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December 12, 2013

Ms. Patricia Kelly
Project Manager
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814-5512

Subject: Redondo Beach Energy Project (12-AFC-03)
Data Response Set 1B – Responses to CEC Staff Data Requests 50, 51, and 53-63

Dear Ms. Kelly:

Attached please find the Redondo Beach Energy Project's Data Response Set 1B, including responses to Data Requests 50, 51, and 53-63. This Data Response Set was prepared in response to California Energy Commission Staff Data Requests 48 through 66 for the Application for Certification for the Redondo Beach Energy Project (12-AFC-03) dated November 12, 2013. Please note the following two items:

- A notice of objection to Data Requests 48, 49, 52, 64 through 66 was filed on November 27, 2013, so reponses for those data requests are not included.
- Attachment DR 62-1, has been filed separately under a request for confidentiality.

If you have any questions about this matter, please contact me at (916) 286-0249 or Mr. Jerry Salamy at (916) 286-0207.

Sincerely,

CH2M HILL

Sarah Madams
AFC Project Manager

Attachment
cc: S. O'Kane, AES
G. Wheatland, ESH
J. Salamy, CH2M HILL

Redondo Beach Energy Project

(12-AFC-03)

Data Responses, Set 1B

(Responses to Data Requests 48–66)

Submitted to

California Energy Commission

Prepared by

AES Southland Development, LLC

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December 12, 2013

Contents

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Introduction

Attached are AES Southland Development, LLC's (AES-SLD or the Applicant) responses to the California Energy Commission (CEC) Data Request, Set 1B (numbers 48-66) regarding the Redondo Beach Energy Project (RBEP) (12-AFC-03) Application for Certification (AFC).

The responses are grouped by individual discipline or topic area. Within each discipline area, the responses are presented in the same order as the CEC presented them and are keyed to the Data Request numbers (48 through 66).

New or revised graphics or tables are numbered in reference to the Data Request number. For example, the first table used in response to Data Request 50 would be numbered Table DR50-1. The first figure used in response to Data Request 55 would be Figure DR55-1, and so on. Figures or tables from the RBEP AFC that have been revised have "R" following the original number, indicating revision.

Additional tables, figures, or documents submitted in response to a data request (for example, supporting data, standalone documents such as plans, folding graphics, etc.) are found at the end of each discipline-specific section and are not sequentially page-numbered consistently with the remainder of the document, though they may have their own internal page numbering system.

Alternatives (48–51)

Background

Section 6.5 of the Application for Certification (AFC) states (p. 6-4):

> "No suitable alternative sites have been identified in the RBEP area, which consists of densely developed residential neighborhoods and commercial and public facilities, with little suitable open land. Therefore, because RBEP will have a strong relationship to the existing industrial site and will provide needed electric reliability service in a densely populated load pocket, and because no suitable and available alternative sites have been identified for RBEP, no alternate sites are analyzed in this AFC, and only the proposed site for RBEP is discussed below."

The Energy Commission has received a number of public and governmental agency comments requesting the Preliminary Staff Assessment (PSA) analyze alternative sites. While Energy Commission staff acknowledges the siting considerations provided in AFC Section 6.5.1 in relation to Public Resources Code 25540.6 [b], staff will be considering alternative site locations in its alternatives analysis for the proposed project.

Based on staff's review, it is unclear as to the geographic extent of the site alternatives analysis considered within the AFC, referred to as the "RBEP area" (per quoted text above). Staff will consider the geographic extent for its alternative site analysis to be that containing and serving the California Independent System Operator (CAISO) Western Los Angeles Local Reliability Sub-Area (see map on the following page).

The information identified below is needed to assist staff in its efforts to consider and potentially analyze an alternative site or sites to the proposed location.

DATA REQUEST

48. Please identify alternative site(s) within the CAISO Western Los Angeles Basin Local Reliability Sub-Area that provide adequate size to site a 496 megawatt (MW) facility similar or identical to that of the proposed RBEP. When addressing this request, staff asks the applicant to please provide and consider the following in the response:

    a. Provide a list and supporting text of considerations utilized in the alternatives site search (mandatory parcel size, transmission interconnection requirements, etc.).

    b. To the extent feasible, seek brownfield site(s) already served by transmission and other utility connections with capacity to serve such a facility. If no such site exists, clearly explain the methodology and data for determining such and discuss what necessary transmission interconnection right-of-way corridors would be required to serve the site, as well as any necessary substation improvements.

    c. To the extent feasible, seek site(s) with existing zoning and general plan land use designations allowing for development of a power plant. If no such site exists, clearly explain the methodology and data for determining such. Should the site not allow for such a development, discuss the feasibility of attaining zoning and general plan land use amendments at the alternative site(s) to allow for power plant development.

    d. Discuss existing land ownership and constraints/feasibility to acquire or lease the site(s).

    e. Identify existing and surrounding land uses of the site(s).

    f. Provide an analysis of opportunity and constraints regarding how this potential site could serve centers of electrical demand within the CAISO Western Los Angeles Basin Local Reliability Sub-Area for maximum efficiency and system benefit.

g. Provide a comparison of the environmental impacts of construction and operation of the project at the alternative site(s) versus at the proposed site (RBGS).

Response: A notice of objection to Data Requests 48, 49, 52, and 64 through 66 was filed on November 27, 2013.

Background

The Energy Commission has received a number of public and governmental agency comments requesting the PSA analyze decommissioning and future non-industrial reuse of the RBGS as part of the No Project Alternative scenarios.

Additional information is needed by staff to adequately consider and analyze a No Project Alternative decommissioning scenario.

DATA REQUEST

49. Please provide the following information regarding a No Project Alternative that entails decommissioning of the RBGS facility, remediation of the site for public use, and land acquisition by either the city of Redondo Beach or a private developer for non-industrial use:

    a. Provide an itemized list and map showing what facilities would be removed and area(s) remediated under decommissioning of RBGS.

    b. Provide an itemized list and map showing what existing and planned facilities would not be removed and area(s) not included as part of decommissioning of RBGS.

    c. Provide a conceptual scope of work and schedule for demolition and site remediation (i.e., for purposes of potential future development of the site with non-industrial land uses) of the RBGS and any related transmission and other RGBS-related utility interconnections that could be removed under decommissioning.

Response: A notice of objection to Data Requests 48, 49, 52, and 64 through 66 was filed on November 27, 2013.

Background

Section 6.4 of the AFC discusses No Project Alternative scenarios, which included a cursory level analysis of several retrofit options at the existing RBGS to comply with the State Water Resources Control Board (SWRCB) once-through cooling (OTC) policy. Additional information is needed by staff to adequately consider and analyze these No Project Alternative retrofit scenarios.

DATA REQUEST

50. Please provide the following information regarding a No Project Alternative that entails retrofitting the RBGS facility to comply with the SWRCB OTC policy:

    a. For a closed-loop cooling system, please provide a location and height of the necessary cooling towers (wet cooling system) and/or air-cooled condenser (dry cooling system). Please describe all necessary improvements and infrastructure needed for retrofitting the RBGS to a closed-loop system, as well as cooling design parameters (such as heat rejection capacity, number of cells, and water recirculation rate).

    b. AFC Section 6.4 states that Title 22 Reclaimed water is limited in the South Bay area. Provide in detail and substantiate why reclaimed water in the South Bay area is not available in sufficient quantities to serve the RBGS under a wet- or dry-cooled retrofit utilizing such a water source. Please provide details regarding the nearest available reclaimed water source able to adequately support a wet-or dry-cooled retrofit for the long-term and discuss what necessary infrastructure (pipeline,

pipeline route, treatment facility, etc.) would be needed to provide reclaimed water to the site in quantities sufficient to serve either a wet- or dry-cooled retrofit scenario utilizing a reclaimed water source. Also, provide an estimate as to the daily amount of non-potable water used under these retrofit scenarios.

c. Please provide details regarding the infrastructure upgrades (new pipeline, etc.) that would be needed to utilize potable water in quantities sufficient to serve either wet- or dry-cooled retrofit scenarios. Also, provide an estimate as to the daily amount of potable water used under these retrofit scenarios.

d. Please describe all necessary improvements and infrastructure needed for retrofitting the RBGS to utilize an air-cooled condenser, describing changes to on-site component height and massing. Provide details (including a site map, layout, etc.) and substantiate any RBGS site size constraints for this retrofit scenario.

