure 8 feet by 34 feet (Exhibit 11). They are situated to the north of the control building and each feature a concrete pad foundation.

Exhibit 11. Two cylindrical pressure filters, view looking east (IMG_0220).

Aerator and Sump Pump

The irregular-shaped aerator sump pump stands approximately two stories high and is housed in metal sheeting (Exhibit 12).

Exhibit 12. Aerator and Sump Pump, view looking northwest (IMG_0218).

Wash Water Recovery Tank

The cylindrical wash water recovery tank stands approximately three stories tall and is constructed of metal sheets that have been riveted together to form a continuous surface (Exhibit 13). A release door is visible at the ground level, and the top of the structure is accessed via an enclosed ladder located on the west side of the structure.

Exhibit 13. Wash Water Recovery Tank, view looking north (IMG_0219).

5.1.3 Beltz 8 (1998)

Beltz 8 is located on the eastern side of the irregularly shaped parcel. The visible portions of the well are simply metal piping extending above and then back beneath the ground (Exhibit 14).

Exhibit 14. Beltz 8, view looking northeast (IMG_0215).

5.1.4 Identified Alterations

The following alterations were identified during a review of the photographs taken during the pedestrian survey and during the course of archival research. Unless indicated, the dates of these alterations are unknown.

Iron and Manganese Removal Plant (1971, expanded 1985)

- Expansion of plant including an addition to the control building, 1985 (Kennedy/Jenks Engineers 1985: G-4)
- Removal of wastewater treatment tank
- Various mechanical, pump, and pipeline upgrades

Overall Site

- Installation of Beltz 8 in 1998 (Dames and Moore 1998: C101)
- Removal of original Beltz 6, associated appurtenances, and well house structure

5.1.5 NRHP/CRHR Statement of Significance

NRHP Criterion A: associated with events that have made a significant contribution to the broad patterns of our history

CRHR Criterion 1: is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.

Water management infrastructure associated with water districts is a common property type throughout the County and the State of California. Components of water infrastructure systems have been considered significant under NRHP Criterion A and CRHR Criterion 1 when associated with trends and events that have made a significant contribution to the broad patterns of our history, particularly in regional agricultural or local economic development.

The Beltz system did not become a part of the Santa Cruz municipal water system until 1967; however, these structures constitute early- to mid-twentieth century additions to the system. While these types of systems may have influenced or supported the growth of communities such as Live Oak, this is far too common an association to merit a blanket conclusion of historical significance under NRHP Criterion A or CRHR Criterion 1 within the context of municipal water management systems. At some point in the past, all forms of historic-era infrastructure were associated locally or regionally with municipal growth or economic development, actual or intended. It is often exceedingly difficult to prove whether historic-era infrastructure associated with recognizable growth actually caused or merely accommodated the growth. Furthermore, although the Beltz system dates back to 1936 and was the pioneering water conveyance system in the area, historical aerial photographs suggest that the first well located on the Beltz 8 property, Beltz 6, was not developed until 1952 and 1967. This suggests that the Beltz 6 facility was not developed during the initial years of the Beltz system development in the 1930s, but rather, it was installed as an expansion to the existing system during the post-war period to meet increased demand for water within the service area as the population of the County grew by roughly 240% between 1940 and 1970. Historical aerial photographs suggest that many of the small agricultural properties and large estates within the Beltz service area were subdivided to accommodate new, substantial residential development between 1952 and 1964, resulting in an increase from roughly 900 Beltz service connections in 1955 to 1,500 by 1967 As the Beltz system constituted the only water delivery system servicing the geographic area, the nearly 60% increase in the number of residential service connections between 1955 and 1967 suggests that the construction of Beltz 6 was directly related to an increased demand for supply and to enable continued development within the service area (Santa Cruz Sentinel 1947: 1, 1955: 18, 1967a: 4, 1967b: 5, 1967c: 24; SCPL n.d.: 1; UCSB 2020).

Therefore, the Beltz 8 facility is not associated with any extraordinary event or events occurring within the context of early County development that would distinguish the structures from the vast array of water management systems dotting the California landscape. Moreover, research into the history of the Beltz 8 facility revealed no evidence suggesting that the structures on site are associated with an alternative, more unique event or pattern of events considered historically significant. For these reasons, the Beltz 8 facility does not appear to meet NRHP Criterion A or CRHR Criterion 1.

NRHP Criterion B: associated with the lives of significant persons in our past.

CRHR Criterion 2: is associated with the lives of persons important in our past.

To be found eligible under Criterion B/2 the property has to be directly tied to an important person and the place where that individual conducted or produced the work for which he or she is known. Archival research failed to indicate any such direct association between individuals that are known to be historic figures at the national, state, or local level and the Beltz 8 facility.

The Beltz 8 facility was subsequently modified after it was first constructed between 1952 and 1967 by several individuals and early regional water management developers in order to provide municipal water in the Santa Cruz region. As such, the facility represents the collective efforts of many individuals, rather than the work of any single individual. Therefore, the facility is not known to have any historical associations with people important to the nation's or state's past. Due to a lack of identified significant associations with important persons in history, the facility does not appear eligible under NRHP Criterion B or CRHR Criterion 2.

NRHP Criterion C: embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.

CRHR Criterion 3: embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.

The Beltz 8 property was established between 1952 and 1967 as the sixth well site in the Beltz Water system; however, subsequent additions to the site have resulted in the property not retaining any buildings or infrastructure from this initial period of construction under Beltz management. Major alterations to the site, including the construction of an Iron and Manganese Removal Plant in 1972 and the abandonment of Beltz 6, have altered the setting of the site and caused it to lose integrity of setting, feeling, and association. Subsequent alterations to the Removal Plant as a result of an expansion in 1985, including a large addition to the Control Building, have altered this phase of the site's development, causing integrity in the areas of design, materials, and workmanship to be diminished. Additionally, the design for the facility lacks sufficient engineering distinction, does not appear to be distinctive or innovative in design, and the remaining features located on the site are distinctly utilitarian in design. They are also not representative of a known style aesthetic and do not possess high artistic values.

Overall, the Beltz 8 facility has experienced multiple alterations over time in order to accommodate modern equipment and ensure ongoing use. It is representative of a conglomeration of construction methods and lacks sufficient engineering distinction to be significant within any particular well or treatment plant facility type. Consequently, the Beltz 8 appears to lack significance under NRHP Criterion C or CRHR Criterion 3.

NRHP Criterion D: have yielded, or may be likely to yield, information important in history or prehistory.

CRHR Criterion 4: has yielded, or may be likely to yield, information important in prehistory or history.

There is no evidence to indicate that the subject property is likely to yield any additional information important to prehistory or history beyond what is already known. The subject property is also not associated with an archaeological site or a known subsurface cultural component. Therefore, the subject property does not appear eligible under NRHP/CRHP Criterion D/4.

5.1.6 County of Santa Cruz Statement of Significance

1. **The resource is associated with a person of local, state or national historical significance.**

   As stated in Criterion B/2, archival research did not reveal an association between the Beltz 8 facility and any persons who significantly contributed to the development of the city, state, or nation. Therefore, the facility does not appear eligible under County Criterion 1.

2. **The resource is associated with an historic event or thematic activity of local, state or national importance.**

   The Beltz 8 facility is not associated with any extraordinary event or events occurring within the context of early County development that would distinguish the structures from the vast array of water management systems dotting the California landscape. Moreover, research into the history of the Beltz 8 facility revealed no evidence suggesting that the structures on site are associated with an alternative, more unique event or pattern of events considered historically significant. For these reasons, the Beltz 8 facility does not appear to be directly associated with events that have made a significant contribution to the development of water infrastructure in the County. Therefore, the facility does not appear eligible under County Criterion 2.

3. **The resource is representative of a distinct architectural style and/or construction method of a particular historic period or way of life, or the resource represents the work of a master builder or architect or possesses high artistic values.**

   As discussed in Criterion C/3, the Beltz 8 facility has experienced multiple alterations over time in order to accommodate modern equipment and ensure ongoing use. It is representative of a conglomeration of construction methods and lacks sufficient engineering distinction to be significant within any particular well or treatment plant facility type. Therefore, the facility does not appear eligible under County Criterion 3.

4. **The resource has yielded, or may likely yield, information important to history.**

   As discussed under Criterion D/4, there is no evidence to indicate that the subject property is likely to yield any additional information important to prehistory or history beyond what is already known. The subject property is also not associated with an archaeological site or a known subsurface cultural component. Therefore, the facility does not appear eligible under County Criterion 4.

5.1.7 Integrity Discussion

In addition to not meeting any of the significance Criteria, the subject Beltz 8 facility lacks historic integrity. The structures now located on the site are still located in their historic location, retain their historic alignment, and continue to provide water for the municipal water supply. However, the facility shows evidence of evolution over time to meet rising supply demands, including the addition on the Control Building, removal of a wastewater treatment tank, and the replacement of the original Beltz 6 well on the site with a new well in 1998. As a result of this expansion, the facility has lost the integrity of setting, association, design, materials, and workmanship.

5.1.8 Summary of Evaluation Findings

In conclusion, the Beltz 8 facility does not appear eligible for listing in the NRHP, the CRHR, or the SCCHRI due to a lack of historical associations, architectural merit, and compromised integrity. As such, this property does not appear to be a historic property under Section 106 of the NHPA or a historical resource under CEQA.

5.2 The Tait Diversion and Coast Pump Station

The Tait Diversion and Coast Pump Station is a combined facility located on municipal property within the City. The property demonstrates a layered development history. The Coast Pump Station was added to the larger City system in the late 1920s. The pump station was completed in 1929 as the second of two municipal pumping stations funded by the City in roughly the same location beside the San Lorenzo River north of present-day Highway 1. Archival newspaper sources indicate that a diversion was present at this site dating back to 1934; however, the Tait Diversion as it is now known received a new intake in 1961, which was then reconfigured in 1983. The Tait Diversion and Coast Pump Station combined facility contains three associated built environment structures: the Coast Pump Station (1928), the Meter Shop (c.1964–1968), and Tait Diversion (c.1934).

5.2.1 Site Access

The Tait Diversion and Coast Pump Station are situated at 1214 River Street beside the San Lorenzo River. A chain-link fence fitted with barbed wire and privacy slats along River Street secures the perimeter of the property and features a recessed gated entry to the paved access road (Exhibit 15). The access road leads past the Meter Shop on the left of the drive before curving to the north into an open paved lot. The Coast Pump Station is located on the far end of the lot. The property also contains a modern shed beside the Meter Shop, a shipping container, and a large generator.

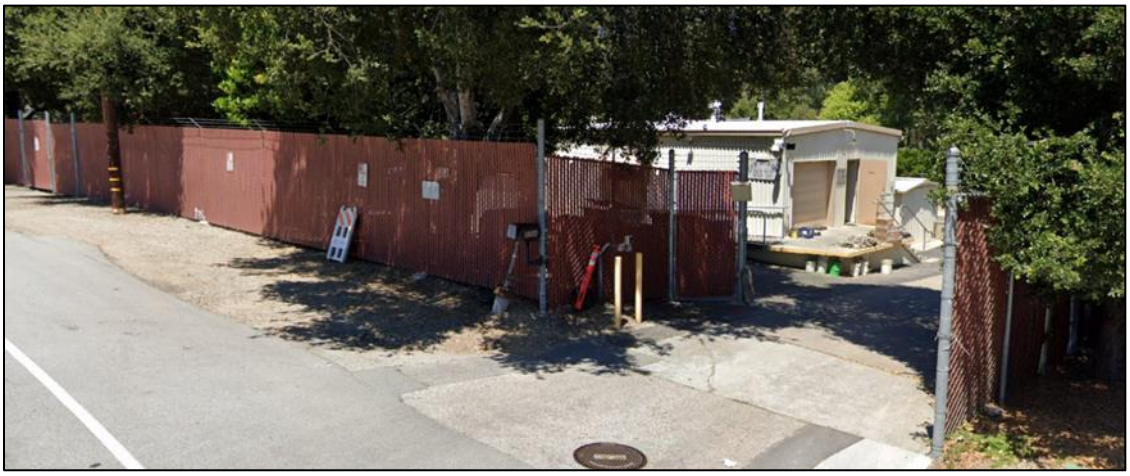


Exhibit 15. Access gate to the Coast Pump Station and Tait Diversion Site off River Street, view looking north (Google Earth 2020).

Overall, the site is predominantly paved except for open green areas containing native flora similar to the other nearby areas beside the river. The Tait Diversion is located due north of the Coast Pump Station on the San Lorenzo River and can be accessed only on foot (Exhibit 16).

Exhibit 16. Path down from Coast Pump Station (pictured) to Tait Diversion, view looking south (IMG_0162).

5.2.2 Coast Pump Station (1929)

The Coast Pump Station is a rectangular, industrial-style building that features ribbed metal siding and a side-gable roof clad in corrugated metal (Exhibit 17). A square, shed-roof garage addition extends from the southwest elevation of the building and also features ribbed metal cladding and a corrugated roof.

Exhibit 17. The Coast Pump Station, southeast (main) elevation view looking northwest (IMG_0185).

The southeast (main) elevation features a narrow metal rollup door and a simple entry door with a single square window; the garage addition also features a wide rollup door on this elevation. Large pipes emerge from the ground on the northeast elevation and are sheltered by a shed roof extending from this elevation. The side and rear of the building do not have any additional doors and windows (Exhibit 18).

Exhibit 18. Rear of Coast Pump Station showing view looking northeast (IMG_0162).

5.2.3 Meter Shop (c.1964-1968)

The Meter Shop building is a rectangular, industrial-style building that features 'Stran-steel' brand ribbed metal siding and a front-gable roof clad in corrugated metal (Exhibit 19). The foundation of the building is constructed from concrete masonry units. The southeast (main) elevation features a small loading dock, a narrow metal rollup door and a simple solid entry door. The entry door is accessed via a set of six side-facing steps fitted with a metal pipe railing. The northeast elevation features a single aluminum sliding window (Exhibit 20).

Exhibit 19. Meter Shop, southeast (main) elevation, view looking north (IMG_0181).

Exhibit 20. Meter Shop, northeast elevation, view looking west (IMG_0184)

5.2.4 Tait Diversion (c.1934, new intake added 1983)

The Tait Diversion is presently comprised of a weir across the San Lorenzo River formed from irregularly shaped concrete sections arranged in a line that disappears into the thick vegetation on the opposite bank of the river. On

the west bank of the river, a sizable concrete intake installed in 1983 features a heavy metal grate over both the inflow and the outflow, and the top of the structure is covered by metal decking (Exhibits 21 and 22).

Exhibit 21. Tait Diversion, overview showing the 1983 intake in the foreground and the remaining section of the original concrete diversion dam stretching across the San Lorenzo, view looking north (IMG_0175).

Exhibit 22. Tait Diversion, remaining section of the original concrete diversion dam, view looking north (IMG_0165).

5.2.5 Identified Alterations to the Coast Pump Station and Tait Diversion Facility

The following alterations were identified during a review of the photographs taken during the pedestrian survey and during the course of archival research. Unless indicated, the dates of these alterations are unknown.

Coast Pump Station (1929)

- 20-foot by 30-foot garage addition, 1979 (SCWD 1979a: 2)
- Surge arrestor tank added behind rear of building (SCWD 1979b: 1)
- Filter tanks removed and site paved, between 1968 and 1979 (NETR 2020; SCWD 1979b: 2)
- Building clad in metal siding
- Roof covered in corrugated metal sheets
- Various mechanical, pump, and pipeline upgrades

Meter Shop (c.1968)

- Installation of new lights and security cameras on exterior of building

Tait Diversion (c.1934)

- New intake structure on east bank, 1960 (Brown and Caldwell 1960)
- New intake structure on west bank and notch existing dam, 1983 (Dewante and Stowell 1983: 3)

5.2.6 NRHP/CRHR Statement of Significance

NRHP Criterion A: associated with events that have made a significant contribution to the broad patterns of our history.

CRHR Criterion 1: is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.

Water management infrastructure associated with municipal water districts is a common property type throughout the County and the State of California. Components of water infrastructure systems have been considered significant under NRHP Criterion A and CRHR Criterion 1 when associated with trends and events that have made a significant contribution to the broad patterns of our history, particularly in regional agricultural or local economic development. Specifically, the Laguna Creek Dam, which is part of the County's municipal water system, is one such structure. As a well-preserved masonry water management structure dating to 1890, it is a physical example of pioneering water management infrastructure in California. As such, the Laguna Creek Dam has been recommended as individually eligible for listing in the NRHP and the CRHR under Criterion A/1 for its association with early advances in water management in California, specifically through creation of the City's first municipal water distribution system that resulted in supplying the community of Santa Cruz with municipal water services and led to subsequent expansion of water infrastructure in the region. The period of significance for that dam is 1890, the year it was initially constructed.

While the Tait Diversion and Coast Pump Station are part of the County's municipal water system, these structures are early to mid-twentieth century additions to the system. While these types of systems may have influenced or supported the growth of local communities, this is far too common an association to merit a blanket conclusion of historical significance under NRHP Criterion A or CRHR Criterion 1 within the context of municipal water management systems. At some point in the past, all forms of historic-era infrastructure were associated locally or regionally with municipal growth or economic development, actual or intended. It is often exceedingly difficult to

prove whether historic-era infrastructure associated with recognizable growth actually caused or merely accommodated the growth.

The Tait Diversion and Coast Pump Station combined facility is not associated with any extraordinary event or events occurring within the context of early County development that would distinguish the structure from the vast array of water management systems dotting the California landscape. Moreover, research into the history of the Tait Diversion and Coast Pump Station combined facility revealed no evidence suggesting that the structures are associated with an alternative, more unique event or pattern of events considered historically significant. For these reasons, the Tait Diversion and Coast Pump Station combined facility does not appear to meet NRHP Criterion A or CRHR Criterion 1.

NRHP Criterion B: associated with the lives of significant persons in our past.

CRHR Criterion 2: is associated with the lives of persons important in our past.

To be found eligible under Criterion B/2 the property has to be directly tied to an important person and the place where that individual conducted or produced the work for which he or she is known. Archival research failed to indicate any such direct association between individuals that are known to be historic figures at the national, state, or local level and the Tait Diversion and Coast Pump Station combined facility. The Tait Diversion is named for a Water Superintendent R.S. Tait, who was instrumental in the construction of both municipal pumping plants on the San Lorenzo River. While he was an advocate of the project, the plant does not appear to be the site at which Tait conducted the work for which he is known, and furthermore, the assignment of Tait's name to the diversion appears to be a relatively recent addition made at some point after the 1980s.

The Coast Pump Plant and the Tait Diversion were subsequently modified after they were first constructed in 1929 and c.1934, respectively, by several individuals and early regional water management developers, in order to provide municipal water in the Santa Cruz region. As such, the facility represents the collective efforts of many individuals, rather than the work of any single individual. Therefore, the facility is not known to have any historical associations with people important to the nation's or state's past. Due to a lack of identified significant associations with important persons in history, the facility does not appear eligible under NRHP Criterion B or CRHR Criterion 2.

NRHP Criterion C: embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.

CRHR Criterion 3: embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.

Overall, the Tait Diversion and Coast Pump Station combined facility itself is a conglomeration of construction methods and lacks sufficient engineering distinction to be significant within any particular combination pumping plant and diversion dam facility type. The Coast Pump Station was completed in 1929; however, major subsequent alterations, including the construction of a large addition in 1979, cladding the entire building with ribbed metal siding covering the original fenestration patterns, and fitting the original roof with a gable roof clad in corrugated metal material obscuring the trussed roof shape, have significantly diminished the integrity of design, materials, and workmanship. The Tait Diversion has also seen multiple alterations and additions over time, including the installation of two different intake structures in 1960 and 1984, that have eliminated the majority of the original early 1930s construction materials once composing the resource. This has caused it to lose all integrity in the areas

of design, materials, and workmanship. Additionally, the designer of the Coast Pump Station, City Engineer Ray Fowler, does not appear to have reached the level of notoriety to be considered a master in the field of engineering, and the original designer of the Tait Diversion is unknown. Overall, the design for the Tait Diversion and Coast Pump Station do not appear to be distinctive or innovative in design.

Overall, the combined facility has experienced multiple alterations over time in order to accommodate modern equipment and ensure ongoing use. It is representative of a conglomeration of construction methods and lacks sufficient engineering distinction to be significant within any particular pumping plant or diversion dam facility type. Consequently, the Tait Diversion and Coast Pump Station appear to lack significance under NRHP Criterion C or CRHR Criterion 3.

NRHP Criterion D: have yielded, or may be likely to yield, information important in history or prehistory.

CRHR Criterion 4: has yielded, or may be likely to yield, information important in prehistory or history.

There is no evidence to indicate that the subject property is likely to yield any additional information important to prehistory or history beyond what is already known. The subject property is also not associated with an archaeological site or a known subsurface cultural component. Therefore, the subject property does not appear eligible under NRHP/CRHP Criterion D/4.

5.2.7 City of Santa Cruz Statement of Significance

1. **Recognized as a significant example of the cultural, natural, archaeological, or built heritage of the city, state, or nation.**

The Coast Pump Station does not constitute the first, last, or only pumping plant located in the City or County. The remaining original section of the Tait Diversion possibly dating to the early 1930s does not constitute the first, last, or only surface diversion in the history of Santa Cruz water development and has also been subsequently modified to a degree that it is unrecognizable and no longer retains historic integrity. Neither component of the site can be called a significant example of their facility type because each constitutes a conglomeration of construction methods and lacks sufficient engineering distinction. Therefore, the facility does not appear eligible under City Criterion 1.

2. **Associated with a significant local, state, or national event.**

Archival research did not find any associations with events that have made a significant contribution to the broad patterns of local or regional history. While the subject property was developed overtime in conjunction with the development of Santa Cruz water infrastructure, the development of the Coast Pump Station was the second plant of this kind in the City and is a product of growth and expansion instead of the implementation of a new technology for this facility type. The Tait Diversion and Coast Pump Station does not constitute the first, last, or only such facility pumping plant located in the City or County. Therefore, the property does not appear eligible under City Criterion 2.

3. **Associated with a person or persons who significantly contributed to the development of the city, state, or nation.**

Archival research failed to indicate any such direct association between individuals that are known to be historic figures at the national, state, or local level and the Tait Diversion and Coast Pump Station combined

facility. The Tait Diversion is named for Water Superintendent R.S. Tait, who was instrumental in the construction of both municipal pumping plants on the San Lorenzo River. While he was an advocate of the project, the plant does not appear to be the site at which Tait conducted the work for which he is known, and furthermore, the assignment of Tait's name to the diversion appears to be a relatively recent addition made at some point after the 1980s.

The Coast Pump Plant and the Tait Diversion were subsequently modified after they were first constructed in 1929 and c.1934, respectively, by several individuals and early regional water management developers, in order to provide municipal water in the Santa Cruz region. As such the facility represents the collective efforts of many individuals, rather than the work of any single individual. Therefore, as the facility is not known to have any historical associations with people important to the nation's or state's past, the facility does not appear eligible under City Criterion 3.

4. **Associated with an architect, designer, or builder whose work has influenced the development of the city, state, or nation.**

The designer of the Coast Pump Station, City engineer Ray Fowler, does not appear to have reached the level of notoriety to be considered a master in the field of engineering, and the original designer of the Tait Diversion is unknown. Therefore, for the reasons stated above, the facility does not appear eligible under City Criterion 4.

5. **Recognized as possessing special aesthetic merit or value as a building with quality of architecture and that retains sufficient features showing its architectural significance.**

Overall, the Tait Diversion and Coast Pump Station combined facility itself is a conglomeration of construction methods and lacks sufficient engineering distinction to be significant within any particular combination pumping plant and diversion dam facility type. The Coast Pump Station was completed in 1929; however, major subsequent alterations, including the construction of a large addition in 1979, cladding the entire building with ribbed metal siding covering the original fenestration patterns, and fitting the original roof with a gable roof clad in corrugated metal material obscuring the trussed roof shape, have significantly diminished the integrity of design, materials, and workmanship. The Tait Diversion has also seen multiple alterations and additions over time, including the installation of two different intake structures in 1960 and 1984, that have eliminated the majority of the original early 1930s construction materials once composing the resource. This has caused it to lose all integrity in the areas of design, materials, and workmanship. As such, the facility does not appear eligible under City Criterion 5.

6. **Recognized as possessing distinctive stylistic characteristics or workmanship significant for the study of a period, method of construction, or use of native materials.**

After its completion in 1929, the Coast Pump Station was subsequently renovated and fitted with metal ribbed siding and corrugated metal roofing material. As a result, the building has been modified to the extent that it no longer retains historic integrity and is no longer able to convey significance dating to this period. After its completion c.1934, the Tait Diversion has seen multiple upgrades to intensify its productivity overtime and as

a result has been modified to the extent that it no longer retains historic integrity and is no longer able to convey significance dating to this period. Therefore, the facility does not appear eligible under City Criterion 6.

7. Retains sufficient integrity to accurately convey its significance.

Due to a number of large-scale alterations resulting in the obscuring of historic materials and design, the Tait Diversion and Coast Pump Station are no longer capable of conveying the historic significance of a property dating to the early-twentieth-century period of water development in Santa Cruz. Therefore, the facility does not appear eligible under City Criterion 7.

5.2.8 Integrity Discussion

In addition to not meeting any of the significance Criteria, the Tait Diversion and Coast Pump Station lacks historic integrity. The structures of the Tait Diversion and Coast Pump Station combined facility are still located in their historic location, retain their historic alignment, and continue to provide water for the municipal water supply. Both features have been heavily modified and now include modern construction materials that obscure the historic materials, in some cases entirely. This has caused the loss of integrity in the areas of design, material, workmanship, feeling, and setting.

5.2.9 Summary of Evaluation Findings

In conclusion, the Tait Diversion and Coast Pump Station do not appear eligible for listing in the NRHP, the CRHR, or on the City of Santa Cruz Historic Building Survey due to a lack of historical associations, architectural merit, and compromised integrity. As such, these properties do not appear to be historic properties under Section 106 of the NHPA or historical resources under CEQA.

6 Impacts Analysis

This section contains the CEQA evaluation of potential environmental impacts associated with the Proposed Project related to cultural and tribal cultural resources. The section identifies the standards of significance used in evaluating the impacts, describes the methods used in conducting the analysis, and evaluates the Proposed Project's impacts and contribution to significant cumulative impacts, if any are identified.

6.1 Thresholds of Significance

The standards of significance used to evaluate the impacts of the Proposed Project to cultural resources and tribal cultural resources are based on statutory language found in Public Resources Code Sections 21083.2(a), 21084.1, 21084.2, CEQA Guidelines Section 15064.5(b), Appendix G of the CEQA Guidelines, and the City of Santa Cruz CEQA Guidelines, as listed below. A significant impact would occur if the Proposed Project would:

A. Cause a substantial adverse change in the significance of a historical resource pursuant to Section15064.5.
B. Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to Section15064.5.
C. Disturb any human remains, including those interred outside of dedicated cemeteries.
D. Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074.

6.2 Analytical Methods

The following analysis considers whether the Proposed Project would cause cultural resource or tribal cultural resource impacts, considering the City's Standard Construction Practices (described in Section 1.2.5, Standard Operational and Construction Practices). Methods used to identify the presence of archaeological and/or built environment CEQA historical resources in the study area are presented in detail in this technical report. In summary, efforts to identify cultural resources consisted of conducting a records search, background property specific research, Native American coordination, historic advocacy group correspondence, creation of a historic context, field survey of the study area, and significance evaluations (described in Sections 2 through 5). This data has been analyzed and used in the CEQA evaluation of the Proposed Project included in this section.

Historical Resources

Projects can result in a substantial adverse change in the significance of a historical resource if they would cause physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired (State CEQA Guidelines Section 15064.5). No built environment properties that qualify as CEQA historical resources were identified in the study areas for project components. A few of the programmatic component sites contain a building or structure that is 45 years old or older and their eligibility for listing at the national, state, or local level is unknown. As such, mitigation is included that will provide for evaluation of those sites when those components are pursued in the future. Potential impacts to built environment historical resources for both project and programmatic components are detailed below.

Archaeological Resources

Archaeological sites are usually adversely affected only by physical destruction or damage that can be caused by grading and excavation, trenching, weather-induced erosion, etc. Impacts to archaeological resources and human remains most often occur as the result of excavation or grading within the vertical or horizontal boundaries of a significant archaeological site. Archaeological resources may also suffer impacts as the result of project activity that increases erosion, or increases the accessibility of a surface resource, and thus increases the potential for vandalism or illicit collection. Because archaeological resources often are buried or cannot be fully defined or assessed on the basis of surface manifestations, substantial ground-disturbing work may have the potential to uncover previously unidentified resources, including archaeological deposits and human remains. As precise fill depths may not be known in all cases, it must be assumed that any ground-disturbing activities in any portion of the study area where development will occur could potentially affect unique archaeological resources, historical resources of an archaeological nature, or subsurface tribal cultural resources.

Application of Relevant Standard Practices

The Proposed Project includes standard construction practices (see Section 3.4.5.2, Standard Construction Practices), that the City would implement to avoid or minimize effects to archaeological resources and human remains. These practices and their effectiveness in avoiding and minimizing effects are described below.

If archaeological resources (sites, features, or artifacts) are exposed during construction, Standard Construction Practice #24 requires construction activities to stop within a 100 feet of any finds, temporary flagging around the resources, and evaluation of the significance of the finds by a qualified archaeologist. If the archaeologist observes the discovery to be potentially significant under CEQA, preservation in place or additional treatment may be required. This measure is somewhat effective in that it requires work stoppage to evaluate the significance of a potential archaeological resource; however, it stops short of specifying how to appropriately treat such a significant resource, if found.

If human remains are exposed during construction, Standard Construction Practice #25 requires the implementation of California laws that protect Native American burials, skeletal remains, and associated grave goods, regardless of their antiquity, and provides for the sensitive treatment and disposition of those remains. The legal requirements are contained in Section 7050.5 of the California Health and Safety Code and Section 5097.98 of the California Public Resources Code. These laws are effective in that they require construction work to stop, notification of the lead agency staff and County Coroner, notification of the NAHC and the MLD, and the appropriate treatment of the remains. The MLD may recommend means of treating or disposing of, with appropriate dignity, the human remains and items associated with Native Americans.

If the Proposed Project would have potentially significant impacts even with the implementation of the above standard construction practices, the impact analysis identifies mitigation measures. The mitigation measures developed to address impacts to unique archaeological resources, historical resources of an archaeological nature, and subsurface tribal cultural resources addresses potential impacts both to identified archaeological resources, if any, and to archaeological resources that might be discovered during construction.

6.3 Project Impact Analysis

6.3.1 Impacts

This section provides a detailed evaluation of cultural resources and tribal cultural resource impacts associated with the Proposed Project.

Impact CUL-1: Historic Built Environment Resources (Significance Standard A). Construction of some of the Proposed Project infrastructure components could cause a substantial adverse change in the significance of historical built environment resource. **(Less than Significant with Mitigation)**

Water Rights Modifications

The water rights modifications would not directly result in construction activities that could damage or otherwise alter historical built environment resources. Given that, the water rights modifications would not result in direct impacts to historical built environment resources, as defined in State CEQA Guidelines Section 15064.5, and as a result would not cause a substantial adverse change in the significance of such a resource. Therefore, this project component of the Proposed Project would have no direct impacts.

The following analysis evaluates the potential indirect impacts to historic built environment resources as a result of the proposed water rights modifications, that once approved could result in the implementation of the project and programmatic infrastructure components of the Proposed Project.

Infrastructure Components

The Proposed Project includes infrastructure components including ASR, water transfers and exchanges and associated intertie improvements, and surface water diversion improvements. Operation of these components, involving the movement of water in pipelines and the pumping and extraction of water into and out of groundwater basins would not have the potential to impact historic built environment resources and therefore operation of these components is not further evaluated. However, construction of these infrastructure components would have the potential to impact historic built environment resources if such resources are present and therefore construction impacts are further evaluated below.

Aquifer Storage and Recovery Facilities

The Proposed Project includes new ASR facilities that could be installed within the Santa Cruz Mid-County Groundwater Basin inside and outside the areas served by the City, and in the Santa Margarita Groundwater Basin outside the areas served by the City. ASR would include new ASR facilities at unidentified locations and Beltz ASR facilities at the existing Beltz well facilities, which are analyzed below.

New ASR Facilities. Given that specific locations for these facilities have not been identified at this time, information about the potential for historical built environment resources is not fully known. In consideration of the region and property options for the proposed ASR facilities, there is a low likelihood of finding historical built environment resources eligible for listing in the NRHP, CRHR or SCCHRI at the eventual sites for new ASR facilities. Regardless, if historical built environment resources are discovered on these sites, construction of new ASR facilities could cause a substantial adverse change in the significance of a historical built environment resource. Therefore, this

programmatic component of the Proposed Project could have a potentially significant impact on a historical built environment resource.

Implementation of MM-CUL-1a and 1b would avoid a substantial adverse change in the significance of a historical built environment resource by requiring: a records search and potential site survey on the new ASR site(s) to confirm that there is no potential for historical built environmental resources to be present; preparation of a Historic Resources Evaluation Report (HRER) for properties 45 years old or older that could be impacted during construction; and avoidance of any identified significant resources or implementation of design in conformance with the Secretary of the Interior's Standards for the Treatment of Historic Properties such that the historical resource continues to convey its historical significance. Therefore, implementation of MM-CUL-1a and 1b would reduce potentially significant impacts of this programmatic component on historical built environment resources to a less-than-significant level.

Beltz ASR Facilities. Dudek conducted background research and a CHRIS records search within 0.25 miles of the Beltz ASR sites. No previously recorded or evaluated built environment resources were identified on these sites. Of the four sites (Beltz 8, 9, 10, and 12 ASR sites), the Beltz 8 ASR site, was found to contain buildings and structures over the age of 45 years that required evaluation under NRHP, CRHR, and Santa Cruz County significance criteria. The Beltz 8 ASR site and facility was not recommended as eligible for listing in the NRHP, the CRHR, or the SCCHRI due to a lack of historical associations, architectural merit, and compromised integrity, as described in Section 5 of this report. As such, this property is not a historic property under Section 106 of the NHPA or a historical resource under CEQA. Implementation of the Beltz ASR facilities would not cause a substantial adverse change in the significance of a historical built environment resource. Therefore, these project components of the Proposed Project would have no impact on historical built environment resources.

Water Transfers and Exchanges and Intertie Improvements

City/SVWD Intertie – New Pipeline and Pump Station. The City/SVWD intertie would result in the placement of a new pipeline along Sims Road and La Madrona Road and construction of a new pump station. Based on the 2020 survey and records search conducted for the Proposed Project, this site does not contain historic built environment resources. This is consistent with the conclusions of a prior cultural resource study conducted of the same intertie facilities and location (URS 2013). Implementation of the City/SVWD intertie would not cause a substantial adverse change in the significance of a historical built environment resource. Therefore, this programmatic component of the Proposed Project would have no impact on historical built environment resources.

City/SqCWD/CWD Intertie – Soquel Village and Park Avenue Pipelines and McGregor Pump Station Upgrade. The City/SqCWD/CWD intertie would result in replacement of an existing pipeline in two segments, one in Soquel Village and one in Park Avenue, and upgrade of an existing pump station on McGregor Drive. Background research on these component site locations indicate that the only built environment properties that are likely 45 years old or older are the existing Soquel Village and Park Avenue pipelines, given that the pump station was recently constructed. Based on the historic context of the existing water management system the likelihood of the pipelines or any related water facility structure being found eligible for listing in the NRHP, CRHR or SCCHRI is low. Regardless, if these pipelines are determined to be historic resources, construction of the intertie could cause substantial adverse changes in the significance of such historical built environment resources. Therefore, this programmatic component of the Proposed Project could have a potentially significant impact on a historical built environment resource.

Implementation of MM-CUL-1b would avoid a substantial adverse change in the significance of a historical built environment resource by requiring: a records search and potential site survey on new ASR site(s) to confirm that there is no potential for historical built environmental resources to be present; preparation of a HRER for properties 45 years old or older that could be impacted during construction; and avoidance of any identified significant resources or implementation of design in conformance with the Secretary of the Interior's Standards for the Treatment of Historic Properties such that the historical resource continues to convey its historical significance. Therefore, implementation of MM-CUL-1b would reduce potentially significant impacts of this programmatic component on historical built environment resources to less than significant.

City/SqCWD/CWD Intertie – New Pump Stations. The portion of the City/SqCWD/CWD intertie that would connect SqCWD and CWD would require the construction of two new pump stations, one on Valencia Road and one on Freedom Boulevard; however precise locations are not known at this time. Based on the 2020 survey and records search conducted for the Proposed Project, these two pump station sites do not contain historic built environment resources. Implementation of these new pump stations would not cause a substantial adverse change in the significance of a historical built environment resource. Therefore, this programmatic component of the Proposed Project would have no impact.

Felton Diversion Improvements

Based on the background research, a records search, and the 2020 site survey, no previously recorded or evaluated built environment resources were identified on the Felton Diversion Fish Passage Improvements site. No buildings or structures currently over the age of 45 years were identified that required evaluation under NRHP, CRHR, and Santa Cruz County significance criteria. As such, this property is not currently a historic property under Section 106 of the NHPA or historical resource under CEQA. However, this programmatic component could be under construction by 2027, at which time the facility would be over 50 years old. Based on the historic context of the existing water management system the likelihood of the diversion being found eligible for listing in the NRHP, CRHR, or SCCHRI is low. Regardless, if the Felton Diversion is determined to be a historical resource, construction of the diversion improvements could cause substantial adverse changes in the significance of such a historical built environment resource. Therefore, this programmatic component of the Proposed Project could have a potentially significant impact on a historical built environment resource.

Implementation of MM CUL-1a and 1b would avoid a substantial adverse change in the significance of a historical built environment resource by requiring: a records search and potential site survey on the Felton Diversion site when this component is pursued to confirm that there is no potential for historical built environmental resources to be present; preparation of a HRE for properties 45 years old or older that could be impacted during construction; and avoidance of any identified significant resources or implementation of design in conformance with the Secretary of the Interior's Standards for the Treatment of Historic Properties such that the historical resource continues to convey its historical significance. Therefore, implementation of MM CUL-1a and 1b would reduce potentially significant impacts of this programmatic component on historical built environment resources to a less-than-significant level.

Tait Diversion and Coast Pump Station Improvements.

Based on the background research, records search, and the 2020 site survey, no previously recorded or evaluated built environment resources were identified on the Tait Diversion and Coast Pump Station site. The site was found to contain buildings and structures over the age of 45 years that required evaluation under NRHP, CRHR, and SCCHRI designation criteria. Neither facility was recommended as eligible for listing in the NRHP, the

CRHR, or the SCCHRI due to a lack of historical associations, architectural merit, and compromised integrity. As such, this property does not appear to be an historic property under Section 106 of the NHPA or a historical resource under CEQA. Implementation of the Tait Diversion and Coast Pump Station Improvements would not cause a substantial adverse change in the significance of a CEQA historical built environment resource. Therefore, this programmatic component of the Proposed Project would have no impact on historical built environment resources.

Impact CUL-2: **Archaeological Resources and Human Remains (Significance Standards A - C).** Construction of Proposed Project infrastructure components could cause a substantial adverse change in the significance of unique archaeological resources or historical resources of an archaeological nature, and/or disturb human remains. **(Less than Significant with Mitigation)**

Water Rights Modifications

The water rights modifications would not result in construction activities that could damage or otherwise alter unique archaeological resources or historical resources of an archaeological nature or disturb human remains. Given that, the water rights modifications would not disturb human remain or result in direct impacts to unique archaeological resources or historical resources of an archaeological nature, as defined in CEQA and the CEQA Guidelines Section 15064.5, and as a result would not cause a substantial adverse change in the significance of such resources. Therefore, this component of the Proposed Project would have no direct impacts on archaeological resources, historical resources of an archaeological nature, or human remains.

The following analysis evaluates the potential indirect impacts to unique archaeological resources, historical resources of an archaeological nature, or human remains as a result of the proposed water rights modifications, that once approved could result in the implementation of the project and programmatic infrastructure components of the Proposed Project.

Infrastructure Components

As indicated in Impact CUL-1 operation of the Proposed Project infrastructure components, involving the movement of water in pipelines and the pumping and extraction of water into and out of groundwater basins would not have the potential to impact unique archaeological resources or historical resources of an archaeological nature, or disturb human remains and therefore operation of these components is not further evaluated. However, construction of these infrastructure components would have the potential to impact unique archaeological resources or historical resources of an archaeological nature if such resources are present, or disturb human remains and therefore construction impacts are further evaluated below.

Aquifer Storage and Recovery Facilities

New ASR Facilities. The Proposed Project includes new ASR facilities that could be installed within the Santa Cruz Mid-County Groundwater Basin inside or outside the areas served by the City, and in the Santa Margarita Groundwater Basin outside the City's service area. Given that there are not identified locations for these facilities at this time, site-specific information about potential archaeological resources and human remains is not available. If such resources are present on these sites, Standard Construction Practices would be implemented, as described in Section 1.2.5. Standard Construction Practice No. 24 requires that standard inadvertent discovery clauses be included in all construction contracts to address the discovery of potential resources during construction. Standard Construction Practice No. 25 provides for the proper handling of human remains discovered inadvertently during construction. With the implementation of Standard Construction Practice No. 25, potential impacts related to

construction of new ASR facilities on human remains would be less than significant. However, with the implementation of Standard Construction Practice No. 24, potential impacts related to construction of these programmatic components could still cause substantial adverse changes in the significance of such unique archaeological resources or historical resources of an archaeological nature, as the practice stops short of specifying how to appropriately treat such a significant resource, as described in Section 6.2, Analytical Methods. Therefore, the impact of this programmatic component of the Proposed Project on unique archaeological resources or historical resources of an archaeological nature would be potentially significant.

Implementation of MM-CUL-2 would avoid a substantial adverse change in the significance of unique archaeological resources or historical resources of an archaeological nature by requiring: a records search and site survey on these component sites to identify the potential for resources to be present on the site(s); inclusion of standard inadvertent discovery clauses in all construction contracts to address the discovery of potential resources during construction; determination by a qualified archaeologist whether the resource qualifies as an unique archaeological resource or a historical resource of an archaeological nature under CEQA Guidelines Section 15064.5 or NHPA Section 106; preservation in place, if feasible, if resources are determined to be significant; and appropriate data recovery and permanent curation of recovered materials if preservation in place is not feasible. Therefore, implementation of MM-CUL-2 would reduce the potentially significant impacts of these programmatic component on unique archaeological resources or historical resources of an archaeological nature to a less-than-significant level.

Beltz ASR Facilities. Dudek conducted a CHRIS records search and a NAHC SLF search within 0.25 miles of Beltz 8, 9, 10 and 12 ASR facility sites as well as an intensive surface reconnaissance within and immediately adjacent to these components. No archaeological resources were identified within any of these component sites. There is low potential for encountering potentially significant unknown archaeological resources during construction. If such resources are present on these sites, Standard Construction Practices No. 24 and No. 25 would be implemented, as described in Section 6.2, Analytical Methods. With the implementation of Standard Construction Practice No. 25, potential impacts on human remains related to construction of Beltz ASR facilities would be less than significant. However, with the implementation of Standard Construction Practice No. 24, potential impacts related to construction of these project components could still cause substantial adverse changes in the significance of such unique archaeological resources or historical resources of an archaeological nature, as the practice stops short of specifying how to appropriately treat such a significant resource, as described in Section 6.2, Analytical Methds. Therefore, the impact of this project component of the Proposed Project on unique archaeological resources or historical resources of an archaeological nature would be potentially significant.

