padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

December 21, 2021
Project No. 2101-0252

California State Lands Commission
100 Howe Avenue, Suite 100 South
Sacramento, California 95825-8202

Attention: Mr. Eric Gillies
Assistant Chief - Environmental Planning and Management

Subject: Letter-Report of Site Assessment Services, PRC 421 Decommissioning Project, Pier Access Road, Goleta, Santa Barbara County California

Dear Mr. Gillies:

Padre Associates, Inc. (Padre) has prepared this letter-report on behalf of the California State Lands Commission (CSLC) to document and summarize the results of site assessment activities completed at the PRC 421 Decommissioning Project, Pier Access Road, Goleta, Santa Barbara County, California (Project Site). Refer to Plate 1 - Site Location Map. The site assessment activities at the Project Site were completed by Padre on November 15, 18, and 19, 2021 in accordance with the Padre document titled *Technical Memorandum - Technical Work Plan, Soil Assessment Activities, PRC 421 Decommissioning Project, Pier Access Road, Goleta, Santa Barbara County, California*, dated November 15, 2021.

The PRC 421 access road at the Project Site consists of an elevated gravel-paved access road constructed at the base of a marine terrace bluff with artificial fill material armored with a combination of a rip-rap revetment wall and a wooden sea wall. The access road provides access from the Ellwood Onshore Facility (EOF) to the two PRC 421 short pier structures that support oil wells 421-1 and 421-2 and also contains two subsurface pipelines that formerly serviced the two oil production piers at the Project Site. The objective of the proposed scope of services was to conduct limited soil assessment activities along the PRC 421 access road to determine the potential presence of contaminants of concern. Additionally, the completed scope of services included limited assessment and sample analyses of the wooden sea wall for the potential presence of contaminants of concern.

SCOPE OF SERVICES

Padre completed the following tasks at the Project Site as part of the subject scope of work:

- Preparation of a site-specific Technical Work Plan and Health and Safety Plan (HASP);
- Notification to Underground Service Alert of Southern California (Dig Alert) prior to the start of ground disturbance activities;

- Procurement of Santa Barbara County Public Health Department - Environmental Health Services (SBCEHS) Geotechnical and Environmental Soil Boring Permit for the soil assessment activities;
- Utilization of a private utility locator to assess the subsurface pipeline alignment and the planned drill hole locations for the presence of subsurface infrastructure located along the access road;
- Padre advanced 20 Geoprobe® drill holes spaced at approximately 80-foot intervals along the access road to depths ranging from approximately 8-feet to 16-feet below ground surface (bgs) to facilitate the collection of discrete depth soil samples from each drill hole for chemical analyses;
- Chemical analyses 40 soil samples for the presence of petroleum hydrocarbons (TPH) identified as gasoline (C_4-C_{12}), diesel fuel (C_{13}-C_{22}), and motor oil (C_{23}-C_{40}) and benzene, toluene, ethylbenzene, and total xylenes (BTEX);
- Chemical analyses of 11 soil samples for the presence of volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs);
- Chemical analyses of eight soil samples for the presence of California Code of Regulations (CCR) Title 22 metals, and polychlorinated biphenyls (PCBs);
- Chemical analyses of three samples collected from the wooden sea wall for the presence of TPH identified as gasoline (C_4-C_{12}), diesel fuel (C_{13}-C_{22}), and motor oil (C_{23}-C_{40}), VOCs, SVOCs, CCR Title 22 metals, and PCBs; and
- Preparation of this letter-report to document the results of the site assessment activities.

Padre also completed asbestos-containing material (ACM) and lead-based paint (LBP) surveys at the Project Site on November 23, 2021. The scope of the ACM survey activities included the collection of samples of the pipe wrap materials identified on the 6-inch diameter steel pipeline that is exposed within a shallow ravine located at the margin of the marine terrace and the beach, northwest of the access road entrance gate. Refer to Plate 2 - Site Plan. The scope of the LBP survey included the collection of paint-chip samples from the 421-1 pier and 421-2 pier support structures. The results of the ACM and LBP survey activities are documented in the Padre document titled *Report of Findings - Asbestos and Lead-Based Paint Survey, PRC 421 Decommissioning Project, Pier Access Road, Goleta, Santa Barbara County, California,* dated December 2, 2021.

SCREENING LEVELS

Padre compared the laboratory analytical results for soil samples to the San Francisco Bay Regional Water Quality Control Board - Environmental Screening Levels (ESLs), dated 2019 (Revision 2). Specifically, constituents of concern in soil were compared to the Summary of Soil ESLs, Residential: Shallow Soil Exposure (Table S-1) and the Leaching to Groundwater Levels (Table S-3), Non-Drinking Water. The residential shallow exposure scenario is a conservative

scenario that assumes long-term use of a property for residential developments and other sensitive purposes. This scenario was selected based on the presence of petroleum hydrocarbons at depths of less than 10-feet bgs and the use of the land by the public for recreational purposes. The leaching to groundwater in a non-drinking water scenario was selected as a general indicator of potential leachability.