Response: Significant research has been conducted to assess retrofitting of California's coastal power plants employing OTC cooling with alternative cooling technologies as part of the state's Once through Cooling regulatory process.[1] As identified in the a 2008 Tetra Tech assessment, potential improvements and infrastructure for retrofitting the Redondo Beach Generating Station to a closed-loop system could include four cooling towers, each comprised of approximately five 58-foot tall cells with a total length of 240 feet. The 2008 Tetra Tech assessment concluded that retrofitting the Redondo Beach Generating Station with wet cooling technologies would be infeasible due to the land use compliance issues. Furthermore, retrofitting the Redondo Beach Generating Station with wet or dry cooling would be cost prohibitive. The 2007 EPRI assessment estimated retrofitting Redondo Beach Generating Station Units 5 through 8 with wet cooling towers would cost between $100 million to $260 million, depending on the degree of difficulty of the retrofit. This report also estimated the cost of using dry cooling at between $56 million for Units 5 and 6 and $155 million for Units 7 and 8. The EPRI report concludes "Given the very low capacity factors for all units, particularly for Units 5 and 6, an investment of this size in retrofit would seem highly problematic."

This data request asks for detailed engineering-design level information regarding facilities and systems which the Applicant is not proposing to construct. Because these facilities are not proposed by the Applicant it is very difficult and costly to determine such information as the location and height of cooling towers, specific pipeline routes for recycled water, etc. Information regarding sources of reclaimed and potable water, including potential pipeline and other infrastructure improvements are available in Section 6.6.3 of the AFC. Nevertheless, in an effort to be responsive, the Applicant is working to determine these parameters on a hypothetical-design basis. We will supplement this response with further information within 30 days.

Background

Based on preliminary staff analysis of the RBEP, staff will be considering a Reconfigured Site Alternative to potentially lessen or avoid environmental impacts (at this time, focused on reducing potentially significant RBEP visual and/or noise impacts). Staff acknowledges that within the West Basin Municipal Water District

[1] Tetra Tech. 2008. California's Coastal Power Plants: Alternative Cooling Systems Analysis. Final Report. February.

ANL (Argonne National Laboratory). 2002. Energy Penalty Analysis of Possible Cooling Water Intake Structure Requirements on Existing Coal-Fired Power Plants. US Department of Energy. Washington, DC.

Issues Analysis of Retrofitting Once-Through Cooled Plants with Closed-Cycle Cooling: California Coastal Plants. EPRI, Palo Alto, CA: 2007. TR-052907.

(WBMWD) Ocean Water Desalination Program Master Plan (PMP) Project Entitlements Acquisition Plan (PEAP), dated January 2013, WBMWD proposes ocean water desalination facilities at either the NRG El Segundo Generating Station (ESGS) property or AES RBGS property. Staff also acknowledges that at this time, WBMWD has stated siting a proposed 30 or 60 MGD ocean water desalination facility at the RBGS is their preferred location.

Given the potential for use of the RBGS site for other projects, additional information is needed by staff to adequately consider and analyze the feasibility of a Reconfigured Site Alternative.

DATA REQUEST

51. Please provide the following information regarding a Reconfigured Site Alternative:

    a. Provide an itemized list and map explaining/showing site constraints including, but not limited to: existing site restrictions, necessary RBEP infrastructure and components, possible locations of the WBMWD desalination facility, and other site constraints.

    b. Provide an alternative site layout directed toward lessening potential visual changes/impacts of the RBEP from key public observation points, including but not limited to, residential and recreational locations surrounding the facility. Describe and substantiate any feasibility issues of this alternative site configuration.

    c. Provide an alternative site layout directed toward lessening potential noise changes/impacts of the RBEP to adjacent sensitive receptors including residential and recreational locations surrounding the facility. Describe and substantiate any feasibility issues of this alternative site configuration.

Response:

a. The primary site constraints in siting the RBEP are the existing generating RBGS facilities on-site. These facilities are shown in Figure DR 51-1. Because the RBEP is to be placed in operation at or near the time that the existing units cease operation, the RBEP must be constructed adjacent to the existing plant. In addition, the RBEP power block location is bounded to the west by the existing 66kV SCE switchyard. The existing 66kV switchyard is slated to remain in operation throughout construction, and therefore the RBEP power block, cannot be moved to the centralized location where the existing 66kV switchyard is currently located without taking the switchyard out of commission or relocating the existing switchyard. As SCE has an easement on the land where the switchyard is located, relocation or removal of the 66kV switchyard is not a feasible option.

b. The Applicant has carefully evaluated whether there is alternative site layout that would lessen potential visual impacts of the RBEP from key public observation points, including but not limited to, residential and recreational locations surrounding the facility. The RBEP site was located at the current location to take advantage of the grading within the Redondo Beach Generating Station property, and to place the RBEP at a lower elevation than the current plant, thereby reducing the visual impacts from nearby residents and businesses. We have concluded that the current proposed location is the optimal location in terms of minimizing visual impacts. We will provide further explanation and substantiation of this conclusion in a supplemental response within 30 days.

c. The Applicant has carefully evaluated whether there is an alternative site layout directed toward lessening potential noise changes/impacts of the RBEP to adjacent sensitive receptors including residential and recreational locations surrounding the facility. We have concluded that the current proposed location is the optimal location in terms of minimizing noise impacts. We will provide further explanation and substantiation of this conclusion in a supplemental response within 30 days.

Source:Department of Public Work's Water Resources Division(2004).
Esri, i-cubed, USDA, USGS, AEX, GeoEye, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community

0 500 1,000 Feet

Legend

- AES Redondo Beach Energy Project
- Laydown and Parking Areas
- Existing RBGS Aboveground Facilities
- Existing SCE 230 kV Switchyard
- Existing SCE 66 kV Switchyard
- Proposed RBEP Aboveground Facilities
- City Boundary

Figure DR 51-1
Existing and Proposed Features
AES Redondo Beach Energy Project
Redondo Beach, California

Cultural Resources (52–66)

Background

The Redondo Beach Energy Project (RBEP) application for certification (AFC) states that temporary roads, laydown areas, work areas, and construction parking areas would be covered with rock aggregate (AES 2012a:2-36). The AFC does not appear to identify the source(s) of rock aggregate or whether fill dirt from off-site sources would be required for construction. Procurement of construction materials, such as rock and soil, from off-site sources has the potential to cause a variety of environmental impacts. For example, if soil or rock were removed from a previously unidentified, off-site archaeological resource, damage to the resource would result. Such ground disturbance could also disturb human remains or sensitive plant communities.

DATA REQUEST

52. What is the applicant's proposed source(s) for obtaining rock aggregate for construction? If the exact facility/vendor is not currently known, indicate whether the rock aggregate would be purchased from a commercial facility or obtained through other means.

Response: A notice of objection to Data Requests 48, 49, 52, and 64 through 66 was filed on November 27, 2013.

Background

The AFC states that construction-related excavations are expected to reach depths of up to 10 feet below ground surface, except for foundation pilings, which would be driven about 40 feet or more below the current ground surface (AES 2012a:5.3-2). Staff believes, however, that some proposed project components could require excavation to greater depths than those given in the AFC. Namely, excavation of the transmission tower foundations might entail excavation in excess of 10 feet below ground surface, as could the demolition of some existing utilities and installation of new utilities. It is unclear whether the proposed transmission tower foundations and utilities fit the profile that the AFC gives for excavation depths of 10 and 40 feet, respectively. This information is critical for staff to assess potential impacts on cultural and paleontological resources.

DATA REQUEST

53. Confirm that the proposed transmission tower foundations and demolished and new utilities would be confined to depths of either up to 10 feet or up to 40 feet below ground surface. Provide more specific excavation depths for these proposed facilities if such information is available at this time.

Response: Engineering drawings of existing transmission poles within the Redondo Beach Generating Station facility identify existing foundations to be 39 feet below grade level. However all existing transmission towers not reused as part of RBEP will be demolished only to foundation level, and subsurface disturbance will not occur at these locations. The foundation piles for the proposed transmission towers are anticipated to be a maximum of 40 feet below grade. Proposed utilities are anticipated to be confined to a maximum depth of 10 feet.

Background

The AFC states that the "majority of the existing storm drains onsite will remain in place" (AES 2012a:2-15). Staff has examined the preliminary grading and drainage plans in Appendix 5.15a to the AFC and cannot discern which storm drains would be removed and which would be left in place. Staff needs this information to determine the extent of excavation needed to implement the proposed project.

DATA REQUEST

54. Please provide a figure depicting the locations of storm drains that would be slated for removal, at a scale similar to the plans in Appendix 5.15a to the AFC. Also identify the depth of excavation required to remove the storm drains.

Response: The existing and proposed storm drains are depicted in a conceptual utility plan provided as Figure DR 54-1. Figure DR 54-1 also denotes the proposed RBEP. Please note the following:

Existing utilities within the RBEP boundary will be reused or removed as necessary. Existing utilities which are not needed to support RBEP and which are outside of the proposed RBEP site boundary will be retired in place.