Notwithstanding the low sensitivity of the Beltz ASR sites, MM-CUL-2 would avoid a substantial adverse change in the significance of unique archaeological resources or historical resources of an archaeological nature, as described above for new ASR facilities. Therefore, implementation of MM-CUL-2 would reduce the potentially significant impacts of this project component on unique archaeological resources or archaeological resources of a historical nature to a less-than-significant level.

Water Transfers and Exchanges and Intertie Improvements

City/SVWD Intertie – New Pipeline and Pump Station. Dudek conducted a CHRIS records search and a NAHC SLF search within 0.25 miles of this component site as well as an intensive surface reconnaissance within and immediately adjacent to this site. No archaeological resources were identified within this component site. This component was also evaluated for the Scotts Valley Multi-Agency Regional Intertie Project in 2010 (Section 2.1.1); there were no impacts to significant archaeological resources found relative to this component (URS 2013). There

is low potential for encountering potentially significant unknown archaeological resources during construction. If such resources are present on this site, Standard Construction Practices No. 24 and No. 25 would be implemented, as described in Section 6.2, Analytical Methods. With the implementation of Standard Construction Practice No. 25, potential impacts on human remains related to construction of the City/SVWD Intertie would be less than significant. However, with the implementation of Standard Construction Practice No. 24, potential impacts related to construction of this programmatic component could still cause substantial adverse changes in the significance of such historical or unique archaeological resources as the practice stops short of specifying how to appropriately treat such a significant resource, as described in Section 6.2. Therefore, the impact of this programmatic component of the Proposed Project on unique archaeological resources or historical resources of an archaeological nature would be potentially significant.

Notwithstanding the low sensitivity of this component site, MM-CUL-2 would avoid a substantial adverse change in the significance of unique archaeological resources or historical resources of an archaeological nature, as described above for new ASR facilities. Therefore, implementation of MM-CUL-2 would reduce the potentially significant impacts of this programmatic component on unique archaeological resources or historical resources of an archaeological nature to a less-than-significant level.

City/SqCWD/CWD Intertie - Soquel Village and Park Avenue Pipelines and McGregor Pump Station Upgrade. The CHRIS records search identified two recorded archaeological resources: CA-SCR-191, is located within 150 feet of the Soquel Village pipeline; and CA-SCR-214 is located within ten feet of the Park Avenue pipeline. Documentary research indicates the sites were subjected to subsurface testing and found to be of very low density and integrity (CA-SCR-191) or found not to constitute an actual archaeological deposit (Section 2.1.1). There is low potential for encountering potentially significant unknown archaeological resources during future construction. If such resources are present on these sites, Standard Construction Practices No. 24 and No. 25 would be implemented, as described above for new ASR facilities. With the implementation of Standard Construction Practice No. 25, potential impacts on human remains related to construction of the Soquel Village and Park Avenue pipelines and McGregor pump station upgrade would be less than significant. However, with the implementation of Standard Construction Practice No. 24, potential impacts related to construction of this programmatic component could still cause substantial adverse changes in the significance of such historic or unique archaeological resources, as the practice stops short of specifying how to appropriately treat such a significant resource, as described in Section 6.2, Analytical Methods. Therefore, the impact of this programmatic component of the Proposed Project on unique archaeological resources or historical resources of an archaeological nature would be potentially significant.

Notwithstanding the low sensitivity of this programmatic component site, MM-CUL-2 would avoid a substantial adverse change in the significance of unique archaeological resources or historical resources of an archaeological nature, as described above for new ASR facilities. Therefore, implementation of MM-CUL-2 would reduce the potentially significant impacts of this programmatic component on unique archaeological resources or historical resources of an archaeological nature to a less-than-significant level.

City/SQCWD/CWD Intertie – New Pump Stations. As indicated in Impact CULT-1, precise locations are not known at this time for the two new pump stations, one on Valencia Road and one on Freedom Boulevard. Dudek conducted a CHRIS records search and a NAHC SLF search within 0.25 miles of these components as well as a general surface reconnaissance in the vicinity of the components. No archaeological resources were identified within these sites, based on this review. There is low potential for encountering potentially significant unknown archaeological resources during future construction. If such resources are present on these sites, Standard Construction Practices No. 24 and No. 25 would be implemented, as described above for new ASR facilities. With the implementation of Standard Construction Practice No. 25, potential impacts on human remains related to construction of these pump

stations would be less than significant. However, with the implementation of Standard Construction Practice No. 24, potential impacts related to construction of this programmatic component could still cause substantial adverse changes in the significance of such historic or unique archaeological resources as the practice stops short of specifying how to appropriately treat such a significant resource, as described in Section 6.2, Analytical Methods. Therefore, the impact of this programmatic component of the Proposed Project on unique archaeological resources or historical resources of an archaeological nature would be potentially significant.

Notwithstanding the low sensitivity of this programmatic component site, MM-CUL-2 would avoid a substantial adverse change in the significance of unique archaeological resources or historical resources of an archaeological nature, as described above for new ASR facilities. Therefore, implementation of MM-CUL-2 would reduce the potentially significant impacts of this programmatic component on unique archaeological resources or historical resources of an archaeological nature to a less-than-significant level.

Surface Water Diversion Improvements

Dudek conducted a CHRIS records search and a NAHC SLF search within 0.25 miles of Tait Diversion and Coast Pump Station improvements site and the Felton Diversion fish passage improvements site as well as an intensive surface reconnaissance within and immediately adjacent to these component sites. No archaeological resources or evidence of human remains were identified within these two component sites. There is low potential at both sites for encountering unknown archaeological resources during construction. If such resources are present on these sites, Standard Construction Practices No. 24 and No. 25 would be implemented, as described above for new ASR facilities. With the implementation of Standard Construction Practice No. 25, potential impacts on human remains related to construction of these diversion improvements would be less than significant. However, with the implementation of Standard Construction Practice No. 24, potential impacts related to construction of these programmatic components could still cause substantial adverse changes in the significance of such historical or unique archaeological resources as the practice stops short of specifying how to appropriately treat such a significant resource, as described in Section 6.2, Analytical Methods. Therefore, the impact of these programmatic components of the Proposed Project on unique archaeological resources or historical resources of an archaeological nature would be potentially significant.

Notwithstanding the low sensitivity of these component sites, MM-CUL-2 would avoid a substantial adverse change in the significance of unique archaeological resources or historical resources of an archaeological nature, as described above for new ASR facilities. Therefore, implementation of MM-CUL-2 would reduce the potentially significant impacts of these programmatic components on unique archaeological resources or historical resources of an archaeological nature to a less-than-significant level.

Impact CUL-3: Tribal Cultural Resources (Significance Standard D). Construction of Proposed Project infrastructure components could cause a substantial adverse change in the significance of tribal cultural resource. **(Less than Significant with Mitigation)**

A NAHC SLF search did not identify any known Tribal Cultural Resources (TCR) within any of the 11 components of the study area and a 0.25-mile buffer from the study area. Dudek notified tribes traditionally associated with the study area about the Proposed Project and requested information regarding TCRs on April 7, 2020. The outreach effort has not resulted in the identification of a TCR within or near the study area. No known geographically defined TCRs have been identified. On April 7, 2020, Valentin Lopez, Chair of the Amah Mutsun Tribal Band, contacted Dudek. Regarding the Proposed Project, Mr. Lopez requested that a Native American monitor from the Amah Mutsun Tribal Band be hired for all ground-disturbance work within 400 feet of known cultural resource sites. As

documented in Section 2.1.1 above, there are two locations where recorded prehistoric sites are within 400 feet of a component of the study area. In both instances, the subject prehistoric sites have been the subject of subsurface testing with findings that suggest either that the resources in question are of very low integrity and or of such low density that their designation as actual prehistoric sites is questionable.

The project and programmatic components would not impact known archaeological sites or TCRs. Nevertheless, in the event that unknown archaeological sites or TCRs are uncovered during the course of construction Standard Construction Practices No. 24 and No. 25 would be implemented, as described above in Impact CUL-2. With the implementation of Standard Construction Practice No. 25, potential impacts on human remains would be less than significant. However, with the implementation of Standard Construction Practice No. 24, the Proposed Project could still cause substantial adverse changes in the significance of a historical or unique archaeological resource, as the practice stops short of specifying how to appropriately treat such a significant resource, as described in Section 6.2, Analytical Methods. Therefore, the impact of the Proposed Project on archaeological sites or tribal cultural resources would be potentially significant.

MM-CUL-2 would avoid substantial adverse changes in the significance of archaeological sites or TCRs, as described above for new ASR facilities in Impact CUL-2. Therefore, implementation of MM-CUL-2 would reduce the potentially significant impacts of the Proposed Project on archaeological sites or tribal cultural resources to a less-than-significant level.

6.4 Mitigation Measures

Implementation of the following mitigation measures would reduce potentially significant cultural and tribal cultural resources impacts of the Proposed Project related to infrastructure construction, as described in the sections above, to a less-than-significant level.

MM-CUL-1 **Historic Era Built Environment Resources.** Potentially significant impacts to historic built environmental resources on the infrastructure component sites shall be addressed through the following measures:

a. **Identify Potential Historic Built Environment Resources (Applies to New ASR Facilities and the Felton Diversion).** When new or upgraded facilities move into project level design and those developments are being pursued by the City, a qualified cultural resource specialist shall review the project site and conduct a CHRIS records search. If there are no previously recorded resources or historic era buildings or structures located on the site, no further action is warranted. If these project site review efforts indicate a potential for CEQA historical resources, all buildings and structures within the component site that are 45 years or older, shall be identified and measure b shall be implemented.

b. **Evaluate Potential Built Environment Resources (Applies to New ASR Facilities, City/SqCWD/CWD Intertie – Soquel Village and Park Avenue Pipelines, and Felton Diversion).** Should potential CEQA historical resources be identified within the above programmatic infrastructure component sites, prior to project implementation, the City or other lead agency overseeing the Proposed Project shall retain a qualified architectural historian, meeting the Secretary of the Interior's Professional Qualification Standards (36 CFR, Part 61), to record such potential resources based on professional standards, to formally assess their significance

under CEQA Guidelines Section 15064.5. A Historic Resources Evaluation Report (HRER) shall be prepared by the architectural historian to evaluate properties over 45 years of age under all applicable significance criteria. In consideration of the historic context for the existing water management systems in the region there is a low-likelihood that water management structures that postdate the late 1800s or early 1900s (pioneering water system era) will be found historically significant. Therefore, for existing infrastructure component sites it is likely that the HRER will find that no properties meet the significance criteria and therefore, no CEQA historical resources are likely to be present. No further work shall be required for historic era-built environment properties, buildings, or structures 45 years old or older at these sites that are not found to meet the CEQA historical significance criteria as historical resources. If a property is found to be eligible for listing under the applicable significance criteria and therefore considered a CEQA historical resource the resource shall be avoided or preserved in place. If avoidance or preservation in place is not feasible, and the historical resource will be modified through design such that it may not be able to convey its historic significance, the City will retain a qualified architectural historian to prepare a subsequent technical report. This required report will assess the proposed project design plans and/or schematics in conjunction with the subject CEQA historical resource and determine whether the Proposed Project conforms with the Secretary of the Interior's Standards for the Treatment of Historic Properties, specifically, the Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings (Structures). The City shall modify the Proposed Project, as needed, to ensure that the Secretary of the Interior's Standards are met such that the historical resource continues to convey its historical significance.

MM-CUL-2 **Unique Archaeological Resources, Historical Resources of Archaeological Nature, and Subsurface Tribal Cultural Resources.** Potentially significant impacts to unique archaeological resources, historical resources of an archaeological nature, or subsurface tribal cultural resources on the infrastructure component sites shall be addressed through the following measures:

a. **Identify Potential Historic or Unique Archaeological Resources (Applies to New ASR Facilities and Other Components where Five Years Have Elapsed).** When new ASR facilities sites are identified and those components are being pursued by the City, a qualified archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards, shall conduct a CHRIS records search, a NAHC Sacred Lands File search and perform an intensive surface reconnaissance within a specifically defined ADI (Area of Direct Impact). Based on the above, all archaeological sites within or near the component site or area of potential effect shall be identified. The sensitivity of the site for discovering unknown resources, shall also be identified. The qualified archaeologist will prepare a technical report with the results of the above. The qualified archaeologist shall attempt to ascertain whether the archaeological sites qualify as unique archaeological resources, historical resources of an archaeological nature, or subsurface tribal cultural resources. If known or identified resources of these kinds are present on the site, measure c shall be implemented.

   This measure shall also be implemented for any other project or programmatic components that are implemented more than five years after the CHRIS records search and NAHC SLF search were conducted for this report.

b. **Standard Sensitivity Training and Inadvertent Discovery Clauses (Applies to all Components).** The City or other lead agency shall include a standard clause in every construction contract for the Proposed Project, which requires cultural resource sensitivity training for workers prior to conducting earth disturbance in the vicinity of a documented cultural-resource-sensitive area, should one be identified in the future. Prior to site mobilization or construction activities on the project site, a qualified archaeologist with training and experience in California prehistory and historical period archaeology shall conduct the cultural resources awareness training for all project construction personnel. The training shall address the identification of buried cultural deposits, including Native American and historical period archaeological deposits and potential tribal cultural resources, and cover identification of typical prehistoric archaeological site components including midden soil, lithic debris, and dietary remains as well as typical historical period remains such as glass and ceramics. The training must also explain procedures for stopping work if suspected resources are encountered. Any personnel joining the work crew subsequent to the training shall also receive the same training before beginning work.

   Consistent with Standard Construction Practice No. 24, standard inadvertent discovery clauses shall also be included in every construction contract for the Proposed Project by the City or other lead agency, which requires that in the event that an archaeological resource is discovered during construction (whether or not an archaeologist is present), all soil disturbing work within 100 feet of the find shall cease until a qualified archaeologist can evaluate the find and make a recommendation for how to proceed, as specified in measure c.

c. **Evaluate Potential Unique Archaeological Resources, Historical Resources of Archaeological Nature, and Subsurface Tribal Cultural Resources (Applies to all Components).** For an archaeological resource that is discovered during initial site review (measure a) or during construction (measure b), the City or other lead agency shall:

   - Retain a qualified archaeologist to determine whether the resource has potential to qualify as either a unique archaeological resource, a historical resource of an archaeological nature, or a subsurface tribal cultural resource under Public Resources Code Section 21074, CEQA Guidelines Section 15064.5 or Section 106 of the National Historic Preservation Act.
   - If the resource has potential to be a unique archaeological resource, a historical resource of an archaeological nature, or a subsurface tribal cultural resource, the qualified archaeologist, in consultation with the lead agency, shall prepare a research design and archaeological evaluation plan to assess whether the resource should be considered significant under CEQA criteria.
   - If the resource is determined significant, the lead agency shall provide for preservation in place, if feasible. If preservation in place is not feasible, the qualified archaeologist, in consultation with the lead agency, will prepare a data recovery plan for retrieving data relevant to the site's significance. The data recovery plan shall be implemented prior to, or during site development (with a 100-foot buffer around the resource). The archaeologist shall also perform appropriate technical analyses, prepare a full written report and file it with the Northwest Information Center, and provide for the permanent curation of recovered materials. The written report will provide new recommendations, which could include, but would not be limited to, archaeological and Native American monitoring for the remaining duration of project construction.

7 Findings and Management Recommendations

As a result of Dudek's research, field survey, and property significance evaluation, the following section presents a summary of eligibility conclusions for the historic property in the project area as well as an analysis of the impacts that the Proposed Project would have on the historic property in consideration of the findings.

7.1 Summary of Findings

7.1.1 Archaeological Findings

The results of the assessment suggest there are no historic properties of an archaeological nature within the entire study area. The results also suggest that the potential for encountering unknown archaeological resources during the planned construction is low in all 11 components of the study area. Specifically, the records search did not identify any known archaeological resources within the study area and the surface reconnaissance was negative for evidence of previously unknown archaeological resources. Findings and recommendations for archaeological resources are summarized in Table 10.

Native American contact Valentin Lopez requested monitoring within 400 feet of know prehistoric resources. As documented in Section 2.1.1 above, there are two locations where recorded prehistoric sites are within 400 feet of a component of the study area. In both instances, the subject prehistoric sites have been the subject of subsurface testing with findings that suggest either that the resources in question are of very low integrity and or of such low density that their designation as actual prehistoric sites is questionable.

Table 10. Findings and Recommendations by Component for Archaeological Resources

Components of the Study Area and APEs	NHPA Section 106 Findings	CEQA Findings
Beltz ASR Facilities	No Historic Properties Affected	No Significant Impact with Mitigation
Felton Diversion Site	No Historic Properties Affected	No Significant Impact with Mitigation
Tait Diversion and Coast Pump Station Site	No Historic Properties Affected	No Significant Impact with Mitigation
Components of the Study Area Not in the APEs	*CEQA Findings*	
New ASR Facilities	No Significant Impact with Mitigation	
City/SVWD intertie	No Significant Impact with Mitigation	
City/SqCWD/CWD intertie – Soquel Village Pipeline	No Significant Impact with Mitigation	
City/SqCWD/CWD intertie – Park Avenue Pipeline and McGregor Pump Station Upgrade	No Significant Impact with Mitigation	
City/SqCWD/CWD intertie – Freedom Boulevard Pump Station	No Significant Impact with Mitigation	
City/SqCWD/CWD intertie – Valencia Road Pump Station	No Significant Impact with Mitigation	

7.1.2 Archaeological Management Recommendations

As indicated in Section 1.2.5, the Proposed Project includes the following Standard Construction Practices:

24. In the event that archaeological resources (sites, features, or artifacts) are exposed during construction activities for the Proposed Project, immediately stop all construction work occurring within 100 feet of the find until a qualified archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards, can evaluate the significance of the find, and whether the archaeological resources qualify as unique archaeological resources, historical resources of an archaeological nature, or subsurface tribal cultural resources. The archaeologist will determine whether additional study is warranted. Should it be required, the archaeologist may install temporary flagging around a resource to avoid any disturbances from construction equipment. Depending upon the significance of the find under CEQA (14 CCR 15064.5[f]; California Public Resources Code, Section 21082), the archaeologist may record the find to appropriate standards (thereby addressing any data potential) and allow work to continue. If the archaeologist observes the discovery to be potentially significant under CEQA, preservation in place or additional treatment may be required.
25. In accordance with Section 7050.5 of the California Health and Safety Code, if potential human remains are found, immediately notify the lead agency staff and the County Coroner of the discovery. The coroner would provide a determination within 48 hours of notification. No further excavation or disturbance of the identified material, or any area reasonably suspected to overlie additional remains, can occur until a determination has been made. If the County Coroner determines that the remains are, or are believed to be, Native American, the coroner would notify the Native American Heritage Commission within 24 hours. In accordance with California Public Resources Code, Section 5097.98, the Native American Heritage Commission must immediately notify those persons it believes to be the Most Likely Descendant from the deceased Native American. Within 48 hours of this notification, the Most Likely Descendant would recommend to the lead agency her/his preferred treatment of the remains and associated grave goods.

7.1.3 Built Environment Findings

The Coast Pump Station and Tait Diversion combination facility and the Beltz 8 ASR site were evaluated for historical significance by Dudek. These do not appear eligible for listing in the NRHP, the CRHR, the City of Santa Cruz Historic Building Survey or the Santa Cruz County HRI due to a lack of historical associations, architectural merit, and compromised integrity. As such, these properties do not appear to be historic properties under Section 106 of the NHPA or historical resources under CEQA and they have been assigned a California Historical Resource Status Code of 6Z (found ineligible for the NRHP, CRHR, or local designation through survey evaluation). Findings and recommendations for Built Environment resources are summarized in Table 11. No management recommendations are required for these resources.

Table 11. Findings and Recommendations for Built Environment Resources

Study Area Components	CEQA Environmental Review Level	Section 106 Level Analysis/ APE delineated	New Facility or Upgrade to Existing Facility	Age of Built Environment Structures	Figure Number (Appendix A)	Built Environment Evaluation as part of this report and eligibility finding	CEQA Findings	NHPA Section 106 Findings (if applicable)
Water Rights Modifications								
No impacts or adverse effects to cultural resources								
Water Supply Augmentation Components								
ASR Facilities								
New ASR Facilities	Programmatic	No	New	Exact Sites Unknown at this time	NA	No	Less than significant with mitigation	N/A
Beltz 8 ASR Facility	Project	Yes	Upgrade	1971 facility modification 1985, 1998	4a	Yes/Not Eligible	No Impact	No Historic Properties Affected
Beltz 9 ASR Facility	Project	Yes	Upgrade	1998	4b	No/Not of Age	No Impact	No Historic Properties Affected
Beltz 10 ASR Facility	Project	Yes	Upgrade	2004	4c	No/Not of Age	No Impact	No Historic Properties Affected
Beltz 12 ASR Facility	Project	Yes	Upgrade	2012	4d	No/Not of Age	No Impact	No Historic Properties Affected
City/SVWD Intertie – New Pipeline and Pump Station	Programmatic	No	New	Proposed all new components no existing structures	4e	No/Nothing found – no constraints	No Impact	N/A
City/SqCWD/CWD Intertie -	Programmatic	No	Upgrade	Existing pipeline, likely over 45 years old	4f	No/Need Project Level Assessment	Less than significant with mitigation	N/A

Table 11. Findings and Recommendations for Built Environment Resources

Study Area Components	CEQA Environmental Review Level	Section 106 Level Analysis/ APE delineated	New Facility or Upgrade to Existing Facility	Age of Built Environment Structures	Figure Number (Appendix A)	Built Environment Evaluation as part of this report and eligibility finding	CEQA Findings	NHPA Section 106 Findings (if applicable)
Soquel Village Pipeline								
City/SqCWD/CWD Intertie - Park Avenue Pipeline and Upgraded Pump Station	Programmatic	No	Upgrade	Existing pipeline, likely over 45 years old	4f	No/Need Project Level Assessment	Less than significant with mitigation	N/A
City/SqCWD/CWD Intertie - Freedom Boulevard Pump Station	Programmatic	No	New	Proposed all new components no existing structures	4g	No/Nothing found – no constraints	No Impact	N/A
City/SqCWD/CWD Intertie - Valencia Road Pump Station	Programmatic	No	New	Proposed all new components no existing structures	4g	No/Nothing found – no constraints	No Impact	N/A
Surface Water Diversion Improvement Components								
Felton Diversion Improvements	Programmatic	Yes	Upgrade	1976 – concrete bladder dam	4h	No/Not of Age	No Impact	No Historic Properties Affected
Tait Diversion and Coast Pump Station Improvements	Programmatic	Yes	Upgrade	c.1934, altered 1961 and 1984 (Tait Diversion) 1929 (Coast Pump Station)	4i	Yes/Not Eligible	No Impact	No Historic Properties Affected

8 Bibliography

Basgall, M.E. 1987. Resource Intensification Among Hunter-Gatherers: Acorn Economies in Prehistoric California. *Research in Economic Anthropology* 9:21–52.

Bertrando, E. 2004. Evidence and Models for Late Pleistocene Chronology and Settlement Along California's Central Coast. In *Emerging from the Ice Age: Early Holocene Occupations on the California Central Coast,* edited by Ethan Bertrando and V.A. Levulett, pp. 93–105. San Luis Obispo County Archaeological Society Occasional Papers no. 17.

Brady, R., J. Farquhar, T. Garlinghouse, and C. Peterson. 2009. *Archaeological Evaluation of CA-MNT-143 for the Asilomar Boardwalk Replacement Project, Asilomar State Beach, Pacific Grove, California*. Albion Environmental Inc., Santa Cruz. Copies available from the Northwest Information Center, Department of Anthropology, Sonoma State University, Rohnert Park.

Breschini, G. and T. Haversat. 1992a. Preliminary Excavations at CA-MNT-108, Fisherman's Wharf, Monterey County, California. In *Archaeological Investigations of Some Significant Sites on the Central Coast of California,* edited by H. Dallas, Jr. and G.S. Breschini, pp. 39–47. Coyote Press Archives of California Prehistory No. 37, Salinas.

Breschini, G. and T. Haversat. 1992b. Baseline Archaeological Studies at Rancho San Carlos, Carmel Valley, Monterey County, California. Coyote Press Archives of California Prehistory No. 36, Salinas.

Brown and Caldwell (Brown and Caldwell Civil and Chemical Engineers). 1960. "Site Plan and Index of Drawing." City of Santa Cruz San Lorenzo River Intake Project: Sheet 1 of 9. Santa Cruz Water Department: Santa Cruz, California.

Brown, K.W. and L.B. Dunlap. 1956 Investigation of Water Supply Projects: City of Santa Cruz Water System - Santa Cruz, California. San Francisco, California: Brown and Caldwell Civil and Chemical Engineers. On file at the Santa Cruz Water Department.

Brown, Randall C. 2011. The San Lorenzo Valley Water District: a History. Boulder Creek, California: San Lorenzo Water District.

Bryne, S. 2002. *Archaeological Monitoring of the Wilder Ranch Bike Path Construction and Mitigation Related to Archaeological Site CA-SCR-38/123/H.* Garcia and Associates, San Anselmo. Copies available from Northwest Archaeological Information Center, Department of Anthropology, Sonoma State University, Rohnert Park, California.

Cardona and Associates Civil Engineers Environmental Planners. 1982. "Newell Creek Pipeline Relocation Plans and Specifications" Santa Cruz, California. City of Santa Cruz Water Department.

Cartier, R. 1990. Cultural Resource Evaluation for Gateway South Assessment District in the City of Scotts Valley, County of Santa Cruz. On file (S-012082), Northwest Information Center, Sonoma State University.

Cartier, R. 1993. *The Scotts Valley Site: CA-SCR-177*. The Santa Cruz Archaeological Society, Santa Cruz.

Chapman, Charles. 1920. "Sebastian Vizcaino: Exploration of California." The Southwestern Historical Quarterly 23(4). April 1920. Accessed March 20, 2020. http://www.jstor.org/stable/27794572.

Chavez, D. 1979. Cultural Resources Assessment of the Pasatiempo/Rollingwoods Wastewater Project Locations, Santa Cruz County, California. On file (S-004005), Northwest Information Center, Sonoma State University.

City of Santa Cruz. 2020. "History of Santa Cruz". Accessed April 24, 2020. http://www.cityofsantacruz.com/community/our-city/history-of-santa-cruz

Clark, D.T. 2008. Santa Cruz County Place Names: A Geographical Dictionary. Scotts Valley, CA: Kestrel Press.

Clark, M.R. 2008. Aptos Transmission Main Relocation Project, National Historic Preservation Act Section 106, Historic Resources Inventory and Subsurface Reconnaissance Plan for Archaeological Resources. On file (S-035956), Northwest Information Center, Sonoma State University.

Clark, M.R. 2009. Aptos Transmission Main Relocation Project, National Historic Preservation Act Section 106, Subsurface Reconnaissance for Archaeological Resources, Historic Resources Inventory, and Historic Properties Management. On file (S-035956b), Northwest Information Center, Sonoma State University.

Clark, M.R., S Psota, and P. Paramoure. 2013. Aptos Transmission Main Relocation Project: Final Report. Section I: Archaeological Monitoring of Construction and Completion of National Historic Preservation Act Section 106 Compliance; Section II: Historic Artifact Processing, Analysis, and Interpretation. On file (S-035956c), Northwest Information Center, Sonoma State University.

Creegan & D'Angelo. 1957. Report on Santa Cruz County Master Plan of Water Development and Preliminary Design of the First Increment of Work for Santa Cruz County Flood Control and Water Conservation District. Creegan and D'Angelo Civil Engineers. On file at Santa Cruz Public Library.

CWD (Central Water District). 2020. "District History." Central Water District Website. Accessed May 5, 2020. https://sites.google.com/view/centralwaterdistrict/district-history?authuser=0

Dames and Moore. 1998. "Site Plan." Beltz Well Installation Project: City of Santa Cruz Water Department, Santa Cruz, California.

Dewante and Stowell (Dewante and Stowell Consulting Engineers). 1983. "Intake and Pump station Site Plan." San Lorenzo River Intake Replacement: Santa Cruz Water Department, City of Santa Cruz, California.

Dietz, S. A. 1986. Report of Archaeological Investigations for the Proposed Christian Life Center Church Facility, La Madrona Drive, Santa Cruz County, California, APN 67-183-53 and 67-351-06. On file (S-008134), Northwest Information Center, Sonoma State University.

Dietz, S.A., W.R. Hildebrandt, and T. Jones 1988. *Archaeological Investigations at Elkhorn Slough: CA-MNT-229 A Middle Period Site on the Central California Coast.* Papers in Northern California Anthropology, Number 3.

Doane, M. and T. Haversat. 2002. Preliminary Archaeological Reconnaissance for a Proposed SCMTD Metrobase Facility, on River Street and Golf Club Drive in Santa Cruz, Santa Cruz County, California. On file (S-024487a), Northwest Information Center, Sonoma State University.

Duval, C., S. Lydon, and C. Swift. 2008. Historic Research and Context for Potential Archaeological Sensitivity for the Aptos Transmission Main Relocation Project. On file (S-035956a), Northwest Information Center, Sonoma State University.

EKI (Erler & Kalinowski Inc.). 2011. *City of Santa Cruz Water Supply Assessment General Plan 2030: Final Draft*. March 29, 2011. Accessed June 3, 2020: http://www.cityofsantacruz.com/home/showdocument?id=19520

Erlandson, J.M., M.H. Graham, B.J. Bourque, D. Corbett, J.A. Estes, and R.S. Steneck. 2007. The Kelp Highway Hypothesis: Marine Ecology, the Coastal Migration Theory, and the Peopling of the Americas. *The Journal of Island and Coastal Archaeology* 2(2): 161–174.

Fitzgerald, R.T. and A. Ruby. 1997. *Archaeological Test Excavations at CA-SCR-117, the Davenport Landing Site*. Garcia and Associates, San Anselmo. Report on file Northwest Information Center, Department of Anthropology, Sonoma State University, Rohnert Park.

Fitzgerald, R.T. and T.L. Jones 1999. The Milling Stone Horizon Revisited: New Perspectives from Northern and Central California. *Journal of California and Great Basin Anthropology* 21:65-93.

Fitzgerald, R.T., J.L. Edwards, J.M. Farquhar, and K. Loefler. 1995. *Archaeological Test Excavation at CA-MNT-1765, for the Moro Cojo Standard Subdivision Project (SH93001), Monterey County, California*. Biosystems Analysis Inc., Santa Cruz. Report on file Northwest Information Center, Department of Anthropology, Sonoma State University, Rohnert Park.

Gibson, R.O. 1996. *Results of Archaeological Monitoring for Unocal Soil Testing Program along Pipelines near Santa Margarita, San Luis Obispo County, California*. Gibson's Archaeological Consulting, Paso Robles. Report submitted to UNOCAL CERT, San Luis Obispo. Copies available from the Central Coast Information Center, Department of Anthropology, University of California, Santa Barbara.

Google Earth. 2020. "1035 38th Avenue, Santa Cruz, CA 95062." Google street view.

Guerrero, A.L.. 2012. Results of the Cultural Resource Study for the Scotts Valley Multi-Agency Regional Intertie Project. Completed by URS.

Harrington, J. P. 1942. *Culture Element Distributions: XIX, Central California Coast*. University of California Press, Berkeley and Los Angeles, California.

Haydu, D. M. 2010. Cultural Resources Inventory for the Harvey West Segment of the North Coast System Rehabilitation Project, City of Santa Cruz, Santa Cruz County, California. On file (S-037509), Northwest Information Center, Sonoma State University.

Hildebrandt, W.R. 2006. *Archaeological Evaluation of the Priest Valley Knoll Sites (CA-MNT-745), Eastern Monterey County, California.* Far Western Anthropological Research Group Inc., Davis. Copies available from the Northwest Information Center, Department of Anthropology, Sonoma State University, Rohnert Park.

Hoover, M., H. E. Rensch, E. G. Rensch, and W. N. Abeloe. 2002. Historic Spots in California. 5th ed. Stanford, California: Stanford University Press.

Hylkema, M.G. 1991. *Prehistoric Native American Adaptations Along the Central California Coast of San Mateo and Santa Cruz Counties*. Master's thesis, Department of Anthropology, San Jose State University. University Microfilms, Ann Arbor.

JMM (James M Montgomery Consulting Engineers Inc). 1969. "Felton Diversion Project: Site Plan and Discharge Pipelines." As built measured drawings: Sheet C-3 of 35 Sheets. City of Santa Cruz: Santa Cruz , CA.

JMM. 1970. Report on Felton Diversion Project. Compiled for the City of Santa Cruz, July 1970.

Jones, D., and W.R. Hildebrandt. 1990. *Archaeological Investigation at Sand Hill Bluff: Portions of Prehistoric Site CA-SCr-7, Santa Cruz County, California*. Far Western Anthropological Research Group Inc., Davis. Copies available from Northwest Information Center, Department of Anthropology, Sonoma State University, Rohnert Park.

Jones, D., and W.R. Hildebrandt. 1994. *Archaeological Investigations at Sites CA-SCR-10, CA-SCR-17, CA-SCR-304, and CA-SCR-38/123 for the North Coast Treated Water Main Project, Santa Cruz County, California*. Far Western Anthropological Research Group Inc. Copies available from Northwest Information Center, Department of Anthropology, Sonoma State University, Rohnert Park.

Jones, T. L. 1987a. Archaeological Survey Report for the Proposed Signal Installation and Ramp Widening at the Park Avenue Interchange on Highway 1, City of Aptos, Santa Cruz County. On file (S-009497), Northwest Information Center, Sonoma State University.

Jones, T. L. 1987b. Site Record for CA-SCR-179 (P-44-000181). On file, Northwest Information Center, Sonoma State University

Jones, T.L. 1993. Big Sur: A Keystone in Central California Culture History. *Pacific Coast Archaeological Quarterly.*

Jones, T.L. 1995. *Transitions in Prehistoric Diet, Mobility, Exchange, and Social Organization Along California's Big Sur Coast.* Unpublished Ph.D. Dissertation, Department of Anthropology, University of California, Davis.

Jones, T.L. 2003. *Prehistoric Human Ecology of the Big Sur Coast, California.* Contributions of the University of California Archaeological Research Facility, Berkeley.

Jones, T.L., G. M. Brown, L.M. Raab, J.L. McVickar, W.G. Spaulding , D.J. Kennett, A. York, and P.L. Walker. 1999. Environmental Imperatives Reconsidered: Demographic Crises in Western North America During the Medieval Climatic Anomaly. *Current Anthropology* 40:137-170.

Jones, T.L. and J.A. Ferneau 2002a. Prehistory at San Simeon Reef: Archaeological Data Recovery at CA-SLO-179 and -267, San Luis Obispo, California. *San Luis Obispo Archaeological Society Occasional Paper No. 16.*

Jones, T.L., and J.A. Ferneau. 2002b. Deintensification along the Central Coast. In *Catalysts to Complexity: Late Holocene Societies of the California Coast,* edited by J.M. Erlandson and T.L. Jones, pp. 205-232. Perspectives in California Archaeology, Vol. 6. Cotsen Institute of Archaeology, University of California, Los Angeles.

Jones, T.L. and J. Haney. 2005. Archaeological Evaluation of CA-MNT-910, -1748/H, -1919, and -2182, Fort Hunter Liggett Military Installation, Monterey County, California. California Polytechnic State University, San Luis Obispo.

Jones, T.L., and D. Jones. 1992. Elkhorn Slough Revisited: Reassessing the Chronology of CA-MNT-229. *Journal of California and Great Basin Anthropology* 14:159-179.

Jones, T. L. and M. Kelly. 1987. Site Record for CA-SCR-214 (P-44-000216). On file, Northwest Information Center, Sonoma State University

Jones, T.L., J.F. Porcasi, J.W. Gaeta, and B.F. Codding. 2008. The Diablo Canyon Fauna: A Coarse-grained Record of Trans-Holocene Foraging from the Central California Mainland Coast. *American Antiquity* 73:289–316.

Jones, T. L., N. E. Stevens, D. A. Jones, R. T. Fitzgerald, and M. G. Hylkema. 2007. The Central Coast: A Midlatitude Milieu. In *California Prehistory Colonization, Culture, and Complexity*, edited by Terry L. Jones and Kathryn A. Klar, pp: 125-146. Altamira Press, Lanham.

Jones, T.L. and G. Waugh 1995. Central California Coastal Prehistory: A View from Little Pico Creek. *Perspectives in California Archaeology* No. 3, Institute of Archaeology, University of California, Los Angeles.

Jones, T.L. and G. Waugh 1997. Climatic Consequences or Population Pragmatism? A Middle Holocene Prehistory of the Central California Coast. In *Archaeology of the California Coast During the Middle Holocene*, edited by J.M. Erlandson and M.A. Glassow, pp. 111-128. Perspectives in California Archaeology 4. Institute of Archaeology, University of California, Los Angeles.

Kennedy/Jenks Engineers. 1985. "Site Plan Demolition Plan, Paving Detail." Measured Drawings for Beltz water Treatment Plant, sheet G-4. City of Santa Cruz Water Department: Santa Cruz, California.

Koch, M. 1973. Santa Cruz County: Parade of the Past. Fresno, California: Valley Publishers.

Küchler, A. W. 1977. Natural Vegetation of California Map. University of Geography, University of Kansas, Lawrence, Kansas.

Lehmann, S. 2000. "Fully Developed Context Statement for the City of Santa Cruz."

Levy, R. 1978. Costanoan. *Handbook of North American Indians.* Vol. 8. Edited by Robert F. Heizer. Smithsonian Institution, Washington.

Melandry, M. 1979. Archaeological Survey Report, 04-SCr-1, P.M.10.2/15.8, 04223 - 380331, Landscaping Project in Santa Cruz County. On file (S-003995), Northwest Information Center, Sonoma State University.

Melandry, M. 1996a. Archaeological Survey Report for Proposed Pavement Overlay and Other Minor Improvements on Portions of Highway 1 in the Cities of Aptos, Soquel, Capitola and Santa Cruz in Santa Cruz County. On file (S-17870a), Northwest Information Center, Sonoma State University.

Melandry, M. 1996b. Historic Property Survey Report and Finding of No Effect, 04-SCR-1, PM 9.2/16.6, 04229-135331, Proposed Pavement Overlay and Other Minor Improvements on Portions of Highway 1 in the Cities of Aptos, Soquel, Capitola and Santa Cruz in Santa Cruz County. On file (S-17870), Northwest Information Center, Sonoma State University.

Merriam, C. H. 1967. *Reports of the University of California Archaeological Survey, No. 68, Part III: Ethnographic notes on California Indian Tribes. III. Ethnological Notes on Central California Indian Tribes.* Compiled and edited by Robert F. Heizer. University of California Archaeological Research Facility, Department of Anthropology, Berkeley, California.

Mikkelsen, P. 2010. First Supplemental Archaeological Survey Report for the Highway 1 High Occupancy Vehicle Lane Widening Project, Santa Cruz, California. On file (S-47397a), Northwest Information Center, Sonoma State University.

Mikkelsen, P., J. Costello, J. King, C. Duval, E. Kimbro, and J. Berg. 2005. Archaeological Survey Report for the Highway 1 High Occupancy Vehicle Lane Widening Project, Santa Cruz, California. On file (S-47397), Northwest Information Center, Sonoma State University.

Mikkelsen, P., W.R. Hildebrandt and D.A. Jones 2000. *Prehistoric Adaptations on the Shores of Morro Bay Estuary: Excavations at Site CA-SLO-165, Morro Bay, California.* Occasional Paper No. 14, San Luis Obispo County Archaeological Society, San Luis Obispo, California.

Milliken, R., J. Nelson, W.R. Hildebrandt, and P. Mikkelsen. 1999. *The Moss Landing Hill Site: A Technical Report on Archaeological Studies at CA-MNT-234 in 1991 and 1997-1998*. Far Western Anthropological Research Group Inc., Davis. Copies available from the Northwest Information Center, Department of Anthropology, Sonoma State University, Rohnert Park.

Mills, W.W., M.F. Rondeau, and T.L. Jones. 2005.A Fluted Point from Nipomo, San Luis Obispo County, California. *Journal of California and Great Basin Anthropology* 25:214-220.

Monterey American. 1913. "F.A. Hihn is not more – Santa Cruz's 'Grand Old Man' Passes Away." The Monterey American (Monterey, CA) August 25, 1913: pg. 7. Newspapers.com. Accessed May 29, 2020.

NETR. 2020. "Historic Aerials Online." Historic Aerial Photographs of the Laguna Creek Diversion Facility, Santa Cruz, CA dating from 1952, 1968, 1982, 1993, 2005, 2009, 2010, 2012, 2014, and 2016. Accessed May 28, 2020. https://www.historicaerials.com/viewer.

Newsome, S.D., D.L. Phillips, B.J. Culleton, T.P. Guilderson, P. Koch. 2004. Dietary Reconstruction of an Early to Middle Holocene Human Population from the Central California Coast: Insights from Advanced Stable Isotope Mixing Models. *Journal of Archaeological Science* 31:1101-1115.

Peak, A. 1977. Santa Cruz Regional Wastewater Treatment System Project, Santa Cruz County, California. On file (S-003964), Northwest Information Center, Sonoma State University.

Pisani, Donald J. 1984. From the Family Farm to Agribusiness: The Irrigation Crusade in California and the West, 1850-1931. Berkeley, California: University of California Press.

Pohorecky, Z.S. 1976. Archaeology of the South Coast Ranges of California. *University of Archaeological Research Facility* 34, Berkeley.

Rogers, D.B. 1929. *Prehistoric Man of the Santa Barbara Coast*. Museum of Natural History, Santa Barbara.

Roop, W., L. Baker, and C. Detlefs. 1977. Cultural Resource Inventory of the Scotts Valley Wastewater Project Service Area. On file (S-003913), Northwest Information Center, Sonoma State University.

Sanborn Map Company. 1928. Santa Cruz, California. Sheet 103. Accessed May 25, 2020.

Sanborn Map Company. 1928–1950. Santa Cruz, California. Sheet 103. Accessed May 25, 2020.

Santa Cruz County Assessor. 1894. *Plat of the City Distributing Reservoir Lot.*

Santa Cruz Daily Surf. 1888a "Another Change." The Santa Cruz Daily Surf (Santa Cruz, CA). March 3, 1888:3. Newspapers.com. Accessed March 4, 2020.

Santa Cruz Daily Surf. 1888b. "Water Once More." The Santa Cruz Daily Surf (Santa Cruz, CA). August 8, 1888:2. Newspapers.com. Accessed March 4, 2020.

Santa Cruz Sentinel. 1888. "The Thousands of readers of the SENTINEL…." The Santa Cruz Sentinel (Santa Cruz, CA). July 17, 1888: 2. Newspapers.com. Accessed March 4, 2020.

Santa Cruz Sentinel. 1895. "An Up-to-Date Establishment." The Santa Cruz Sentinel (Santa Cruz, CA). May 30, 1895: 3. Newspapers.com. Accessed September 30, 2020.

Santa Cruz Sentinel. 1903. "Notice Inviting Sealed Proposals." The Santa Cruz Sentinel (Santa Cruz, CA). November 25, 1903: 4. Newspapers.com. Accessed September 30, 2020.

Santa Cruz Sentinel. 1904. "Contractor Sargent…" The Santa Cruz Sentinel (Santa Cruz, CA). January 7, 1904: 3. Newspapers.com. Accessed September 30, 2020.