- The existing grade level of the area slated for the RBEP, exclusive of the empty tank dikes, ranges from 20 feet above sea level (FASL) to 15 FASL.
- The elevation of the existing storm drain within the RBEP boundary ranges from approximately 17 FASL to approximately 7 FASL.
- The existing storm drain system outside of the RBEP boundary, but within the Redondo Beach Generating Station will remain in place and will not be removed or excavated. Small portions of the existing storm drain system within the RBEP boundary which are located where new equipment foundations will be placed or where excavations are needed for construction will be removed and/or rerouted.
- New storm water drains will be installed within the RBEP to convey rainwater to the new retention pond. The bottom of the proposed retention pond is proposed to be at 10 FASL.
- The top of new proposed storm water drain lines are assumed to have an average depth of 4 feet.
- The top of new potable, process and fire water mains is assumed to be at an average depth of 4.5 feet.
- The top of new natural gas lines are assumed to have a depth of 10 feet.

Background

The cultural resources section of the AFC and the cultural resources inventory report contain information backed by in-text citations that lack corresponding bibliographic entries in the References Cited or Consulted section of both documents (AES 2012a:5.3-41-46; Cardenas et al. 2012:6-1-6). Without this bibliographic information, staff, parties, and the public have no way to verify the accuracy of certain statements made in the AFC and cultural resources inventory report. In turn, this hinders efforts to assess the potential impacts of the RBEP on cultural resources. The table immediately below identifies the missing citations, which document is missing the citations, and on which page(s) the citations occur in the respective documents.

Missing Citation	Document and Page Number	Notes/Comments
King 1967	Cardenas et al. 2012:2-2	Section 6 of the report contains a reference to King 1971, which is cited in the corresponding AFC discussion (AES 2012a:5.3-11).
Missing citation	Cardenas et al. 2012:2-2	The fourth full paragraph on this page contains an opening parenthesis, with no citation within or closing parenthesis, sentence ending, "...have been in operation (." Corresponding discussion in the AFC does not give indication of a missing citation, ending the sentence at "operation" (AES 2012a:5.3-11).
ERHA n.d.	AES 2012a:5.3-17; Cardenas et al. 2012:2-8	None.
Fuller 1940	Cardenas et al. 2012:4-4	Cardenas et al. 2012:6-2 appears to have mixed bibliographic information for Friedricks 1987 and Fuller 1940. AES (2012a:5.3-43) clearly separates the two.

NPS 2008	AES 2012a:5.3-8	None.
NPS 1983	AES 2012a:5.3-29	None.

In addition, Tables 1 and 5.3-1 in the cultural resources report and AFC (respectively) present the author, year, and South Central Coastal Information Center (SCCIC)[2] report number for previous cultural resource studies in the applicant's records search area. A note in the tables refers the reader to Appendix 5.3C for the bibliographic data associated with each of the tabulated reports rather than reproducing this information in the References Cited and Consulted sections of the AFC and cultural resources report. Staff finds this situation problematic. Appendix 5.3C is a confidential submittal and cannot be released to the public without individuals or organizations petitioning the Energy Commission's Dockets Unit to review the appendix. Therefore, the public and other parties are unable to determine what types of studies were conducted in records search area.

DATA REQUEST

55. Clarify whether King (1967), cited in Cardenas et al. (2012:2-2), should have been cited as King (1971).

Response: Please note citations in the AFC supersede citations in the technical report; however, the King 1971 citation in the technical report Cardenas et al. (2012:2-2) should be listed in the Reference section of that report as:

- King, Chester. 1971. Chumash Inter-Village Economic Exchange. In *The Indian Historian* Vol. 4, No. 1, San Francisco: American Indian Historical Society: 31-34.

56. Provide the citation missing from Cardenas et al. (2012:2-2), or confirm that a citation is unnecessary, as in the corresponding discussion in the AFC (AES 2012a:5.3-11).

Response: In the conversion of the file from MS Word to Adobe pdf, there appears to have been an inadvertent conversion error. The technical report (Cardenas et al. 2012:2-2) should read as follows:

> The first evidence of cemeteries are recorded during this period and based on the relative absence of non-utilitarian artifacts, an egalitarian social system was likely to have been in operation. Recent evidence indicates that the first permanent villages may have been erected during the Middle Holocene on San Clemente Island (Byrd and Raab, 2007).

57. Provide bibliographic information for ERHA (n.d.) and NPS (1983, 2008).

Response: As noted in DR 55, citations in the AFC supersede citations in the technical report.

The following reference for ERHA is included in both the AFC (AES 2012) and the technical report (Cardenas et al. 2012):

- The Electric Railway Historical Association of Southern California (ERHA). n.d. Henry E. Huntington. Online resource accessed on February 16, 2012 at: http://www.erha.org/henrhunt.htm

The AFC (AES 2012) and the technical report (Cardenas et al. 2012) contain a reference to Arlington Man. The AFC cites (NPS, 2008) and the technical report cites (NPS, n.d.). The AFC does not have a corresponding reference in the References section. The technical report has the following reference listed:

- National Park Service (NPS). n.d. Arlington Man. Internet website accessed on April 26, 2012 at: http://www.nps.gov/chis/historyculture/arlington.htm

[2] The SCCIC is part of the California Historical Resources Information System, the State of California's official repository for known cultural resources and previous cultural resource studies. The SCCIC contains these records as pertains to the counties of Los Angeles, Orange, and Ventura.

However, neither is correct. The article was written by Dr. John R. Johnson, curator of anthropology at the Santa Barbara Museum of Natural History. The References section for both reports should read,

- Johnson, John. R. n.d. Arlington Man. Internet website accessed on April 26, 2012 at: http://www.nps.gov/chis/historyculture/arlington.htm

In addition, the following citation was missing from References for the AFC (AES, 2012):

- National Park Service (NPS). 1983. Secretary of the Interior's Professional Qualification Standards. Electronic document, accessed May 11, 2013, http://www.cr.nps.gov/local-law/Prof_Qual_83.htm

58. Confirm whether the AFC is correct in separating the Fuller (1940) and Friedricks (1987) bibliographic information.

Response: As noted in DR 55, citations in the AFC supersede citations in the technical report.

As stated in the AFC, the citation should read as follows:

Friedricks, William B. 1987. "Henry E. Huntington and Metropolitan Entrepreneurship in Southern California, 1898-1917." University of Southern California. *Business and Economic History*, Second Series, Volume Sixteen, 1987. Board of Trustees of the University of Illinois. Library of Congress Catalog No. 87-72645. Accessed on-line May 16, 2012. http://www.thebhc.org/publications/BEHprint/v016/p0199-p0204.pdf

Fuller, Bertha H. 1940. Application for the Registration of a Historical Point of Interest for the Old Salt Lake. On file, SCCIC, Cal-State Fullerton, Fullerton, California.

59. Provide full bibliographic information for the reports cited in AES (2012a: Table 5.31) and Cardenas et al. (2012: Table 1). Follow the references cited format of the Society for American Archaeology's most recent Style Guide, including disclosure of the entity responsible for report preparation and the entity for which the reports were prepared. Do not simply provide the bibliographic list generated by the SCCIC, as the list does not contain all of the information of interest to staff and other parties.

Response: The bibliographic information for the reports cited in AES (2012a: Table 5.31) and Cardenas et al. (2012: Table 1) are provided in the Society for American Archaeology style guide as Attachment DR 59-1.

Background

As required by Title 20, California Code of Regulations §1704(b)(2) and Appendix B thereto (CEC 2007:24, 86), the applicant provided copies of all cultural resources reports that document survey coverage within the project area or within 0.25 mile of it. Pursuant to the same regulation, the applicant also provided the Energy Commission with copies of reports pertaining to archaeological excavations in the records search area. (AES 2012b) During the course of staffs review of the AFC, staff observed that the copy of Demcak (1990) is missing every other page, beginning with page 1[3]. Demcak (1990) reports on archaeological findings at the site of Engva, a documented

DATA REQUEST

60. Please provide the missing pages from Demcak (1990) or a complete copy of the report.

Response: The entire report is provided under a request for confidentiality as Attachment DR 60-1.

[3] Staff did not catch this missing information during data adequacy review because all but one page of Demcak (1990)—as reproduced in AES (2012b)—is not paginated.

Background

The applicant's account of obtaining recent records search data for the proposed project is internally inconsistent. The AFC and cultural resources report state that CH2M Hill requested a records search from the SCCIC on August 30, 2011 (AES 2012a:5.3-24; Cardenas et al. 2012:3-1). Appendix 5.3C contains a records search results letter from the SCCIC dated September 1, 2011 (AES 2012b; Galaz 2011). Appendix 5.3C to the AFC, however, contains a records search request letter dated May 14, 2012 (AES 2012b; Cardenas 2012). It is unclear if the 2012 request yielded information not included in the 2011 records search or in the AFC.

DATA REQUEST

61. Did the applicant request two separate records searches, one in 2011 and one in 2012? If so, did the 2012 records search yield information not included in the 2011 records search or in the AFC? If so, please provide copies of the site records and reports, consistent with the requirements of Appendix B to Title 20, California Code of Regulations §1704(b)(2).

Response: Only one literature search was requested for this project by CH2M HILL on August 30, 2011. The results were sent to CH2M HILL from the SCCIC on September 1, 2011. The date identified in the request for a literature search letter in Appendix C is a typographical error.

Background

The California Environmental Quality Act (CEQA) and State CEQA Guidelines direct lead agencies to identify historical resources and unique archaeological resources that may be affected by proposed projects, and assess their impacts on those resources (Pub. Resources Code, §21083.2[a]; 14 Cal. Code Regs., §15064.5(b] and [c]). Lead agencies (in this case, the Energy Commission) "shall determine whether a significant effect on the environment based on substantial evidence in light of the whole record" (Pub. Resources Code, §21082.2), as defined at Title14, California Code of Regulations, section 15384. CEQA practice recognizes the value of incorporating historic records in efforts to identify historical and unique archaeological resources (Governor's Office of Planning and Research 1999:360).

The AFC and cultural resource report list the historic maps and aerial photographs examined by the applicant's environmental consultant; staff located additional historic maps and aerials among the records search material and appendices to the AFC (AES 2012a:5.3-25, Figure 5.3-2; AES 2012b:4-2; EMS 2012; Lee 1990: Figure 6). An attempt was made in the AFC and cultural resources report to provide the requisite level of information needed by staff to evaluate project impacts on historical and unique archaeological resources. The presentation of the applicant's review of historic maps and aerial photographs, however, is only adequate for staffs analysis up to the 1890s—the AFC and supporting documents contain no historic maps dating to earlier phases of human occupation of the project vicinity (that is, A.D. 1769-1880s). The purpose of such research in a cultural resources impact analysis is to obtain a visual understanding of the natural and cultural development of the land in and around the project area of analysis (PAA), identify locations of potential historic built environment and archaeological resources, and have a partial, chronological record of disturbances in the PM. To this the applicant should attempt to locate detailed maps of the PM at 10-year intervals[4], beginning about A.D. 1769 and, in the present case, terminating with the 1880s. Indeed, given the AFC's disclosure that the Spanish once used the proposed project site to gather salt from Old Salt Lake, it seems to staff that the lack of pre-1890s historic maps is a considerable neglect of important source documents about the entire Spanish and Mexican periods and about a third of the American period in the project vicinity. The age of building and structural remnants on historic archaeological resources inform on the likelihood of encountering refuse pits or artifact-filled privy pits

[4] Five- to 10-year intervals are widely regarded as a reasonable basis on which to observe mapped changes in landscapes and settlement patterns in historical research (Conzen 1990:189).

(outhouse pits). Features such as refuse and privy pits frequently contain sufficient archaeological information to qualify archaeological resources for listing on the California Register of Historical Resources. The number and range of archaeological and historic built environment resources is likely to be underrepresented in cultural resource studies that do not include a comprehensive review of available historic maps. In turn, the quality of cultural resources impact assessments may suffer.

Additionally, neither the cultural resources section of the AFC nor confidential cultural resources report cites the aerial photographs that the applicant examined, except to state that the photographs were found in the Huntington Digital Library (AES 2012a:5.324; Cardenas et al. 2012:3-1). This leaves staff, parties, and the public unable to discern the span of years covered by the aerial photographs, let alone interpret the photographs for themselves. Whereas staff, parties, and the public theoretically could consult the Huntington Digital Library to examine the aerial photographs, online archives and libraries are subject to change, which hinders one's ability to understand the basis for the applicant's analyses and conclusions.

DATA REQUEST

62. Please review historic maps of the proposed project area that date between 1769 and the 1880s. Include survey and rancho plats drafted by the General Land Office, as well as Spanish disefios. Provide documentation of any evidence of historic features in the project area and copies of those portions of historic maps that cover the proposed project area.

Response: Additional map research was conducted and is provided as Attachment DR 62-1. Depositories searched for this data request include the Huntington Digital Library, the BLM Land Patent and General Land Office database, the University of Alabama online map database, the University of Southern California libraries digital collection, Calisphere, an online database maintained by the University of California system, and the Los Angeles Public Library. Lastly, the California BLM office was contacted regarding plat maps. The following maps were found and reviewed:

- October 1852 Diseño of the Sausal Redondo, from Diseños : maps and plans of ranchos of Southern California, mostly within Los Angeles and Orange counties, electronic document from Calisphere, http://imgzoom.cdlib.org/Fullscreen.ics?ark=ark:/13030/hb2h4nb1ph/z72&order=75&brand=calisphere
- 1852 Diseño of Sausal Redondo (Tajuata), from Diseños : maps and plans of ranchos of Southern California, mostly within Los Angeles and Orange counties, electronic document from Calisphere, http://imgzoom.cdlib.org/Fullscreen.ics?ark=ark:/13030/hb2h4nb1ph/z73&order=76&brand=calisphere#
- 1852 Diseño of Sausal Redondo (different orientation), from Diseños : maps and plans of ranchos of Southern California, mostly within Los Angeles and Orange counties, electronic document from Calisphere, http://imgzoom.cdlib.org/Fullscreen.ics?ark=ark:/13030/hb2h4nb1ph/z74&order=77&brand=calisphere#
- January 1856 Map of Rancho San Pedro, showing a part of Township 4 South, Range 14 West, from the Huntington Digital Library, http://hdl.huntington.org/cdm/singleitem/collection/p15150coll4/id/11535/rec/8.
- June 1885 That Part of the Rancho San Pedro; allotted to Manuel Dominguez, showing the Salt Flat and the Southern Pacific Railroad, from the Huntington Digital Library, http://hdl.huntington.org/cdm/singleitem/collection/p15150coll4/id/11600/rec/9.
- 1928 Official map of the City of Redondo Beach, Los Angeles County, California. Drawn by Victor H. Staheli, City Engineer. http://hdl.huntington.org/cdm/singleitem/collection/p15150coll4/id/3677/rec/4

Background

DATA REQUEST

63. Please provide bibliographic information for the aerial photographs referenced in the cultural resources section of the AFC and the confidential cultural resources report (see AES 2012a:5.3-24; Cardenas et al. 2012:3-1). Include the following information:

    - Author
    - Date of publication
    - Title of photograph
    - Scale of photograph
    - Date of flight
    - Publisher and place of publication
    - Specific URL for the photograph

Response: Aerials referred to in the technical report and in the AFC section are cited from other sources.

A geotechnical evaluation for redevelopment of the Redondo Beach Generating Station was conducted at the site in 2001 by URS (URS, 2001). The report contains the following historical information regarding site development:

> Review of 1940 aerial photographs showed that a portion of the north part of the property had been developed with a power plant, portions of the site were undeveloped, and an elliptical-shaped lake, estimated to be approximately six acres, was located on the site. The surface elevation of the lake was estimated to be near sea level.

A preliminary geotechnical evaluation was completed in 2011 by Ninyo & Moore (Ninyo & Moore, 2011). From this report, the following statement was paraphrased in the AFC:

> A 1940 aerial photograph shows the Old Salt Lake within the RBEP study area near the power plant which was extant on the property at that time. By 1947, however, the original power plant had been removed, and the lake had been filled (Ninyo & Moore, 2011).

References for these two reports is as follows:

- Ninyo & Moore. 2011. *Preliminary Geotechnical Evaluation, Redondo Beach Generating Station 1100 North Harbor Drive, Redondo Beach, California.* October.
- URS, 2001, Preliminary Geotechnical Investigation, Redevelopment of AES Redondo Beach Property, 1100 North Harbor Drive, Redondo Beach, California, dated March.

In addition, the following statement is also made in the AFC: "Historical aerials and photographs show this first power plant located at the edge of the Salt Lake in 1940." (AES 2012a:5.3.1.2). Ninyo & Moore (2011) is the correct citation for this statement.