Santa Cruz Sentinel. 1933. "Rights-Of-Way for Pipe Line Are All Okeh." Santa Cruz Sentinel (Santa Cruz, California). December 13, 1933: 7. Newspapers.com. Accessed May 28, 2020.

Santa Cruz Sentinel. 1934a. "Rushing Work on Two 1,000,000 Gellon Tanks for East Side Extension." Santa Cruz Sentinel (Santa Cruz, California). May 18, 1934: 9. Newspapers.com. Accessed May 25, 2020.

Santa Cruz Sentinel. 1934b. "Week-End Anglers Out of Luck on the Old San Lorenzo." Santa Cruz Sentinel (Santa Cruz, California). February 20, 1934: 7. Newspapers.com. Accessed May 28, 2020.

Santa Cruz Sentinel. 1936. "Beltz Granted Water Permits for Live Oak" Santa Cruz Sentinel (Santa Cruz, California). March 7, 1936: 8. Newspapers.com. Accessed May 4, 2020.

Santa Cruz Sentinel. 1942. "New Company Now Serving Aptos Water." Santa Cruz Sentinel (Santa Cruz, California). October 20, 1942: 1. Newspapers.com. Accessed June 10, 2020.

Santa Cruz Sentinel. 1943. "Soquel-Capitola Water System is Bought By Monterey Bay Company." Santa Cruz Sentinel (Santa Cruz, California). October 17, 1943: 1. Newspapers.com. Accessed June 10, 2020.

Santa Cruz Sentinel. 1945. "Propose Changes." Santa Cruz Sentinel (Santa Cruz, California). November 12, 1945: 8. Newspapers.com. Accessed May 28, 2020.

Santa Cruz Sentinel. 1947. "Charles Beltz, Water company Operator, Dies." Santa Cruz Sentinel (Santa Cruz, California). October 27, 1947: 1. Newspapers.com. Accessed May 4, 2020.

Santa Cruz Sentinel. 1952. "Monterey Bay Water Company Buys Seacliff Water Works." Santa Cruz Sentinel (Santa Cruz, California). February 17, 1952: 1. Newspapers.com. Accessed June 10, 2020.

Santa Cruz Sentinel. 1953. "Flood Control Project Moves Ahead". Santa Cruz Sentinel (Santa Cruz, California). May 28, 1953: 1. Newspapers.com. Accessed July 10, 2018.

Santa Cruz Sentinel. 1954. "Water Superintendent Recommends Study of Three Area Storage Projects". Santa Cruz Sentinel (Santa Cruz, California). February 19, 1954: 1. Newspapers.com. Accessed July 10, 2018.

Santa Cruz Sentinel. 1955. "Expansion Plan of Beltz Water Firm Approved" Santa Cruz Sentinel (Santa Cruz, California). April 7, 1955: 18. Newspapers.com. Accessed May 4, 2020.

Santa Cruz Sentinel. 1957a. "County committee to put Emphasis on New Pajaro Valley Survey." Santa Cruz Sentinel (Santa Cruz, California). February 6, 1957: 1. Newspapers.com. Accessed February 7, 2018.

Santa Cruz Sentinel. 1957b. "Map Shows Proposed County Dam Sites, Pipe Lines." Santa Cruz Sentinel (Santa Cruz, California). February 10, 1957: 13. Newspapers.com. Accessed May 29, 2018.

Santa Cruz Sentinel. 1957c. "The County's Water Problems and Solutions." Santa Cruz Sentinel (Santa Cruz, California). April 15, 1957: 12. Newspapers.com. Accessed July 10, 2018.

Santa Cruz Sentinel. 1958a. "Information on the Water Situation in Santa Cruz and Plans to Correct It." Santa Cruz Sentinel (Santa Cruz, California). November 2, 1958: 4. Newspapers.com. Accessed July 13, 2018.

Santa Cruz Sentinel. 1958b. "Water Bonds Get Overwhelming OK." Santa Cruz Sentinel (Santa Cruz, California). November 5, 1958: 1. Newspapers.com. Accessed July 10, 2018.

Santa Cruz Sentinel. 1960a. "Salvation in the Making." Santa Cruz Sentinel (Santa Cruz, California). September 4, 1960: 15. Newspapers.com. Accessed February 7, 2018.

Santa Cruz Sentinel. 1960b. "Safety Engineer Noticed Danger Spot Moments before Avalanche Killed Four." Santa Cruz Sentinel (Santa Cruz, California). October 26, 1960: 1. Newspapers.com. Accessed May 22, 2018.

Santa Cruz Sentinel. 1961a. "Regents Listen to Offers For UC Campus." Santa Cruz Sentinel (Santa Cruz, California). March 16, 1961: 1. Newspapers.com. Accessed July 13, 2018.

Santa Cruz Sentinel. 1961b. "Pros and Cons of University Community Told to Rotary Club by McCaffrey." Santa Cruz Sentinel (Santa Cruz, California). October 29, 1961: 9. Newspapers.com. Accessed July 13, 2018.

Santa Cruz Sentinel. 1961c. "Frustrating Year For SC Water Dept." Santa Cruz Sentinel (Santa Cruz, California). October 10, 1961: 16. Newspapers.com. Accessed May 28, 2020.

Santa Cruz Sentinel. 1961d. "Pestana Public Hearing Slated." Santa Cruz Sentinel (Santa Cruz, California). January 25, 1961: 10. Newspapers.com. Accessed May 28, 2020.

Santa Cruz Sentinel. 1961e. "SC Gardens Opens Today." Santa Cruz Sentinel (Santa Cruz, California). February 26, 1961: 28. Newspapers.com. Accessed May 30, 2020.

Santa Cruz Sentinel. 1963. "Wee Bit of Scotland Arrives in Ben Lomond." Santa Cruz Sentinel (Santa Cruz, California). July 21, 1963: 1. Newspapers.com. Accessed May 29, 2018.

Santa Cruz Sentinel. 1964a. "Loch Lomond's Temporary Facilities Remain in '64." Santa Cruz Sentinel (Santa Cruz, California). March 1, 1964: 3. Newspapers.com. Accessed June 5, 2018.

Santa Cruz Sentinel. 1964b. "Master Water Program." Santa Cruz Sentinel (Santa Cruz, California). October 1, 1964: 18. Newspapers.com. Accessed June 10, 2020.

Santa Cruz Sentinel. 1967a. "Council Approves Price in Water System Deal" Santa Cruz Sentinel (Santa Cruz, California). March 29, 1967: 4. Newspapers.com. Accessed May 4, 2020.

Santa Cruz Sentinel. 1967b. "State Okays Beltz Water System Sale." Santa Cruz Sentinel (Santa Cruz, California). June 8, 1967: 5. Newspapers.com. Accessed May 4, 2020.

Santa Cruz Sentinel. 1967c. "Beltz Water System's New Charges Clarified." Santa Cruz Sentinel (Santa Cruz, California). Jun 9, 1967: 24. Newspapers.com. Accessed May 4, 2020.

Santa Cruz Sentinel. 1968. "Water District Manager Plans to Retire; New Aide Sought." Santa Cruz Sentinel (Santa Cruz, California). August 6, 1968: 3. Newspapers.com. Accessed June 10, 2020.

Santa Cruz Sentinel. 1969a. "PUC Studies Application to Allow SC To Purchase Pestana Water Firm." Santa Cruz Sentinel (Santa Cruz, California). September 19, 1969: 3. Newspapers.com. Accessed May 26, 2020.

Santa Cruz Sentinel. 1969b. "PUC Approves Sale of Pestana Water System; SC Takes Over On Nov. 4." Santa Cruz Sentinel (Santa Cruz, California). October 28, 1969: 4. Newspapers.com. Accessed May 28, 2020.

Santa Cruz Sentinel. 1969c. "City Water Revenue Up." Santa Cruz Sentinel (Santa Cruz, California). November 18, 1969: 13. Newspapers.com. Accessed May 26, 2020.

Santa Cruz Sentinel. 1973. "Water Systems Meet Demands." Santa Cruz Sentinel (Santa Cruz, California). January 11, 1973: 15. Newspapers.com. Accessed May 29, 2020.

Santa Cruz Sentinel. 1974. "City's Water Chief To Retire." Santa Cruz Sentinel (Santa Cruz, California). April 4, 1974: 1. Newspapers.com. Accessed May 26, 2020.

Santa Cruz Sentinel. 1976. "SL River Rubber Dam Operating." Santa Cruz Sentinel (Santa Cruz, California). February 10, 1976: 13. Newspapers.com. Accessed June 3, 2020.

Santa Cruz Sentinel. 1982. "Newell Creek Dam Spillway Safety Changes Approved." Santa Cruz Sentinel (Santa Cruz, California). January 7, 1982: 1, 8. Newspapers.com. Accessed May 29, 2018.

Santa Cruz Sentinel. 1984. "Water Crisis Here Continues." Santa Cruz Sentinel (Santa Cruz, California). March 18, 1984: 3. Newspapers.com. Accessed May 22, 2018.

Santa Cruz Surf. 1889a. "From Laguna to Santa Cruz." The Santa Cruz Surf (Santa Cruz, CA). July 15, 1889:3. Newspapers.com. Accessed March 4, 2020.

Santa Cruz Surf. 1889b. "The Estimate." The Santa Cruz Surf (Santa Cruz, CA). August 5, 1889: 3. Newspapers.com. Accessed March 4, 2020.

Santa Cruz Surf. 1889c. "Water Works." The Santa Cruz Surf (Santa Cruz, CA). November 26, 1889: 3. Newspapers.com. Accessed March 4, 2020.

Santa Cruz Surf. 1890a. "The City Water Works." The Santa Cruz Surf (Santa Cruz, CA). April 19, 1890: 1. Newspapers.com. Accessed March 10, 2020.

Santa Cruz Surf. 1890b. "Water! Water!" The Santa Cruz Surf (Santa Cruz, CA). September 30, 1890: 3. Newspapers.com. Accessed January 15, 2020.

Santa Cruz Surf. 1890c. "The Last Pipe." The Santa Cruz Surf (Santa Cruz, CA). October 18, 1890: 3. Newspapers.com. Accessed January 15, 2020.

Santa Cruz Surf. 1892. "Seven Years. The History of the Water Movement in Santa Cruz." The Santa Cruz Surf (Santa Cruz, CA). March 12, 1892: 2. Newspapers.com. Accessed March 3, 2020.

Santa Cruz Weekly Sentinel. 1864. "Santa Cruz Water-works!" The Santa Cruz Weekly Sentinel (Santa Cruz, CA). October 15, 1864: 2. Newspapers.com. Accessed March 4, 2020.

Santa Cruz Weekly Sentinel. 1877a. "Santa Cruz Water Works." The Santa Cruz Weekly Sentinel (Santa Cruz, CA). January 6, 1877: 1. Newspapers.com. Accessed March 16, 2020.

Santa Cruz Weekly Sentinel. 1877b. "Santa Cruz and Its Water Supply." The Santa Cruz Weekly Sentinel (Santa Cruz, CA). October 27, 1877: 2. Newspapers.com. Accessed March 16, 2020.

Santa Cruz Weekly Sentinel. 1882. "The Santa Cruz Water Co." The Santa Cruz Weekly Sentinel (Santa Cruz, CA). Jun 10, 1882: 3. Newspapers.com. Accessed March 17, 2020.

SC Evening News (Santa Cruz Evening News). 1912. "Will Restrain R. Reggiardo." The Santa Cruz Evening News (Santa Cruz, California). April 2, 1912: 2. Newspapers.com. Accessed May 28, 2020.

SC Evening News. 1913a. "Liddell Spring And Proposed Pumping Of River Water Discussed." The Santa Cruz Evening News (Santa Cruz, California). March 18, 1913: 1. Newspapers.com. Accessed May 28, 2020.

SC Evening News. 1913b. "Order For Crossing St. Pump Placed." The Santa Cruz Evening News (Santa Cruz, California). May 8, 1913: 1. Newspapers.com. Accessed May 28, 2020.

SC Evening News. 1914. "First Step Leading to Placing Valuation on Hihn System Taken Today." The Santa Cruz Evening News (Santa Cruz, California). October 14, 1914: 1. Newspapers.com. Accessed May 25, 2020.

SC Evening News. 1928. "Crossing Plant Plans Passed by the City." The Santa Cruz Evening News (Santa Cruz, California). April 30, 1928: 8. Newspapers.com. Accessed May 28, 2020.

SC Evening News. 1929. "Postpone Pump Plant Ceremony." The Santa Cruz Evening News (Santa Cruz, California). February 20, 1929: 7. Newspapers.com. Accessed May 28, 2020.

SC Evening News. 1931. "City Well Water Is Given Approval By State Official." The Santa Cruz Evening News (Santa Cruz, California). September 3, 1931: 5. Newspapers.com. Accessed May 27, 2020.

SC Evening News. 1936. "Water System Permits Asked for Live Oak." The Santa Cruz Evening News (Santa Cruz, California). Feb 25, 1936: 2. Newspapers.com. Accessed May 4, 2020.

SCMU (Santa Cruz Municipal Utilities). 2016. "A History of Our Water Service Infrastructure." No. 61: Spring 2016.

SCPL (Santa Cruz Public Library). n.d. "Population Statistics for Santa Cruz County and Cities, 1850-2010." Accessed May 28, 2020. https://history.santacruzpl.org/omeka/files/original/e5b77c64f95c4c19e0609c475869f5e6.pdf.

SCPL. 1924. "Construction of the Bay Street Reservoir." *SCPL Local History*. Accessed August 18, 2020. https://history.santacruzpl.org/omeka/items/show/10704.

SCWD (Santa Cruz City Water Department). n.d. "History of the Santa Cruz City Water Department." Santa Cruz Public Libraries Local History Collection. Accessed March 3, 2020. https://history.santacruzpl.org/omeka/items/show/134438#?c=0&m=0&s=0&cv=0.

SCWD. 1967. "Exhibit D." Integration Plans for the Connection of Beltz System to City of Santa Cruz System. City of Santa Cruz, CA.

SCWD. 1979a. "Sheet 2 of 2." Garage Addition - Coast Pump Station. Water Department: City of Santa Cruz, CA.

SCWD. 1979b. "Sheet 1 of 1." Surge Arrestor Installation- Coast Pump Station. Water Department: City of Santa Cruz, CA.

SCWD. 1985. "Exhibit D." Integration Plans for the Connection of Beltz System to City of Santa Cruz System. City of Santa Cruz, CA.

SLVWD (San Lorenzo Valley Water District). 2020. "History." San Lorenzo Valley Water District Website. Accessed May 5, 2020. https://www.slvwd.com/about-us/pages/history

SoilWeb. 2020. Website accessed 6/1/2020: https://casoilresource.lawr.ucdavis.edu/soil_web/ssurgo.php?action=explain_component&mukey=455946&cokey=16658758

SqCWD (Soquel Creek Water District). 2020. "History, Mission, Values, and Goals." Accessed May 4, 2020. https://www.soquelcreekwater.org/who-we-are/history-mission-values-and-goals

State of California. 2020. "County Water District Law". California Water Code, Division XII (Section 30000 et seq.) Accessed May 30, 2020. https://codes.findlaw.com/ca/water-code/

Stine, S. 1994. Extreme and Persistent Drought in California and Patagonia during Medieval Time. *Nature* 369:546-549.

SVWD (Scotts Valley Water District). 2020. "History." Scotts Valley Water District Website. Accessed May 5, 2020. https://www.svwd.org/about-district/history

SWRB (State Water Resources Board). 1953. *Bulletin No. 5: Santa Cruz-Monterey Counties Investigation*. State Water Resources Board: Sacramento, California.

UCSB (University of California, Santa Barbra). 2020. Historic Aerial Photographs of the Laguna Creek Diversion Facility, Santa Cruz, CA dating from 1931, 1940, 1948, and 1964. Map & Imagery Laboratory (MIL) UCSB Library, Electronic Resource, http://mil.library.ucsb.edu/ap_indexes/FrameFinder. Accessed May 25, 2020.

URS (URS Corporation). 2013. Proposed scwd2 Regional Seawater Desalination Project Draft Environmental Impact Report. SCH No. 2010112038. Prepared for the City of Santa Cruz. May 2013.

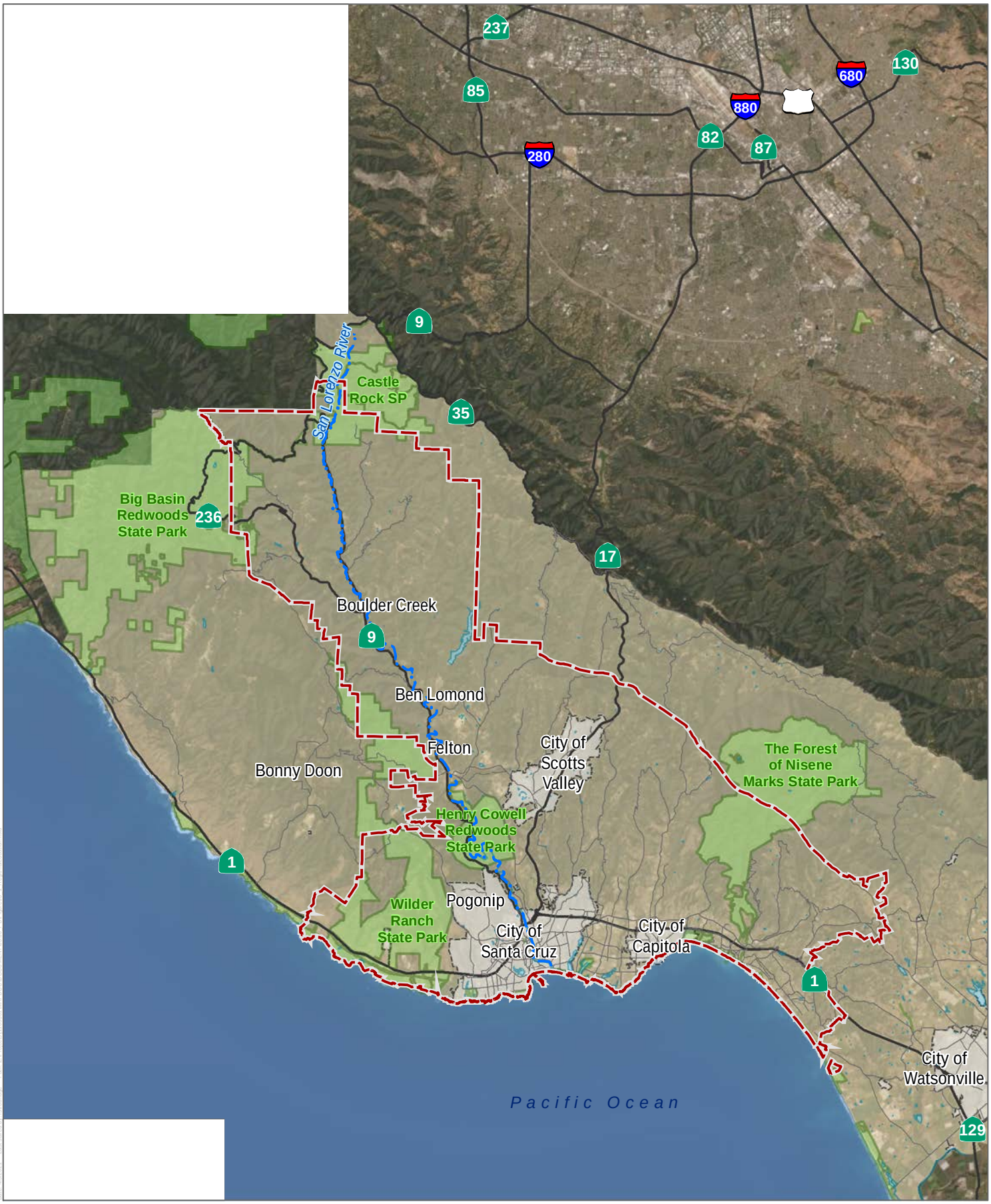
U.S. Census Bureau. 2019. "Quick Facts: Santa Cruz County, California – Population estimates, July 1, 2019, (V2019)." Website. Accessed June 3, 2020. https://www.census.gov/quickfacts/fact/table/santacruzcountycalifornia#

USGS (United States Geologic Survey). 2020. "Pliocene Marine Rocks." Accessed June 26, 2020. https://mrdata.usgs.gov/geology/state/sgmc-unit.php?unit=CAPO;0.

Watts, D. C. 1980. Archaeological Survey Report, 04-SCr-17 2.0/2.4, Proposed Median Closure and Shoulder Widening along Route 17, near Sims Road, Santa Cruz County, 04217-101700. On file (S-004100), Northwest Information Center, Sonoma State University.

Appendix A

Project Location, Project Description, and Project APE Maps



SOURCE: ESRI 2020, City of Santa Cruz 2020

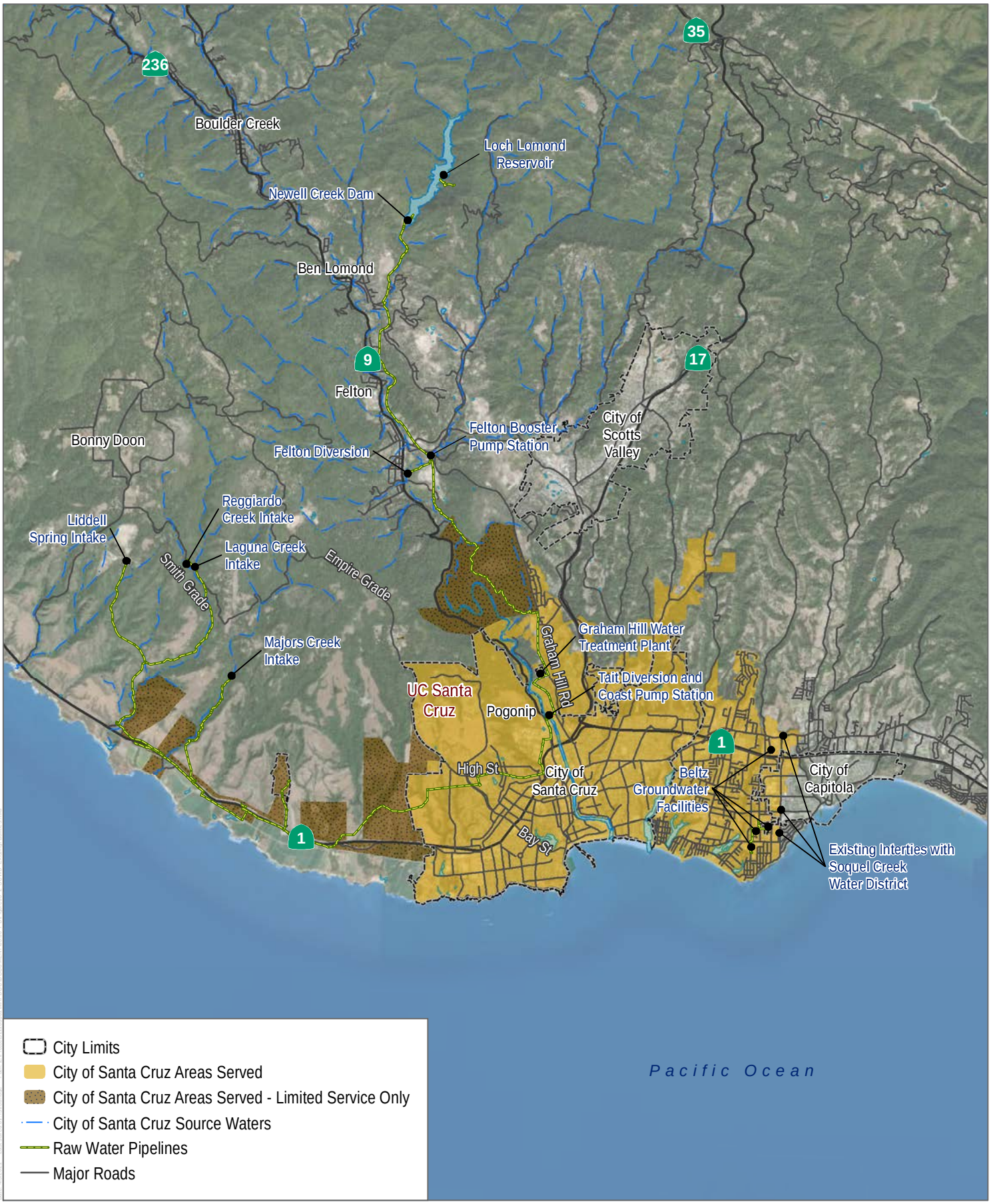
DUDEK

0 10,500 21,000 Feet

FIGURE 1

Project Location

Santa Cruz Water Rights Project



SOURCE: ESRI 2020, City of Santa Cruz 2020

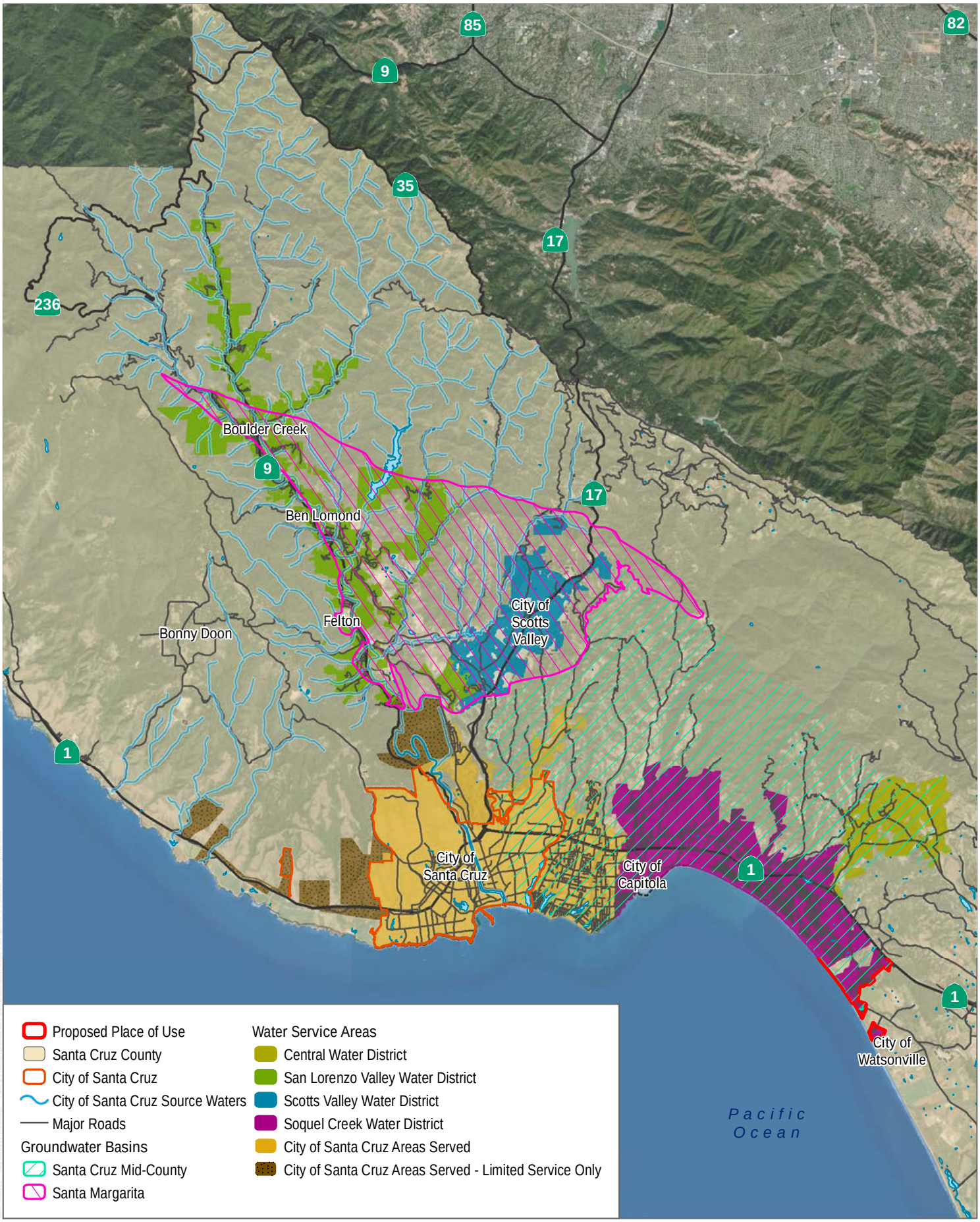
DUDEK

0 1 2 Miles

FIGURE 2

Existing City of Santa Cruz Water System Facilities

Santa Cruz Water Rights Project



SOURCE: ESRI 2020, County of Santa Cruz 2020, City of Santa Cruz 2020

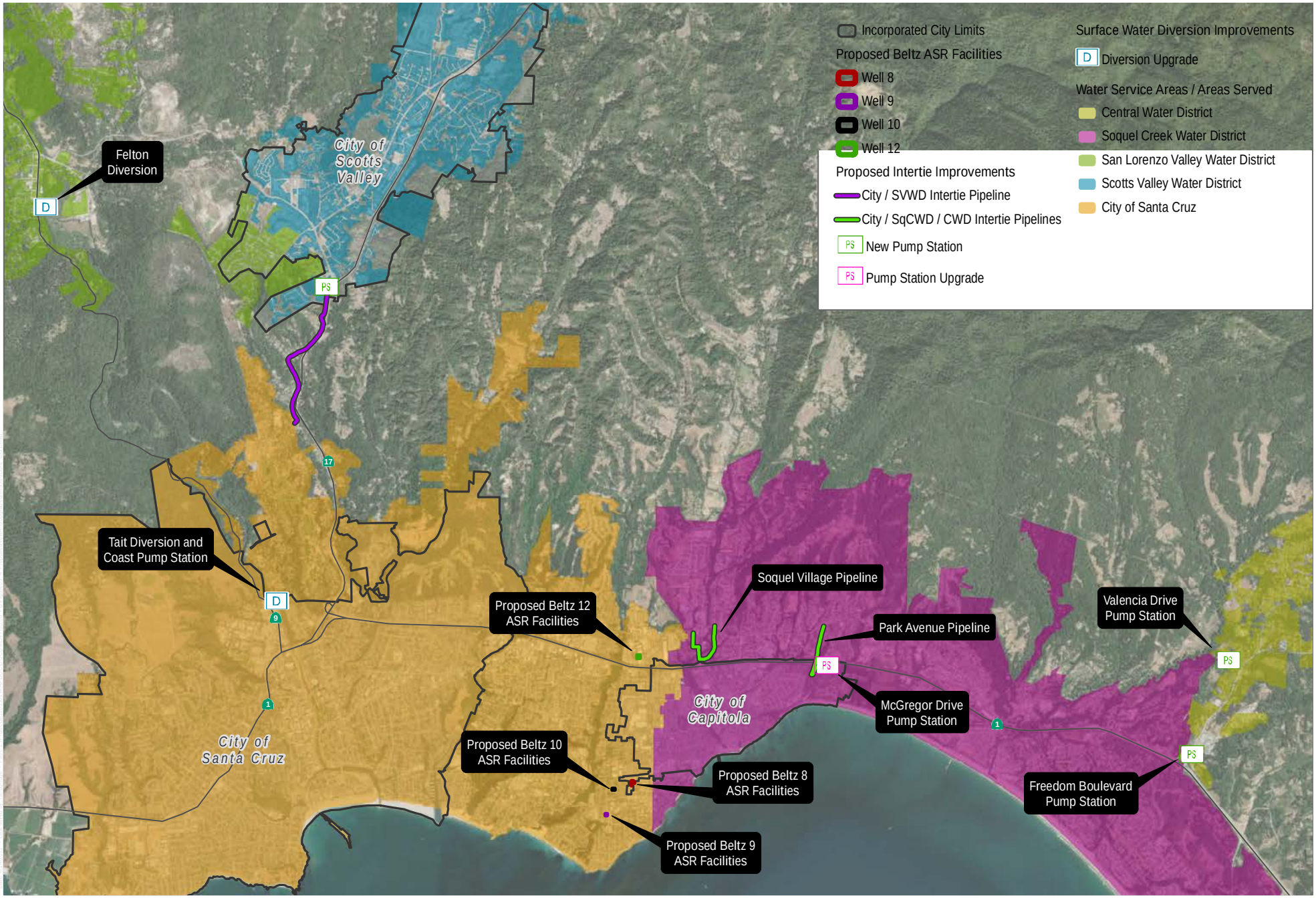
DUDEK

0 1.5 3 Miles

FIGURE 3

Potential Regional Partnering Water Districts

Santa Cruz Water Rights Project



SOURCE: Bing Maps Accessed 2020, Kennedy/Jenks Consultants 2012 and 2014, URS 2013, County of Santa Cruz 2020