References for photographs reviewed by CH2M HILL are as follows:

- Redondo Beach Steam Plant looking West across salt pond. Taken 11/26/1911. From Southern California Edison Photoraphs and Negatives, housed at Henry E. Huntington Library and Art Gallery. Electronic document, http://hdl.huntington.org/cdm/singleitem/collection/p16003coll2/id/1666/rec/118.
- Redondo Beach, looking northeast. Taken by Howard D. Kelly, 1960. From the Kelly-Holiday Collection of Negatives and Photographs. Made accessible through a grant from the John Randolph Haynes and Dora Haynes Foundation. Electronic document, Los Angeles Public Library, http://jpg1.lapl.org/00102/00102906.jpg

- Redondo Beach aerial view. No date; however, the aerial shows an earlier steam station and appears consistent with the 1924 aerial. From the Security Pacific National Bank Collection. Electronic document, Los Angeles Public Library, http://jpg3.lapl.org/pics07/00023343.jpg
- Aerial view of Redondo Beach looking north along the coast. The SCE power plant is in the foreground. No date. Los Angeles Public Library, electronic document, http://jpg3.lapl.org/pics07/00023333.jpg
- Aerial view of Redondo Beach, 1924. A small area of the APE is visible in this aerial. From the Security Pacific National Bank Collection. Electronic document, Los Angeles Public Library, http://jpg3.lapl.org/pics07/00023367.jpg

Background

Historical Landscape and Site Design Elements

In the early to mid-20th Century, it was not unusual for power plants and municipal services facilities to be set into landscaped grounds. The Redondo Beach Generating Station is an example of that trend, with its manicured lawn and plantings in the publicly visible areas of the plant site, specifically along Harbor Drive and the entrance area to the Administration Building. A number of landscape elements were included with the 1948 site plan and can be seen in historical photographs. These included the raised pedestal of lawn along the sidewalk fronting Harbor Drive and in front of the Administration Building, as well as foundation shrubs planted along both of these facades. The original foundation plantings along the Harbor Drive elevation appear to be mostly replaced with more recent plantings, while those at the front of the Administration Building may be original to the site.

The specimen tree in front and to the east of the entryway of the AES Administration Building at Redondo Beach appears to be a Moreton Bay Fig Tree, Ficus macrophylla. It is native to Australia and planted in Southern California, Florida, and Hawaii in the United States. It is an uncommon tree and it is rather surprising to find it on the site of a power plant. There are five of these trees on the AES Redondo Beach property. The large leaves (macrophylla) and distinctive fruit (figs) are characteristic of the tree, as are the large above-ground root system and broad growth habit. There is a grove of four of these trees at the southeast end of the property, south of where Fuel Oil Tank 4 once stood. The tree in front of the Administration Building has been nicely pruned and maintained, receiving regular water, while the grove of four trees at the southeastern end of the property appear to have been left to develop their own habits. They have striking above-ground roots and have multiple trunks. They appear healthy even with little maintenance or regular watering.

Some communities have given Moreton Bay Fig trees landmark or heritage tree status. Some notable heritage Moreton Bay Fig Trees are at the following locations in Southern California:

- Monrovia Public Library, Monrovia
- Old Man Tree, Oceanside
- Rancho Los Alamitos, Long Beach[5]

Historical photographs from the Huntington Digital Library Edison Collection[6] indicate that the tree at the Administration building post-dates 1955. Google Earth historical imagery shows all the fig trees at mature sizes as early as 1994. Historicaerials.com has a 1972 image which appears to show trees in the locations where they exist today. An image from 1953 has a faint indication of the grove of four trees. This is prior to installation of Fuel Oil Tank 4. Therefore, it is possible to extrapolate that the grove of four trees were

[5] http://www.rancholosalamitos.com/index.html

[6] Huntington Digital Library: Southern California Edison Photographs and Negatives. http://hdl.huntington.org/cdmilandingpage/collection/p16003coll2

planted or appeared as volunteers in the early 1950s. Staff has been unable to determine an approximate date for the tree in front of the Administration Building using these sources.

The extant palm trees aligned with the sidewalk on Harbor Drive post-date the 1955 photograph. Shadows cast by palm trees (Washingtonia robusta) in front of Units 7 & 8 appear in a 1980 aerial from historicaerials.corn, but they do not at this time appear along the entire Harbor Drive frontage. Google Earth historical imagery from 1994 shows the palm trees in their current locations along Harbor Drive. In addition, there is an existing group of three palm trees in the foundation plantings of Plant 1 but they are difficult to see in historical aerial imagery. They appear to be of mature size and height, much like the palm trees along the road.

DATA REQUEST

In order to better understand the landscape elements of the site, its design and evolution over time and how such site elements relate to the period of significance for the historic-age power plant, staff requires the following information.

64. Confirm and report the genus, species and age of the five fig trees extant on the AES Redondo Beach property in consultation with a Registered Consulting Arborist (American Society of Consulting Arborists), or, after consultation with Energy Commission Cultural and Biological Resources staff, another qualified tree professional, such as a botanist or biologist familiar with non-native tree species.

Response: A notice of objection to Data Requests 48, 49, 52, and 64 through 66 was filed on November 27, 2013.

65. Confirm and report the genus, species and age of the extant palm trees on the AES Redondo Beach property frontage along Harbor Drive in consultation with a Registered Consulting Arborist (American Society of Consulting Arborists), or, after consultation with Energy Commission Cultural and Biological Resources staff, another qualified tree professional, such as a botanist or biologist familiar with palm species.

Response: A notice of objection to Data Requests 48, 49, 52, and 64 through 66 was filed on November 27, 2013.

66. Confirm and report the genus, species and age of the juniper shrubs extant on the AES Redondo Beach property in the foundation plantings of the front entry to the Administration Building (north elevation) in consultation with a Registered Consulting Arborist (American Society of Consulting Arborists), or, after consultation with Energy Commission Cultural and Biological Resources staff, another qualified tree professional, such as a botanist or biologist, familiar with non-native tree and shrub species.

Response: A notice of objection to Data Requests 48, 49, 52, and 64 through 66 was filed on November 27, 2013.

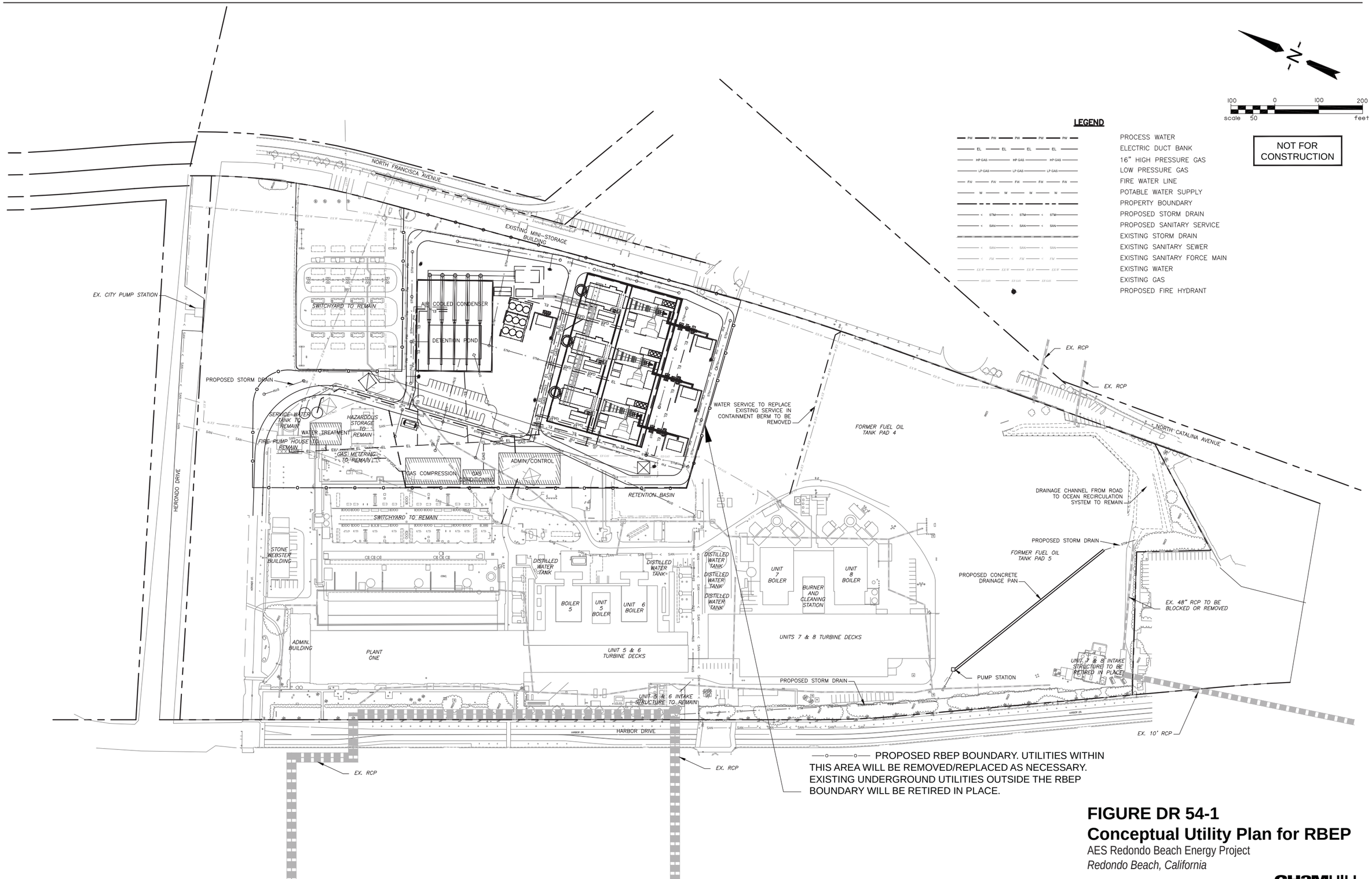


FIGURE DR 54-1
Conceptual Utility Plan for RBEP

AES Redondo Beach Energy Project

Redondo Beach, California

CH2MHILL

Attachment DR59-1
Bibliographic Information for Reports Cited

Billat, Lorna
2006 *Sunnyglen Park/la-2889b, 5525 Del Amo Boulevard, Torrance, Los Angeles County. Ca 90503* EarthTouch, Inc.