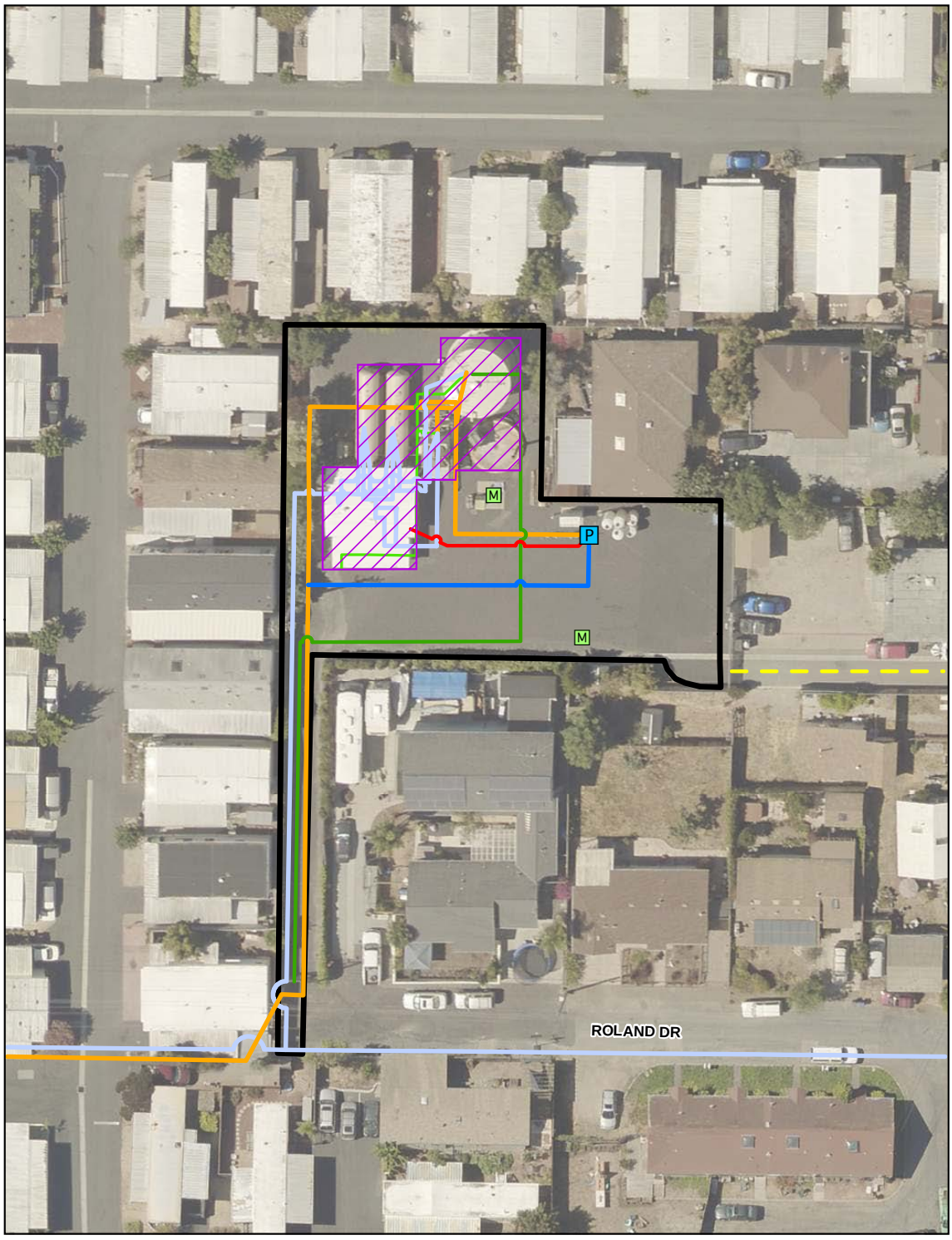
DUDEK

0 3,250 6,500 Feet

FIGURE 4

Proposed New and Upgraded Infrastructure Components

Santa Cruz Water Rights Project



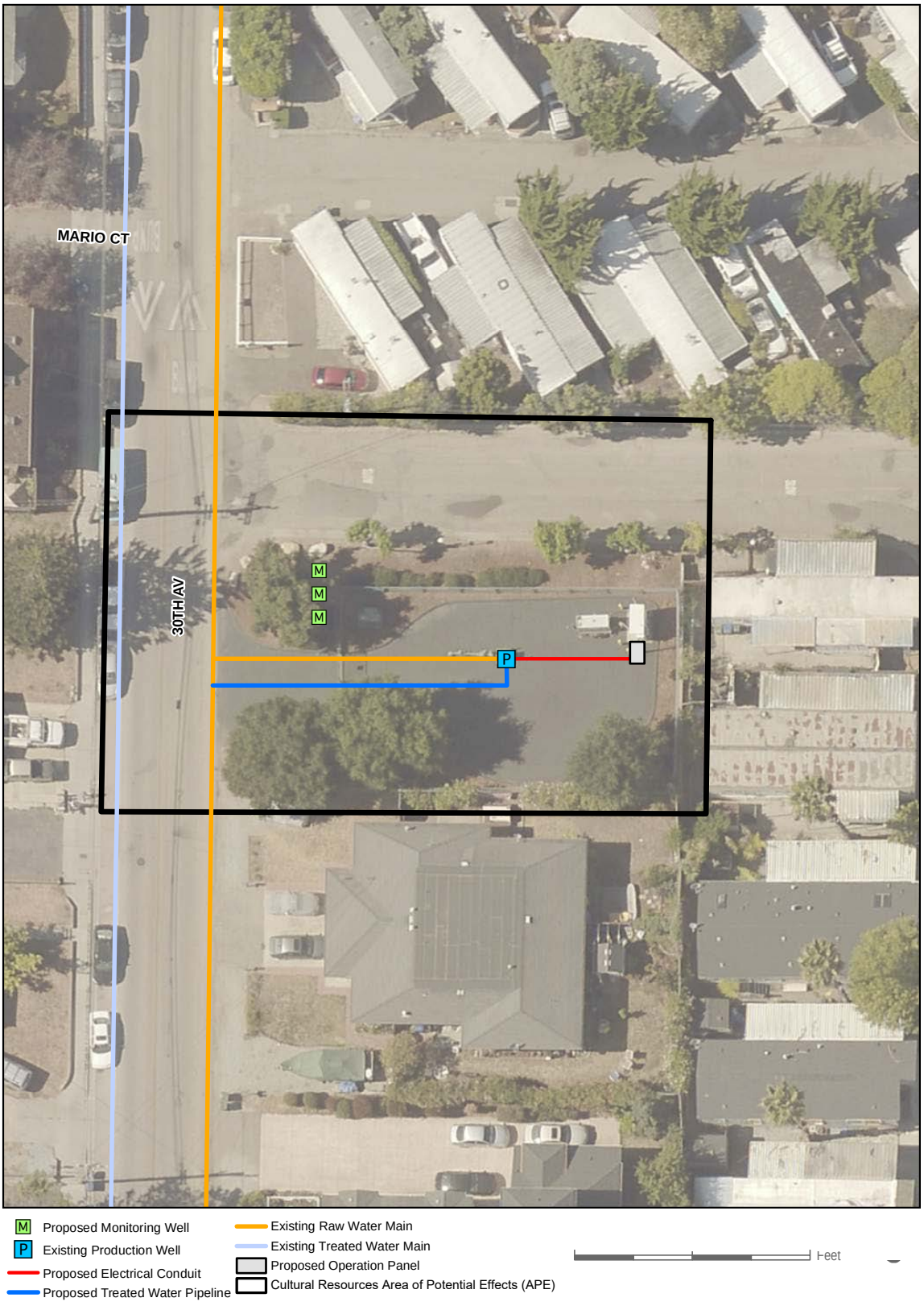
SOURCE: City of Santa Cruz 2021

FIGURE 4A

Proposed Beltz 8 ASR Facilities - Area of Potential Effects Map

Santa Cruz Water Rights Project

DUDEK



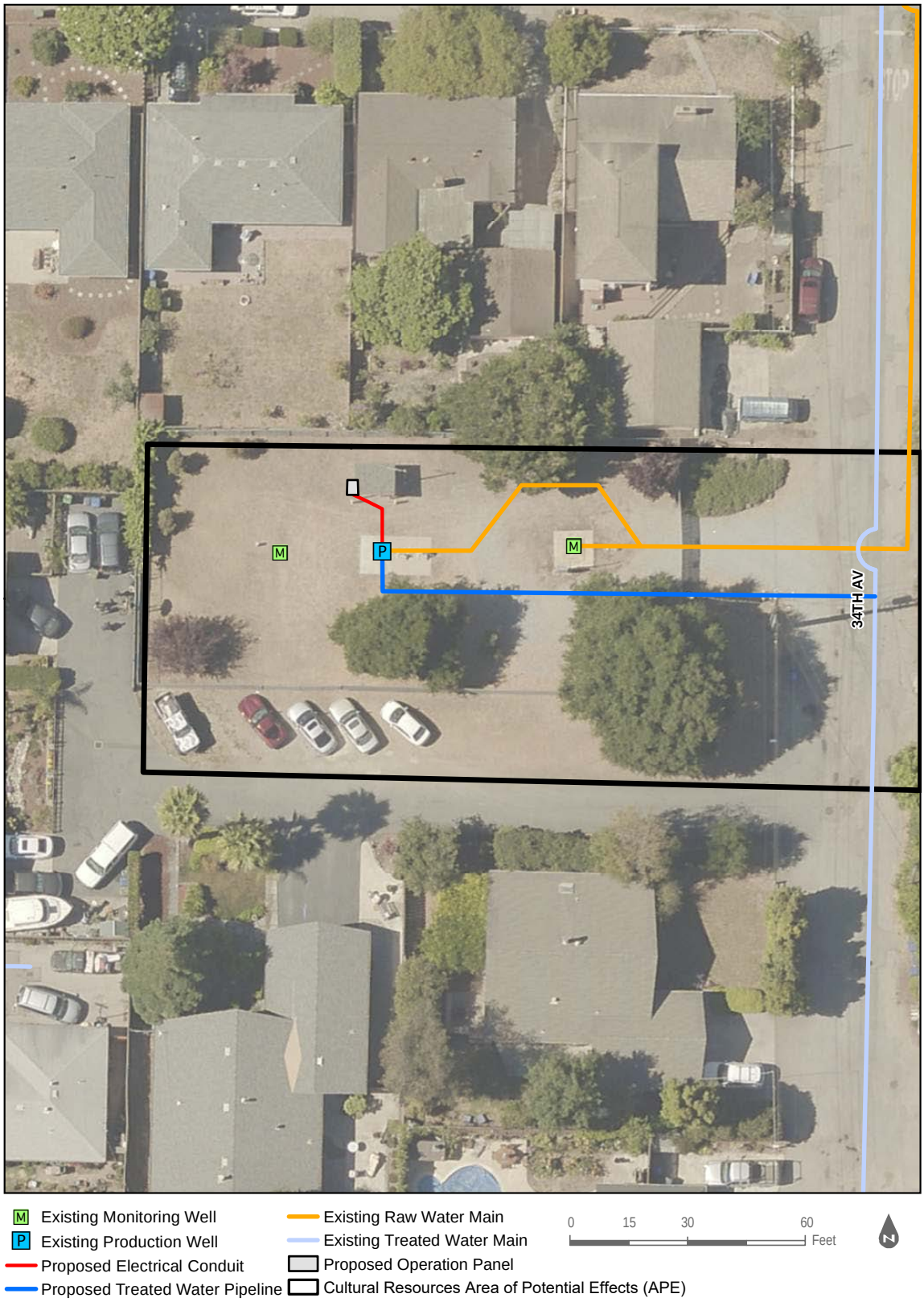
SOURCE: City of Santa Cruz 2019

FIGURE 4B

Proposed Beltz 9 ASR Facilities - Area of Potential Effects Map

Santa Cruz Water Rights Project

DUDEK



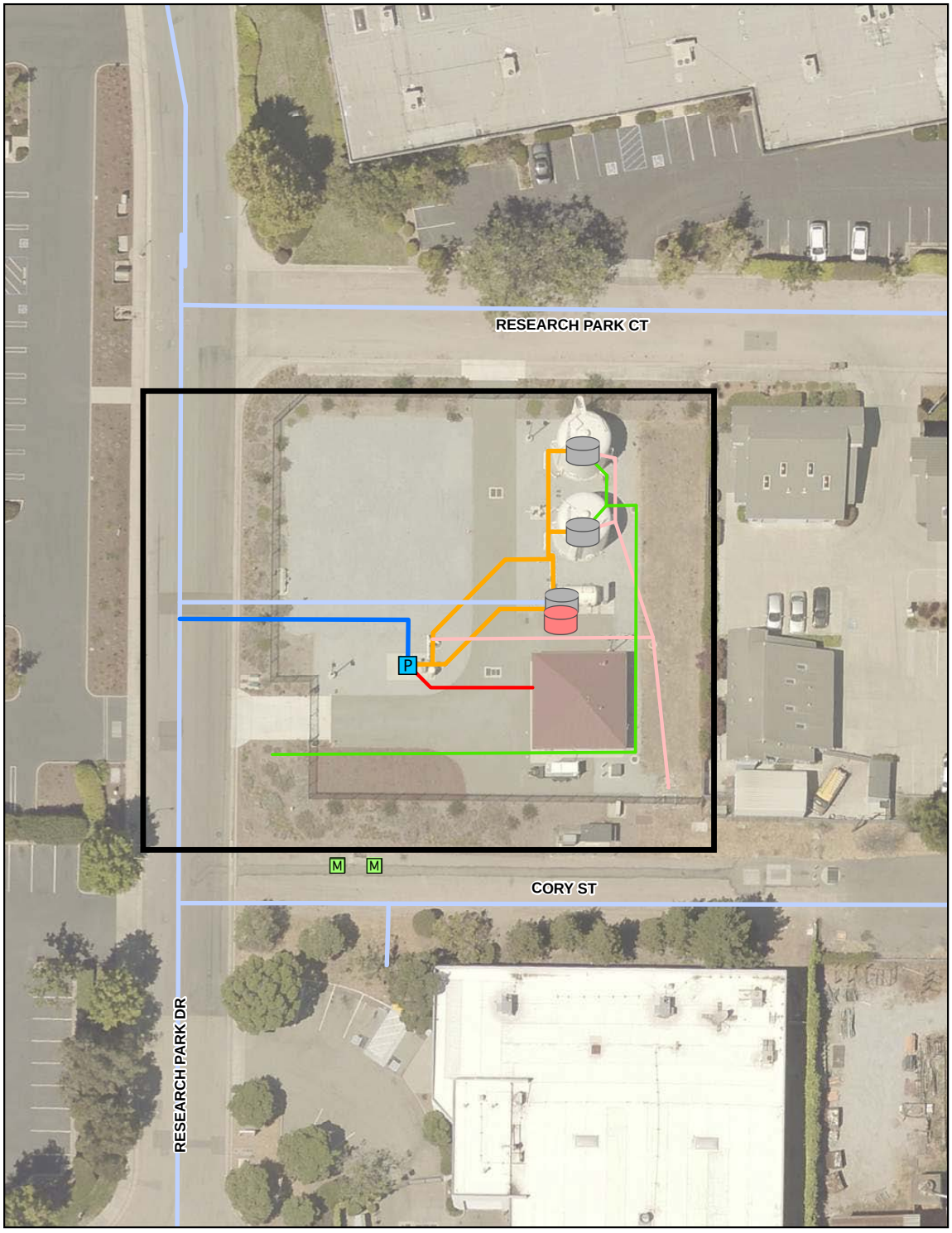
SOURCE: City of Santa Cruz 2021

FIGURE 4C

Proposed Beltz 10 ASR Facilities - Area of Potential Effects Map

Santa Cruz Water Rights Project

DUDEK



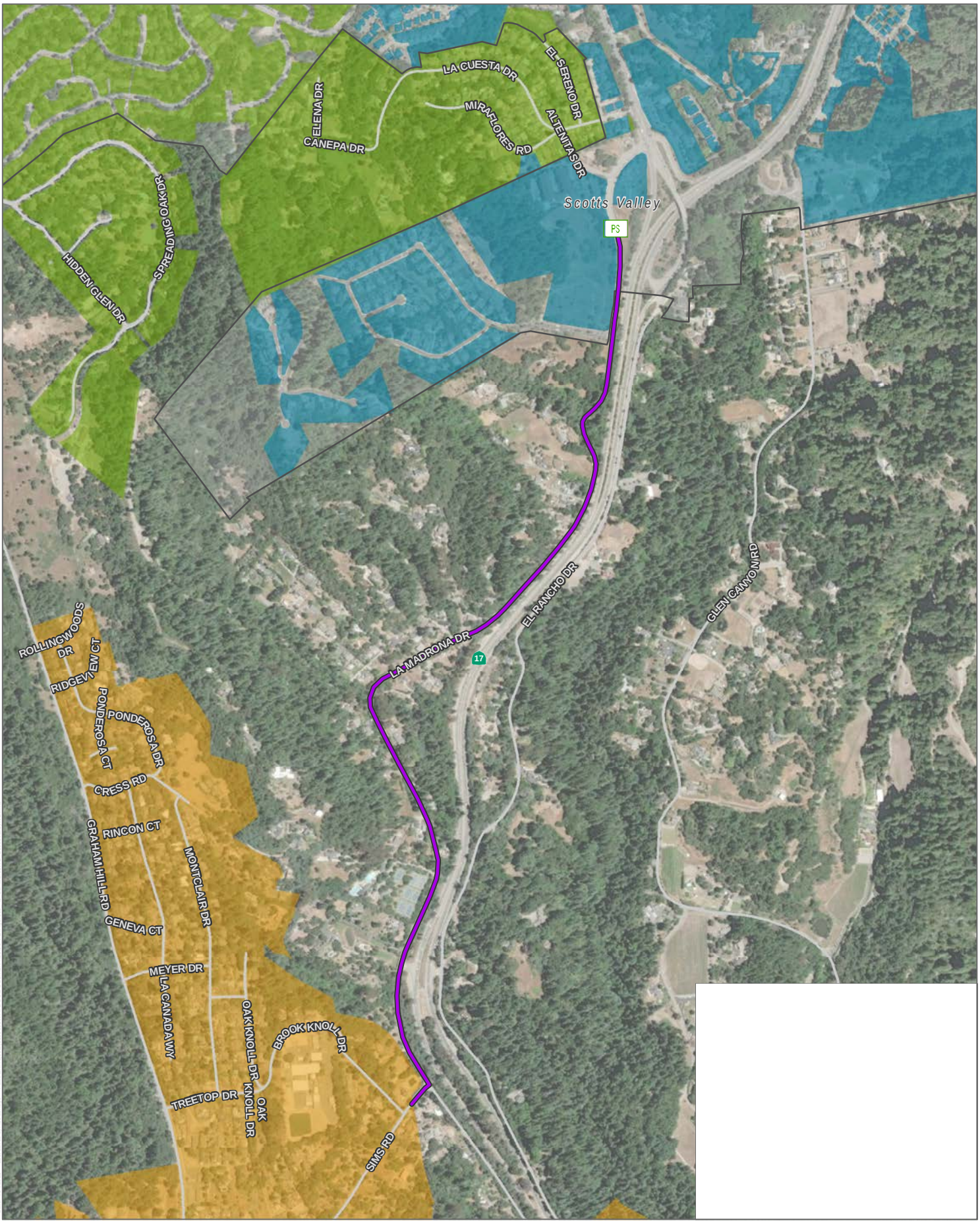
SOURCE: City of Santa Cruz 2021

FIGURE 4D

Proposed Beltz 12 ASR Facilities - Area of Potential Effects Map

Santa Cruz Water Rights Project

DUDEK



SOURCE: Bing Maps Accessed 2019, Kennedy/Jenks Consultants 2012 and 2014, URS 2013, County of Santa Cruz 2020

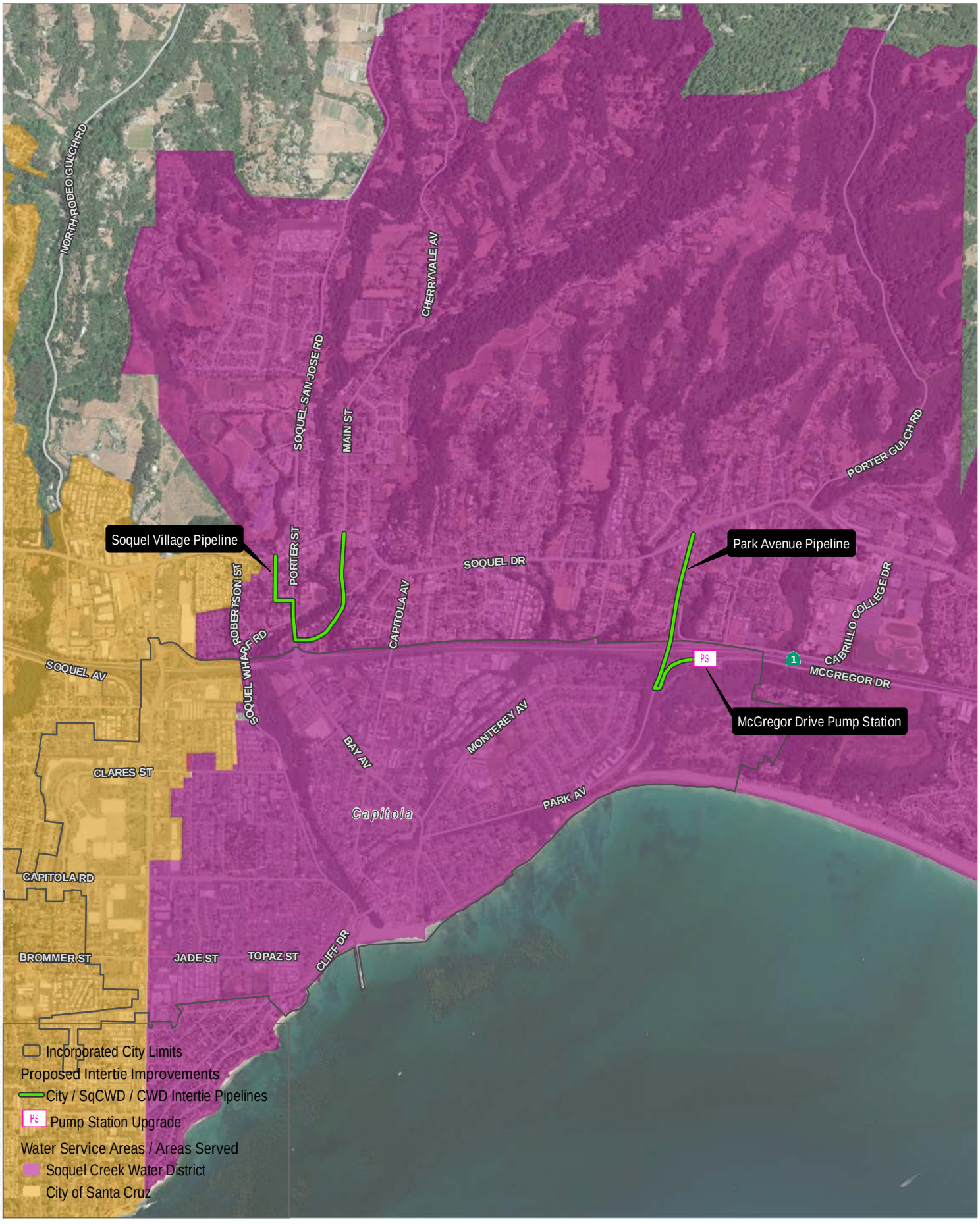
FIGURE 4E

City of Santa Cruz and Scotts Valley Water District Intertie

Santa Cruz Water Rights Project

DUDEK

0 500 1,000 Feet



SOURCE: Bing Maps Accessed 2019, Kennedy/Jenks Consultants 2012 and 2014, URS 2013, County of Santa Cruz 2020

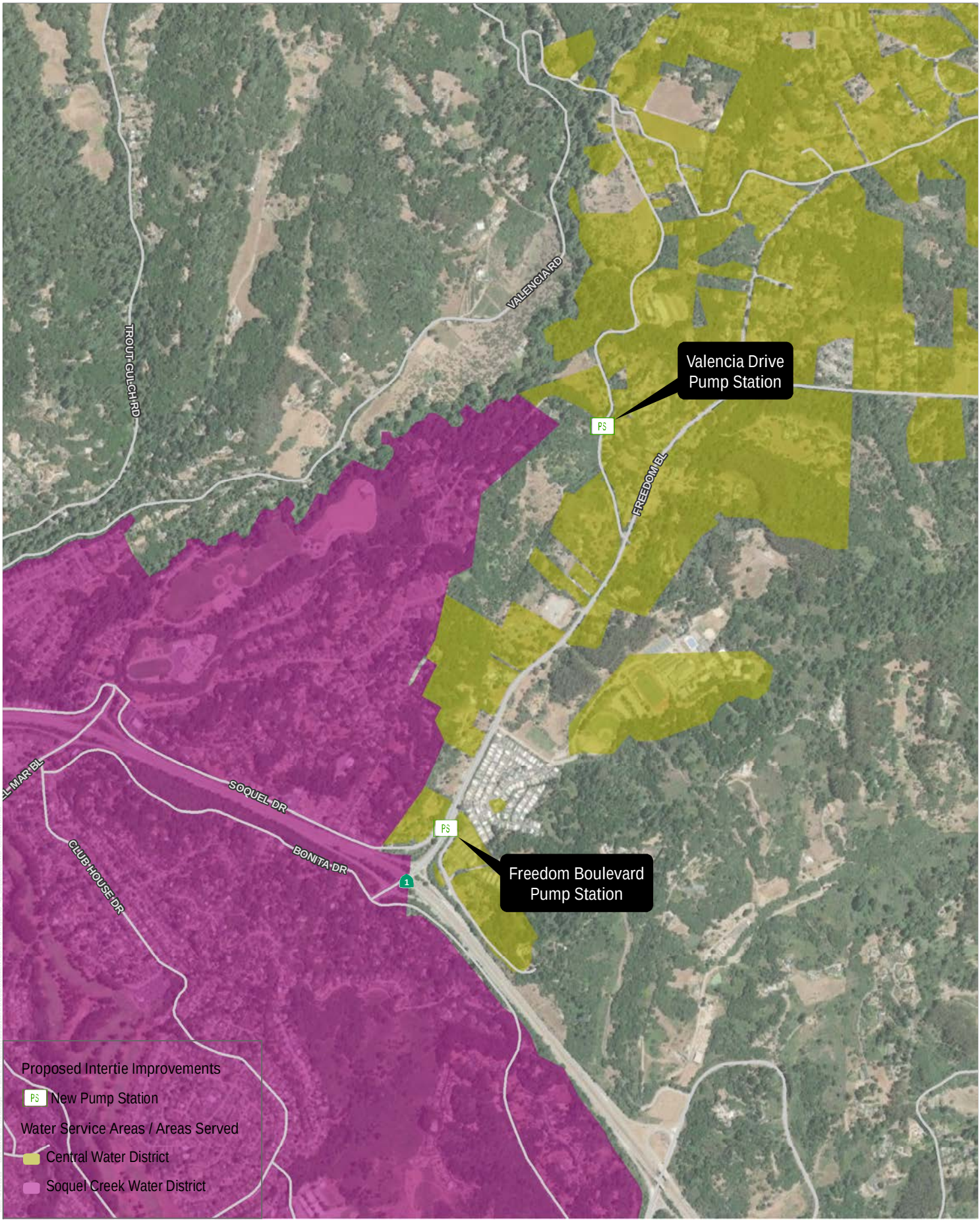
DUDEK

0 1,000 2,000 Feet

FIGURE 4F

City of Santa Cruz and Soquel Creek Water District Intertie Improvements

Santa Cruz Water Rights Project



SOURCE: Bing Maps Accessed 2019, Kennedy/Jenks Consultants 2012 and 2014, URS 2013, County of Santa Cruz 2020

FIGURE 4G

Soquel Creek Water District and Central Water District Intertie Improvements

Santa Cruz Water Rights Project

DUDEK

0 750 1,500 Feet

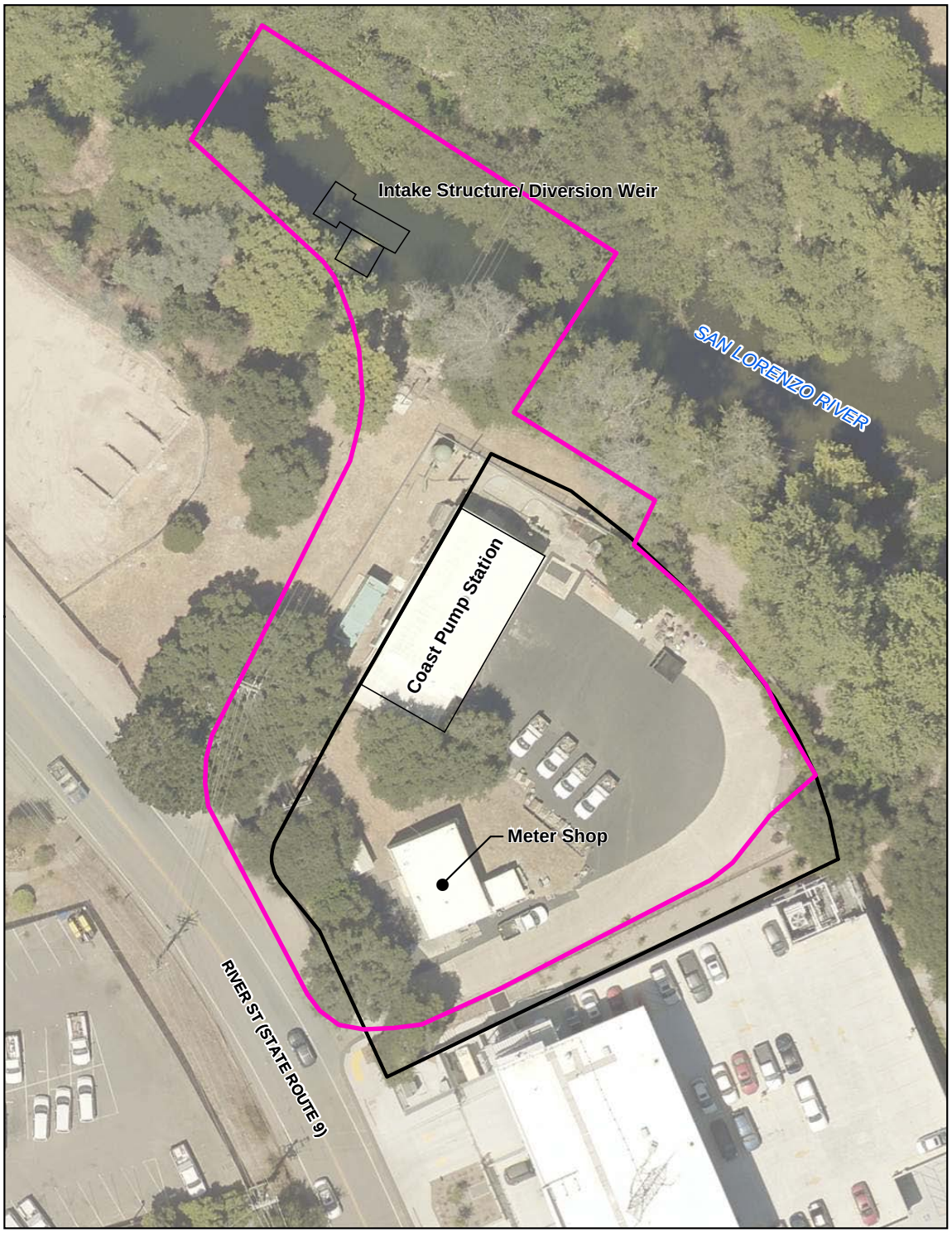
SOURCE: City of Santa Cruz 2019

FIGURE 4H

Felton Diversion Fish Passage Improvements Site - Area of Potential Effects Map

Santa Cruz Water Rights Project

DUDEK



SOURCE: City of Santa Cruz 2021

FIGURE 4I

Tait Diversion and Coast Pump Station Facility Improvements Site - Area of Potential Effects Map

Santa Cruz Water Rights Project

DUDEK

Appendix B

Confidential Records Search Results

Confidential Materials are on file with the City

Appendix C

Native American Information Outreach

Confidential Materials are on file with the City

Appendix D

Other Interested Party Correspondence

725 FRONT STREET, SUITE 400
SANTA CRUZ, CALIFORNIA 95060
T 831.600.1400 F 831.600.1401

June 3, 2020

Frank Perry
Capitola Historical Museum
410 Capitola Avenue
Capitola, CA 95010

Subject: Santa Cruz Water Rights Project

Dear Mr. Perry,

Dudek has been retained by the City of Santa Cruz Water Department to conduct a cultural resources study for the Santa Cruz Water Rights Project (Proposed Project). The Proposed Project involves the water system and water service area of the City of Santa Cruz (City) and the water service areas of San Lorenzo Valley Water District (SLVWD), Scotts Valley Water District (SVWD), Soquel Creek Water District (SqCWD), and Central Water District (CWD). The Proposed Project is located within Santa Cruz County and is generally bounded by the unincorporated communities of Aptos and Le Selva Beach on the east, Bonny Doon Road on the west, Boulder Creek on the north, and the Pacific Ocean on the south (see Figures 1a, 1b, and 1c enclosed).

The Santa Cruz Water Department is proposing to improve flexibility in operation of the City's water system while enhancing stream flows for local anadromous fisheries. The Proposed Project would improve operational flexibility of the water system within existing allocations to allow better use of limited water resources in the service areas. The Proposed Project involves water rights modifications to expand authorized place of use (POU), to better utilize existing diversions, and to extend the City's time to put water to full beneficial use. Additionally, the Proposed Project could result in facility upgrades to the Beltz Well System, specifically wells 8, 9, 10, and 12.

As part of our study, we are consulting all regional historical organizations to determine if there are any known historic or cultural resources that may be affected by the Proposed Project. Your efforts in this process will provide invaluable information for the proper identification and treatment of such resources. If you have any information regarding known cultural resources in the Proposed Project area, please feel free to contact me via phone or email (listed below). All comments, emails, or letters received will be included in the reports generated by this study. Thank you for your time regarding our request.

Sincerely,

Fallin Steffen, MPS
Architectural Historian

P: 831.400.8882 // E: fsteffen@dudek.com

Enclosure

Figure 1a. Project Location

Figure 1b. Project Location

Figure 1c. Project Location

725 FRONT STREET, SUITE 400
SANTA CRUZ, CALIFORNIA 95060
T 831.600.1400 F 831.600.1401

June 3, 2020

Pajaro Valley Historical Association
332 East Beach Street
Watsonville, CA 95076

Subject: Santa Cruz Water Rights Project

To Whom It May Concern:

Dudek has been retained by the City of Santa Cruz Water Department to conduct a cultural resources study for the Santa Cruz Water Rights Project (Proposed Project). The Proposed Project involves the water system and water service area of the City of Santa Cruz (City) and the water service areas of San Lorenzo Valley Water District (SLVWD), Scotts Valley Water District (SVWD), Soquel Creek Water District (SqCWD), and Central Water District (CWD). The Proposed Project is located within Santa Cruz County and is generally bounded by the unincorporated communities of Aptos and Le Selva Beach on the east, Bonny Doon Road on the west, Boulder Creek on the north, and the Pacific Ocean on the south (see Figures 1a, 1b, and 1c enclosed).

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Architectural Historian

P: 831.400.8882 // E: fsteffen@dudek.com

Enclosure

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Figure 1b. Project Location

Figure 1c. Project Location

725 FRONT STREET, SUITE 400
SANTA CRUZ, CALIFORNIA 95060
T 831.600.1400 F 831.600.1401

June 3, 2020

San Lorenzo Valley Museum
12547 CA-9
Boulder Creek, CA 95006

Subject: Santa Cruz Water Rights Project

To Whom It May Concern:

Dudek has been retained by the City of Santa Cruz Water Department to conduct a cultural resources study for the Santa Cruz Water Rights Project (Proposed Project). The Proposed Project involves the water system and water service area of the City of Santa Cruz (City) and the water service areas of San Lorenzo Valley Water District (SLVWD), Scotts Valley Water District (SVWD), Soquel Creek Water District (SqCWD), and Central Water District (CWD). The Proposed Project is located within Santa Cruz County and is generally bounded by the unincorporated communities of Aptos and Le Selva Beach on the east, Bonny Doon Road on the west, Boulder Creek on the north, and the Pacific Ocean on the south (see Figures 1a, 1b, and 1c enclosed).

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Figure 1c. Project Location

725 FRONT STREET, SUITE 400
SANTA CRUZ, CALIFORNIA 95060
T 831.600.1400 F 831.600.1401

June 3, 2020

Ashley Holmes
Santa Cruz Museum of Art and History
705 Front Street
Santa Cruz, CA 95060

Subject: Santa Cruz Water Rights Project

Dear Holmes:

Dudek has been retained by the City of Santa Cruz Water Department to conduct a cultural resources study for the Santa Cruz Water Rights Project (Proposed Project). The Proposed Project involves the water system and water service area of the City of Santa Cruz (City) and the water service areas of San Lorenzo Valley Water District (SLVWD), Scotts Valley Water District (SVWD), Soquel Creek Water District (SqCWD), and Central Water District (CWD). The Proposed Project is located within Santa Cruz County and is generally bounded by the unincorporated communities of Aptos and Le Selva Beach on the east, Bonny Doon Road on the west, Boulder Creek on the north, and the Pacific Ocean on the south (see Figures 1a, 1b, and 1c enclosed).

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Fallin Steffen, MPS
Architectural Historian

P: 831.400.8882 // E: fsteffen@dudek.com

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Figure 1c. Project Location

725 FRONT STREET, SUITE 400
SANTA CRUZ, CALIFORNIA 95060
T 831.600.1400 F 831.600.1401

June 3, 2020

Felicia Van Stolk
Santa Cruz Museum of Natural History
1305 E Cliff Drive
Santa Cruz, CA 95062

Subject: Santa Cruz Water Rights Project

Dear Ms. Van Stolk,

Dudek has been retained by the City of Santa Cruz Water Department to conduct a cultural resources study for the Santa Cruz Water Rights Project (Proposed Project). The Proposed Project involves the water system and water service area of the City of Santa Cruz (City) and the water service areas of San Lorenzo Valley Water District (SLVWD), Scotts Valley Water District (SVWD), Soquel Creek Water District (SqCWD), and Central Water District (CWD). The Proposed Project is located within Santa Cruz County and is generally bounded by the unincorporated communities of Aptos and Le Selva Beach on the east, Bonny Doon Road on the west, Boulder Creek on the north, and the Pacific Ocean on the south (see Figures 1a, 1b, and 1c enclosed).

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Sincerely,

Fallin Steffen, MPS
Architectural Historian

P: 831.400.8882 // E: fsteffen@dudek.com

Enclosure

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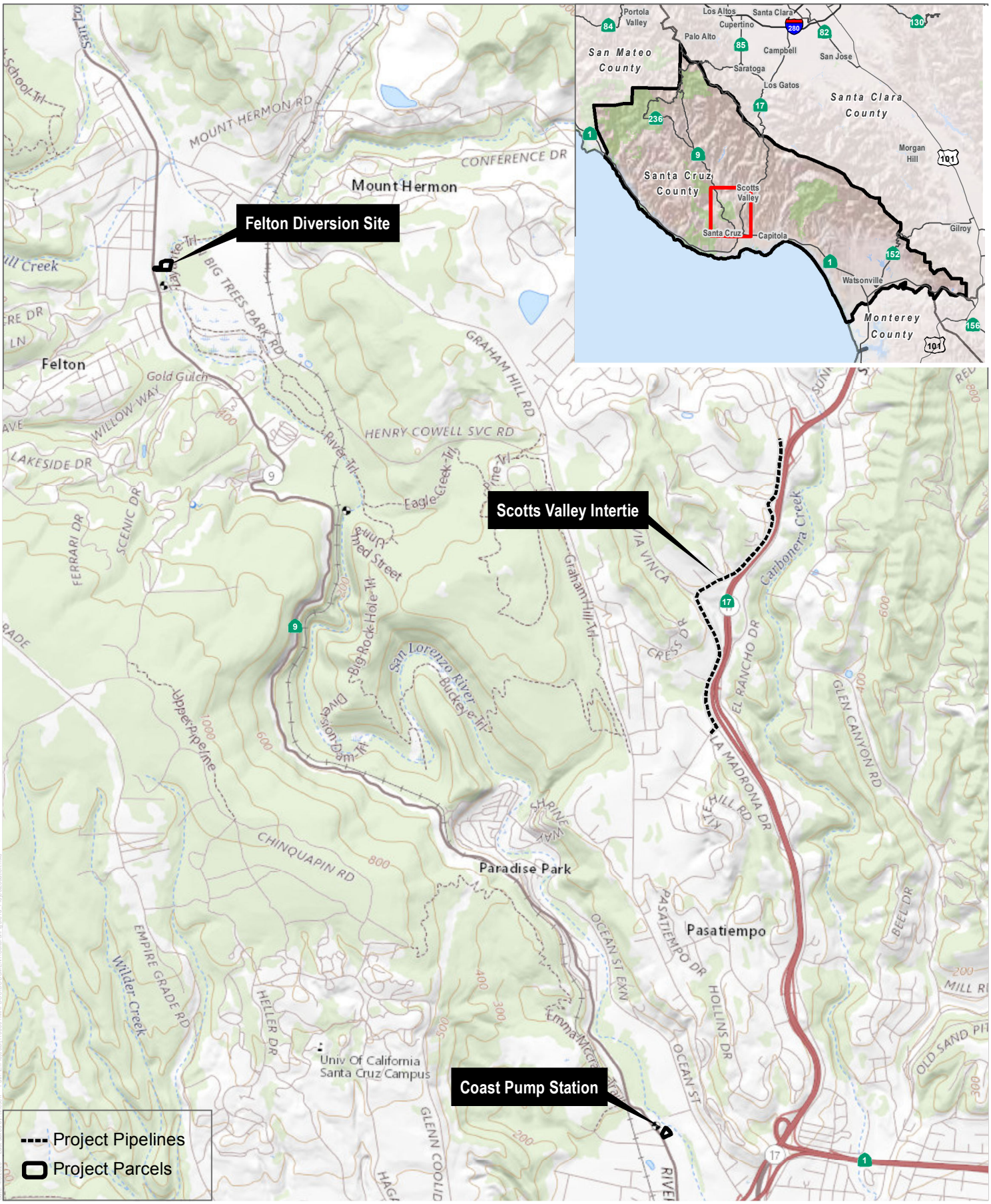
Figure 1c. Project Location



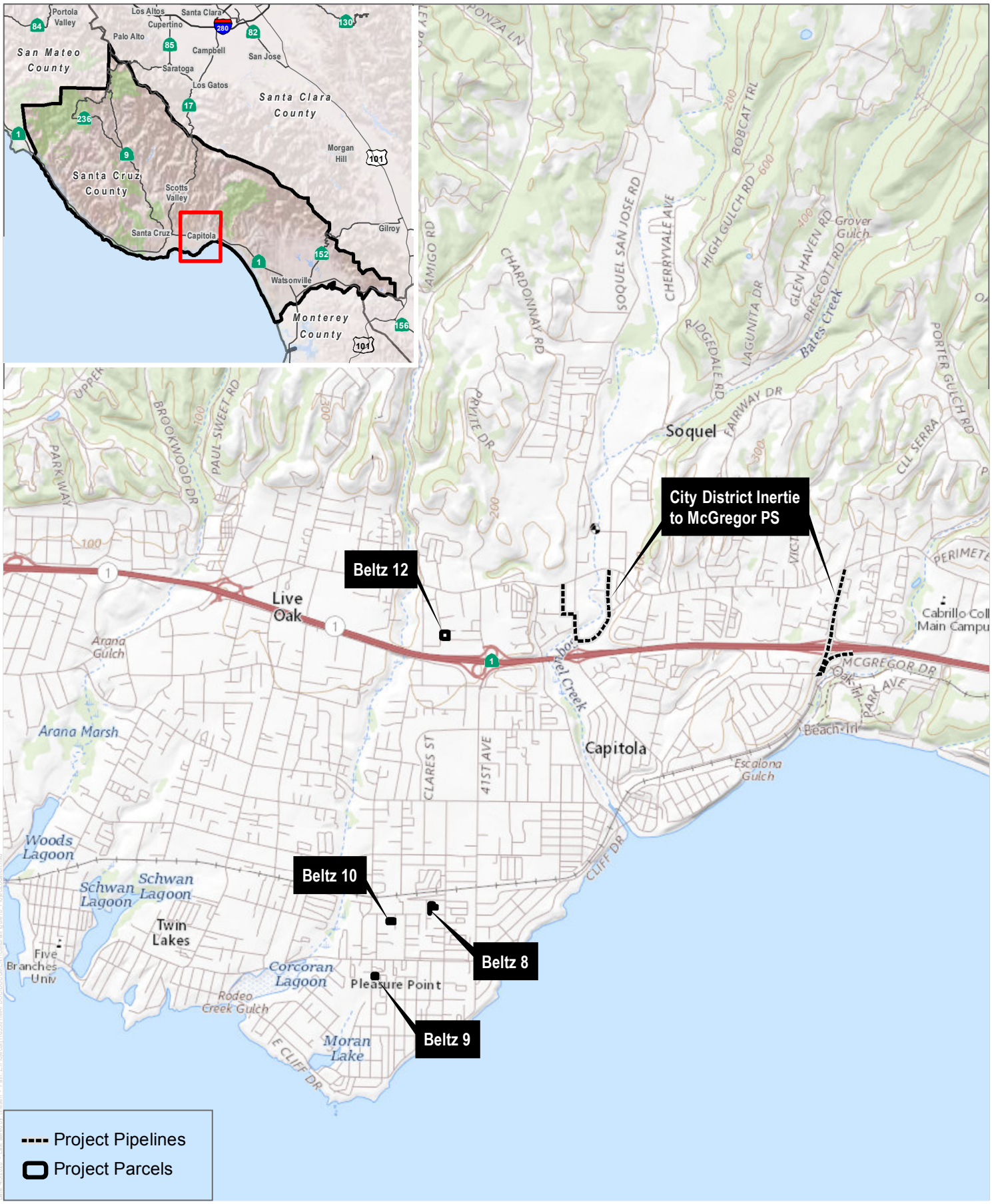
SOURCE: USGS National Map 2019
Felton & Santa Cruz Quadrangles

DUDEK

FIGURE 1A

Project Location

Santa Cruz Water Rights Project



SOURCE: USGS National Map 2019
Laural & Soquel Quadrangles

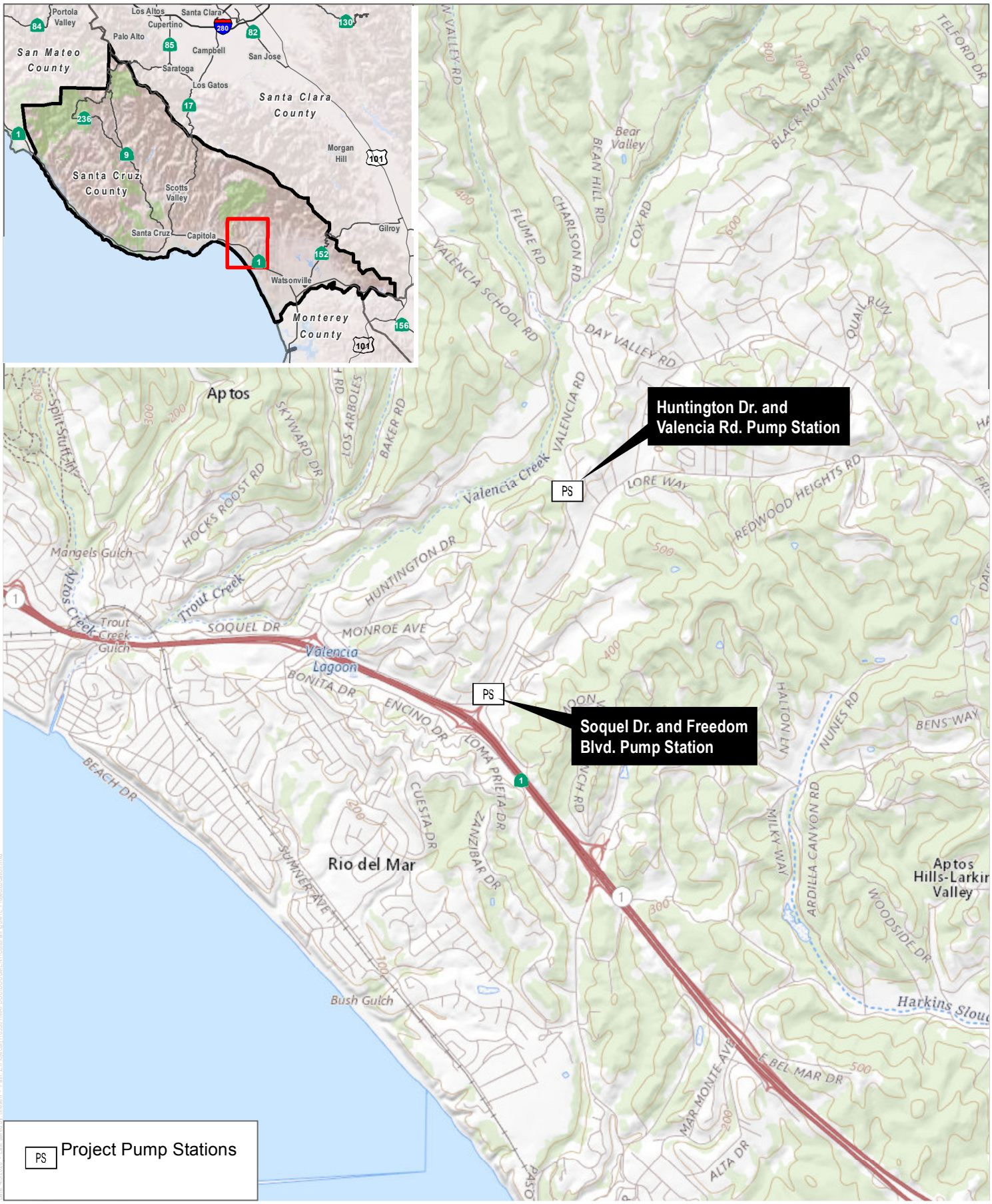
DUDEK

0 1,500 3,000 Feet

FIGURE 1B

Project Location

Santa Cruz Water Rights Project



SOURCE: USGS National Map 2019
Soquel & Watsonville West Quadrangles

DUDEK

0 1,500 3,000 Feet

FIGURE 1C

Project Location

Santa Cruz Water Rights Project

From: Capitola Museum
To: Fallin Steffen
Subject: Re: Santa Cruz Water Rights Project
Date: Friday, June 26, 2020 9:36:36 AM
Attachments: image003.png

Can't remember if I replied to this, but I see no impacts on historical sites within the City of Capitola.

Sincerely,

Frank Perry, Curator
Capitola Historical Museum

On Wed, Jun 3, 2020 at 1:05 PM Fallin Steffen <fsteffen@dudek.com> wrote:

> Hello Mr. Perry,
>
> I am reaching out today on behalf of Dudek and the City of Santa Cruz Water Department to provide you with some information about the Santa Cruz Water Rights Project. As part of the cultural resources study for the proposed project, Dudek is consulting all regional historical organizations to determine if there are any known historic or cultural resources that may be within the proposed project area. Please see the attached letter and map for more information about the nature and location of the project, and please feel free to contact me should you have questions or information regarding cultural or historical resources in this area.
>
> Thank you,
>
> **Fallin Steffen**
>
> Architectural Historian
>
> DUDEK
>
> m: 831.400.8882
>
> www.dudek.com

From:	Fallin Steffen
To:	Pajaro Valley Historical Association
Cc:	John Schlagheck; Katie Haley
Subject:	RE: Santa Cruz Water Rights Project
Date:	Thursday, June 4, 2020 8:13:47 AM
Attachments:	image003.png image004.png

Hi Lou,

Thank you for your response and for sending these photos along – very helpful! I realize the borders of the Valley are disputed, so I wanted to make sure to include PVHA in case the organization had knowledge of particular local cultural sites that may fall within the project area.

Thanks again,

Fallin Steffen
Architectural Historian

DUDEK
m: 831.400.8882
www.dudek.com

From: Pajaro Valley Historical Association <info@pajarovalleyhistory.org>
Sent: Wednesday, June 3, 2020 4:32 PM
To: Fallin Steffen <fsteffen@dudek.com>; Pajaro Valley Historical Association <info@pajarovalleyhistory.org>
Subject: Re: Santa Cruz Water Rights Project

Fallin,

Thanks for reaching out to us. We are enduring SIP and working with reduced staff.

PVHA mission is to preserve the history of the Pajaro Valley. Where that valley starts and ends has been a battle. So we do get bits and drabs of information that may be considered our purview. Our expertise is not in the defined borders of your project. However we have some documentation a researcher may want to pursue. I've included a Real Estate Areal collection dating
that we acquired rom 1972. Not sure what dates would be useful for you. These rough shots are of the exterior and introductory
pages to the areal photos of the area your email describes as your intended project. But I'm sure you must have already
sourced this information separately?

Images of collection attached. Let me know if you have any questions.

Lou Arbanas - volunteer PVHA

On Wed, Jun 3, 2020 at 1:05 PM Fallin Steffen <fsteffen@dudek.com> wrote:

> Hello,
>
> I am reaching out today on behalf of Dudek and the City of Santa Cruz Water Department to provide you with some information about the Santa Cruz Water Rights Project. As part of the cultural resources study for the proposed project, Dudek is consulting all regional historical organizations to determine if there are any known historic or cultural resources that may be within the proposed project area. Please see the attached letter and map for more information about the nature and location of the project, and please feel free to contact me should you have questions or information regarding cultural or historical resources in this area.
>
> Thank you,
>
> **Fallin Steffen**
> Architectural Historian
>
> DUDEK
> m: 831.400.8882
> www.dudek.com

From:	Fallin Steffen
To:	Felicia Van Stolk
Cc:	Katie Haley
Subject:	RE: Santa Cruz Water Rights Project
Date:	Wednesday, June 3, 2020 2:20:22 PM
Attachments:	image001.png image002.png

Hi Felicia,

Thank you for looking into this and responding so quickly. I hope you have a nice rest of your week.

Best,

Fallin Steffen
Architectural Historian

DUDEK
m: 831.400.8882
www.dudek.com

From: Felicia Van Stolk <felicia@santacruzmuseum.org>
Sent: Wednesday, June 3, 2020 2:13 PM
To: Fallin Steffen <fsteffen@dudek.com>
Cc: Katie Haley <khaley@dudek.com>
Subject: Re: Santa Cruz Water Rights Project

Thank you for reaching out. Our collections records do not indicate that any cultural or historic resources have come from the proposed project area. I recommend that you reach out to the Amah Mutsun Tribal Band, in whose unceded territory this project falls.

Felicia B. Van Stolk
Executive Director
felicia@santacruzmuseum.org
(831) 420-6115 x 11 | Mon-Fri
She/Her/Hers

Santa Cruz Museum of Natural History
Connecting people with nature and science to inspire stewardship of the natural world.
santacruzmuseum.org | Facebook | Instagram | Twitter

On Wed, Jun 3, 2020 at 1:05 PM Fallin Steffen <fsteffen@dudek.com> wrote:

> Hello Ms. Van Stolk,
> I am reaching out today on behalf of Dudek and the City of Santa Cruz Water Department to provide you with some information about the Santa Cruz Water Rights Project. As part of the cultural resources study for the proposed project, Dudek is consulting all regional historical organizations to determine if there are any known historic or cultural resources that may be within the proposed project area. Please see the attached letter and map for

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Thank you,

Fallin Steffen
Architectural Historian

DUDEK
m: 831.400.8882
www.dudek.com

Appendix E

Department of Parks and Recreation 523 Forms

State of California C The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code 6Z

Other Listings
Review Code Reviewer Date

Page 1 **of** 31 ***Resource Name or #:** (Assigned by recorder) Beltz 8 Aquifer Storage and Recovery Facility
P1. Other Identifier:

*P2. **Location:** **Not for Publication** n **Unrestricted**
***a. County** Santa Cruz **and** (P2c, P2e, and P2b or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad** Soquel **Date** 1994 **T** 11S ; **R** 1W ; **Sec** - ; Mount Diablo **B.M.**
c. Address City Santa Cruz Zip 95062
d. UTM: (Give more than one for large and/or linear resources) Zone 10S, 591831.00 mE/ 4091692.00 mN
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, decimal degrees, etc., as appropriate)
The Beltz 8 ASR facility is located on a mid-block parcel surrounded by a chain-link fence. The fence is fitted with privacy slats, secures the perimeter of the entire property, and features a recessed gated entry to the site, which can be accessed by a private driveway off of 38th Avenue just north of Roland Drive. Assessor Parcel Number: 032-021-31.

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
The Beltz Well 8 ASR facility is located on a municipal property located in the County of Santa Cruz and demonstrates a layered development history. ***See Continuation Sheet**

***P3b. Resource Attributes:** (List attributes and codes) HP9. Public Utility Building
***P4.Resources Present:** n Building n Structure Object Site District Element of District Other (Isolates, etc.)
P5b. Description of Photo: (view, date, accession #) View of Beltz 8 Control Building, looking west (IMG_0217)

P5a. Photograph or Drawing (Photograph required for buildings, structures, and objects.)

***P6. Date Constructed/Age and Source:** n Historic Prehistoric Both
1. Iron and Manganese Removal Plant, 1971
(Santa Cruz Sentinel 1967)
2. Beltz 8, 1971
(City of Santa Cruz 1998)

***P7. Owner and Address:**
City of Santa Cruz
809 Center Street
Santa Cruz, CA 95060

***P8. Recorded by:** (Name, affiliation, and address) Fallin Steffen, MPS
Dudek
725 Front Street, Suite 400
Santa Cruz, CA 95060

***P9. Date Recorded:** May 6, 2020

***P10. Survey Type:** (Describe) Intensive Pedestrian

***P11. Report Citation**: (Cite survey report and other sources, or enter "none.") Dudek. 2020. *Cultural Resources Inventory and Evaluation Report for the Santa Cruz Water Rights Project.*

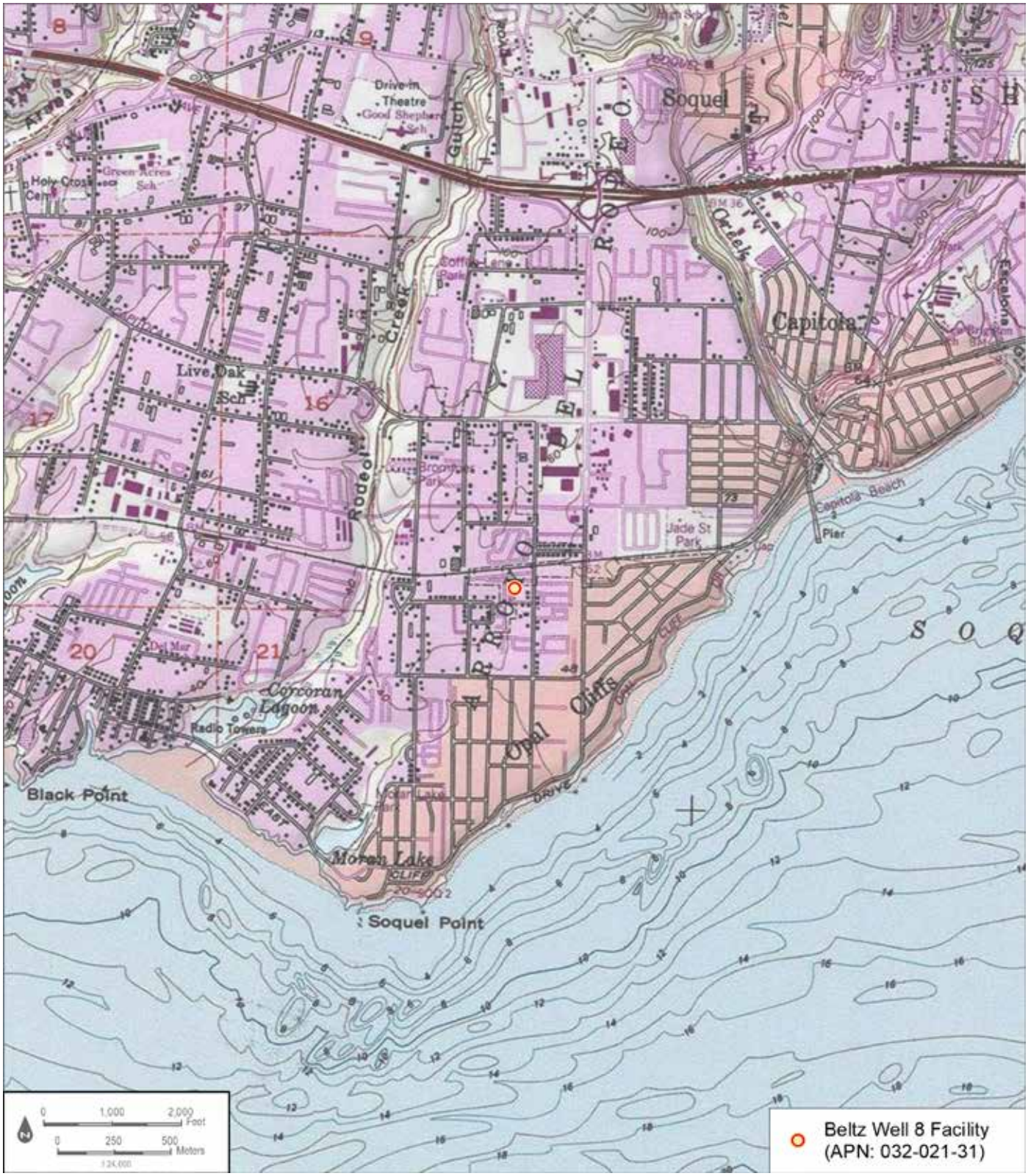
***Attachments:** NONE nLocation Map nContinuation Sheet nBuilding, Structure, and Object Record
Archaeological Record District Record Linear Feature Record Milling Station Record Rock Art Record
Artifact Record Photograph Record Other (List):

State of California C Natural Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary #
HRI#
Trinomial

 ***Resource Name or #** (Assigned by recorder) Beltz 8 Aquifer Storage and Recovery Facility
***Map Name:** Soquel Quadrangle ***Scale:** 1:24,000 ***Date of map:** 1994



State of California C The Resources Agency Primary #
DEPARTMENT OF PARKS AND RECREATION HRI#

BUILDING, STRUCTURE, AND OBJECT RECORD

***Resource Name or #** (Assigned by recorder) Beltz 8 Aquifer Storage and Recovery Facility
Page 3 **of** 31 ***NRHP Status Code** 6Z

B1. Historic Name: Beltz Well No. 6
B2. Common Name: Beltz 8
B3. Original Use: Well B4. Present Use: Aquifer Storage and Recovery
***B5. Architectural Style:**
***B6. Construction History:** (Construction date, alterations, and date of alterations)

The Iron and Manganese Removal Plant was designed by Kingman Engineers and completed in 1971 and subsequently expanded in 1985. Well Beltz 6 was damaged in the 1989 Loma Prieta earthquake and later replaced by Well Beltz 8 in 1998). Presently the site contains the Iron and Manganese Removal Plant, Well Beltz 8, and limited landscaping (NETR 2020; SCWD 1967: D).***See Continuation Sheet**

***B7. Moved?** n No Yes Unknown **Date:** **Original Location:**
***B8. Related Features:**

B9a. Architect: Iron and Manganese Removal Plant: Kingman Engineers; Beltz 8: Unknown
b. Builder: Unknown
***B10. Significance: Theme** **Area**

Period of Significance **Property Type** **Applicable Criteria** N/A
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

In conclusion, the Beltz 8 Aquifer Storage and Recovery Facility does not appear eligible for listing in the NRHP, the CRHR, or the Santa Cruz County HRI due to a lack of historical associations, architectural merit, and compromised integrity. As such, this property does not appear to be a historic property under Section 106 of the NHPA or a historical resource under CEQA.
***See Continuation Sheet**

B11. Additional Resource Attributes: (List attributes and codes)

***B12. References:**
***See Continuation Sheet**

B13. Remarks:

***B14. Evaluator:** Fallin Steffen, MPS, for Dudek
***Date of Evaluation:** June 5, 2020

(This space reserved for official comments.)

***P3a. Description:**

Iron and Manganese Removal Plant (1971)
The Iron and Manganese Removal Plant contains a Control Building, two pressure filters, a combination aerator and sump pump, and a wash water recovery tank.

Control Building
The Control Building is a simple utilitarian-style building constructed from flat concrete bricks that features a gabled roof complete with vertical wood siding in the gable end (Exhibits 1 and 2). The 1985 addition to the south end of the building is also constructed of concrete brick and features a shed roof that extends from the south elevation of the building. Entry to the building is accessed via one of three simple metal doors, two of which feature a single small window. Otherwise, the building does not contain any fenestration. Metal conduit is present in sizeable quantities on the exterior painted surface of the building.

Exhibit 1. Control Building, east elevation, view looking west (IMG_0217).

Exhibit 2. Control Building, west elevation, view looking southeast (IMG_0222).

Pressure Filters

The two cylindrical pressure filters are cylindrical tanks that measure 8 feet by 34 feet (Exhibit 3). They are situated to the north of the control building and each feature a concrete pad foundation.

Exhibit 3. Control Building, west elevation, view looking southeast (IMG_0222).

Aerator and Sump Pump

The irregular-shaped aerator sump pump stands approximately two stories high and is housed in metal

sheeting (Exhibit 4).

Exhibit 4. Aerator and Sump Pump, view looking northwest (IMG_0218).

Wash Water Recovery Tank

The cylindrical wash water recovery tank stands approximately three stories tall and is constructed of metal sheets that have been riveted together to form a continuous surface (Exhibit 5). A release door is visible at the ground level, and the top of the structure is accessed via an enclosed ladder located on the west side of the structure.

Exhibit 5. Wash Water Recovery Tank, view looking north (IMG_0219).

Beltz 8 (1998)

Beltz 8 is located on the eastern side of the irregularly shaped parcel. The visible portions of the well are simply metal piping extending above and then back beneath the ground (Exhibit 6).

Exhibit 6. Beltz 8, view looking northeast (IMG_0215).

***B6. Construction History:**
The following alterations were identified during a review of the photographs taken during the pedestrian survey and during the course of archival research. Unless indicated, the dates of these alterations is unknown.

Iron and Manganese Removal Plant (1971, expanded 1985)

Expansion of plant including an addition to the control building, 1985 (Kennedy/Jenks Engineers 1985: G-4)

Removal of wastewater treatment tank

Various mechanical, pump, and pipeline upgrades

Overall Site

Installation of Beltz 8 in 1998 (Dames and Moore 1998: C101)

Removal of original Beltz 6, associated appurtenances, and well house structure

***B10. Significance:**

Early Development of Water Management in Santa Cruz County

The following context discusses the development of the SCWD, which provides municipal water to residents of the City and surrounding areas within the County. The SCWD water system serves approximately 23,700 residential, commercial, industrial, municipal, and irrigation accounts within approximately 30 square miles, encompassing the entire City and select contiguous County areas (EKI 2011: 9).

Several miles north of the evolving city center at the base of the Santa Cruz Mountains, multiple mountain streams and tributaries carve deep channels and valleys through the dense redwood and oak timberlands. The extensive virgin forests and the rich underground deposits of lime in the Santa Cruz Mountains attracted opportunistic settlers and purveyors in the mid- to late-1800s who sought to harness the power of the mountain streams to move the goods located in the remote area to market (Hoover et al. 2002: 456).

The California Gold Rush of 1848 accelerated the desirability of land across the state, and before long, access to water in the drought-prone region took on the highest level of importance. Instead of adopting an equal water access structure in the fashion of the eastern United States, the wealth potential of waterways during the Gold Rush shaped California water law into a “first in time, first in right” system known as Prior Appropriation. Under this system, riparian rights were granted to the first person to use a river or tributary for beneficial consumption like mining, farming, milling, or as-needed domestic use. When land in the Santa Cruz Mountains was subdivided and sold, access to the rivers and streams was enormously important. Not only did it mean that the initial use set out for a waterway was the primary use, it also meant that any subsequent uses could not supersede or negatively affect the chief use. The order that claims were recognized during this period established the foundation of the complicated system of water allocation rights still in use today in the County (Pisani 1984: 246–247).

Many of these powerful mountain streams and tributaries were utilized by early landowners and tenant entrepreneurs to make a profit from the natural resources that formed the early economic basis of the County. Several of these mountain creeks still bear the names of the first men who established mills or permanently settled beside them. Majors Creek was named for Joseph L. Majors who established a grist mill on the creek prior to serving as the County Treasurer between 1850 and 1853. Liddell Creek was named for George Liddell who moved to the Santa Cruz Mountains and established a sawmill on the creek in 1851. Newell Creek was named for Addison Newell who established a farm in the steep, v-shaped valley on the banks of the creek in 1867 (Koch 1973: 33–34; Clark 2008: 174, 187, 215).

For others, the streams presented pure economic opportunity. The first power sawmill in California was built on Rancho Zayante by Isaac Graham in the 1842 and was driven by the waters of Zayante Creek. Isaac E. Davis and Albion P. Jordan of the Davis and Jordan Lime Company purchased a portion

of Rancho Cañada del Rincon in 1853 as a promising quarry site. They also utilized the falling water on the property to process local lumber into fuel for their many kilns. The California Powder Works was established in 1865 on the bank of the San Lorenzo River on a portion of Rancho Carbonera. The Powder Works used the river to grind raw materials used in the production of the first smokeless powder manufactured on the west coast of the United States. By 1868, there were a sizable number of business and industries that relied on water from County waterways to operate, including 12 water-powered lumber mills, 10 steam-powered lumber mills, and 9 shingle mills in operation within the County (Clark 2008: 130–131; Hoover et al. 2005: 456; Koch 1973: 36–37; Brown 2011: 4).

As water management techniques were being applied to a variety of industry in the County, the successful technologies developed and used in early natural resource harvesting such as flumes and pumps prompted local residents in Santa Cruz to consider why these were not being put to use for the benefit of drinking water. Furthermore, the up-stream uses of many of these industries that had developed along streams in the Santa Cruz Mountains had resulted in a less than desirable water quality downstream.

Early Water Development in Santa Cruz City (1864–1917)

Private Development (1864–1916)

Beginning in the 1860s, acute cyclical water shortages and pollution prompted the development of several for-profit water systems in Santa Cruz. By the end of the 1880s, the two surviving major water companies, F.A. Hihn Water Works and the Santa Cruz Water Company, were joined into a single private business that competed with the new municipal water system that began in 1890 for almost three decades before being purchased by the City and integrated into the municipal system in 1916.

F.A. Hihn Water Works (1864)

In 1864, prompted by the issue of shortage, young entrepreneurs Elihu Anthony and Fredrick A. Hihn implored the Board of County Supervisors to allow them to dig trenches and lay redwood pipes to transport water throughout Santa Cruz. The “wooden tubes” were chosen as an inexpensive alternative to iron pipes (Santa Cruz Weekly Sentinel 1864a: 2). The source of the water was an 8,000-gallon reservoir on Anthony’s property supplied by water from Scott’s Creek, and eager recipients of the water could gain access for a fee. (Brown 2011: 1–2; Santa Cruz Weekly Sentinel 1864: 2).

By 1876, the 1864 system was known as the F.A. Hihn Water Works, and it was the largest provider of water in the newly chartered City, with Dodero and Carbonero Creeks constituting its primary sources. The company predated the incorporation of Santa Cruz by 2 years (Koch 1973: 35; Brown and Dunlap 1956: 14; City of Santa Cruz 2020).

The Santa Cruz Water Company (1866)

In 1866 a new, fee-based, private water supply company was founded to share in the lucrative profits of the F.A. Hihn Water Works. A man named E. Morgan acquired rights to the waters of the San Lorenzo River in 1866, just prior to the town of Santa Cruz being officially incorporated later that year. He used these rights to install a section of pipework conveying water to the area known then as the “The Flats,” which comprises the modern area of Pacific Avenue and Front Street (SCWD n.d.: 1).

In 1876, Morgan sold his system to a wealthy man from San Francisco named H.K. Lowe. Under Lowe’s guidance, the Santa Cruz Water Company incorporated in July 1876 and began construction on a pumping station on the San Lorenzo River approximately 1 mile upstream from the City, as well as a new reservoir located on High Street. Morgan retained 50 company shares and became the resident engineer and superintendent of the Santa Cruz Water Company. By the end of 1876, the company had also installed a Branciforte Creek diversion to deliver water via a pipeline to a new reservoir located at the base of School Street. As the City continued to grow and the steam-powered pumping plant installed on the San Lorenzo River became the source of repeated water-quality concerns, the Santa Cruz Water company acquired partial water appropriation rights to the Majors (then called

Cojo Creek) in 1881. After the acquisition, the company scrapped the whole San Lorenzo pumping plant for $800 (Santa Cruz Weekly Sentinel 1877a: 1; 1877b: 2; SCWD n.d.: 1).

For the next several years, the Santa Cruz Water Company focused its attention on the construction of a pipeline to divert water from Majors Creek. This effort was very costly and the company slipped into dire financial condition. In August 1886, the company along with all of its appurtenances was sold to the City, financed through the sale of bonds from the Bank of Santa Cruz and the Anglo-Californian Bank. Hihn bitterly opposed the issuance of the bonds and contested their legality in court. The matter reached the Supreme Court and the election in favor of the bonds was declared invalid in 1887. By this time however, the City had already operated the water system for over a year when it was re-conveyed to private owners in 1887 (Santa Cruz Weekly Sentinel 1882: 3; SCWD n.d.: 1; Santa Cruz Surf 1890a: 1).

The City voted again in March 1888 to put up the bonds necessary to purchase the Santa Cruz Water Company system from the private owners. However, while the City was in the process of securing the bonds for the purchase, the Santa Cruz Water Company system was covertly sold to F.A. Hihn in a private, backroom transaction before the City could obtain legal ownership. Hihn quickly consolidated the Santa Cruz Water Company system with his own system of works. This transaction effectively severed any opportunity the City had of acquiring an established water works system with which to launch their own public water system (Santa Cruz Daily Surf 1888a: 3, 1888b: 2; Santa Cruz Surf 1890a: 1).

F.A. Hihn continued to operate the consolidated system as the Santa Cruz Water Company and expanded the service area east into the Seabright neighborhood until his death in 1913 (SCWD n.d.: 1).

Public Development (1890–1917)

During the 1880s, the rising price of these fee-based water systems like the F.A. Hihn Water Works and the Santa Cruz Water Company prompted the City to explore their own, city-owned, public water option. After several disappointing attempts to acquire an existing system of water works, the City revised its approach and began planning to build a diversion system and storage reservoir from the ground up, prompting the development of the first municipal water project in Santa Cruz, the Laguna Creek Dam and the Cowell Reservoir. This project led the way for other ambitious water system development in the City including several other north coast stream diversions and the first pumping plant on the San Lorenzo River. In 1916, the City acquired the rights to the Santa Cruz Water Company and began to tie in the systems as one, forming the basis of the modern SCWD system used today.

The Laguna Creek Dam and the Cowell Reservoir (1890)

In July 1888, the Common Council secured the water rights to the Laguna Creek. “The Laguna,” the *Santa Cruz Sentinel* reported, “is a rushing, roaring mountain stream, entirely rock bound and tree shaded above the falls where it is proposed to take the water out (Santa Cruz Sentinel 1888: 2).” The stream was capable of supplying 1.4 million gallons towards a City-owned water works. Plans were finally in motion for the construction of the first city-owned water works, supplied through a new pipeline by the waters of Laguna Creek, with reserve storage in a new City reservoir on Henry Cowell’s ranch property known as the Cowell Street Reservoir, which was located roughly at the present site of the U.C. Santa Cruz Arboretum. The *Santa Cruz Surf* reported with excitement that the new project would mean open, municipal water so that each citizen of Santa Cruz could finally “quench his thirst with free water without ‘dropping a nickel in the slot’” (Santa Cruz Surf 1890a: 1).

The bonds required to fund the construction of the City water works were secured within the following year, and in July 1889, a civil engineer named G.S. Schussler issues a report in favor of the project that valued the proposed undertaking at $260K (Santa Cruz Surf 1889a: 3, 1889b: 3).

The prominent San Francisco firm Risdon Iron Works was selected as the contractor, who were known for producing the great iron pipes for steam ships. The *Santa Cruz Surf* reported that work on the

dam on Laguna Creek and the dam at the reservoir site would be completed by the San Francisco contracting firm Kelso and Dare (Santa Cruz Surf 1889c: 3).

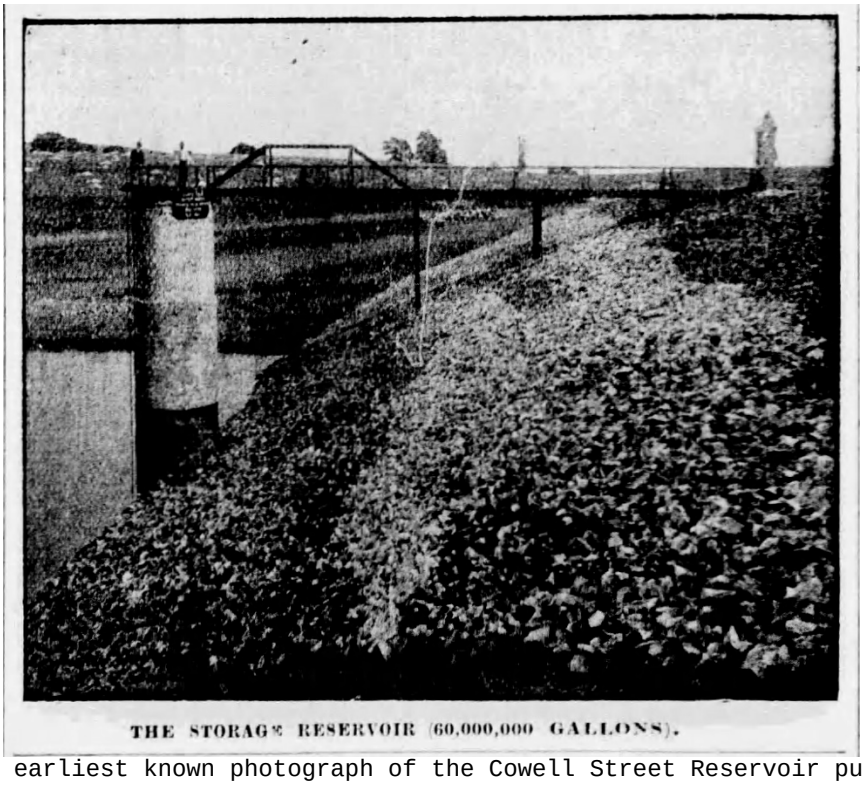
On September 30, 1890, the *Santa Cruz Surf* reported that the reservoir and the pipeline of the City water works were nearly complete. The article published an in-depth description of the new Laguna Creek Dam (Exhibit 7), stating that (Santa Cruz Surf 1890b: 3):

> The dam across Laguna Creek just above the Henneuse place is one of the finest pieces of rubble stone work in the county and not to be excelled anywhere. The granite rocks used in its construction were taken from the bed of the creek, some of them weighing as much as two tons. The water will first be diverted from the Laguna at this point into a flume 3x4 feet and one hundred feet in length, also built of solid masonry. This is nearly level and terminates in a basin two feet lower, and into which the sand and sediment which may be carried in the water in a time of storm will settle. Gates are provided by means of which this basin can be cleared as often as required. From here the water will enter the 14-inch main through which it will be carried to the storage reservoir. This pipe follows the canyon of the Laguna creek as nearly as possible to the county road a distance of about three miles.

THE RETAINING DAM ON LAGUNA CREEK.

Exhibit 7. The earliest known photograph of the Laguna Creek Masonry Dam published in the Santa Cruz Surf in 1892 (Santa Cruz Surf 1892: 2).

On October 18, 1890, the last pipe connecting the Laguna Creek to the new Cowell Street Reservoir was put into position (Exhibit 8). The pipeline emptied into the reservoir for storage and eventual distribution to the homes and businesses of Santa Cruz (Santa Cruz Surf 1890c: 3).



THE STORAGE RESERVOIR (60,000,000 GALLONS).

Exhibit 8. The earliest known photograph of the Cowell Street Reservoir published in the *Santa Cruz Surf* in 1892 (Santa Cruz Surf 1892: 2).

Reggiardo Creek Diversion (Flume 1891, Dam 1912)

A 965-foot-long flume was completed in 1891 connecting the west branch of Laguna Creek, colloquially known as Reggiardo Creek, to the main Laguna Creek by emptying out water to the north of the Laguna Creek Dam. The new flume was intended to help supplement the municipal supply from Laguna Creek, as the year-old Laguna Creek Dam was quickly inundated with sediment and less water than expected was being captured by the system overall (Santa Cruz Surf 1892: 2).

In 1912, R.S. Tait, the water superintendent, announced that a dam had been completed on Reggiardo Creek in order to aid in the supply of daily drinking water sourced from Laguna Creek. The level of Laguna Creek had been significantly reduced by a lack of rainfall in the watershed area, causing the supply of water in the impoundment to drop below sufficient levels to support the community (SC Evening News 1912: 2).

High Street Distribution Reservoir (1904)

In 1894, the City purchased a parcel of land located on the south side of High Street between present-day Laurent and Storey Streets for the construction of a Distribution Reservoir. The Cowell Reservoir was constructed to hold 60 million gallons, but it was carved into a porous limestone formation known as karst that caused approximately 1 million gallons of leakage daily. The Distribution Reservoir was intended to serve are a secondary reservoir for the Cowell Reservoir to preserve the water that was otherwise lost before it could be pumped into the distribution system (Santa Cruz County Assessor 1894; SCMU 2016: 1).

The site for the Distribution Reservoir overlapped Dodero Spring Creek (then called Meyrick Brook) and provided the added benefit of impounding a percentage of the water from this source while temporarily storing the water impounded from the City Water Works on Laguna and Reggiardo Creeks.

The survey and specifications for the new reservoir were completed in 1895 and the Santa Cruz Sentinel reported that the reservoir would have a capacity of 2.5 million gallons and cover three-quarters of an acre. Construction on the reservoir began in 1904 and it was completed later that year (Santa Cruz Sentinel 1895: 3, 1903: 4, 1904: 3).

Liddell Spring Diversion (1913)

Discussions about securing the title to Liddell Spring and utilizing it as a source of municipal water were gathering support in the City government beginning early in 1913. By July 1913, a pipeline between Liddell Spring and the main municipal pipeline from Laguna Creek was operational, and, at a rate of 590,000 gallons per day, was out-producing all the other existing municipal water sources (SC Evening News 1913a: 1).

Crossing Street Pump Station (1913)

In 1913, a new well was drilled on the San Lorenzo River at Crossing Street, just north of the present intersection of Highway 1 with the river. It was equipped by a 75-horsepower, 5-inch, three-step centrifugal pump that was installed by the United Iron Works. The pump was capable of pumping 500 gallons per minute and cost $1844 dollars at the time of installation (SC Evening News 1913b: 1).

Acquisition of the Santa Cruz Water Company System (1913–1916)

Fredrick Hihn passed away in 1913 and his ownership of the Santa Cruz Water Company passed to his children. The City seized the opportunity to acquire the Santa Cruz Water Company system, and in 1916 assumed full legal ownership of the entire system, which included right to water being drawn from Branciforte Creek, Carbenaro Creek, Majors Creek, and the San Lorenzo River (SCWD n.d.: 2; Monterey American 1913: 7; SC Evening News 1914: 1).

Interwar Water Development in Santa Cruz (1918–1939)

Water development during the early twentieth century interwar period in Santa Cruz was dominated by publicly funded projects. As the population increased in the eastern, mid-county areas such as Live Oak, small, private for-profit systems developed beginning in the 1930s to meet the increased demand in these neighborhoods that were otherwise unserved by the existing Santa Cruz infrastructure.

Public Development (1918–1939)

Public development during this period was predominantly focused on the repair and upgrade of existing system components. Although upgrades and additions were added to the several major facilities to increase the ability to store and improve the overall quality of municipal water during this period, with projects such as the Bay Street Reservoir in 1924 and the New Crossing Street Pumping Plant in 1929, the output was not widely increased between 1917 and 1930. Service began expanding into the areas to the east outside of the City with focused initiatives like the East Side Water Extension during this period (Brown and Dunlap 1956: 1-2).

The Bay Street Reservoir (1924)

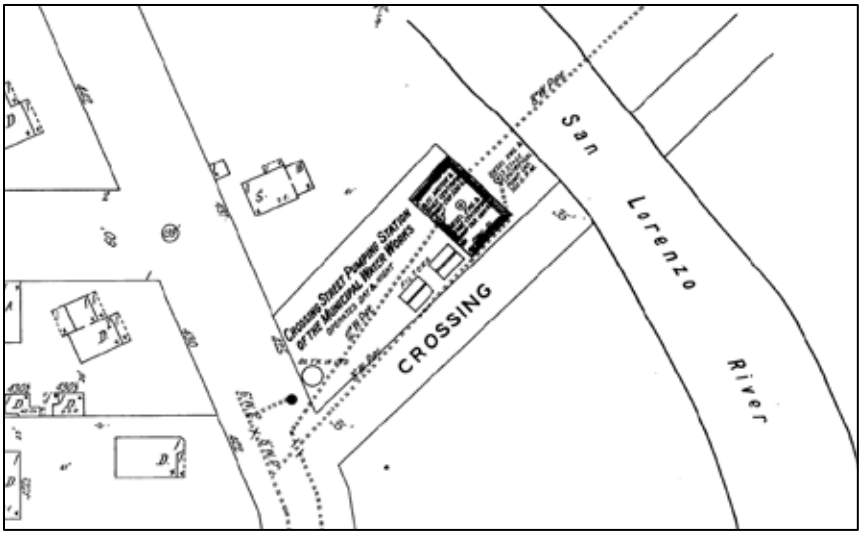
The Bay Street reservoir was completed in 1924 and was located 1 mile southeast of the Cowell Street Reservoir on a site to the east from the present intersection of Bay and Meder Streets (Exhibit 9). The 35-million-gallon capacity open-air tank was built to replace the Cowell Street reservoir. The Bay Street reservoir was constructed of stone and lined with concrete and was intended to be much more capable of reserving water accumulated from the surface stream sources for use during the dry summer and fall months (SCMU 2016: 1).

Exhibit 9. Construction of the Bay Street Reservoir in 1924 (SCPL 1924).

Crossing Street Pumping Plant (1929)

In 1929, the City completed a new, modern pumping plant on the Lorenzo River on the southern side of Crossing Street across from the 1913 Crossing Street Pumping Plant site (Exhibit 10). Once complete, the plant went by the same name as its predecessor until it eventually was known simply as the Municipal Pumping Plant. Today, it is called the Coast Pump Station.

The new facility was designed by City engineer Roy Fowler and consisted of a pumping plant capable of producing 6 million gallons of potable water in a 24-hour period from the San Lorenzo River. The plant operated with the help of "diesel engines, pumps, motors, generators, and all other necessary auxiliary equipment" (SC Evening News 1928: 8). The plant also treated the water with chlorine, making it safer to drink (SCWD n.d.: 3; Brown and Dunlap 1956: 1; SC Evening News 1928: 8, 1929: 7).



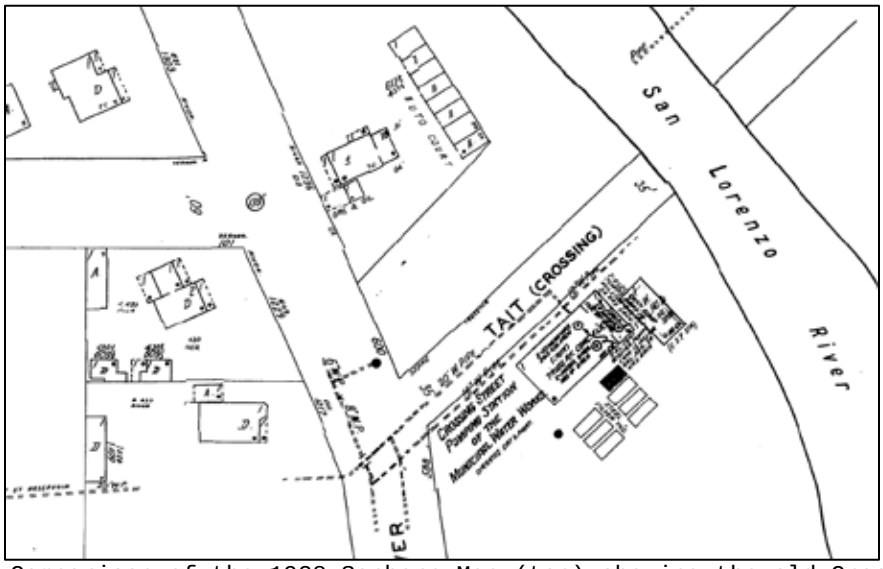


Exhibit 10. Comparison of the 1928 Sanborn Map (top) showing the old Crossing Street Pumping Plant and the 1928-1950 Sanborn Map showing the new facility completed in 1929 in approximately 1945 (Sanborn Map Company 1928: 103, 1928-1950: 103)

The low rainfall in winter 1931 prompted the City to drill four more wells at the site of the Crossing Street Pumping Plant. One of the wells was located at the site of the pumping plant on the west side of the river, while the remaining three were drilled on the east bank. This increased the output of the municipal water supply greatly, and allowed for expansion into other parts of the City. In 1934, the City boasted in the *Santa Cruz Sentinel* that 63.4 million gallons of water had earned the City a profit of $11,119 during April 1934 (Brown and Dunlap 1956: 14; SC Evening News 1931: 5, 1934b: 7).

In 1945, Crossing Street was renamed Tait Street for Water Superintendent R.S. Tait. A photograph of the Municipal Pumping Plant included in the 1956 investigative report into the Santa Cruz area water supply projects by engineers Brown and Dunlap demonstrates how the plant appeared during this period (Exhibit 11) (Santa Cruz Sentinel 1945: 8).

SANTA CRUZ MUNICIPAL PUMPING PLANT. Building houses low and high lift pumps and engine-driven generators. Pressure type filters are at right of building.

Exhibit 11. The Municipal Pumping Plant as it appeared in 1956 (Brown and Dunlap 1956: 18).

East Side City Water Extension (1934)

In 1934, work began on what was known as the East Side Water Extension, to extend the municipal water service into the Seabright and Live Oak areas of Santa Cruz via a new pipeline. Santa Cruz East Side residents C. W. Raisch, E. Brandt, George Ellison, Edith H. Evans, and Nathan Menderson donated the private property to the City needed for a right-of-way, and the pipeline extended from the municipal system to the areas of the City located on the east side of the San Lorenzo River. Additionally, two 1,000,000-gallon tanks were placed in De Laveaga Park in the north of the City as a reservoir for this branch of the system (Santa Cruz Sentinel 1933: 7, 1934c: 9).

Private Development (1936–1939)

In areas of the county that were not serviced by the municipal system, private systems such as the Beltz system were developed by residents to provide water for other residents of the area.

Beltz Water Company (1936)

In 1936, the County granted Iowa native, Charles Lemar Beltz, the rights to begin operating a private water system in the area of the County roughly bounded by Capitola Road to the north, Rodeo Gulch and Corcoran's Lagoon to the west, the bay to the south, and 41st Avenue to the east. The ambitious service area of the Beltz system covered approximately 25% of the Live Oaks district

with water sourced from ground wells located throughout the district and conveyed through pipelines situated beside Live Oak roads (Santa Cruz Sentinel 1936a: 2, 1936b: 8, 1947: 1).

Post-War Growth (1945–1984)

Many of the post-war water projects in Santa Cruz can be characterized as repair of existing infrastructure and expansion of the overall water system to support rapid population growth. The years following World War II provoked westward migration and an increase in birth rates, causing the population of California to increase from 6.95 million to 10.65 million between 1940 and 1950. In Santa Cruz, the growth of the community from 27,430 to 41,680 between 1940 and 1950 caused the common seasonal water shortages during dry months to become problematic in regards to growth and potential for community expansion (SCPL n.d.: 1).

In 1945, the state recognized a water shortage in Santa Cruz and authorized an investigation of available water resources. In 1946, the acute nature of the water crisis prompted the community to request a survey to determine an inventory of the available groundwater supply and plan for growth in the future. Completed In 1948, the survey determined that although the San Lorenzo pumping plant was running at full capacity, 24 hours per day during the dry summer of 1947, the river was so low that the entire run was being diverted through the pumps and into the City mains for consumption (SWRB 1953: 57; Brown and Dunlap 1956: 1–2).

Prompted by these concerns, in 1953, the State Water Resources Board released a report that inventoried available surface and underground water sources in the County and projected increased water utilization that exceeded the available water in Pajaro Valley, the Soquel Creek area, and the coastal area around and including Santa Cruz. The report identified requirements for supplemental water for Santa Cruz and areas served by the City of Santa Cruz Water Department (SWRB 1953: 57).

The County formed the Santa Cruz County Flood Control and Water Conservation district in 1955 and hired Creegan & D'Angelo Civil Engineers in 1956 to complete an extensive survey identifying dam sites, groundwater sources, and additional steps to improve control of the water supply throughout the County to compete with the City's proposals. The report asserted that population growth was a major concern for the water supply in the City because "the City of Santa Cruz has current water requirements which equal the capacity of the existing water supply system during a relatively dry era. Should an exceptionally dry season be experienced, there would be a serious water shortage in the City of Santa Cruz" (Creegan and D'Angelo 1957: 8).

Present supplies were determined to be insufficient for standard rates of population growth, including years that rainfall was considered more plentiful. Despite the rate of water consumption in the service area tripling between the mid-1930s and mid-1950s, there had been no additions to the municipal water supply during that time. Creegan & D'Angelo would also serve as the engineers for the Santa Cruz County Flood Control and Water Conservation District Advisory Committee, and ultimately, their recommendation to the council to remedy the current water crisis in the City was a dam on Newell Creek (Santa Cruz Sentinel 1953: 1, 1954: 1, 1958a: 4).

Public Development (1945–1984)

During the post-war era, a number of general obligation and revenue bonds helped to fund a wide range of water-related projects in Santa Cruz, including routine maintenance and transmission line replacements, but also projects such as the Newell Creek Dam and the Graham Hill Treatment Plant. The need for these projects was driven by the need for more water to support a growing, post-war population, but the use of bonds allowed for flexibility to project for future growth. In 1974, the *Santa Cruz Sentinel* surmised that "successful bond issues in 1958, 1963 and in 1967 reflected public confidence in the water administration and a recognition of the needs for more water, apparently, for there was relatively little difficulty getting approval" (Santa Cruz Sentinel 1974: 1–2).

Construction of Newell Creek Dam (1960, modified in 1985)

As a surface water storage on Newell Creek became a distinct reality following the recommendations of Creegan and D'Angelo, City Water Department Director, Weston Webber, voiced his support for the project in 1957. Ultimately, of the five proposed dams, only the Newell Creek Dam would come to fruition (Santa Cruz Sentinel 1957a: 1, 1957b: 13, 1957c: 12).

In 1958, the University of California Regents announced that they were considering the Cowell Ranch in the City of Santa Cruz as the site of a future University of California Campus. The City would be required to provide services and facilities for the prospective University community, which early figures suggested was to include around 2,500 students. In anticipation of the Water Revenue Bond Election in November 1958 to approve the bonds necessary to construct the Newell Creek Dam, a new water treatment plant, and pipelines to transport the water, the Santa Cruz Sentinel published an article outlining the impact of the proposed bonds. In reference to the speculative University in the City, the closing paragraph of the article states that "University officials know that the present water supply of Santa Cruz is inadequate, even for normal needs. Failure to correct this situation could end all chance of the selection of Santa Cruz as the University site." (Santa Cruz Sentinel 1958b: 1, 1961c: 1, 1961e: 1).

On November 5, 1958, the voters of the City of Santa Cruz approved $5.5 million in water revenue bonds necessary for the City to purchase 2,162 acres of land in the Newell Creek watershed from the San Lorenzo Valley Water District and build a dam on the site. Creegan & D'Angelo designed the earthfill dam (SCWD n.d.: 2; Santa Cruz Sentinel 1958a: 4).

Contractors Williams and Burrows Inc. of Belmont, California, began the construction of the Newell Creek Dam and preparation for the creation of Loch Lomond in 1960. The early stages of planning and execution were made more difficult by the narrow valley, allowing only one road for ingress and egress for equipment and supplies. The construction of the 195-foot-tall earthfill dam began with a "grout curtain" that pushed concrete 100 feet into the bedrock to fill any fissures or imperfections, ensuring a structurally sound base. The height and width of the dam's crest was first determined by the reinforced concrete ends. The embankment was then built up using successive layers of random fill from the immediate area, compacted with sheepsfoot tampers above and around the 300 feet of impervious material at the core of the embankment. Four construction personnel lost their lives in October 1960 during the layered construction of the embankment. A brass plaque commemorating these men was commissioned and remains today on the southwest elevation of the Control House (Santa Cruz Sentinel 1960a: 15, 1960b, 1).