Bonner. Wayne H.
2002 *Cultural Resources Monitoring Tyco Global Network (TGN) Transpacific Fiber Optic Cable and Hermosa Beach Landing Project, City of Hermosa Beach. Los Angeles County, California* W. H. Bonner Associates

Bonner, Wayne H.
2007 *Cultural Resources Records Search and Site Visit Results for Royal Street Communications, Llc Candidate La2619a (Redondo Beach Sce), 834 North Lucia Avenue, Redondo Beach. Los Angeles County, California* Michael Brandman Associates

Bonner, Wayne H.
2007 *Cultural Resources Records Search and Site Visit Results for T-Mobile Candidate LA03370E (Beach Cities Medical), 514 North Prospect Avenue, Redondo Beach, Los Angeles County, California* Michael Brandman Associates

Bonner, Wayne H.
2009 *Cultural Resources Records Search and Site Visit Results for T-Mobile USA Candidate LA03370G (Redondo Beach Lattice Tower), 896 North Prospect Avenue, Redondo Beach, Los Angeles County, CA.* Michael Brandman Associates

Bucknam, Bonnie M.
1974 *The Los Angeles Basin and Vicinity: a Gazetteer and Compilation of Archaeological Site Information* California State University, Long Beach

Carmack, Shannon and Judith Marvin
2004 *Cultural Resources Assessment Hermosa Valley High School Gymnasium and Classrooms Project City of Hermosa Beach, Los Angeles County, California* LSA Associates. Inc.

Demcak, Carol R.
1990 *Archaeological Assessment of the Property located at 8111 North Catalina Avenue, Redondo Beach, County of Los Angeles, California* Archaeological Resource Management Corp.

Dillon, Brian D.
1980 *Archaeological Resource Survey and Impact Assessment of Torrance Blvd. Between Lucia and Francisca Streets, City of Redondo Beach* University of California, Los Angeles Archaeological Survey

Dillon. Brian D.
1985 *An Archaeological Resource Survey and Impact Assessment of Torrance Blvd. Between Lucia and Francisca Streets, City of Redondo Beach, California* UCLA

Dreizler, Patricia, Gloria Snyder, Harry Johnson, and Pat Botsai
1986 *Historic Resources Survey - City of Redondo Beach* Thirtieth Street Architects

Duke, Curt
2002 *Cultural Resource Assessment AT&T Wireless Services Facility No. 05163a Los Angeles County, California* LSA Associates, Inc.

Duke, Curt
2002 *Cultural Resource Assessment AT&T Wireless Services Facility No. D158d Los Angeles County, California* LSA Associates, Inc.

Duncan-Abrams, Marguerite and Barbara Milkovich
1995 *City of Redondo Beach Historic Context Statement* Historical Resource Management

Gallegos, Dennis R.
1994 *The Archaeological Investigation of CA-scli-847 San Clemente Island, California* Gallegos & Associates

Gray, Deborah
1991 *Cultural Resource Assessment for Pacific Bell Mobile Services Facility La 474-02, in the County of Los Angeles, California* LSA Associates, Inc.

Greenwood, Roberta S.
1990 *Historical and Architectural Evaluation, 811-819 North Catalina Avenue, Redondo Beach* Greenwood and Associates

Hasley, Ed
1992 *Proposed South Coast Resource Management Plan and Final Environmental Impact Statement* Bureau of Land Management

Hatheway, Roger G.
1983 *Cultural Resources Assessment of the General Plan and Zone Changes for the Hermosa Beach School District Properties Hermosa Beach, California* Jim Hinzdel & Associates

Hector. Susan M.
1976 *Engineer Report for South Bay Cities Main Extension No. 3 Relief Trunk Sewer (#2)* University of California, Los Angeles Archaeological Survey

Hill, James N.
1985 *Cultural Evolution in the Archaic/Mesolithic: A Research Design for the Los Angeles Basin* Archaeological Resource Management Corp.

Kaufman, Susan Hector
1976 *Archaeological Resources Within the Los Angeles County Area Are Evaluated As to the Importance, Nature, and Location These Resources Are Analyzed Following Careful Review of Maps and Archival Material Housed at the UCLA, Archaeological Survey* University of California, Los Angeles Archaeological Survey

Mason, Roger D.
2001 *Cultural Resources Records Search and Literature Review Report for an American Tower Corporation Telecommunications Facility: Number La_990_n1 Anita Prospect in the City of Redondo Beach, Los Angeles County, California* Chambers Group, Inc.

Maxwell, Pamela
1991 *Redondo Beach Breakwater Repair: Cultural Resources*

McKenna. Jeanette A.

1991 *Results of a Standard Prehistoric Archaeological Records Check, City of Redondo Beach, Los Angeles County, California - General Plan Eir* McKenna et al.

McKenna, Jeanette A.
2002 *An Evaluation of the Residential Structure Located at 291 S. Francisca Avenue, City of Redondo Beach, Los Angeles County, California* McKenna et al.

McKenna, Jeanette A.
2003 *Evaluation of the Residential Structure Located at 625 Diamond Street, Redondo Beach, Los Angeles County, California* McKenna et al.

McKenna, Jeanette M.
2009 *A Brief Historic Context Statement Prepared for the General Plan Update: The City of Torrance, Los Angeles County, California* McKenna et al.

McManus, Jim
1996 *Results of Phase Ii Testing: CA-LAN-1872-h, 811 Catalina Avenue Redondo Beach, Los Angeles County, California* Compass Rose Archaeological, Inc.

Pletka, Nicole
2003 *Cultural Resource Assessment AT&T Wireless Services Facility No. D158 Hermosa Beach, Los Angeles County, California* LSA Associates, Inc.

Romani, Gwendolyn R.
1990 *Archaeological Investigations at 811 North Catalina Avenue for the Proposed Commercial/Industrial Mini-storage Located in Redondo Beach, Los Angeles County, California* Greenwood and Associates

Stickel, Gary E.
1993 *Draft Report a Phase I Cultural Resources Literature Search for the West Basin Water Reclamation Project* Environmental Research Archaeologists: A Scientific Consortium

Stickel, Gary E.
1993 *A Phase I Cultural Resource Literature Search for the West Basin Water Reclamation Project* Environmental Research Archaeologists

Sturm, Bradley L.
1987 *Redondo Beach Harbor Feasibility Study - Cultural Resources Analysis* U.S. Army Corps of Engineers

Unknown
1983 *Cultural History Appendix 1: Redondo Beach Breakwater Emergency Repair History of Redondo Beach King Harbor* City of Redondo Beach

Unknown
2005 *Draft Environmental Impact Report Point View Project* PCR Services Corporation

Van Wormer, Stephen R.
1990 *Historical Assessment of the Property Located at 811 North Catalina Avenue, Redondo Beach, County of Los Angeles, California* Archaeological Resource Management Corp.

Wallace, William J.

1984 *Prehistoric Cultural Development in the South Bay District. Los Angeles County, California* University of Southern California

Wallace, William J.
2008 *Avocados to Millingstones: Papers in Honor of D.L True - Grave Goods vs. Midden Artifacts: The Case of Palmer-Redondo* Archaeological Research Center

Wlodarski, Robert J.
2005 *Records Search and Pedestrian Survey for Cingular Wireless Telecommunication Site El-0131-02 (sce - 190th & Paulina) Located at 895 E. Paulina Avenue. City of Redondo Beach, Los Angeles County, California* Cellular, Archaeological Resource, Evaluations

Woodward, Jim
1987 *Archaeological Survey of Redondo State Beach* California Department of Parks and Recreation