The Newell Creek Dam was completed and filling steadily with water by 1961; however, the recreation area on the resulting reservoir was yet to be built. Keeping with the Scottish naming tradition started by Scotsman John Burns when he christened the mountain Ben Lomond in the 1850s, the reservoir was dedicated Loch Lomond during two days of festivities on July 27 and 28, 1963 (Santa Cruz Sentinel 1963: 1).

By 1964, the City distributed a notice to bid on the construction of the Loch Lomond Recreation Development. With the help of a $149,000 state grant, the Loch Lomond Recreation Area was completed by the spring of 1965. It included picnic areas, a concessions building, parking areas, two docks, and a boat launch. An all-weather road leading from Lompico to the Recreation Area was a crucial improvement constructed during this phase of the Project. It allowed visitors to experience the new recreation activities available at Loch Lomond, while simultaneously comprehending the realities of water storage and use in the county (Santa Cruz Sentinel 1964a: 3).

During the early 1980s, a survey completed by the Division of Safety of Dams demonstrated that the spillway at Newell Creek Dam did not meet the newest safety criteria for probable maximum flood conditions. A portion of the 1984 funds allocated for modifications and upgrades to the municipal system for were apportioned toward the upgrade of the dam's spillway wall. The upgrades were implemented in 1985, and included heightening the Newell Creek Dam spillway wall and the installation of a permanent aerator system (SCWD n.d.: 2; Santa Cruz Sentinel 1984: 3).

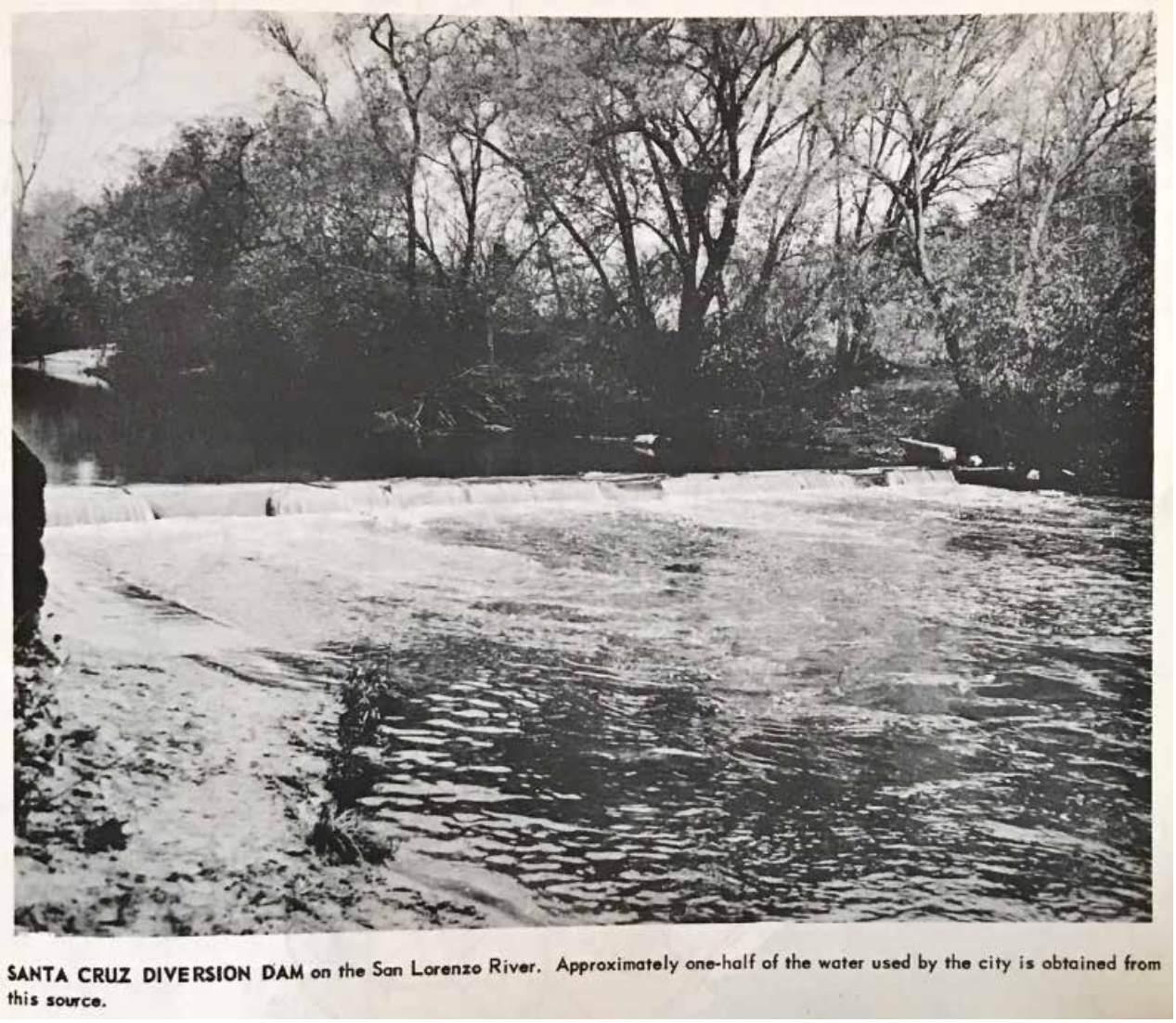
Graham Hill Water Treatment Plant (1960, Upgraded in 1987)

The Graham Hill Water Treatment Plant was a water filtration and treatment facility completed in 1961 and located beside Graham Hill Road. It was planned and completed during the same period as the Newell Creek Dam and also funded by the same water revenue bonds that helped to build the dam. The plant was designed with a capacity to treat 12-million gallons of water per day. Water derived from the coastal watersheds including Laguna Creek, Reggiardo Creek, Liddell Spring and Majors Creek is transported through a blend of gravity and pumping to the Graham Hill Water Treatment Plant to be filtered and treated before distribution as drinking water (SCWD n.d.: 3; SCMU 2016: 1; Santa Cruz Sentinel 1961d: 16).

The Graham Hill Treatment Plant was upgraded and enhanced in 1987 following a push for major upgrades throughout the municipal system beginning in 1984 (See section 1.4.1.5 Infrastructure Upgrades (1984) for more information) (SCMU 2016: 1).

Tait Street Diversion Intake (Added 1961, Reconfigured in 1983)

The Tait Street Diversion, as it called today, is presently located just up river from the Coast Pump Station. Together, the combined Tait Street Diversion and Coast Pump Station facility continues to be one of the most important sources of water for the City. Surface diversion rights for the San Lorenzo River date back to 1924 at what is now the Coast Pump Station but was first known as the Crossing Street Pumping Plant and later the Municipal Pumping Plant (see sections 1.2.2.4 and 1.3.1.2). Accounts of a functional diversion across the river near the pumping plant date back to at least 1930s. A photograph included in the 1956 investigative report into Santa Cruz area water supply projects by engineers Brown and Dunlap included a photograph of the existing diversion on the site during this period (Exhibit 12).



SANTA CRUZ DIVERSION DAM on the San Lorenzo River. Approximately one-half of the water used by the city is obtained from this source.

Exhibit 12. Existing diversion dam across the San Lorenzo River in 1956 (Brown and Dunlap 1956: 15)

By 1960 when the large-scale modernization campaign across the City was in progress, a design for a new intake structure on the existing pumping plant diversion dam was also planned. The new intake integrated the existing dam (age unknown) into the design for a new, modern intake located on the east bank of the river that was complete with a spillway fish ladder and new 20" and 24" transmission pipelines (Santa Cruz Sentinel 1934a: 7; Brown and Caldwell 1960: 1).

In 1983, the intake was again redesigned. The new design relocated the intake from the east bank of the river to the west bank while simultaneously upgrading all electrical controls and switch gear and relocating it above flood levels (SCWD n.d.: 3; Dewante and Stowell 1983: 3).

Felton Diversion Station (1976)

The Felton Diversion was installed on the San Lorenzo River north of Henry Cowell State Park and completed in 1976. James M. Montgomery of Consulting Engineers Inc. designed the diversion structure and the contractors for the project were the Dan Captuo Company. The structure is

comprised of a permanent concrete foundation spanning the river containing an inflatable rubber dam. The inflatable dam, or bladder, can be raised to maintain and impoundment for the diversion of water which is transported by pipeline to supplement storage at Loch Lomond. The inflatable dam can also be lowered to control the flow of water during a storm surge or other similar event. The structure also includes a fish-screened intake structure, a conventional sump and high-lift pump station, a fish ladder, and a controls building (JMM 1969: c-3, 1970: VII-2; Santa Cruz Sentinel 1976: 13).

Infrastructure Upgrades (1984)

In January of 1982, a powerful storm caused flooding throughout the Santa Cruz County. It was discovered that a main pipeline from Loch Lomond had burst and was leaking at an alarming rate. Although the damaged section of pipeline was relocated and repaired by the end of the year, the event renewed community attention to the potential for the aging components of the municipal system to require upfront repair and maintenance (Santa Cruz Sentinel 1982: 1, 8; Cardona and Associates 1982).

In 1984, the Santa Cruz Water Department received $11.7 million dollars through private Certificates of Participation in order to fund upgrades and modernizations to the water infrastructure system throughout the City. The upgrades were wide-spread and included the renovation and upgrade of the Graham Hill Water Treatment plant, the construction of a laboratory to monitor water quality, new storage tanks in the Rolling Wood service area, enlarging the capacity of the Beltz Water Treatment plant to 2-million gallons daily, and improvements to the Newell Creek Dam spillway (SCWD n.d.: 2; Santa Cruz Sentinel 1984: 3).

Private Systems Acquisition (1967-1969)

The City of Santa Cruz purchased several private water systems between 1967 and 1969, including the Beltz Water Company, the Rolling Woods Utilities Inc., and Pestana Water Systems. These companies and their service infrastructure were all located in areas of Santa Cruz that had been only recently come into the City's sphere of influence. The acquisition of these systems allowed the City to organize reliable water distribution services to areas such as Live Oak (SCMU 2016: 2)

Beltz Water Company Acquisition (1967)

Charles Beltz passed away in 1947 and left the operation of the Beltz Water Company to his only son, Chester Beltz. Under the supervision of his son, the company developed a both a wider, and more dense service area in response to the massive post-war population growth in the County. To accommodate the overall population growth of the County from 45,057 residents in 1940 to 120,882 residents in 1970, many of the larger agricultural properties and larger estates within the Beltz service area in Live Oak were subdivided to accommodate new, residential development. By 1955, the Beltz Water Company system included six source wells that allowed the system to accommodate incremental growth from 900 customers in 1955 to approximately 1,500 customers by 1967 (Santa Cruz Sentinel 1947: 1, 1955: 18, 1967a: 4, 1967b: 5, 1967c: 24; SCPL n.d.: 1; UCSB 2020).

The Beltz Water company entered into negotiations with the City of Santa Cruz beginning in 1965 to set a price for the purchase of the Beltz system. When the City of Santa Cruz finally purchased the Beltz Water Company System in 1967 for $245,000, the acquisition equipped the City with an additional source of groundwater from six existing wells (Exhibit 13). However, due to inadequate means to treat the high levels of iron and manganese in the Beltz well water, after the purchase, the wells were temporarily discontinued. Instead, the Beltz conveyance infrastructure was tied into the existing municipal system and customers began receiving water on July 1, 1967 (Santa Cruz Sentinel 1967a: 4, 1967b: 5, 1967c: 24).

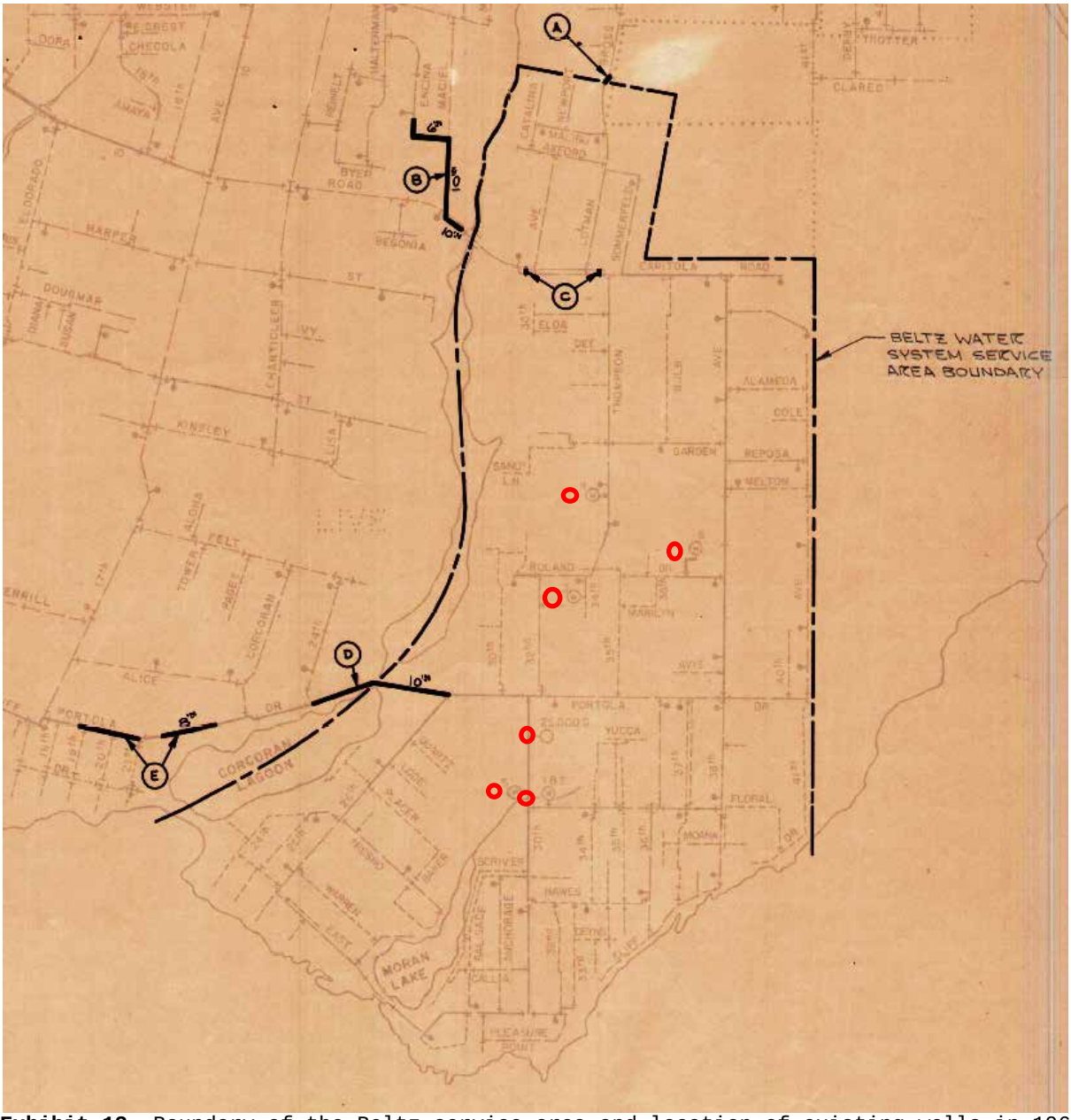


Exhibit 13. Boundary of the Beltz service area and location of existing wells in 1967 (circled in red). The letters show some of the tie-ins built by the Santa Cruz Water Department to utilize the Beltz infrastructure (SCWD 1967: D)

In 1972, an Iron and Manganese removal treatment plant was constructed at the site of well 6 located off Roland Avenue that allowed for the treatment of 1,000,000 gallons of water daily for use in the eastern section of the municipal system. In 1973, it was announced by Water Department director, Wes Webber, that the site containing well 6 would also receive a new well in anticipation of expansion of the new treatment plant when possible to increase the daily output of the Beltz system overall. This expansion of the plant took place in 1985 and was funded in part by the $11.7 million in funds allocated for major upgrades throughout the municipal system during the mid-1980s (Santa Cruz Sentinel 1973: 15; SCWD 1985: G-4).

Pestana Water Company (Founded 1961, Acquired 1969)

John Pestana founded the Pestana Water Company in 1961 to serve the modest Santa Cruz Gardens subdivision located in the hills north of Live Oak. Pestana, along with his brother, Ernie Pestana, were part owners of a sub developer from Santa Clara County responsible for the construction of the Santa Cruz Gardens subdivision in the early 1960s. In 1962, Chester Beltz, owner of the Beltz Water Company, was hired to operate the Pestana Water Company system (Santa Cruz Sentinel 1961a: 10, 1961b: 28, 1969a: 3).

The Pestana Water Company was sold to the City for $36,615 in November, 1969. The purchase of the three-well system added 243 customers to the municipal service system. The City immediately improved the pump operating the system, which was only capable of pumping 286 gallons per minute. In 1971, a pipeline was constructed to connect the Pestana system to the City main (Santa Cruz Sentinel 1969a: 3, 1969b: 4).

Rolling Woods Utilities, Inc. (Founded 1963, Acquired 1969)

Rolling Woods Utilities Inc. was formed in 1963 to serve the Rolling Woods subdivision located in the hills beside Graham Hill Road north of Pasatiempo. The City purchased the company in 1969, at which time the service area extended to 135 customers (Santa Cruz Sentinel 1969c: 13, 1969b: 4).

NRHP/CRHR Statement of Significance

NRHP Criterion A: associated with events that have made a significant contribution to the broad patterns of our history

CRHR Criterion 1: is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.

Water management infrastructure associated with water districts is a common property type throughout the County and the State of California. Components of water infrastructure systems have been considered significant under NRHP Criterion A and CRHR Criterion 1 when associated with trends and events that have made a significant contribution to the broad patterns of our history, particularly in regional agricultural or local economic development.

The Beltz system did not become a part of the Santa Cruz municipal water system until 1967; however, these structures constitute early- to mid-twentieth century additions to the system. While these types of systems may have influenced or supported the growth of communities such as Live Oak, this is far too common an association to merit a blanket conclusion of historical significance under NRHP Criterion A or CRHR Criterion 1 within the context of municipal water management systems. At some point in the past, all forms of historic-era infrastructure were associated locally or regionally with municipal growth or economic development, actual or intended. It is often exceedingly difficult to prove whether historic-era infrastructure associated with recognizable growth actually caused or merely accommodated the growth. Furthermore, although the Beltz system dates back to 1936 and was the pioneering water conveyance system in the area, historical aerial photographs suggest that the first well located on the Beltz 8 property, Beltz 6, was not developed until 1952 and 1967. This suggests that the Beltz 6 facility was not developed during the initial years of the Beltz system development in the 1930s, but rather, it was installed as an expansion to the existing system during the post-war period to meet increased demand for water within the service area as the population of the County swelled by roughly 240% between 1940 and 1970. Historical aerial photographs suggest that many of the small agricultural properties and large estates within the Beltz service area were subdivided to accommodate new, substantial residential development between 1952 and 1964, resulting in an increase from roughly 900 Beltz service connections in 1955 to 1,500 by 1967 As the Beltz system constituted the only water delivery system servicing the geographic area, the nearly 60% increase in the number of residential service connections between 1955 and 1967 suggests that the construction of Beltz 6 was directly related to an increased demand for supply and to enable continued development within the service area (Santa Cruz Sentinel 1947: 1, 1955: 18, 1967a: 4, 1967b: 5, 1967c: 24; SCPL n.d.: 1; UCSB 2020).

Therefore, the Beltz Wells 8 facility is not associated with any extraordinary event or events occurring within the context of early County development that would distinguish the structures from the vast array of water management systems dotting the California landscape. Moreover, research into the history of the Beltz 8 ASR facility revealed no evidence suggesting that the structures on site are associated with an alternative, more unique event or pattern of events considered historically significant. For these reasons, the Beltz 8 ASR facility does not appear to meet NRHP Criterion A or CRHR Criterion 1.

NRHP Criterion B: associated with the lives of significant persons in our past.

CRHR Criterion 2: is associated with the lives of persons important in our past.

To be found eligible under Criterion B/2 the property has to be directly tied to an important person and the place where that individual conducted or produced the work for which he or she is known. Archival research failed to indicate any such direct association between individuals that are known to be historic figures at the national, state, or local level and the Beltz Well 8 facility.

The Beltz Well 8 facility was subsequently modified after it was first constructed between 1952 and 1967 by several individuals and early regional water management developers in order to provide municipal water in the Santa Cruz region. As such, the facility represents the collective efforts of many individuals, rather than the work of any single individual. Therefore, the facility is not known to have any historical associations with people important to the nation's or state's past. Due to a lack of identified significant associations with important persons in history, the facility does not appear eligible under NRHP Criterion B or CRHR Criterion 2.

NRHP Criterion C: embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.

CRHR Criterion 3: embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.

The Beltz Well 8 property was established between 1952 and 1967 as the sixth well site in the Beltz Water system; however, subsequent additions to the site have resulted in the property not retaining any buildings or infrastructure from this initial period of construction under Beltz management. Major alterations to the site, including the construction of an Iron and Manganese Removal Plant in 1972 and the abandonment of Well 6, have altered the setting of the site and caused it to lose integrity of setting, feeling, and association. Subsequent alterations to the Removal Plant as a result of an expansion in 1985, including a large addition to the Control Building, have altered this phase of the site's development, causing integrity in the areas of design, materials, and workmanship to be diminished. Additionally, the design for the facility lacks sufficient engineering distinction, does not appear to be distinctive or innovative in design, and the remaining features located on the site are distinctly utilitarian in design. They are also not representative of a known style aesthetic and do not possess high artistic values.

Overall the Beltz Well 8 facility has experienced multiple alterations over time in order to accommodate modern equipment and ensure ongoing use. It is representative of a conglomeration of construction methods and lacks sufficient engineering distinction to be significant within any particular well or treatment plant facility type. Consequently, the Beltz Well 8 appears to lack significance under NRHP Criterion C or CRHR Criterion 3.

NRHP Criterion D: have yielded, or may be likely to yield, information important in history or prehistory.

CRHR Criterion 4: has yielded, or may be likely to yield, information important in prehistory or history.

There is no evidence to indicate that the subject property is likely to yield any additional information important to prehistory or history beyond what is already known. The subject property is also not associated with an archaeological site or a known subsurface cultural component. Therefore, the subject property does not appear eligible under NRHP/CRHP Criterion D/4.

County of Santa Cruz Statement of Significance

1. The resource is associated with a person of local, State or national historical significance.

As stated in Criterion B/2, archival research did not reveal an association between the Beltz Well 8 and any persons who significantly contributed to the development of the city, state, or nation. Therefore, the facility does not appear eligible under County Criterion 1.

2. The resource is associated with an historic event or thematic activity of local, State or national importance.

The Beltz Wells 8 facility is not associated with any extraordinary event or events occurring within the context of early County development that would distinguish the structures from the vast array of water management systems dotting the California landscape. Moreover, research into the history of the Beltz Wells 8 facility revealed no evidence suggesting that the structures on site are associated with an alternative, more unique event or pattern of events considered historically significant. For these reasons, the Beltz Wells 8 facility does not appear to be directly associated with events that have made a significant contribution to the development of water infrastructure in the County. Therefore, the facility does not appear eligible under County Criterion 2.

3. The resource is representative of a distinct architectural style and/or construction method of a particular historic period or way of life, or the resource represents the work of a master builder or architect or possesses high artistic values.

As discussed in Criterion C/3, the Beltz Well 8 facility has experienced multiple alterations over time in order to accommodate modern equipment and ensure ongoing use. It is representative of a conglomeration of construction methods and lacks sufficient engineering distinction to be significant within any particular well or treatment plant facility type. Therefore, the facility does not appear eligible under County Criterion 3.

4. The resource has yielded, or may likely yield, information important to history.

As discussed under Criterion D/4, there is no evidence to indicate that the subject property is likely to yield any additional information important to prehistory or history beyond what is already known. The subject property is also not associated with an archaeological site or a known subsurface cultural component. Therefore, the facility does not appear eligible under County Criterion 4.

Integrity Discussion

In addition to not meeting any of the significance Criteria, the subject Beltz 8 Well lacks historic integrity. In the case of the Beltz Well 8 facility, the structures now located on the site are still located in their historic location, retain their historic alignment, and continue to provide water for the municipal water supply. However, the facility shows evidence of evolution over time to meet rising supply demands, including the addition on the Control Building, removal of a waste water treatment tank, and the replacement of the original Beltz 6 well on the site with

a new well in 1998. As a result of this expansion, the facility has lost the integrity of setting, association, design, materials, and workmanship.

***B12. References:**

Brown and Caldwell (Brown and Caldwell Civil and Chemical Engineers). 1960. "Site Plan and Index of Drawing." City of Santa Cruz San Lorenzo River Intake Project: Sheet 1 of 9. Santa Cruz Water Department: Santa Cruz, California.

Brown, K.W. and L.B. Dunlap. 1956 Investigation of Water Supply Projects: City of Santa Cruz Water System - Santa Cruz, California. San Francisco, California: Brown and Caldwell Civil and Chemical Engineers. On file at the Santa Cruz Water Department.

Brown, Randall C. 2011. The San Lorenzo Valley Water District: a History. Boulder Creek, California: San Lorenzo Water District.

Cardona and Associates Civil Engineers Environmental Planners. 1982. "Newell Creek Pipeline Relocation Plans and Specifications" Santa Cruz, California. City of Santa Cruz Water Department.

Clark, D.T. 2008. Santa Cruz County Place Names: A Geographical Dictionary. Scotts Valley, CA: Kestrel Press.

Creegan & D'Angelo. 1957. Report on Santa Cruz County Master Plan of Water Development and Preliminary Design of the First Increment of Work for Santa Cruz County Flood Control and Water Conservation District. Creegan and D'Angelo Civil Engineers. On file at Santa Cruz Public Library.

Dames and Moore. 1998. "Site Plan." Beltz Well Installation Project: City of Santa Cruz Water Department, Santa Cruz, California.

Dewante and Stowell (Dewante and Stowell Consulting Engineers). 1983. "Intake and Pump station Site Plan." San Lorenzo River Intake Replacement: Santa Cruz Water Department, City of Santa Cruz, California.

Lehmann, Susan. 2000. "Fully Developed Context Statement for the City of Santa Cruz."

Monterey American. 1913. "F.A. Hihn is not more – Santa Cruz's 'Grand Old Man' Passes Away." The Monterey American (Monterey, CA) August 25, 1913: pg. 7. Newspapers.com. Accessed May 29, 2020.

NETR. 2020. "Historic Aerials Online." Historic Aerial Photographs of Santa Cruz, CA dating from 1952, 1968, 1982, 1993, 2005, 2009, 2010, 2012, 2014, and 2016. Accessed May 28, 2020. https://www.historicaerials.com/viewer.

NPS (U.S. Department of the Interior, National Park Service). 2002. "National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation." Accessed March 22, 2020. https://www.nps.gov/NR/publications/bulletins/pdfs/nrb15.pdf.

NPS. 2014. "National Historic Landmark Nomination Process: Glossary." Accessed March 22, 2020. https://www.nps.gov/nhl/apply/glossary.htm#NoncontributingResources.

Office of Historic Preservation. 1995. Instructions for Recording Historical Resources. Accessed March 2020. http://ohp.parks.ca.gov/pages/1054/files/manual95.pdf

Peak, A. 1977. Santa Cruz Regional Wastewater Treatment System Project, Santa Cruz County, California. On file (S-003964), Northwest Information Center, Sonoma State University.

Pisani, Donald J. 1984. From the Family Farm to Agribusiness: The Irrigation Crusade in California and the West, 1850-1931. Berkeley, California: University of California Press.

Santa Cruz County Assessor. 1894. *Plat of the City Distributing Reservoir Lot.*

Santa Cruz Daily Surf. 1888a "Another Change." The Santa Cruz Daily Surf (Santa Cruz, CA). March 3, 1888:3. Newspapers.com. Accessed March 4, 2020.

Santa Cruz Daily Surf. 1888b. "Water Once More." The Santa Cruz Daily Surf (Santa Cruz, CA). August 8, 1888:2. Newspapers.com. Accessed March 4, 2020.

Santa Cruz Sentinel. 1888. "The Thousands of readers of the SENTINEL…." The Santa Cruz Sentinel (Santa Cruz, CA). July 17, 1888: 2. Newspapers.com. Accessed March 4, 2020.

Santa Cruz Sentinel. 1903. "Notice Inviting Sealed Proposals." The Santa Cruz Sentinel (Santa Cruz, CA). November 25, 1903: 4. Newspapers.com. Accessed September 30, 2020.

Santa Cruz Sentinel. 1904. "Contractor Sargent…" The Santa Cruz Sentinel (Santa Cruz, CA). January 7, 1904: 3. Newspapers.com. Accessed September 30, 2020.

Santa Cruz Sentinel. 1933. "Rights-Of-Way for Pipe Line Are All Okeh." Santa Cruz Sentinel (Santa Cruz, California). December 13, 1933: 7. Newspapers.com. Accessed May 28, 2020.

Santa Cruz Sentinel. 1934a. "Week-End Anglers Out of Luck on the Old San Lorenzo." Santa Cruz Sentinel (Santa Cruz, California). February 20, 1934: 7. Newspapers.com. Accessed May 28, 2020.

Santa Cruz Sentinel. 1934b. "63,4000,000 Gallons of Water Pumped in April at Crossing St. Plant." Santa Cruz Sentinel (Santa Cruz, California). May 15, 1934: 7. Newspapers.com. Accessed May 25, 2020.

Santa Cruz Sentinel. 1934c. "Rushing Work on Two 1,000,000 Gellon Tanks for East Side Extension." Santa Cruz Sentinel (Santa Cruz, California). May 18, 1934: 9. Newspapers.com. Accessed May 25, 2020.

Santa Cruz Sentinel. 1936. "Beltz Granted Water Permits for Live Oak" Santa Cruz Sentinel (Santa Cruz, California). March 8, 1936: 8. Newspapers.com. Accessed May 4, 2020.

Santa Cruz Sentinel. 1942. "New Company Now Serving Aptos Water." Santa Cruz Sentinel (Santa Cruz, California). October 20, 1942: 1. Newspapers.com. Accessed June 10, 2020.

Santa Cruz Sentinel. 1943. "Soquel-Capitola Water System is Bought By Monterey Bay Company." Santa Cruz Sentinel (Santa Cruz, California). October 17, 1943: 1. Newspapers.com. Accessed June 10, 2020.

Santa Cruz Sentinel. 1945. "Propose Changes." Santa Cruz Sentinel (Santa Cruz, California). November 12, 1945: 8. Newspapers.com. Accessed May 28, 2020.

Santa Cruz Sentinel. 1947. "Charles Beltz, Water company Operator, Dies." Santa Cruz Sentinel (Santa Cruz, California). October 27, 1947: 1. Newspapers.com. Accessed May 4, 2020.

Santa Cruz Sentinel. 1952. "Monterey Bay Water Company Buys Seacliff Water Works." Santa Cruz Sentinel (Santa Cruz, California). February 17, 1952: 1. Newspapers.com. Accessed June 10, 2020.

Santa Cruz Sentinel. 1953. "Flood Control Project Moves Ahead". Santa Cruz Sentinel (Santa Cruz, California). May 28, 1953: 1. Newspapers.com. Accessed July 10, 2018.

Santa Cruz Sentinel. 1954. "Water Superintendent Recommends Study of Three Area Storage Projects". Santa Cruz Sentinel (Santa Cruz, California). February 19, 1954: 1. Newspapers.com. Accessed July 10, 2018.

Santa Cruz Sentinel. 1955. "Expansion Plan of Beltz Water Firm Approved" Santa Cruz Sentinel (Santa Cruz, California). April 7, 1955: 18. Newspapers.com. Accessed May 4, 2020.

Santa Cruz Sentinel. 1957a. "County committee to put Emphasis on New Pajaro Valley Survey." Santa Cruz Sentinel (Santa Cruz, California). February 6, 1957: 1. Newspapers.com. Accessed February 7, 2018.

Santa Cruz Sentinel. 1957b. "Map Shows Proposed County Dam Sites, Pipe Lines." Santa Cruz Sentinel (Santa Cruz, California). February 10, 1957: 13. Newspapers.com. Accessed May 29, 2018.

Santa Cruz Sentinel. 1957c. "The County's Water Problems and Solutions." Santa Cruz Sentinel (Santa Cruz, California). April 15, 1957: 12. Newspapers.com. Accessed July 10, 2018.

Santa Cruz Sentinel. 1958a. "Information on the Water Situation in Santa Cruz and Plans to Correct It." Santa Cruz Sentinel (Santa Cruz, California). November 2, 1958: 4. Newspapers.com. Accessed July 13, 2018.

Santa Cruz Sentinel. 1958b. "Water Bonds Get Overwhelming OK." Santa Cruz Sentinel (Santa Cruz, California). November 5, 1958: 1. Newspapers.com. Accessed July 10, 2018.

Santa Cruz Sentinel. 1960a. "Salvation in the Making." Santa Cruz Sentinel (Santa Cruz, California). September 4, 1960: 15. Newspapers.com. Accessed February 7, 2018.

Santa Cruz Sentinel. 1960b. "Safety Engineer Noticed Danger Spot Moments before Avalanche Killed Four." Santa Cruz Sentinel (Santa Cruz, California). October 26, 1960: 1. Newspapers.com. Accessed May 22, 2018.

Santa Cruz Sentinel. 1961a. "Pestana Public Hearing Slated." Santa Cruz Sentinel (Santa Cruz, California). January 25, 1961: 10. Newspapers.com. Accessed May 28, 2020.

Santa Cruz Sentinel. 1961b. "SC Gardens Opens Today." Santa Cruz Sentinel (Santa Cruz, California). February 26, 1961: 28. Newspapers.com. Accessed May 30, 2020.

Santa Cruz Sentinel. 1961c. "Regents Listen to Offers For UC Campus." Santa Cruz Sentinel (Santa Cruz, California). March 16, 1961: 1. Newspapers.com. Accessed July 13, 2018.

Santa Cruz Sentinel. 1961d. "Frustrating Year For SC Water Dept." Santa Cruz Sentinel (Santa Cruz, California). October 10, 1961: 16. Newspapers.com. Accessed May 28, 2020.

Santa Cruz Sentinel. 1961e. "Pros and Cons of University Community Told to Rotary Club by McCaffrey." Santa Cruz Sentinel (Santa Cruz, California). October 29, 1961: 9. Newspapers.com. Accessed July 13, 2018.

Santa Cruz Sentinel. 1961f. "City Water Revenue Up." Santa Cruz Sentinel (Santa Cruz, California). November 18, 1961: 13. Newspapers.com. Accessed May 30, 2020.

Santa Cruz Sentinel. 1963. "Wee Bit of Scotland Arrives in Ben Lomond." Santa Cruz Sentinel (Santa Cruz, California). July 21, 1963: 1. Newspapers.com. Accessed May 29, 2018.

Santa Cruz Sentinel. 1964a. "Loch Lomond's Temporary Facilities Remain in '64." Santa Cruz Sentinel (Santa Cruz, California). March 1, 1964: 3. Newspapers.com. Accessed June 5, 2018.

Santa Cruz Sentinel. 1964b. “Master Water Program.” Santa Cruz Sentinel (Santa Cruz, California). October 1, 1964: 18. Newspapers.com. Accessed June 10, 2020.

Santa Cruz Sentinel. 1967a. “Council Approves Price in Water System Deal” Santa Cruz Sentinel (Santa Cruz, California). March 29, 1967: 4. Newspapers.com. Accessed May 4, 2020.

Santa Cruz Sentinel. 1967b. “State Okays Beltz Water System Sale.” Santa Cruz Sentinel (Santa Cruz, California). June 8, 1967: 5. Newspapers.com. Accessed May 4, 2020.

Santa Cruz Sentinel. 1967c. “Beltz Water System’s New Charges Clarified.” Santa Cruz Sentinel (Santa Cruz, California). Jun 9, 1967: 24. Newspapers.com. Accessed May 4, 2020.

Santa Cruz Sentinel. 1968. “Water District Manager Plans to Retire; New Aide Sought.” Santa Cruz Sentinel (Santa Cruz, California). August 6, 1968: 3. Newspapers.com. Accessed June 10, 2020.

Santa Cruz Sentinel. 1969a. “PUC Studies Application to Allow SC To Purchase Pestana Water Firm.” Santa Cruz Sentinel (Santa Cruz, California). September 19, 1969: 3. Newspapers.com. Accessed May 26, 2020.

Santa Cruz Sentinel. 1969b. “PUC Approves Sale of Pestana Water System; SC Takes Over On Nov. 4.” Santa Cruz Sentinel (Santa Cruz, California). October 28, 1969: 4. Newspapers.com. Accessed May 28, 2020.

Santa Cruz Sentinel. 1969c. “City Water Revenue Up.” Santa Cruz Sentinel (Santa Cruz, California). November 18, 1969: 13. Newspapers.com. Accessed May 26, 2020.

Santa Cruz Sentinel. 1973. “Water Systems Meet Demands.” Santa Cruz Sentinel (Santa Cruz, California). January 11, 1973: 15. Newspapers.com. Accessed May 29, 2020.

Santa Cruz Sentinel. 1974. “City’s Water Chief To Retire.” Santa Cruz Sentinel (Santa Cruz, California). April 4, 1974: 1. Newspapers.com. Accessed May 26, 2020.

Santa Cruz Sentinel. 1976. “SL River Rubber Dam Operating.” Santa Cruz Sentinel (Santa Cruz, California). February 10, 1976: 13. Newspapers.com. Accessed June 3, 2020.

Santa Cruz Sentinel. 1982. “Newell Creek Dam Spillway Safety Changes Approved.” Santa Cruz Sentinel (Santa Cruz, California). January 7, 1982: 1, 8. Newspapers.com. Accessed May 29, 2018.

Santa Cruz Sentinel. 1984. “Water Crisis Here Continues.” Santa Cruz Sentinel (Santa Cruz, California). March 18, 1984: 3. Newspapers.com. Accessed May 22, 2018.

Santa Cruz Surf. 1889a. “From Laguna to Santa Cruz.” The Santa Cruz Surf (Santa Cruz, CA). July 15, 1889:3. Newspapers.com. Accessed March 4, 2020.

Santa Cruz Surf. 1889b. “The Estimate.” The Santa Cruz Surf (Santa Cruz, CA). August 5, 1889: 3. Newspapers.com. Accessed March 4, 2020.

Santa Cruz Surf. 1889c. “Water Works.” The Santa Cruz Surf (Santa Cruz, CA). November 26, 1889: 3. Newspapers.com. Accessed March 4, 2020.

Santa Cruz Surf. 1890a. “The City Water Works.” The Santa Cruz Surf (Santa Cruz, CA). April 19, 1890: 1. Newspapers.com. Accessed March 10, 2020.

Santa Cruz Surf. 1890b. “Water! Water!” The Santa Cruz Surf (Santa Cruz, CA). September 30, 1890: 3. Newspapers.com. Accessed January 15, 2020.

Santa Cruz Surf. 1890c. "The Last Pipe." The Santa Cruz Surf (Santa Cruz, CA). October 18, 1890: 3. Newspapers.com. Accessed January 15, 2020.

Santa Cruz Surf. 1892. "Seven Years. The History of the Water Movement in Santa Cruz." The Santa Cruz Surf (Santa Cruz, CA). March 12, 1892: 2. Newspapers.com. Accessed March 3, 2020.

Santa Cruz Weekly Sentinel. 1864. "Santa Cruz Water-works!" The Santa Cruz Weekly Sentinel (Santa Cruz, CA). October 15, 1864: 2. Newspapers.com. Accessed March 4, 2020.

Santa Cruz Weekly Sentinel. 1877a. "Santa Cruz Water Works." The Santa Cruz Weekly Sentinel (Santa Cruz, CA). January 6, 1877: 1. Newspapers.com. Accessed March 16, 2020.

Santa Cruz Weekly Sentinel. 1877b. "Santa Cruz and Its Water Supply." The Santa Cruz Weekly Sentinel (Santa Cruz, CA). October 27, 1877: 2. Newspapers.com. Accessed March 16, 2020.

Santa Cruz Weekly Sentinel. 1882. "The Santa Cruz Water Co." The Santa Cruz Weekly Sentinel (Santa Cruz, CA). Jun 10, 1882: 3. Newspapers.com. Accessed March 17, 2020.

SC Evening News. 1912. "Will Restrain R. Reggiardo." The Santa Cruz Evening News (Santa Cruz, California). April 2, 1912: 2. Newspapers.com. Accessed May 28, 2020.

SC Evening News. 1913a. "Liddell Spring And Proposed Pumping Of River Water Discussed." The Santa Cruz Evening News (Santa Cruz, California). March 18, 1913: 1. Newspapers.com. Accessed May 28, 2020.

SC Evening News. 1913b. "Order For Crossing St. Pump Placed." The Santa Cruz Evening News (Santa Cruz, California). May 8, 1913: 1. Newspapers.com. Accessed May 28, 2020.

SC Evening News. 1914. "First Step Leading to Placing Valuation on Hihn System Taken Today." The Santa Cruz Evening News (Santa Cruz, California). October 14, 1914: 1. Newspapers.com. Accessed May 25, 2020.

SC Evening News. 1928. "Crossing Plant Plans Passed by the City." The Santa Cruz Evening News (Santa Cruz, California). April 30, 1928: 8. Newspapers.com. Accessed May 28, 2020.

SC Evening News. 1929. "Postpone Pump Plant Ceremony." The Santa Cruz Evening News (Santa Cruz, California). February 20, 1929: 7. Newspapers.com. Accessed May 28, 2020.

SC Evening News. 1931. "City Well Water Is Given Approval By State Official." The Santa Cruz Evening News (Santa Cruz, California). September 3, 1931: 5. Newspapers.com. Accessed May 27, 2020.

SC Evening News. 1936. "Water System Permits Asked for Live Oak." The Santa Cruz Evening News (Santa Cruz, California). Feb 25, 1936: 2. Newspapers.com. Accessed May 4, 2020.

SCMU (Santa Cruz Municipal Utilities). 2016. "A History of Our Water Service Infrastructure." No. 61: Spring 2016.

SCPL (Santa Cruz Public Library). No Date. "Population Statistics for Santa Cruz County and Cities, 1850-2010." Accessed May 28 2020. https://history.santacruzpl.org/omeka/files/original/e5b77c64f95c4c19e0609c475869f5e6.pdf

SCPL. 1924. "Construction of the Bay Street Reservoir." *SCPL Local History*. Accessed August 18 2020. https://history.santacruzpl.org/omeka/items/show/10704.

SCWD (Santa Cruz City Water Department). No Date. "History of the Santa Cruz City Water Department." Santa Cruz Public Libraries Local History Collection. Accessed March 3, 2020. https://history.santacruzpl.org/omeka/items/show/134438#?c=0&m=0&s=0&cv=0.

SCWD. 1967. "Exhibit D." Integration Plans for the Connection of Beltz System to City of Santa Cruz System. City of Santa Cruz, CA.

SCWD. 1979. "Sheet 2 of 2." Garage Addition - Coast Pump Station. Water Department: City of Santa Cruz, CA.

SCWD. 1985. "Exhibit D." Integration Plans for the Connection of Beltz System to City of Santa Cruz System. City of Santa Cruz, CA.

State of California. 2020. "County Water District Law". California Water Code, Division XII (Section 30000 et seq.) Accessed May 30, 2020. https://codes.findlaw.com/ca/water-code/

SWRB (State Water Resources Board). 1953. *Bulletin No. 5: Santa Cruz-Monterey Counties Investigation*. State Water Resources Board: Sacramento, California.

UCSB (University of California, Santa Barbra). 2020. Historic Aerial Photographs of Santa Cruz, CA dating from 1931, 1940, 1948, and 1964. Map & Imagery Laboratory (MIL) UCSB Library, Electronic Resource, http://mil.library.ucsb.edu/ap_indexes/FrameFinder. Accessed May 25, 2020.

US Census Bureau (United States Census Bureau). 2019. "Quick Facts: Santa Cruz County, California – Population estimates, July 1, 2019, (V2019)." Website. Accessed June 3, 2020. https://www.census.gov/quickfacts/fact/table/santacruzcountycalifornia#

State of California C The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code 6Z

Other Listings
Review Code Reviewer Date

Page 1 **of** 31 ***Resource Name or #:** (Assigned by recorder) Tait Diversion & Coast Pump Station Site

P1. Other Identifier:

*P2. **Location:** **Not for Publication** n **Unrestricted**

***a. County** Santa Cruz **and** (P2c, P2e, and P2b or P2d. Attach a Location Map as necessary.)

***b. USGS 7.5' Quad** Santa Cruz **Date** 1981 **T** 11S ; **R** 002W ; **Sec** 12 ; Mount Diablo **B.M.**

c. Address 1214 River Street City Santa Cruz Zip 95060

d. UTM: (Give more than one for large and/or linear resources) Zone 10S, 586205.45 mE/ 4094260.16 mN

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, decimal degrees, etc., as appropriate)

A chain-link fence fitted with barbed wire and privacy slats along River Street secures the perimeter of the property and features a recessed gated entry to the paved access road. Assessor Parcel Number: 008-032-01.

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)

The Tait Diversion and Coast Pump Station is a combined facility located on municipal property within the City. The property demonstrates a layered development history.

***See Continuation Sheet**

***P3b. Resource Attributes:** (List attributes and codes) HP9. Public Utility Building; HP21. Dam

***P4.Resources Present:** n Building n Structure Object Site District Element of District Other (Isolates, etc.)

P5b. Description of Photo: (view, date, accession #) Entrance gate off of River Street, looking north (Google 2020)

P5a. Photograph or Drawing (Photograph required for buildings, structures, and objects.)

***P6. Date Constructed/Age and Source:** n Historic Prehistoric Both
1. Tait Diversion, c.1934 (Santa Cruz Sentinel 1934)
2. Coast Pump Station, 1929 (SC Evening News 1929)
3. Meter Shop, c.1964-1968 (NETR 2020)

***P7. Owner and Address:**
City of Santa Cruz
809 Center Street
Santa Cruz, CA 95060

***P8. Recorded by:** (Name, affiliation, and address) Fallin Steffen, MPS
Dudek
725 Front Street, Suite 400
Santa Cruz, CA 95060

***P9. Date Recorded:** May 6, 2020

***P10. Survey Type:** (Describe) Intensive Pedestrian

***P11. Report Citation**: (Cite survey report and other sources, or enter "none.") Dudek. 2020. *Cultural Resources Inventory and Evaluation Report for the Santa Cruz Water Rights Project.*

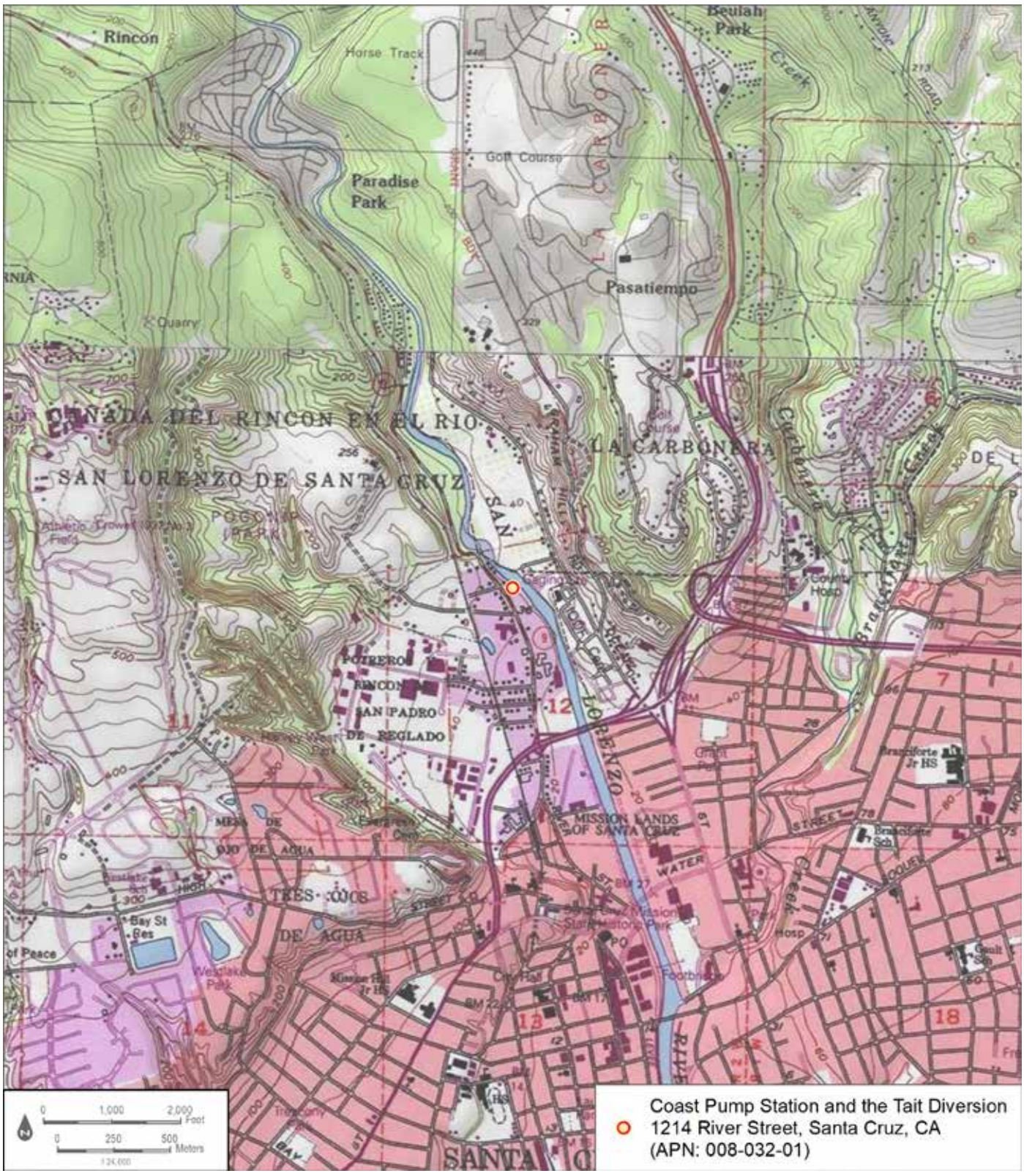
***Attachments:** NONE nLocation Map nContinuation Sheet nBuilding, Structure, and Object Record
Archaeological Record District Record Linear Feature Record Milling Station Record Rock Art Record
Artifact Record Photograph Record Other (List):

State of California C Natural Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary #
HRI#
Trinomial

 ***Resource Name or #** (Assigned by recorder) Tait Diversion & Coast Pump Station Site
***Map Name:** Santa Cruz Quadrangle ***Scale:** 1: 24,000 ***Date of map:** 1981



State of California C The Resources Agency Primary #
DEPARTMENT OF PARKS AND RECREATION HRI#

BUILDING, STRUCTURE, AND OBJECT RECORD

***Resource Name or #** (Assigned by recorder) Tait Diversion & Coast Pump Station Site
Page 3 **of** 31 ***NRHP Status Code** 6Z

B1. Historic Name: Crossing Street Pumping Plant
B2. Common Name: Tait Diversion & Coast Pump Station Site
B3. Original Use: Pumping Plant B4. Present Use: Pumping Plant
***B5. Architectural Style:**
***B6. Construction History:** (Construction date, alterations, and date of alterations)
The Tait Diversion and Coast Pump Station combined facility contains three associated built environment structures: the Coast Pump Station (1928), the Meter Shop (c.1964–1968), and Tait Diversion (c.1934).
***See Continuation Sheet**

***B7. Moved?** n No Yes Unknown **Date:** **Original Location:**
***B8. Related Features:**

B9a. Architect: Tait Diversion: Unknown; Coast Pump Station: Ray Fowler, City Engineer
b. Builder: Unknown
***B10. Significance: Theme** **Area**

Period of Significance **Property Type** **Applicable Criteria** N/A
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

The Tait Diversion and Coast Pump Station do not appear eligible for listing in the NRHP, the CRHR, or on the City of Santa Cruz Historic Building Survey due to a lack of historical associations, architectural merit, and compromised integrity. As such, these properties do not appear to be historic properties under Section 106 of the NHPA or historical resources under CEQA.
***See Continuation Sheet**

B11. Additional Resource Attributes: (List attributes and codes)
***B12. References:**
***See Continuation Sheet**

B13. Remarks:

***B14. Evaluator:** Fallin Steffen, MPS, for Dudek
***Date of Evaluation:** June 5, 2020

(This space reserved for official comments.)

***P3a. Description:**

Coast Pump Station (1929)
The Coast Pump Station is a rectangular, industrial-style building that features ribbed metal siding and a side-gable roof clad in corrugated metal (Exhibit 1). A square, shed-roof garage addition extends from the southwest elevation of the building and also features ribbed metal cladding and a corrugated roof.

Exhibit 1. The Coast Pump Station, southeast (main) elevation view looking northwest (IMG_0185). The southeast (main) elevation features a narrow metal rollup door and a simple entry door with a single square window; the garage addition also features a wide rollup door on this elevation. Large pipes emerge from the ground on the northeast elevation and are sheltered by a shed roof extending from this elevation. The side and rear of the building do not have any additional doors and windows (Exhibit 2).

Exhibit 2. Rear of Coast Pump Station showing view looking northeast (IMG_0162).
Meter Shop (c.1964-1968)
The Meter Shop building is a rectangular, industrial-style building that features 'Stran-steel' brand ribbed metal siding and a front-gable roof clad in corrugated metal (Exhibit 3). The foundation

of the building is constructed from concrete masonry units. The southeast (main) elevation features a small loading dock, a narrow metal rollup door and a simple solid entry door. The entry door is accessed via a set of six side-facing steps fitted with a metal pipe railing. The northeast elevation features a single aluminum sliding window (Exhibit 4).

Exhibit 3. Meter Shop, southeast (main) elevation, view looking north (IMG_0181).

Exhibit 4. Meter Shop, northeast elevation, view looking west (IMG_0184)

Tait Diversion (c.1934, new intake added 1983)
The Tait Diversion is presently comprised of a weir across the San Lorenzo River formed from irregularly–shaped concrete sections arranged in a line that disappears into the thick vegetation on the opposite bank of the river (Exhibit 5 and 6). On the west bank of the river, a sizable

concrete intake installed in 1983 features a heavy metal grate over both the inflow and the outflow, and the top of the structure is covered by metal decking.

Exhibit 5. Tait Diversion, overview showing the 1983 intake in the foreground and the remaining section of the original concrete diversion dam stretching across the San Lorenzo, view looking north (IMG_0175).

Exhibit 6. Tait Diversion, remaining section of the original concrete diversion dam, view looking north (IMG_0165).

***B6. Construction History:**
The following alterations were identified during a review of the photographs taken during the pedestrian survey and during the course of archival research. Unless indicated, the dates of these alterations is unknown.

Coast Pump Station (1929)

20-foot by 30-foot garage addition, 1979 (SCWD 1979: 2)
Surge arrestor tank added behind rear of building (SCWD 1980: 1)
Filter tanks removed and site paved, between 1968 and 1979 (NETR 2020; SCWD 1979: 2)
Building clad in metal siding
Roof covered in corrugated metal sheets
Various mechanical, pump, and pipeline upgrades

Meter Shop (c.1964-1968)

Installation of new lights and security cameras on exterior of building

Tait Diversion (c.1934)

New intake structure on east bank, 1960 (Brown and Caldwell 1960)
New intake structure on west bank and notch existing dam, 1983 (Dewante and Stowell 1983: 3)

***B10. Significance:**

Early Development of Water Management in Santa Cruz County

The following context discusses the development of the SCWD, which provides municipal water to residents of the City and surrounding areas within the County. The SCWD water system serves approximately 23,700 residential, commercial, industrial, municipal, and irrigation accounts within approximately 30 square miles, encompassing the entire City and select contiguous County areas (EKI 2011: 9).

Several miles north of the evolving city center at the base of the Santa Cruz Mountains, multiple mountain streams and tributaries carve deep channels and valleys through the dense redwood and oak timberlands. The extensive virgin forests and the rich underground deposits of lime in the Santa Cruz Mountains attracted opportunistic settlers and purveyors in the mid- to late-1800s who sought to harness the power of the mountain streams to move the goods located in the remote area to market (Hoover et al. 2002: 456).

The California Gold Rush of 1848 accelerated the desirability of land across the state, and before long, access to water in the drought-prone region took on the highest level of importance. Instead of adopting an equal water access structure in the fashion of the eastern United States, the wealth potential of waterways during the Gold Rush shaped California water law into a “first in time, first in right” system known as Prior Appropriation. Under this system, riparian rights were granted to the first person to use a river or tributary for beneficial consumption like mining, farming, milling, or as-needed domestic use. When land in the Santa Cruz Mountains was subdivided and sold, access to the rivers and streams was enormously important. Not only did it mean that the initial use set out for a waterway was the primary use, it also meant that any subsequent uses could not supersede or negatively affect the chief use. The order that claims were recognized during this period established the foundation of the complicated system of water allocation rights still in use today in the County (Pisani 1984: 246–247).

Many of these powerful mountain streams and tributaries were utilized by early landowners and tenant entrepreneurs to make a profit from the natural resources that formed the early economic basis of the County. Several of these mountain creeks still bear the names of the first men who established mills or permanently settled beside them. Majors Creek was named for Joseph L. Majors who established a grist mill on the creek prior to serving as the County Treasurer between 1850 and 1853. Liddell Creek was named for George Liddell who moved to the Santa Cruz Mountains and established a sawmill on the creek in 1851. Newell Creek was named for Addison Newell who

established a farm in the steep, v-shaped valley on the banks of the creek in 1867 (Koch 1973: 33–34; Clark 2008: 174, 187, 215).

For others, the streams presented pure economic opportunity. The first power sawmill in California was built on Rancho Zayante by Isaac Graham in the 1842 and was driven by the waters of Zayante Creek. Isaac E. Davis and Albion P. Jordan of the Davis and Jordan Lime Company purchased a portion of Rancho Cañada del Rincon in 1853 as a promising quarry site. They also utilized the falling water on the property to process local lumber into fuel for their many kilns. The California Powder Works was established in 1865 on the bank of the San Lorenzo River on a portion of Rancho Carbonera. The Powder Works used the river to grind raw materials used in the production of the first smokeless powder manufactured on the west coast of the United States. By 1868, there were a sizable number of business and industries that relied on water from County waterways to operate, including 12 water-powered lumber mills, 10 steam-powered lumber mills, and 9 shingle mills in operation within the County (Clark 2008: 130–131; Hoover et al. 2005: 456; Koch 1973: 36–37; Brown 2011: 4).

As water management techniques were being applied to a variety of industry in the County, the successful technologies developed and used in early natural resource harvesting such as flumes and pumps prompted local residents in Santa Cruz to consider why these were not being put to use for the benefit of drinking water. Furthermore, the up-stream uses of many of these industries that had developed along streams in the Santa Cruz Mountains had resulted in a less than desirable water quality downstream.

Early Water Development in Santa Cruz City (1864–1917)

Private Development (1864–1916)

Beginning in the 1860s, acute cyclical water shortages and pollution prompted the development of several for-profit water systems in Santa Cruz. By the end of the 1880s, the two surviving major water companies, F.A. Hihn Water Works and the Santa Cruz Water Company, were joined into a single private business that competed with the new municipal water system that began in 1890 for almost three decades before being purchased by the City and integrated into the municipal system in 1916.

F.A. Hihn Water Works (1864)

In 1864, prompted by the issue of shortage, young entrepreneurs Elihu Anthony and Fredrick A. Hihn implored the Board of County Supervisors to allow them to dig trenches and lay redwood pipes to transport water throughout Santa Cruz. The “wooden tubes” were chosen as an inexpensive alternative to iron pipes (Santa Cruz Weekly Sentinel 1864a: 2). The source of the water was an 8,000-gallon reservoir on Anthony’s property supplied by water from Scott’s Creek, and eager recipients of the water could gain access for a fee. (Brown 2011: 1–2; Santa Cruz Weekly Sentinel 1864: 2).

By 1876, the 1864 system was known as the F.A. Hihn Water Works, and it was the largest provider of water in the newly chartered City, with Dodero and Carbonero Creeks constituting its primary sources. The company predated the incorporation of Santa Cruz by 2 years (Koch 1973: 35; Brown and Dunlap 1956: 14; City of Santa Cruz 2020).

The Santa Cruz Water Company (1866)

In 1866 a new, fee-based, private water supply company was founded to share in the lucrative profits of the F.A. Hihn Water Works. A man named E. Morgan acquired rights to the waters of the San Lorenzo River in 1866, just prior to the town of Santa Cruz being officially incorporated later that year. He used these rights to install a section of pipework conveying water to the area known then as the “The Flats,” which comprises the modern area of Pacific Avenue and Front Street (SCWD n.d.: 1).

In 1876, Morgan sold his system to a wealthy man from San Francisco named H.K. Lowe. Under Lowe’s guidance, the Santa Cruz Water Company incorporated in July 1876 and began construction on a pumping station on the San Lorenzo River approximately 1 mile upstream from the City, as well as

a new reservoir located on High Street. Morgan retained 50 company shares and became the resident engineer and superintendent of the Santa Cruz Water Company. By the end of 1876, the company had also installed a Branciforte Creek diversion to deliver water via a pipeline to a new reservoir located at the base of School Street. As the City continued to grow and the steam-powered pumping plant installed on the San Lorenzo River became the source of repeated water-quality concerns, the Santa Cruz Water company acquired partial water appropriation rights to the Majors (then called Cojo Creek) in 1881. After the acquisition, the company scrapped the whole San Lorenzo pumping plant for $800 (Santa Cruz Weekly Sentinel 1877a: 1; 1877b: 2; SCWD n.d.: 1).

For the next several years, the Santa Cruz Water Company focused its attention on the construction of a pipeline to divert water from Majors Creek. This effort was very costly and the company slipped into dire financial condition. In August 1886, the company along with all of its appurtenances was sold to the City, financed through the sale of bonds from the Bank of Santa Cruz and the Anglo-Californian Bank. Hihn bitterly opposed the issuance of the bonds and contested their legality in court. The matter reached the Supreme Court and the election in favor of the bonds was declared invalid in 1887. By this time however, the City had already operated the water system for over a year when it was re-conveyed to private owners in 1887 (Santa Cruz Weekly Sentinel 1882: 3; SCWD n.d.: 1; Santa Cruz Surf 1890a: 1).

The City voted again in March 1888 to put up the bonds necessary to purchase the Santa Cruz Water Company system from the private owners. However, while the City was in the process of securing the bonds for the purchase, the Santa Cruz Water Company system was covertly sold to F.A. Hihn in a private, backroom transaction before the City could obtain legal ownership. Hihn quickly consolidated the Santa Cruz Water Company system with his own system of works. This transaction effectively severed any opportunity the City had of acquiring an established water works system with which to launch their own public water system (Santa Cruz Daily Surf 1888a: 3, 1888b: 2; Santa Cruz Surf 1890a: 1).

F.A. Hihn continued to operate the consolidated system as the Santa Cruz Water Company and expanded the service area east into the Seabright neighborhood until his death in 1913 (SCWD n.d.: 1).

Public Development (1890–1917)

During the 1880s, the rising price of these fee-based water systems like the F.A. Hihn Water Works and the Santa Cruz Water Company prompted the City to explore their own, city-owned, public water option. After several disappointing attempts to acquire an existing system of water works, the City revised its approach and began planning to build a diversion system and storage reservoir from the ground up, prompting the development of the first municipal water project in Santa Cruz, the Laguna Creek Dam and the Cowell Reservoir. This project led the way for other ambitious water system development in the City including several other north coast stream diversions and the first pumping plant on the San Lorenzo River. In 1916, the City acquired the rights to the Santa Cruz Water Company and began to tie in the systems as one, forming the basis of the modern SCWD system used today.

The Laguna Creek Dam and the Cowell Reservoir (1890)

In July 1888, the Common Council secured the water rights to the Laguna Creek. “The Laguna,” the *Santa Cruz Sentinel* reported, “is a rushing, roaring mountain stream, entirely rock bound and tree shaded above the falls where it is proposed to take the water out (Santa Cruz Sentinel 1888: 2).” The stream was capable of supplying 1.4 million gallons towards a City-owned water works. Plans were finally in motion for the construction of the first city-owned water works, supplied through a new pipeline by the waters of Laguna Creek, with reserve storage in a new City reservoir on Henry Cowell’s ranch property known as the Cowell Street Reservoir, which was located roughly at the present site of the U.C. Santa Cruz Arboretum. The *Santa Cruz Surf* reported with excitement that the new project would mean open, municipal water so that each citizen of Santa Cruz could finally “quench his thirst with free water without ‘dropping a nickel in the slot’” (Santa Cruz Surf 1890a: 1).

The bonds required to fund the construction of the City water works were secured within the following year, and in July 1889, a civil engineer named G.S. Schussler issues a report in favor of the project that valued the proposed undertaking at $260K (Santa Cruz Surf 1889a: 3, 1889b: 3).

The prominent San Francisco firm Risdon Iron Works was selected as the contractor, who were known for producing the great iron pipes for steam ships. The *Santa Cruz Surf* reported that work on the dam on Laguna Creek and the dam at the reservoir site would be completed by the San Francisco contracting firm Kelso and Dare (Santa Cruz Surf 1889c: 3).

On September 30, 1890, the *Santa Cruz Surf* reported that the reservoir and the pipeline of the City water works were nearly complete. The article published an in-depth description of the new Laguna Creek Dam (Exhibit 7), stating that (Santa Cruz Surf 1890b: 3):

> The dam across Laguna Creek just above the Henneuse place is one of the finest pieces of rubble stone work in the county and not to be excelled anywhere. The granite rocks used in its construction were taken from the bed of the creek, some of them weighing as much as two tons. The water will first be diverted from the Laguna at this point into a flume 3x4 feet and one hundred feet in length, also built of solid masonry. This is nearly level and terminates in a basin two feet lower, and into which the sand and sediment which may be carried in the water in a time of storm will settle. Gates are provided by means of which this basin can be cleared as often as required. From here the water will enter the 14-inch main through which it will be carried to the storage reservoir. This pipe follows the canyon of the Laguna creek as nearly as possible to the county road a distance of about three miles.

THE RETAINING DAM ON LAGUNA CREEK.

Exhibit 7. The earliest known photograph of the Laguna Creek Masonry Dam published in the Santa Cruz Surf in 1892 (Santa Cruz Surf 1892: 2).

On October 18, 1890, the last pipe connecting the Laguna Creek to the new Cowell Street Reservoir was put into position (Exhibit 8). The pipeline emptied into the reservoir for storage and eventual distribution to the homes and businesses of Santa Cruz (Santa Cruz Surf 1890c: 3).

THE STORAGE RESERVOIR (60,000,000 GALLONS).

Exhibit 8. The earliest known photograph of the Cowell Street Reservoir published in the *Santa Cruz Surf* in 1892 (Santa Cruz Surf 1892: 2).

Reggiardo Creek Diversion (Flume 1891, Dam 1912)

A 965-foot-long flume was completed in 1891 connecting the west branch of Laguna Creek, colloquially known as Reggiardo Creek, to the main Laguna Creek by emptying out water to the north of the Laguna Creek Dam. The new flume was intended to help supplement the municipal supply from Laguna Creek, as the year-old Laguna Creek Dam was quickly inundated with sediment and less water than expected was being captured by the system overall (Santa Cruz Surf 1892: 2).

In 1912, R.S. Tait, the water superintendent, announced that a dam had been completed on Reggiardo Creek in order to aid in the supply of daily drinking water sourced from Laguna Creek. The level of Laguna Creek had been significantly reduced by a lack of rainfall in the watershed area, causing the supply of water in the impoundment to drop below sufficient levels to support the community (SC Evening News 1912: 2).

High Street Distribution Reservoir (1904)

In 1894, the City purchased a parcel of land located on the south side of High Street between present-day Laurent and Storey Streets for the construction of a Distribution Reservoir. The Cowell Reservoir was constructed to hold 60 million gallons, but it was carved into a porous limestone formation known as karst that caused approximately 1 million gallons of leakage daily. The Distribution Reservoir was intended to serve are a secondary reservoir for the Cowell Reservoir to preserve the water that was otherwise lost before it could be pumped into the distribution system (Santa Cruz County Assessor 1894; SCMU 2016: 1).

The site for the Distribution Reservoir overlapped Dodero Spring Creek (then called Meyrick Brook) and provided the added benefit of impounding a percentage of the water from this source while temporarily storing the water impounded from the City Water Works on Laguna and Reggiardo Creeks.

The survey and specifications for the new reservoir were completed in 1895 and the Santa Cruz Sentinel reported that the reservoir would have a capacity of 2.5 million gallons and cover three-quarters of an acre. Construction on the reservoir began in 1904 and it was completed later that year (Santa Cruz Sentinel 1895: 3, 1903: 4, 1904: 3).

Liddell Spring Diversion (1913)

Discussions about securing the title to Liddell Spring and utilizing it as a source of municipal water were gathering support in the City government beginning early in 1913. By July 1913, a pipeline between Liddell Spring and the main municipal pipeline from Laguna Creek was operational, and, at a rate of 590,000 gallons per day, was out-producing all the other existing municipal water sources (SC Evening News 1913a: 1).

Crossing Street Pump Station (1913)

In 1913, a new well was drilled on the San Lorenzo River at Crossing Street, just north of the present intersection of Highway 1 with the river. It was equipped by a 75-horsepower, 5-inch, three-step centrifugal pump that was installed by the United Iron Works. The pump was capable of pumping 500 gallons per minute and cost $1844 dollars at the time of installation (SC Evening News 1913b: 1).

Acquisition of the Santa Cruz Water Company System (1913–1916)

Fredrick Hihn passed away in 1913 and his ownership of the Santa Cruz Water Company passed to his children. The City seized the opportunity to acquire the Santa Cruz Water Company system, and in 1916 assumed full legal ownership of the entire system, which included right to water being drawn from Branciforte Creek, Carbenaro Creek, Majors Creek, and the San Lorenzo River (SCWD n.d.: 2; Monterey American 1913: 7; SC Evening News 1914: 1).

Interwar Water Development in Santa Cruz (1918–1939)

Water development during the early twentieth century interwar period in Santa Cruz was dominated by publicly funded projects. As the population increased in the eastern, mid-county areas such as Live Oak, small, private for-profit systems developed beginning in the 1930s to meet the increased demand in these neighborhoods that were otherwise unserved by the existing Santa Cruz infrastructure.

Public Development (1918–1939)

Public development during this period was predominantly focused on the repair and upgrade of existing system components. Although upgrades and additions were added to the several major facilities to increase the ability to store and improve the overall quality of municipal water during this period, with projects such as the Bay Street Reservoir in 1924 and the New Crossing Street Pumping Plant in 1929, the output was not widely increased between 1917 and 1930. Service began expanding into the areas to the east outside of the City with focused initiatives like the East Side Water Extension during this period (Brown and Dunlap 1956: 1-2).

The Bay Street Reservoir (1924)

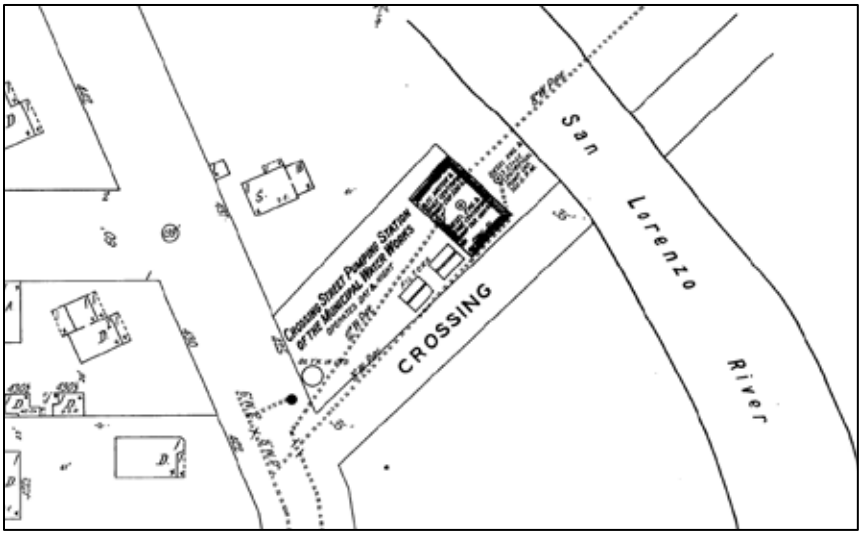
The Bay Street reservoir was completed in 1924 and was located 1 mile southeast of the Cowell Street Reservoir on a site to the east from the present intersection of Bay and Meder Streets (Exhibit 9). The 35-million-gallon capacity open-air tank was built to replace the Cowell Street reservoir. The Bay Street reservoir was constructed of stone and lined with concrete and was intended to be much more capable of reserving water accumulated from the surface stream sources for use during the dry summer and fall months (SCMU 2016: 1).

Exhibit 9. Construction of the Bay Street Reservoir in 1924 (SCPL 1924).

Crossing Street Pumping Plant (1929)

In 1929, the City completed a new, modern pumping plant on the Lorenzo River on the southern side of Crossing Street across from the 1913 Crossing Street Pumping Plant site (Exhibit 10). Once complete, the plant went by the same name as its predecessor until it eventually was known simply as the Municipal Pumping Plant. Today, it is called the Coast Pump Station.

The new facility was designed by City engineer Roy Fowler and consisted of a pumping plant capable of producing 6 million gallons of potable water in a 24-hour period from the San Lorenzo River. The plant operated with the help of "diesel engines, pumps, motors, generators, and all other necessary auxiliary equipment" (SC Evening News 1928: 8). The plant also treated the water with chlorine, making it safer to drink (SCWD n.d.: 3; Brown and Dunlap 1956: 1; SC Evening News 1928: 8, 1929: 7).



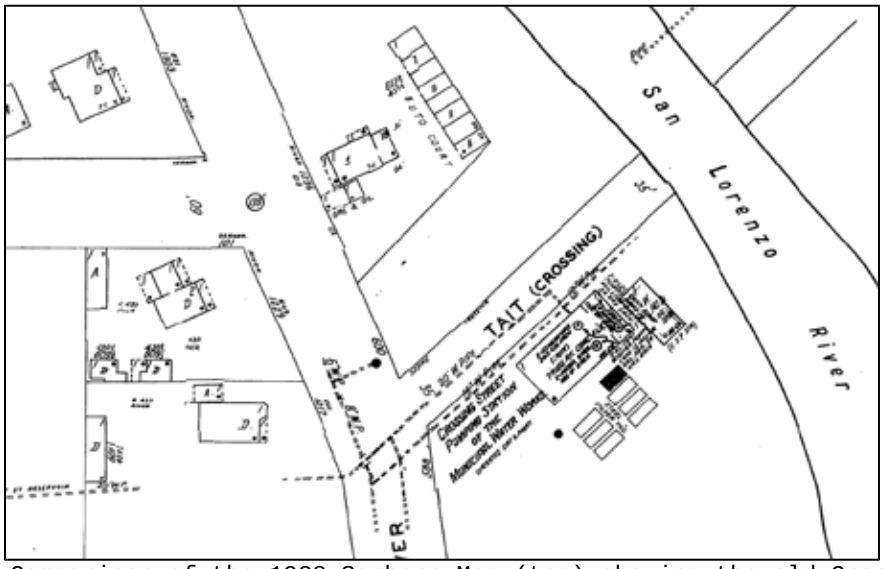


Exhibit 10. Comparison of the 1928 Sanborn Map (top) showing the old Crossing Street Pumping Plant and the 1928-1950 Sanborn Map showing the new facility completed in 1929 in approximately 1945 (Sanborn Map Company 1928: 103, 1928-1950: 103)

The low rainfall in winter 1931 prompted the City to drill four more wells at the site of the Crossing Street Pumping Plant. One of the wells was located at the site of the pumping plant on the west side of the river, while the remaining three were drilled on the east bank. This increased the output of the municipal water supply greatly, and allowed for expansion into other parts of the City. In 1934, the City boasted in the *Santa Cruz Sentinel* that 63.4 million gallons of water had earned the City a profit of $11,119 during April 1934 (Brown and Dunlap 1956: 14; SC Evening News 1931: 5, 1934b: 7).

In 1945, Crossing Street was renamed Tait Street for Water Superintendent R.S. Tait. A photograph of the Municipal Pumping Plant included in the 1956 investigative report into the Santa Cruz area water supply projects by engineers Brown and Dunlap demonstrates how the plant appeared during this period (Exhibit 11) (Santa Cruz Sentinel 1945: 8).

SANTA CRUZ MUNICIPAL PUMPING PLANT. Building houses low and high lift pumps and engine-driven generators. Pressure type filters are at right of building.

Exhibit 11. The Municipal Pumping Plant as it appeared in 1956 (Brown and Dunlap 1956: 18).

East Side City Water Extension (1934)

In 1934, work began on what was known as the East Side Water Extension, to extend the municipal water service into the Seabright and Live Oak areas of Santa Cruz via a new pipeline. Santa Cruz East Side residents C. W. Raisch, E. Brandt, George Ellison, Edith H. Evans, and Nathan Menderson donated the private property to the City needed for a right-of-way, and the pipeline extended from the municipal system to the areas of the City located on the east side of the San Lorenzo River. Additionally, two 1,000,000-gallon tanks were placed in De Laveaga Park in the north of the City as a reservoir for this branch of the system (Santa Cruz Sentinel 1933: 7, 1934c: 9).

Private Development (1936–1939)

In areas of the county that were not serviced by the municipal system, private systems such as the Beltz system were developed by residents to provide water for other residents of the area.

Beltz Water Company (1936)

In 1936, the County granted Iowa native, Charles Lemar Beltz, the rights to begin operating a private water system in the area of the County roughly bounded by Capitola Road to the north, Rodeo Gulch and Corcoran's Lagoon to the west, the bay to the south, and 41st Avenue to the east. The ambitious service area of the Beltz system covered approximately 25% of the Live Oaks district

with water sourced from ground wells located throughout the district and conveyed through pipelines situated beside Live Oak roads (Santa Cruz Sentinel 1936a: 2, 1936b: 8, 1947: 1).

Post-War Growth (1945–1984)

Many of the post-war water projects in Santa Cruz can be characterized as repair of existing infrastructure and expansion of the overall water system to support rapid population growth. The years following World War II provoked westward migration and an increase in birth rates, causing the population of California to increase from 6.95 million to 10.65 million between 1940 and 1950. In Santa Cruz, the growth of the community from 27,430 to 41,680 between 1940 and 1950 caused the common seasonal water shortages during dry months to become problematic in regards to growth and potential for community expansion (SCPL n.d.: 1).

In 1945, the state recognized a water shortage in Santa Cruz and authorized an investigation of available water resources. In 1946, the acute nature of the water crisis prompted the community to request a survey to determine an inventory of the available groundwater supply and plan for growth in the future. Completed In 1948, the survey determined that although the San Lorenzo pumping plant was running at full capacity, 24 hours per day during the dry summer of 1947, the river was so low that the entire run was being diverted through the pumps and into the City mains for consumption (SWRB 1953: 57; Brown and Dunlap 1956: 1–2).

Prompted by these concerns, in 1953, the State Water Resources Board released a report that inventoried available surface and underground water sources in the County and projected increased water utilization that exceeded the available water in Pajaro Valley, the Soquel Creek area, and the coastal area around and including Santa Cruz. The report identified requirements for supplemental water for Santa Cruz and areas served by the City of Santa Cruz Water Department (SWRB 1953: 57).

The County formed the Santa Cruz County Flood Control and Water Conservation district in 1955 and hired Creegan & D'Angelo Civil Engineers in 1956 to complete an extensive survey identifying dam sites, groundwater sources, and additional steps to improve control of the water supply throughout the County to compete with the City's proposals. The report asserted that population growth was a major concern for the water supply in the City because "the City of Santa Cruz has current water requirements which equal the capacity of the existing water supply system during a relatively dry era. Should an exceptionally dry season be experienced, there would be a serious water shortage in the City of Santa Cruz" (Creegan and D'Angelo 1957: 8).

Present supplies were determined to be insufficient for standard rates of population growth, including years that rainfall was considered more plentiful. Despite the rate of water consumption in the service area tripling between the mid-1930s and mid-1950s, there had been no additions to the municipal water supply during that time. Creegan & D'Angelo would also serve as the engineers for the Santa Cruz County Flood Control and Water Conservation District Advisory Committee, and ultimately, their recommendation to the council to remedy the current water crisis in the City was a dam on Newell Creek (Santa Cruz Sentinel 1953: 1, 1954: 1, 1958a: 4).

Public Development (1945–1984)

During the post-war era, a number of general obligation and revenue bonds helped to fund a wide range of water-related projects in Santa Cruz, including routine maintenance and transmission line replacements, but also projects such as the Newell Creek Dam and the Graham Hill Treatment Plant. The need for these projects was driven by the need for more water to support a growing, post-war population, but the use of bonds allowed for flexibility to project for future growth. In 1974, the *Santa Cruz Sentinel* surmised that "successful bond issues in 1958, 1963 and in 1967 reflected public confidence in the water administration and a recognition of the needs for more water, apparently, for there was relatively little difficulty getting approval" (Santa Cruz Sentinel 1974: 1–2).

Construction of Newell Creek Dam (1960, modified in 1985)

As a surface water storage on Newell Creek became a distinct reality following the recommendations of Creegan and D'Angelo, City Water Department Director, Weston Webber, voiced his support for the project in 1957. Ultimately, of the five proposed dams, only the Newell Creek Dam would come to fruition (Santa Cruz Sentinel 1957a: 1, 1957b: 13, 1957c: 12).

In 1958, the University of California Regents announced that they were considering the Cowell Ranch in the City of Santa Cruz as the site of a future University of California Campus. The City would be required to provide services and facilities for the prospective University community, which early figures suggested was to include around 2,500 students. In anticipation of the Water Revenue Bond Election in November 1958 to approve the bonds necessary to construct the Newell Creek Dam, a new water treatment plant, and pipelines to transport the water, the Santa Cruz Sentinel published an article outlining the impact of the proposed bonds. In reference to the speculative University in the City, the closing paragraph of the article states that "University officials know that the present water supply of Santa Cruz is inadequate, even for normal needs. Failure to correct this situation could end all chance of the selection of Santa Cruz as the University site." (Santa Cruz Sentinel 1958b: 1, 1961c: 1, 1961e: 1).

On November 5, 1958, the voters of the City of Santa Cruz approved $5.5 million in water revenue bonds necessary for the City to purchase 2,162 acres of land in the Newell Creek watershed from the San Lorenzo Valley Water District and build a dam on the site. Creegan & D'Angelo designed the earthfill dam (SCWD n.d.: 2; Santa Cruz Sentinel 1958a: 4).

Contractors Williams and Burrows Inc. of Belmont, California, began the construction of the Newell Creek Dam and preparation for the creation of Loch Lomond in 1960. The early stages of planning and execution were made more difficult by the narrow valley, allowing only one road for ingress and egress for equipment and supplies. The construction of the 195-foot-tall earthfill dam began with a "grout curtain" that pushed concrete 100 feet into the bedrock to fill any fissures or imperfections, ensuring a structurally sound base. The height and width of the dam's crest was first determined by the reinforced concrete ends. The embankment was then built up using successive layers of random fill from the immediate area, compacted with sheepsfoot tampers above and around the 300 feet of impervious material at the core of the embankment. Four construction personnel lost their lives in October 1960 during the layered construction of the embankment. A brass plaque commemorating these men was commissioned and remains today on the southwest elevation of the Control House (Santa Cruz Sentinel 1960a: 15, 1960b, 1).

The Newell Creek Dam was completed and filling steadily with water by 1961; however, the recreation area on the resulting reservoir was yet to be built. Keeping with the Scottish naming tradition started by Scotsman John Burns when he christened the mountain Ben Lomond in the 1850s, the reservoir was dedicated Loch Lomond during two days of festivities on July 27 and 28, 1963 (Santa Cruz Sentinel 1963: 1).

By 1964, the City distributed a notice to bid on the construction of the Loch Lomond Recreation Development. With the help of a $149,000 state grant, the Loch Lomond Recreation Area was completed by the spring of 1965. It included picnic areas, a concessions building, parking areas, two docks, and a boat launch. An all-weather road leading from Lompico to the Recreation Area was a crucial improvement constructed during this phase of the Project. It allowed visitors to experience the new recreation activities available at Loch Lomond, while simultaneously comprehending the realities of water storage and use in the county (Santa Cruz Sentinel 1964a: 3).

During the early 1980s, a survey completed by the Division of Safety of Dams demonstrated that the spillway at Newell Creek Dam did not meet the newest safety criteria for probable maximum flood conditions. A portion of the 1984 funds allocated for modifications and upgrades to the municipal system for were apportioned toward the upgrade of the dam's spillway wall. The upgrades were implemented in 1985, and included heightening the Newell Creek Dam spillway wall and the installation of a permanent aerator system (SCWD n.d.: 2; Santa Cruz Sentinel 1984: 3).