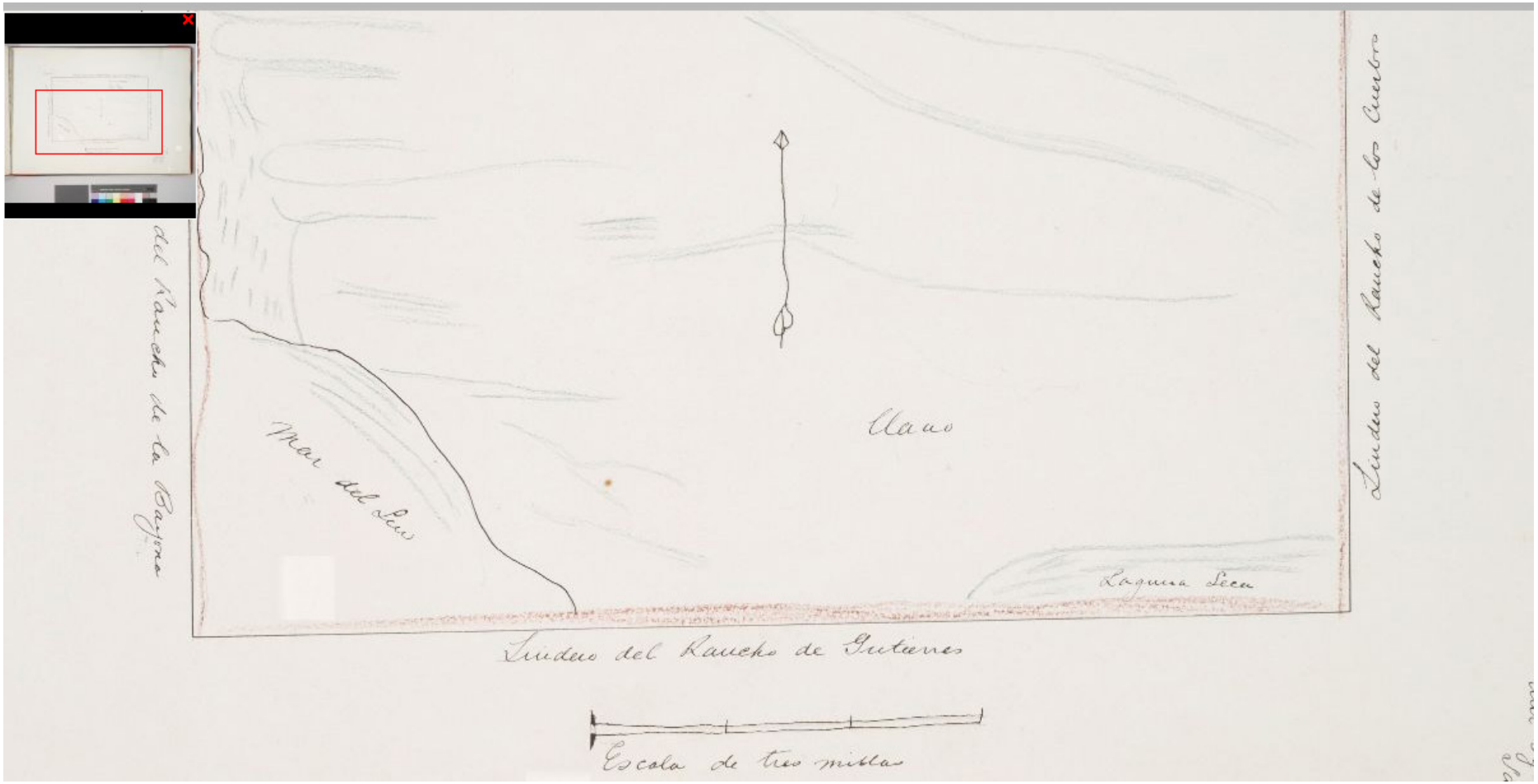
Attachment DR60-1
Demcak (1990) Report - CONFIDENTIAL

A copy of the 1990 Demcak report has been provided to CEC Staff under a request for confidentiality.

Attachment DR62-1
Historic Maps

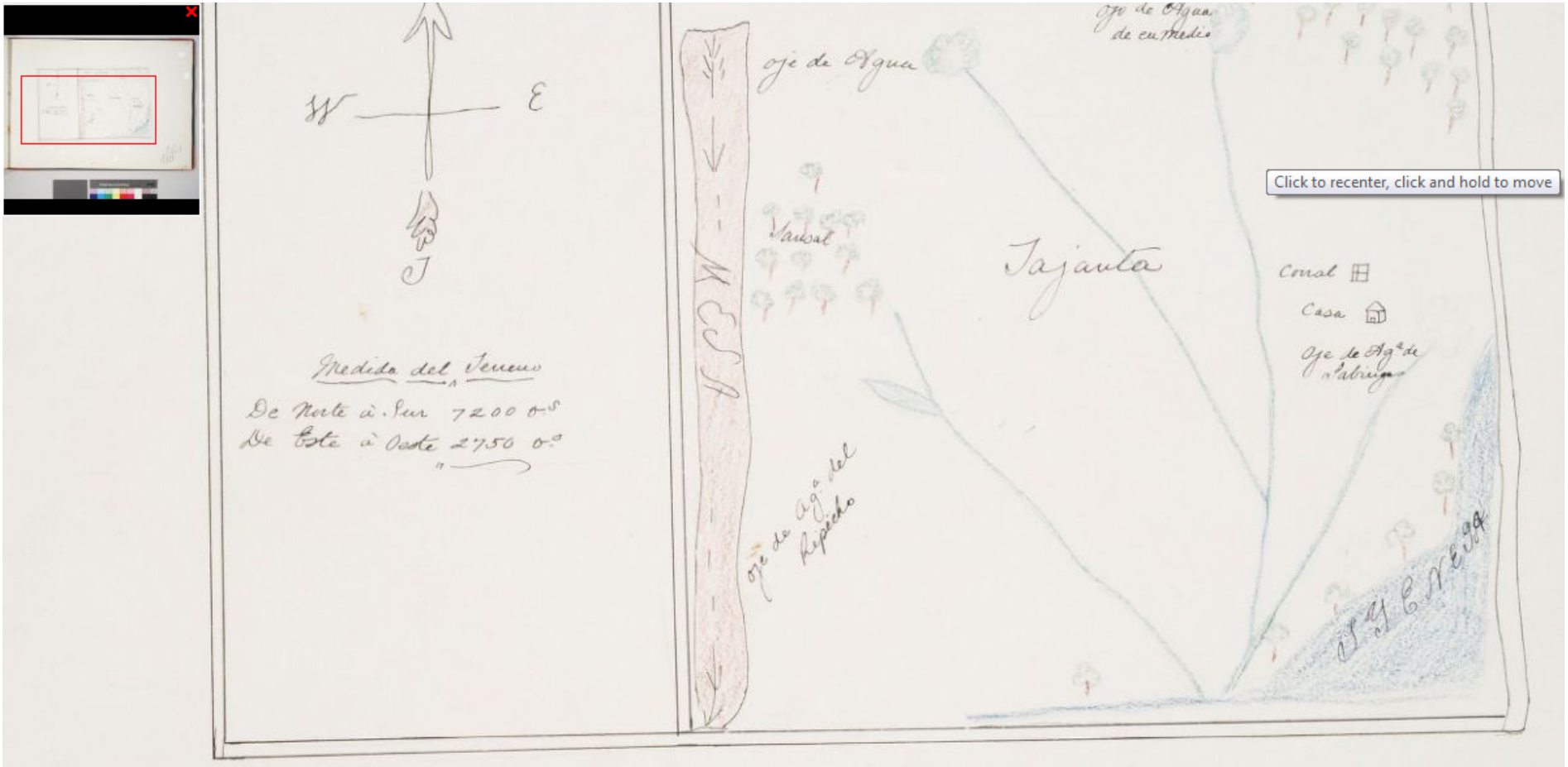
October 1852 Diseño of the Sausal Redondo, from Diseños: maps and plans of ranchos of Southern California, mostly within Los Angeles and Orange counties, electronic document from Calisphere,

http://imgzoom.cdlib.org/Fullscreen.ics?ark=ark:/13030/hb2h4nb1ph/z72&order=75&brand=calisphere


del Rancho de la Bajona
Mar del Sur
Llano
Laguna Seca
Lindero del Rancho de los Cuentos
Lindero del Rancho de Gutierres
Escala de tres millas