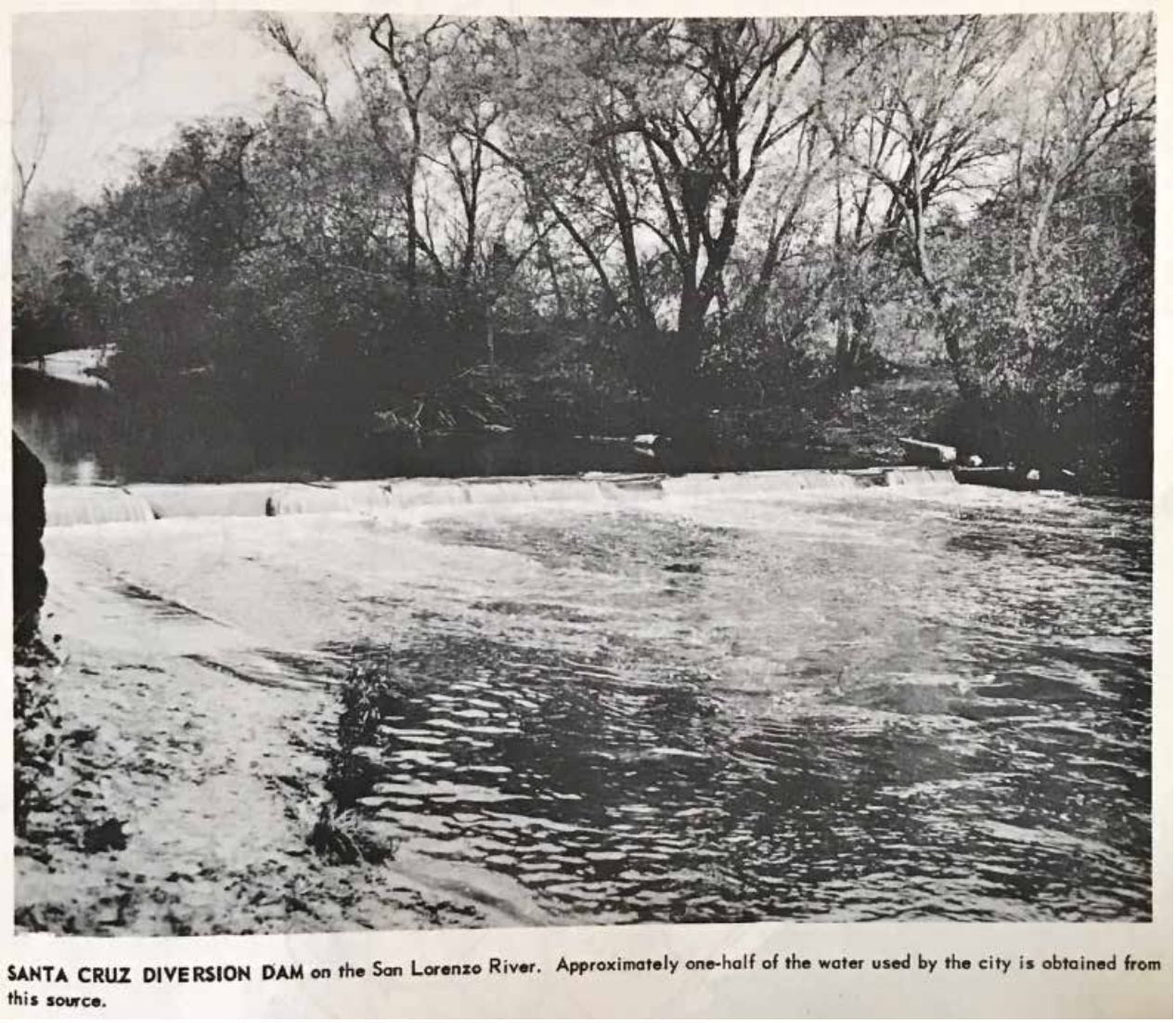
Graham Hill Water Treatment Plant (1960, Upgraded in 1987)

The Graham Hill Water Treatment Plant was a water filtration and treatment facility completed in 1961 and located beside Graham Hill Road. It was planned and completed during the same period as the Newell Creek Dam and also funded by the same water revenue bonds that helped to build the dam. The plant was designed with a capacity to treat 12-million gallons of water per day. Water derived from the coastal watersheds including Laguna Creek, Reggiardo Creek, Liddell Spring and Majors Creek is transported through a blend of gravity and pumping to the Graham Hill Water Treatment Plant to be filtered and treated before distribution as drinking water (SCWD n.d.: 3; SCMU 2016: 1; Santa Cruz Sentinel 1961d: 16).

The Graham Hill Treatment Plant was upgraded and enhanced in 1987 following a push for major upgrades throughout the municipal system beginning in 1984 (See section 1.4.1.5 Infrastructure Upgrades (1984) for more information) (SCMU 2016: 1).

Tait Street Diversion Intake (Added 1961, Reconfigured in 1983)

The Tait Street Diversion, as it called today, is presently located just up river from the Coast Pump Station. Together, the combined Tait Street Diversion and Coast Pump Station facility continues to be one of the most important sources of water for the City. Surface diversion rights for the San Lorenzo River date back to 1924 at what is now the Coast Pump Station but was first known as the Crossing Street Pumping Plant and later the Municipal Pumping Plant (see sections 1.2.2.4 and 1.3.1.2). Accounts of a functional diversion across the river near the pumping plant date back to at least 1930s. A photograph included in the 1956 investigative report into Santa Cruz area water supply projects by engineers Brown and Dunlap included a photograph of the existing diversion on the site during this period (Exhibit 12).



SANTA CRUZ DIVERSION DAM on the San Lorenzo River. Approximately one-half of the water used by the city is obtained from this source.

Exhibit 12. Existing diversion dam across the San Lorenzo River in 1956 (Brown and Dunlap 1956: 15)

By 1960 when the large-scale modernization campaign across the City was in progress, a design for a new intake structure on the existing pumping plant diversion dam was also planned. The new intake integrated the existing dam (age unknown) into the design for a new, modern intake located on the east bank of the river that was complete with a spillway fish ladder and new 20" and 24" transmission pipelines (Santa Cruz Sentinel 1934a: 7; Brown and Caldwell 1960: 1).

In 1983, the intake was again redesigned. The new design relocated the intake from the east bank of the river to the west bank while simultaneously upgrading all electrical controls and switch gear and relocating it above flood levels (SCWD n.d.: 3; Dewante and Stowell 1983: 3).

Felton Diversion Station (1976)

The Felton Diversion was installed on the San Lorenzo River north of Henry Cowell State Park and completed in 1976. James M. Montgomery of Consulting Engineers Inc. designed the diversion structure and the contractors for the project were the Dan Captuo Company. The structure is

comprised of a permanent concrete foundation spanning the river containing an inflatable rubber dam. The inflatable dam, or bladder, can be raised to maintain and impoundment for the diversion of water which is transported by pipeline to supplement storage at Loch Lomond. The inflatable dam can also be lowered to control the flow of water during a storm surge or other similar event. The structure also includes a fish-screened intake structure, a conventional sump and high-lift pump station, a fish ladder, and a controls building (JMM 1969: c-3, 1970: VII-2; Santa Cruz Sentinel 1976: 13).

Infrastructure Upgrades (1984)

In January of 1982, a powerful storm caused flooding throughout the Santa Cruz County. It was discovered that a main pipeline from Loch Lomond had burst and was leaking at an alarming rate. Although the damaged section of pipeline was relocated and repaired by the end of the year, the event renewed community attention to the potential for the aging components of the municipal system to require upfront repair and maintenance (Santa Cruz Sentinel 1982: 1, 8; Cardona and Associates 1982).

In 1984, the Santa Cruz Water Department received $11.7 million dollars through private Certificates of Participation in order to fund upgrades and modernizations to the water infrastructure system throughout the City. The upgrades were wide-spread and included the renovation and upgrade of the Graham Hill Water Treatment plant, the construction of a laboratory to monitor water quality, new storage tanks in the Rolling Wood service area, enlarging the capacity of the Beltz Water Treatment plant to 2-million gallons daily, and improvements to the Newell Creek Dam spillway (SCWD n.d.: 2; Santa Cruz Sentinel 1984: 3).

Private Systems Acquisition (1967-1969)

The City of Santa Cruz purchased several private water systems between 1967 and 1969, including the Beltz Water Company, the Rolling Woods Utilities Inc., and Pestana Water Systems. These companies and their service infrastructure were all located in areas of Santa Cruz that had been only recently come into the City's sphere of influence. The acquisition of these systems allowed the City to organize reliable water distribution services to areas such as Live Oak (SCMU 2016: 2)

Beltz Water Company Acquisition (1967)

Charles Beltz passed away in 1947 and left the operation of the Beltz Water Company to his only son, Chester Beltz. Under the supervision of his son, the company developed a both a wider, and more dense service area in response to the massive post-war population growth in the County. To accommodate the overall population growth of the County from 45,057 residents in 1940 to 120,882 residents in 1970, many of the larger agricultural properties and larger estates within the Beltz service area in Live Oak were subdivided to accommodate new, residential development. By 1955, the Beltz Water Company system included six source wells that allowed the system to accommodate incremental growth from 900 customers in 1955 to approximately 1,500 customers by 1967 (Santa Cruz Sentinel 1947: 1, 1955: 18, 1967a: 4, 1967b: 5, 1967c: 24; SCPL n.d.: 1; UCSB 2020).

The Beltz Water company entered into negotiations with the City of Santa Cruz beginning in 1965 to set a price for the purchase of the Beltz system. When the City of Santa Cruz finally purchased the Beltz Water Company System in 1967 for $245,000, the acquisition equipped the City with an additional source of groundwater from six existing wells (Exhibit 13). However, due to inadequate means to treat the high levels of iron and manganese in the Beltz well water, after the purchase, the wells were temporarily discontinued. Instead, the Beltz conveyance infrastructure was tied into the existing municipal system and customers began receiving water on July 1, 1967 (Santa Cruz Sentinel 1967a: 4, 1967b: 5, 1967c: 24).

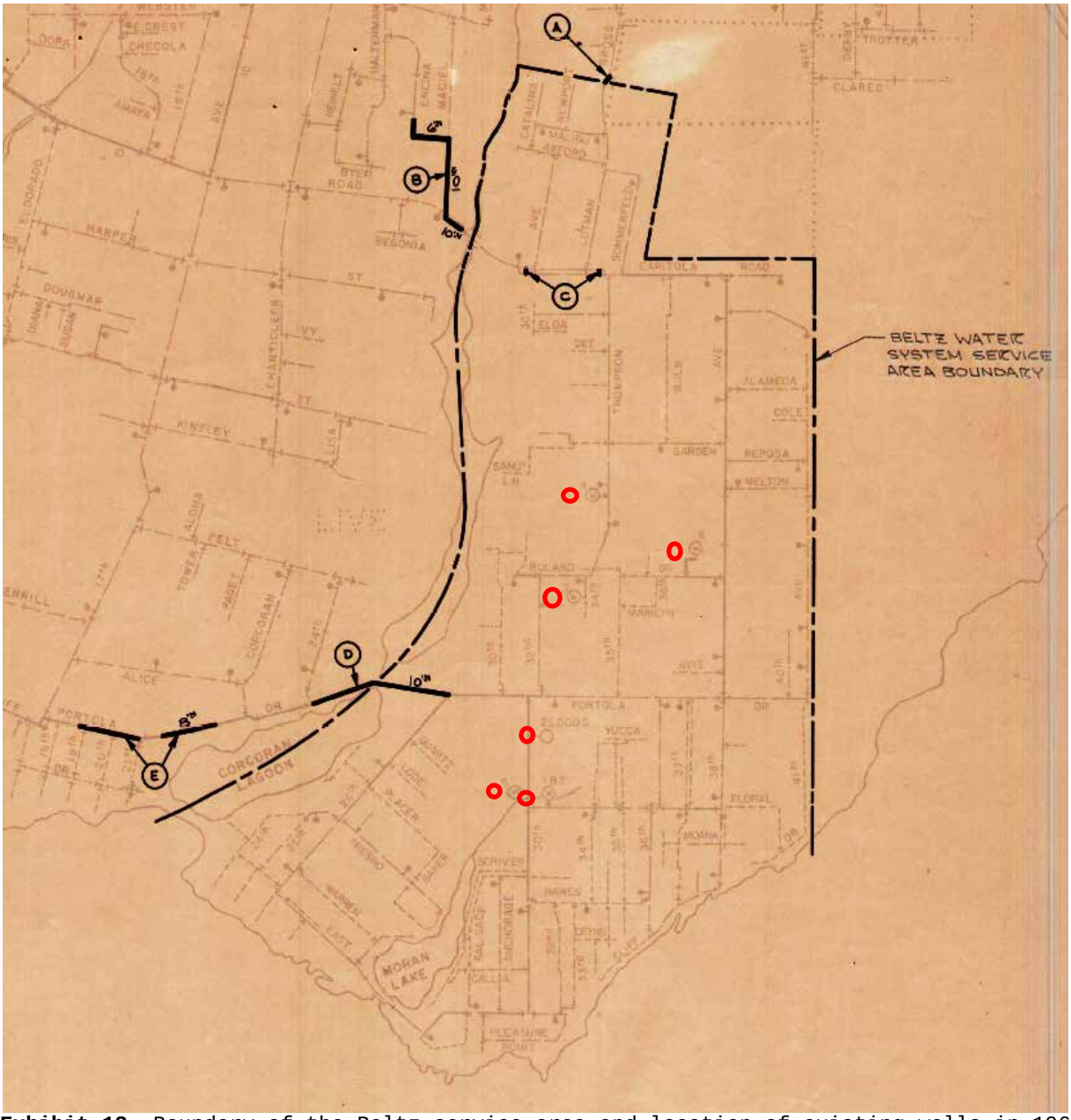


Exhibit 13. Boundary of the Beltz service area and location of existing wells in 1967 (circled in red). The letters show some of the tie-ins built by the Santa Cruz Water Department to utilize the Beltz infrastructure (SCWD 1967: D)

In 1972, an Iron and Manganese removal treatment plant was constructed at the site of well 6 located off Roland Avenue that allowed for the treatment of 1,000,000 gallons of water daily for use in the eastern section of the municipal system. In 1973, it was announced by Water Department director, Wes Webber, that the site containing well 6 would also receive a new well in anticipation of expansion of the new treatment plant when possible to increase the daily output of the Beltz system overall. This expansion of the plant took place in 1985 and was funded in part by the $11.7 million in funds allocated for major upgrades throughout the municipal system during the mid-1980s (Santa Cruz Sentinel 1973: 15; SCWD 1985: G-4).

Pestana Water Company (Founded 1961, Acquired 1969)

John Pestana founded the Pestana Water Company in 1961 to serve the modest Santa Cruz Gardens subdivision located in the hills north of Live Oak. Pestana, along with his brother, Ernie Pestana, were part owners of a sub developer from Santa Clara County responsible for the construction of the Santa Cruz Gardens subdivision in the early 1960s. In 1962, Chester Beltz, owner of the Beltz Water Company, was hired to operate the Pestana Water Company system (Santa Cruz Sentinel 1961a: 10, 1961b: 28, 1969a: 3).

The Pestana Water Company was sold to the City for $36,615 in November, 1969. The purchase of the three-well system added 243 customers to the municipal service system. The City immediately improved the pump operating the system, which was only capable of pumping 286 gallons per minute. In 1971, a pipeline was constructed to connect the Pestana system to the City main (Santa Cruz Sentinel 1969a: 3, 1969b: 4).

Rolling Woods Utilities, Inc. (Founded 1963, Acquired 1969)

Rolling Woods Utilities Inc. was formed in 1963 to serve the Rolling Woods subdivision located in the hills beside Graham Hill Road north of Pasatiempo. The City purchased the company in 1969, at which time the service area extended to 135 customers (Santa Cruz Sentinel 1969c: 13, 1969b: 4).

NRHP/CRHR Statement of Significance

NRHP Criterion A: associated with events that have made a significant contribution to the broad patterns of our history.

CRHR Criterion 1: is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.

Water management infrastructure associated with municipal water districts is a common property type throughout the County and the State of California. Components of water infrastructure systems have been considered significant under NRHP Criterion A and CRHR Criterion 1 when associated with trends and events that have made a significant contribution to the broad patterns of our history, particularly in regional agricultural or local economic development. Specifically, the Laguna Creek Dam, which is part of the County's municipal water system, is one such structure. As a well-preserved masonry water management structure dating to 1890, it is a physical example of pioneering water management infrastructure in California. As such, the dam has been recommended as individually eligible for listing in the NRHP and the CRHR under Criterion A/1 for its association with early advances in water management in California, specifically through creation of the City's first municipal water distribution system that resulted in supplying the community of Santa Cruz with municipal water services and led to subsequent expansion of water infrastructure in the region. The period of significance for the dam is 1890, the year it was initially constructed.

While the Tait Diversion and Coast Pump Station are part of the County's municipal water system, these structures are early to mid-twentieth century additions to the system. While these types of systems may have influenced or supported the growth of local communities, this is far too common an association to merit a blanket conclusion of historical significance under NRHP Criterion A or CRHR Criterion 1 within the context of municipal water management systems. At some point in the past, all forms of historic-era infrastructure were associated locally or regionally with municipal growth or economic development, actual or intended. It is often exceedingly difficult to prove whether historic-era infrastructure associated with recognizable growth actually caused or merely accommodated the growth.

The Tait Diversion and Coast Pump Station combined facility is not associated with any extraordinary event or events occurring within the context of early County development that would distinguish the structure from the vast array of water management systems dotting the California landscape. Moreover, research into the history of the Tait Diversion and Coast Pump Station combined facility revealed no evidence suggesting that the structures are associated with an alternative, more unique

event or pattern of events considered historically significant. For these reasons, the Tait Diversion and Coast Pump Station combined facility does not appear to meet NRHP Criterion A or CRHR Criterion 1.

NRHP Criterion B: associated with the lives of significant persons in our past.

CRHR Criterion 2: is associated with the lives of persons important in our past.

To be found eligible under Criterion B/2 the property has to be directly tied to an important person and the place where that individual conducted or produced the work for which he or she is known. Archival research failed to indicate any such direct association between individuals that are known to be historic figures at the national, state, or local level and the Tait Diversion and Coast Pump Station combined facility. The Tait Diversion is named for a Water Superintendent R.S. Tait, who was instrumental in the construction of both municipal pumping plants on the San Lorenzo River. While he was an advocate of the project, the plant does not appear to be the site at which Tait conducted the work for which he is known, and furthermore, the assignment of Tait's name to the diversion appears to be a relatively recent addition made at some point after the 1980s.

The Coast Pump Plant and the Tait Diversion were subsequently modified after they were first constructed in 1929 and c.1934, respectively, by several individuals and early regional water management developers, in order to provide municipal water in the Santa Cruz region. As such, the facility represents the collective efforts of many individuals, rather than the work of any single individual. Therefore, the facility is not known to have any historical associations with people important to the nation's or state's past. Due to a lack of identified significant associations with important persons in history, the facility does not appear eligible under NRHP Criterion B or CRHR Criterion 2.

NRHP Criterion C: embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.

CRHR Criterion 3: embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.

Overall, the Tait Diversion and Coast Pump Station combined facility itself is a conglomeration of construction methods and lacks sufficient engineering distinction to be significant within any particular combination pumping plant and diversion dam facility type. The Coast Pump Station was completed in 1929; however, major subsequent alterations, including the construction of a large addition in 1979, cladding the entire building with ribbed metal siding covering the original fenestration patterns, and fitting the original roof with a gable roof clad in corrugated metal material obscuring the trussed roof shape, have significantly diminished the integrity of design, materials, and workmanship. The Tait Diversion has also seen multiple alterations and additions over time, including the installation of two different intake structures in 1960 and 1984, that have eliminated the majority of the original early 1930s construction materials once composing the resource. This has caused it to lose all integrity in the areas of design, materials, and workmanship. Additionally, the designer of the Coast Pump Station, City Engineer Ray Fowler, does not appear to have reached the level of notoriety to be considered a master in the field of engineering, and the original designer of the Tait Diversion is unknown. Overall, the design for the Tait Diversion and Coast Pump Station do not appear to be distinctive or innovative in design.

Overall, the combined facility has experienced multiple alterations over time in order to accommodate modern equipment and ensure ongoing use. It is representative of a conglomeration of construction methods and lacks sufficient engineering distinction to be significant within any particular pumping plant or diversion dam facility type. Consequently, the Tait Diversion and Coast Pump Station appear to lack significance under NRHP Criterion C or CRHR Criterion 3.

NRHP Criterion D: have yielded, or may be likely to yield, information important in history or prehistory.

CRHR Criterion 4: has yielded, or may be likely to yield, information important in prehistory or history.

There is no evidence to indicate that the subject property is likely to yield any additional information important to prehistory or history beyond what is already known. The subject property is also not associated with an archaeological site or a known subsurface cultural component. Therefore, the subject property does not appear eligible under NRHP/CRHP Criterion D/4.

City of Santa Cruz Statement of Significance

1. Recognized as a significant example of the cultural, natural, archaeological, or built heritage of the city, state, or nation.

The Coast Pump Station does not constitute the first, last, or only pumping plant located in the City or County. The remaining original section of the Tait Diversion possibly dating to the early 1930s does not constitute the first, last, or only surface diversion in the history of Santa Cruz water development and has also been subsequently modified to a degree that it is unrecognizable and no longer retains historic integrity. Neither component of the site can be called a significant example of their facility type because each constitutes a conglomeration of construction methods and lacks sufficient engineering distinction. Therefore, the facility does not appear eligible under City Criterion 1.

2. Associated with a significant local, state, or national event.

Archival research did not find any associations with events that have made a significant contribution to the broad patterns of local or regional history. While the subject property was developed overtime in conjunction with the development of Santa Cruz water infrastructure, the development of the Coast Pump Station was the second plant of this kind in the City and is a product of growth and expansion instead of the implementation of a new technology for this facility type. The Tait Diversion and Coast Pump Station does not constitute the first, last, or only such facility pumping plant located in the City or County. Therefore, the property does not appear eligible under City Criterion 2.

3. Associated with a person or persons who significantly contributed to the development of the city, state, or nation.

Archival research failed to indicate any such direct association between individuals that are known to be historic figures at the national, state, or local level and the Tait Diversion and Coast Pump Station combined facility. The Tait Diversion is named for Water Superintendent R.S. Tait, who was instrumental in the construction of both municipal pumping plants on the San Lorenzo River. While he was an advocate of the project, the plant does not appear to be the site at which Tait conducted the work for which he is known, and furthermore, the assignment of Tait's name to the diversion appears to be a relatively recent addition made at some point after the 1980s.

The Coast Pump Plant and the Tait Diversion were subsequently modified after they were first constructed in 1929 and c.1934, respectively, by several individuals and early regional water management developers, in order to provide municipal water in the Santa Cruz region. As such the facility represents the collective efforts of many individuals, rather than the work of any single individual. Therefore, as the facility is not known to have any historical associations with people

important to the nation's or state's past, the facility does not appear eligible under City Criterion 3.

4. Associated with an architect, designer, or builder whose work has influenced the development of the city, state, or nation.

The designer of the Coast Pump Station, City engineer Ray Fowler, does not appear to have reached the level of notoriety to be considered a master in the field of engineering, and the original designer of the Tait Diversion is unknown. Therefore, for the reasons stated above, the facility does not appear eligible under City Criterion 4.

5. Recognized as possessing special aesthetic merit or value as a building with quality of architecture and that retains sufficient features showing its architectural significance.

Overall, the Tait Diversion and Coast Pump Station combined facility itself is a conglomeration of construction methods and lacks sufficient engineering distinction to be significant within any particular combination pumping plant and diversion dam facility type. The Coast Pump Station was completed in 1929; however, major subsequent alterations, including the construction of a large addition in 1979, cladding the entire building with ribbed metal siding covering the original fenestration patterns, and fitting the original roof with a gable roof clad in corrugated metal material obscuring the trussed roof shape, have significantly diminished the integrity of design, materials, and workmanship. The Tait Diversion has also seen multiple alterations and additions over time, including the installation of two different intake structures in 1960 and 1984, that have eliminated the majority of the original early 1930s construction materials once composing the resource. This has caused it to lose all integrity in the areas of design, materials, and workmanship. As such, the facility does not appear eligible under City Criterion 5.

6. Recognized as possessing distinctive stylistic characteristics or workmanship significant for the study of a period, method of construction, or use of native materials.

After its completion in 1929, the Coast Pump Station was subsequently renovated and fitted with metal ribbed siding and corrugated metal roofing material. As a result, the building has been modified to the extent that it no longer retains historic integrity and is no longer able to convey significance dating to this period. After its completion c.1934, the Tait Diversion has seen multiple upgrades to intensify its productivity overtime and as a result has been modified to the extent that it no longer retains historic integrity and is no longer able to convey significance dating to this period. Therefore, the facility does not appear eligible under City Criterion 6.

7. Retains sufficient integrity to accurately convey its significance.

Due to a number of large-scale alterations resulting in the obscuring of historic materials and design, the Tait Diversion and Coast Pump Station are no longer capable of conveying the historic significance of a property dating to the early-twentieth-century period of water development in Santa Cruz. Therefore, the facility does not appear eligible under City Criterion 7.

Integrity Discussion

In addition to not meeting any of the significance Criteria, the Tait Diversion and Coast Pump Station lacks historic integrity. The structures of the Tait Diversion and Coast Pump Station combined facility are still located in their historic location, retain their historic alignment, and continue to provide water for the municipal water supply. Both features have been heavily modified and now include modern construction materials that obscure the historic materials, in some cases entirely. This has caused the loss of integrity in the areas of design, material, workmanship, feeling, and setting.

***B12. References:**

Brown and Caldwell (Brown and Caldwell Civil and Chemical Engineers). 1960. "Site Plan and Index of Drawing." City of Santa Cruz San Lorenzo River Intake Project: Sheet 1 of 9. Santa Cruz Water Department: Santa Cruz, California.

Brown, K.W. and L.B. Dunlap. 1956 Investigation of Water Supply Projects: City of Santa Cruz Water System - Santa Cruz, California. San Francisco, California: Brown and Caldwell Civil and Chemical Engineers. On file at the Santa Cruz Water Department.

Brown, Randall C. 2011. The San Lorenzo Valley Water District: a History. Boulder Creek, California: San Lorenzo Water District.

Cardona and Associates Civil Engineers Environmental Planners. 1982. "Newell Creek Pipeline Relocation Plans and Specifications" Santa Cruz, California. City of Santa Cruz Water Department.

Clark, D.T. 2008. Santa Cruz County Place Names: A Geographical Dictionary. Scotts Valley, CA: Kestrel Press.

Creegan & D'Angelo. 1957. Report on Santa Cruz County Master Plan of Water Development and Preliminary Design of the First Increment of Work for Santa Cruz County Flood Control and Water Conservation District. Creegan and D'Angelo Civil Engineers. On file at Santa Cruz Public Library.

Dames and Moore. 1998. "Site Plan." Beltz Well Installation Project: City of Santa Cruz Water Department, Santa Cruz, California.

Dewante and Stowell (Dewante and Stowell Consulting Engineers). 1983. "Intake and Pump station Site Plan." San Lorenzo River Intake Replacement: Santa Cruz Water Department, City of Santa Cruz, California.

Lehmann, Susan. 2000. "Fully Developed Context Statement for the City of Santa Cruz."

Monterey American. 1913. "F.A. Hihn is not more – Santa Cruz's 'Grand Old Man' Passes Away." The Monterey American (Monterey, CA) August 25, 1913: pg. 7. Newspapers.com. Accessed May 29, 2020.

NETR. 2020. "Historic Aerials Online." Historic Aerial Photographs of Santa Cruz, CA dating from 1952, 1968, 1982, 1993, 2005, 2009, 2010, 2012, 2014, and 2016. Accessed May 28, 2020. https://www.historicaerials.com/viewer.

NPS (U.S. Department of the Interior, National Park Service). 2002. "National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation." Accessed March 22, 2020. https://www.nps.gov/NR/publications/bulletins/pdfs/nrb15.pdf.

NPS. 2014. "National Historic Landmark Nomination Process: Glossary." Accessed March 22, 2020. https://www.nps.gov/nhl/apply/glossary.htm#NoncontributingResources.

Office of Historic Preservation. 1995. Instructions for Recording Historical Resources. Accessed March 2020. http://ohp.parks.ca.gov/pages/1054/files/manual95.pdf

Peak, A. 1977. Santa Cruz Regional Wastewater Treatment System Project, Santa Cruz County, California. On file (S-003964), Northwest Information Center, Sonoma State University.

Pisani, Donald J. 1984. From the Family Farm to Agribusiness: The Irrigation Crusade in California and the West, 1850-1931. Berkeley, California: University of California Press.

Santa Cruz County Assessor. 1894. *Plat of the City Distributing Reservoir Lot.*

Santa Cruz Daily Surf. 1888a "Another Change." The Santa Cruz Daily Surf (Santa Cruz, CA). March 3, 1888:3. Newspapers.com. Accessed March 4, 2020.

Santa Cruz Daily Surf. 1888b. "Water Once More." The Santa Cruz Daily Surf (Santa Cruz, CA). August 8, 1888:2. Newspapers.com. Accessed March 4, 2020.

Santa Cruz Sentinel. 1888. "The Thousands of readers of the SENTINEL…." The Santa Cruz Sentinel (Santa Cruz, CA). July 17, 1888: 2. Newspapers.com. Accessed March 4, 2020.

Santa Cruz Sentinel. 1903. "Notice Inviting Sealed Proposals." The Santa Cruz Sentinel (Santa Cruz, CA). November 25, 1903: 4. Newspapers.com. Accessed September 30, 2020.

Santa Cruz Sentinel. 1904. "Contractor Sargent…" The Santa Cruz Sentinel (Santa Cruz, CA). January 7, 1904: 3. Newspapers.com. Accessed September 30, 2020.

Santa Cruz Sentinel. 1933. "Rights-Of-Way for Pipe Line Are All Okeh." Santa Cruz Sentinel (Santa Cruz, California). December 13, 1933: 7. Newspapers.com. Accessed May 28, 2020.

Santa Cruz Sentinel. 1934a. "Week-End Anglers Out of Luck on the Old San Lorenzo." Santa Cruz Sentinel (Santa Cruz, California). February 20, 1934: 7. Newspapers.com. Accessed May 28, 2020.

Santa Cruz Sentinel. 1934b. "63,4000,000 Gallons of Water Pumped in April at Crossing St. Plant." Santa Cruz Sentinel (Santa Cruz, California). May 15, 1934: 7. Newspapers.com. Accessed May 25, 2020.

Santa Cruz Sentinel. 1934c. "Rushing Work on Two 1,000,000 Gellon Tanks for East Side Extension." Santa Cruz Sentinel (Santa Cruz, California). May 18, 1934: 9. Newspapers.com. Accessed May 25, 2020.

Santa Cruz Sentinel. 1936. "Beltz Granted Water Permits for Live Oak" Santa Cruz Sentinel (Santa Cruz, California). March 8, 1936: 8. Newspapers.com. Accessed May 4, 2020.

Santa Cruz Sentinel. 1942. "New Company Now Serving Aptos Water." Santa Cruz Sentinel (Santa Cruz, California). October 20, 1942: 1. Newspapers.com. Accessed June 10, 2020.

Santa Cruz Sentinel. 1943. "Soquel-Capitola Water System is Bought By Monterey Bay Company." Santa Cruz Sentinel (Santa Cruz, California). October 17, 1943: 1. Newspapers.com. Accessed June 10, 2020.

Santa Cruz Sentinel. 1945. "Propose Changes." Santa Cruz Sentinel (Santa Cruz, California). November 12, 1945: 8. Newspapers.com. Accessed May 28, 2020.

Santa Cruz Sentinel. 1947. "Charles Beltz, Water company Operator, Dies." Santa Cruz Sentinel (Santa Cruz, California). October 27, 1947: 1. Newspapers.com. Accessed May 4, 2020.

Santa Cruz Sentinel. 1952. "Monterey Bay Water Company Buys Seacliff Water Works." Santa Cruz Sentinel (Santa Cruz, California). February 17, 1952: 1. Newspapers.com. Accessed June 10, 2020.

Santa Cruz Sentinel. 1953. "Flood Control Project Moves Ahead". Santa Cruz Sentinel (Santa Cruz, California). May 28, 1953: 1. Newspapers.com. Accessed July 10, 2018.

Santa Cruz Sentinel. 1954. "Water Superintendent Recommends Study of Three Area Storage Projects". Santa Cruz Sentinel (Santa Cruz, California). February 19, 1954: 1. Newspapers.com. Accessed July 10, 2018.

Santa Cruz Sentinel. 1955. "Expansion Plan of Beltz Water Firm Approved" Santa Cruz Sentinel (Santa Cruz, California). April 7, 1955: 18. Newspapers.com. Accessed May 4, 2020.

Santa Cruz Sentinel. 1957a. "County committee to put Emphasis on New Pajaro Valley Survey." Santa Cruz Sentinel (Santa Cruz, California). February 6, 1957: 1. Newspapers.com. Accessed February 7, 2018.

Santa Cruz Sentinel. 1957b. "Map Shows Proposed County Dam Sites, Pipe Lines." Santa Cruz Sentinel (Santa Cruz, California). February 10, 1957: 13. Newspapers.com. Accessed May 29, 2018.

Santa Cruz Sentinel. 1957c. "The County's Water Problems and Solutions." Santa Cruz Sentinel (Santa Cruz, California). April 15, 1957: 12. Newspapers.com. Accessed July 10, 2018.

Santa Cruz Sentinel. 1958a. "Information on the Water Situation in Santa Cruz and Plans to Correct It." Santa Cruz Sentinel (Santa Cruz, California). November 2, 1958: 4. Newspapers.com. Accessed July 13, 2018.

Santa Cruz Sentinel. 1958b. "Water Bonds Get Overwhelming OK." Santa Cruz Sentinel (Santa Cruz, California). November 5, 1958: 1. Newspapers.com. Accessed July 10, 2018.

Santa Cruz Sentinel. 1960a. "Salvation in the Making." Santa Cruz Sentinel (Santa Cruz, California). September 4, 1960: 15. Newspapers.com. Accessed February 7, 2018.

Santa Cruz Sentinel. 1960b. "Safety Engineer Noticed Danger Spot Moments before Avalanche Killed Four." Santa Cruz Sentinel (Santa Cruz, California). October 26, 1960: 1. Newspapers.com. Accessed May 22, 2018.

Santa Cruz Sentinel. 1961a. "Pestana Public Hearing Slated." Santa Cruz Sentinel (Santa Cruz, California). January 25, 1961: 10. Newspapers.com. Accessed May 28, 2020.

Santa Cruz Sentinel. 1961b. "SC Gardens Opens Today." Santa Cruz Sentinel (Santa Cruz, California). February 26, 1961: 28. Newspapers.com. Accessed May 30, 2020.

Santa Cruz Sentinel. 1961c. "Regents Listen to Offers For UC Campus." Santa Cruz Sentinel (Santa Cruz, California). March 16, 1961: 1. Newspapers.com. Accessed July 13, 2018.

Santa Cruz Sentinel. 1961d. "Frustrating Year For SC Water Dept." Santa Cruz Sentinel (Santa Cruz, California). October 10, 1961: 16. Newspapers.com. Accessed May 28, 2020.

Santa Cruz Sentinel. 1961e. "Pros and Cons of University Community Told to Rotary Club by McCaffrey." Santa Cruz Sentinel (Santa Cruz, California). October 29, 1961: 9. Newspapers.com. Accessed July 13, 2018.

Santa Cruz Sentinel. 1961f. "City Water Revenue Up." Santa Cruz Sentinel (Santa Cruz, California). November 18, 1961: 13. Newspapers.com. Accessed May 30, 2020.

Santa Cruz Sentinel. 1963. "Wee Bit of Scotland Arrives in Ben Lomond." Santa Cruz Sentinel (Santa Cruz, California). July 21, 1963: 1. Newspapers.com. Accessed May 29, 2018.

Santa Cruz Sentinel. 1964a. "Loch Lomond's Temporary Facilities Remain in '64." Santa Cruz Sentinel (Santa Cruz, California). March 1, 1964: 3. Newspapers.com. Accessed June 5, 2018.

Santa Cruz Sentinel. 1964b. "Master Water Program." Santa Cruz Sentinel (Santa Cruz, California). October 1, 1964: 18. Newspapers.com. Accessed June 10, 2020.

Santa Cruz Sentinel. 1967a. "Council Approves Price in Water System Deal" Santa Cruz Sentinel (Santa Cruz, California). March 29, 1967: 4. Newspapers.com. Accessed May 4, 2020.

Santa Cruz Sentinel. 1967b. "State Okays Beltz Water System Sale." Santa Cruz Sentinel (Santa Cruz, California). June 8, 1967: 5. Newspapers.com. Accessed May 4, 2020.

Santa Cruz Sentinel. 1967c. "Beltz Water System's New Charges Clarified." Santa Cruz Sentinel (Santa Cruz, California). Jun 9, 1967: 24. Newspapers.com. Accessed May 4, 2020.

Santa Cruz Sentinel. 1968. "Water District Manager Plans to Retire; New Aide Sought." Santa Cruz Sentinel (Santa Cruz, California). August 6, 1968: 3. Newspapers.com. Accessed June 10, 2020.

Santa Cruz Sentinel. 1969a. "PUC Studies Application to Allow SC To Purchase Pestana Water Firm." Santa Cruz Sentinel (Santa Cruz, California). September 19, 1969: 3. Newspapers.com. Accessed May 26, 2020.

Santa Cruz Sentinel. 1969b. "PUC Approves Sale of Pestana Water System; SC Takes Over On Nov. 4." Santa Cruz Sentinel (Santa Cruz, California). October 28, 1969: 4. Newspapers.com. Accessed May 28, 2020.

Santa Cruz Sentinel. 1969c. "City Water Revenue Up." Santa Cruz Sentinel (Santa Cruz, California). November 18, 1969: 13. Newspapers.com. Accessed May 26, 2020.

Santa Cruz Sentinel. 1973. "Water Systems Meet Demands." Santa Cruz Sentinel (Santa Cruz, California). January 11, 1973: 15. Newspapers.com. Accessed May 29, 2020.

Santa Cruz Sentinel. 1974. "City's Water Chief To Retire." Santa Cruz Sentinel (Santa Cruz, California). April 4, 1974: 1. Newspapers.com. Accessed May 26, 2020.

Santa Cruz Sentinel. 1976. "SL River Rubber Dam Operating." Santa Cruz Sentinel (Santa Cruz, California). February 10, 1976: 13. Newspapers.com. Accessed June 3, 2020.

Santa Cruz Sentinel. 1982. "Newell Creek Dam Spillway Safety Changes Approved." Santa Cruz Sentinel (Santa Cruz, California). January 7, 1982: 1, 8. Newspapers.com. Accessed May 29, 2018.

Santa Cruz Sentinel. 1984. "Water Crisis Here Continues." Santa Cruz Sentinel (Santa Cruz, California). March 18, 1984: 3. Newspapers.com. Accessed May 22, 2018.

Santa Cruz Surf. 1889a. "From Laguna to Santa Cruz." The Santa Cruz Surf (Santa Cruz, CA). July 15, 1889:3. Newspapers.com. Accessed March 4, 2020.

Santa Cruz Surf. 1889b. "The Estimate." The Santa Cruz Surf (Santa Cruz, CA). August 5, 1889: 3. Newspapers.com. Accessed March 4, 2020.

Santa Cruz Surf. 1889c. "Water Works." The Santa Cruz Surf (Santa Cruz, CA). November 26, 1889: 3. Newspapers.com. Accessed March 4, 2020.

Santa Cruz Surf. 1890a. "The City Water Works." The Santa Cruz Surf (Santa Cruz, CA). April 19, 1890: 1. Newspapers.com. Accessed March 10, 2020.

Santa Cruz Surf. 1890b. "Water! Water!" The Santa Cruz Surf (Santa Cruz, CA). September 30, 1890: 3. Newspapers.com. Accessed January 15, 2020.

Santa Cruz Surf. 1890c. "The Last Pipe." The Santa Cruz Surf (Santa Cruz, CA). October 18, 1890: 3. Newspapers.com. Accessed January 15, 2020.

Santa Cruz Surf. 1892. "Seven Years. The History of the Water Movement in Santa Cruz." The Santa Cruz Surf (Santa Cruz, CA). March 12, 1892: 2. Newspapers.com. Accessed March 3, 2020.

Santa Cruz Weekly Sentinel. 1864. "Santa Cruz Water-works!" The Santa Cruz Weekly Sentinel (Santa Cruz, CA). October 15, 1864: 2. Newspapers.com. Accessed March 4, 2020.

Santa Cruz Weekly Sentinel. 1877a. "Santa Cruz Water Works." The Santa Cruz Weekly Sentinel (Santa Cruz, CA). January 6, 1877: 1. Newspapers.com. Accessed March 16, 2020.

Santa Cruz Weekly Sentinel. 1877b. "Santa Cruz and Its Water Supply." The Santa Cruz Weekly Sentinel (Santa Cruz, CA). October 27, 1877: 2. Newspapers.com. Accessed March 16, 2020.

Santa Cruz Weekly Sentinel. 1882. "The Santa Cruz Water Co." The Santa Cruz Weekly Sentinel (Santa Cruz, CA). Jun 10, 1882: 3. Newspapers.com. Accessed March 17, 2020.

SC Evening News. 1912. "Will Restrain R. Reggiardo." The Santa Cruz Evening News (Santa Cruz, California). April 2, 1912: 2. Newspapers.com. Accessed May 28, 2020.

SC Evening News. 1913a. "Liddell Spring And Proposed Pumping Of River Water Discussed." The Santa Cruz Evening News (Santa Cruz, California). March 18, 1913: 1. Newspapers.com. Accessed May 28, 2020.

SC Evening News. 1913b. "Order For Crossing St. Pump Placed." The Santa Cruz Evening News (Santa Cruz, California). May 8, 1913: 1. Newspapers.com. Accessed May 28, 2020.

SC Evening News. 1914. "First Step Leading to Placing Valuation on Hihn System Taken Today." The Santa Cruz Evening News (Santa Cruz, California). October 14, 1914: 1. Newspapers.com. Accessed May 25, 2020.

SC Evening News. 1928. "Crossing Plant Plans Passed by the City." The Santa Cruz Evening News (Santa Cruz, California). April 30, 1928: 8. Newspapers.com. Accessed May 28, 2020.

SC Evening News. 1929. "Postpone Pump Plant Ceremony." The Santa Cruz Evening News (Santa Cruz, California). February 20, 1929: 7. Newspapers.com. Accessed May 28, 2020.

SC Evening News. 1931. "City Well Water Is Given Approval By State Official." The Santa Cruz Evening News (Santa Cruz, California). September 3, 1931: 5. Newspapers.com. Accessed May 27, 2020.

SC Evening News. 1936. "Water System Permits Asked for Live Oak." The Santa Cruz Evening News (Santa Cruz, California). Feb 25, 1936: 2. Newspapers.com. Accessed May 4, 2020.

SCMU (Santa Cruz Municipal Utilities). 2016. "A History of Our Water Service Infrastructure." No. 61: Spring 2016.

SCPL (Santa Cruz Public Library). No Date. "Population Statistics for Santa Cruz County and Cities, 1850-2010." Accessed May 28 2020. https://history.santacruzpl.org/omeka/files/original/e5b77c64f95c4c19e0609c475869f5e6.pdf

SCPL. 1924. "Construction of the Bay Street Reservoir." *SCPL Local History*. Accessed August 18 2020. https://history.santacruzpl.org/omeka/items/show/10704.

SCWD (Santa Cruz City Water Department). No Date. "History of the Santa Cruz City Water Department." Santa Cruz Public Libraries Local History Collection. Accessed March 3, 2020. https://history.santacruzpl.org/omeka/items/show/134438#?c=0&m=0&s=0&cv=0.

SCWD. 1967. "Exhibit D." Integration Plans for the Connection of Beltz System to City of Santa Cruz System. City of Santa Cruz, CA.

SCWD. 1979. "Sheet 2 of 2." Garage Addition - Coast Pump Station. Water Department: City of Santa Cruz, CA.

SCWD. 1985. "Exhibit D." Integration Plans for the Connection of Beltz System to City of Santa Cruz System. City of Santa Cruz, CA.

State of California. 2020. "County Water District Law". California Water Code, Division XII (Section 30000 et seq.) Accessed May 30, 2020. https://codes.findlaw.com/ca/water-code/

SWRB (State Water Resources Board). 1953. *Bulletin No. 5: Santa Cruz-Monterey Counties Investigation*. State Water Resources Board: Sacramento, California.

UCSB (University of California, Santa Barbra). 2020. Historic Aerial Photographs of Santa Cruz, CA dating from 1931, 1940, 1948, and 1964. Map & Imagery Laboratory (MIL) UCSB Library, Electronic Resource, http://mil.library.ucsb.edu/ap_indexes/FrameFinder. Accessed May 25, 2020.

US Census Bureau (United States Census Bureau). 2019. "Quick Facts: Santa Cruz County, California – Population estimates, July 1, 2019, (V2019)." Website. Accessed June 3, 2020. https://www.census.gov/quickfacts/fact/table/santacruzcountycalifornia#