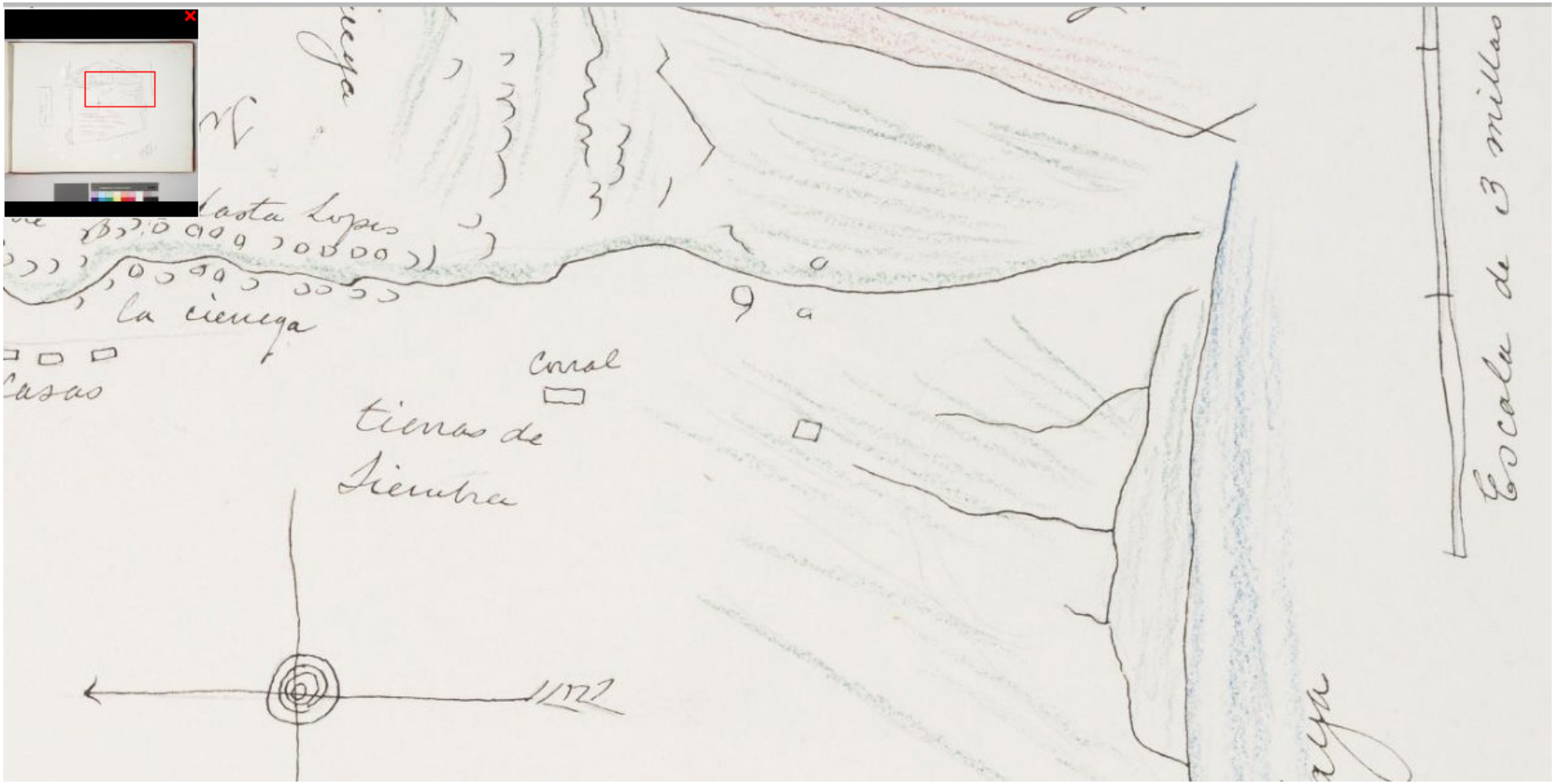
1852 Diseño of Sausal Redondo (Tajuata), from Diseños: maps and plans of ranchos of Southern California, mostly within Los Angeles and Orange counties, electronic document from Calisphere,

http://imgzoom.cdlib.org/Fullscreen.ics?ark=ark:/13030/hb2h4nb1ph/z73&order=76&brand=calisphere#


W
E
J
Medida del Terreno
De Norte à Sur 7200 Vs
De Este à Oeste 2750 Vs
Oje de Agua
Oje de Agua de en medio
Sabal
Tajauta
Canal
Casa
Oje de Agua de Sabinas
Oje de Agua del Rapido
Click to recenter, click and hold to move

1852 Diseño of Sausal Redondo (different orientation), from Diseños: maps and plans of ranchos of Southern California, mostly within Los Angeles and Orange counties, electronic document from Calisphere,

http://imgzoom.cdlib.org/Fullscreen.ics?ark=ark:/13030/hb2h4nb1ph/z74&order=77&brand=calisphere#


Escala de 3 millas
Corral
tierras de
Siembra
la ciénega

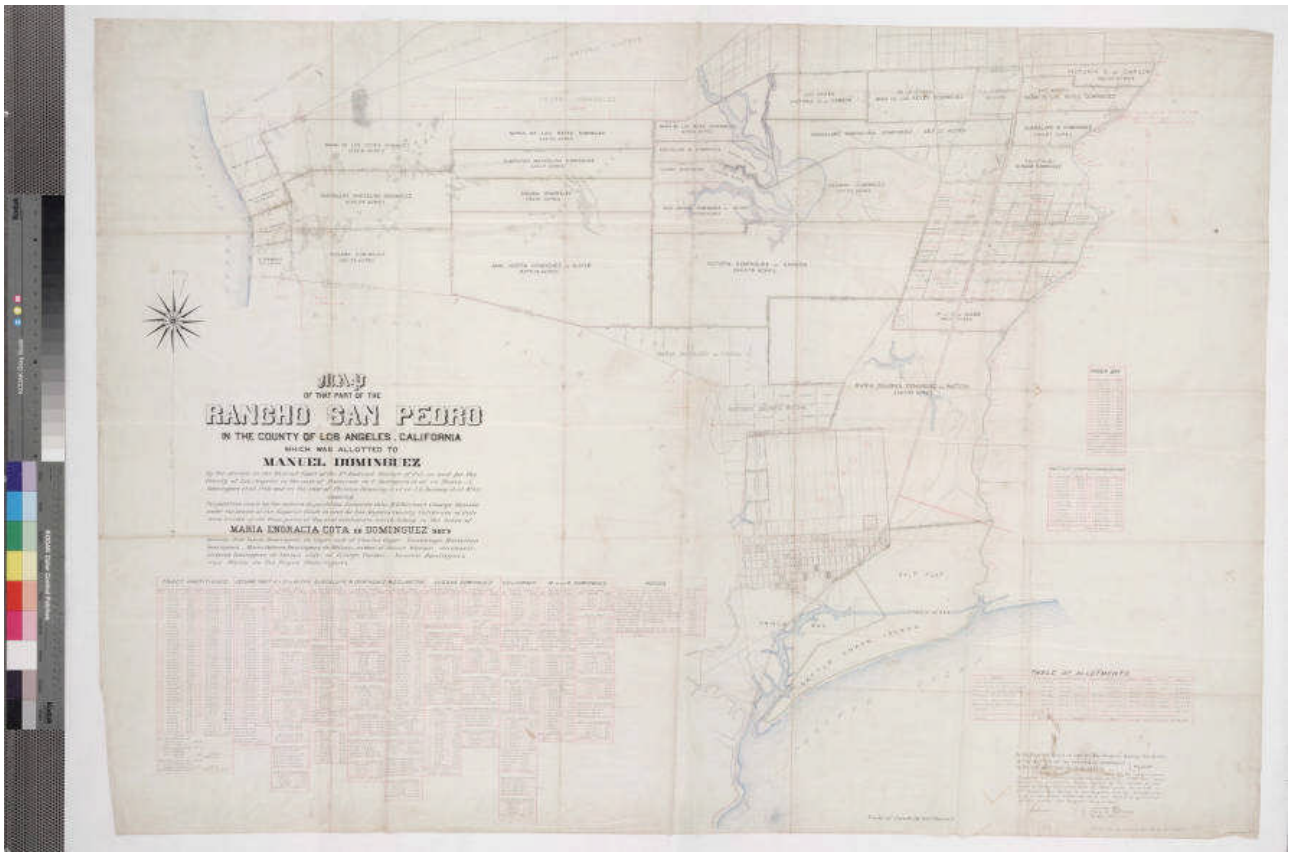
January 1856 Map of Rancho San Pedro, showing a part of Township 4 South, Range 14 West, from the Huntington Digital Library,

http://hdl.huntington.org/cdm/singleitem/collection/p15150coll4/id/11535/rec/8.


MAP
RANCHO

June 1885 That Part of the Rancho San Pedro; allotted to Manuel Dominguez, showing the Salt Flat and the Southern Pacific Railroad, from the Huntington Digital Library,

http://hdl.huntington.org/cdm/singleitem/collection/p15150coll4/id/11600/rec/9.


MAP
OF THAT PART OF THE
RANCHO SAN PEDRO
IN THE COUNTY OF LOS ANGELES, CALIFORNIA
WHICH WAS ALLOTTED TO
MANUEL DOMINGUEZ
MARIA ENGRACIA COTA de DOMINGUEZ
TABLE OF ALLOTMENTS

1928 Official map of the City of Redondo Beach, Los Angeles County, California. Drawn by Victor H. Staheli, City Engineer.


MARIA DE LOS N. DOMINGUEZ
GUADALUPE M. DOMINGUEZ
SUSANA DOMINGUEZ
PACIFIC OCEAN
CITY PARK
RANCHO
SAN
PEDRO
TRACT NO 2341
TRACTS & SUBDIVISIONS
BROADWAY
CATALINA
AVENUE