The laboratory analytical results for soil samples compared metals concentrations to California Code of Regulations (CCR) Title 22 Section 66261 for characterizing hazardous waste.

TECHNICAL WORK PLAN / HEALTH AND SAFETY PLAN

Padre prepared a site-specific Technical Work Plan (TWP) / Health and Safety Plan (HASP) for the site assessment activities planned at the Project Site. The TWP dated November 15, 2021 described the technical methods and approach that were utilized to complete the site assessment activities at the Project Site. The TWP described the drilling activities, soil and wooden sea wall material sample collection methods, the laboratory analytical program, and provisions for preparation of this letter-report to document the results of the site assessment activities. Padre updated the existing HASP for the area of the Project Site, which included procedures, equipment, and materials employed to protect worker and community health and safety during the course of site assessment activities at the Project Site.

SOIL ASSESSMENT ACTIVITIES

Padre marked the proposed drill hole locations with white paint and notified Underground Service Alert of Southern California (Dig Alert) at least two-full working days prior to the start of the ground disturbance activities at the Project Site. Padre conducted the soil assessment activities under Dig Alert Ticket Number A213190950-00A. Refer to Appendix A - Project Documentation.

Padre procured SBCEHS Geotechnical and Environmental Soil Boring Permit No. A19649 for the soil assessment activities. A copy of the permit is included with Appendix A.

Padre utilized the private utility locating services of SoCal Locators (SoCal) of Fontana, California. SoCal completed a subsurface utility investigation using electromagnetic and ground penetrating radar technologies to identify the alignments of the two pipelines located within the access road at the Project Site, as well as other identified subsurface anomalies.

Padre utilized the services of Strongarm Environmental Field Services, Inc. (Strongarm), a State of California C57 licensed drilling contractor of Fullerton, California to advance twenty Geoprobe® drill holes, which were spaced at approximately 80-foot intervals along the access road. The drill holes were advanced to total depths ranging from approximately 8-feet to 16-feet bgs (the depth where beach cobble materials and/or subsurface bedrock was encountered). Discrete depth soil samples were collected at approximate 4-foot depth intervals from the ground surface to total depth at each drill hole in acetate sleeves that were sealed with Teflon™ sheets

and plastic end caps. Each soil sample was logged, labeled, and placed in a cooler with ice pending delivery to the analytical laboratory.

Padre lithologically logged the subsurface materials encountered at each drill hole location using the Unified Soil Classification System (USCS). The soil samples were screened for the presence of VOCs using a field-portable photoionization detector (PID). Soils retained for chemical analyses were determined based on the presence / absence of petroleum hydrocarbons identified using field screening techniques. Based on the initial laboratory analytical results, a total of three soil samples were selected for additional chemical analysis to determine the potential presence of chemicals of concern at the Project Site. Padre's drill hole logs are presented as Appendix B - Drill Hole Logs.

Field sampling equipment was cleaned before use, between sample locations, and following the completion of fieldwork. Cleaning procedures consisted of a non-phosphate detergent wash and two rinses with tap water.

The drill holes were backfilled with hydrated bentonite chips to within 1-foot of surface grade, and the ground surface at each drill hole location was completed with gravel to match surrounding grade.

Assessment-derived wastes included decontamination wash water, soil cuttings, used personal protective equipment (i.e., nitrile gloves), and general refuse. Decontamination wash water and soil cuttings were placed within roll-off bins in accordance with waste management requirements of the EOF. Solid wastes generated during the course of the site assessment activities at the Project Site were transported offsite by Padre.

The as-built locations of each Geoprobe drill hole and each sample collected from the wooden sea wall was recorded by Padre using a hand-held GPS survey device with sub-meter accuracy. The sample locations are presented on Plate 2 - Site Plan.

WOODEN SEA WALL ASSESSMENT ACTIVITIES

Padre collected three representative samples of the wooden sea walls at the Project Site. The wood samples were collected from biased locations using destructive sampling techniques using battery-powered coring equipment. The wood samples were contained in laboratory provided containers and were logged, labeled, and placed in a cooler with ice pending delivery to the analytical laboratory. Documentation of the wooden sea wall sampling activities is included with Appendix A - Project Documentation.

LABORATORY ANALYTICAL PROGRAM

Padre submitted the soil and wooden sea wall samples under chain of custody (COC) documentation to Oilfield Environmental and Compliance, Inc. (OEC) located in Santa Maria, California. OEC is accredited by the State of California Environmental Laboratory Accreditation Program (ELAP) to perform the required analyses.

A total of 40 soil samples and three wooden sea wall samples were chemically analyzed for the presence of the following:

- TPH identified as diesel fuel (C_{13}-C_{22}) and motor oil (C_{23}-C_{40}) by U.S. Environmental Protection Agency (U.S. EPA) method 8015 modified; and,
- TPH identified as gasoline (C_4-C_{12}) and BTEX by U.S. EPA method 8260B.

A total of 11 soil samples and three wooden sea wall samples were chemically analyzed for the presence of the following:

- VOCs by U.S. EPA 8260B; and
- SVOCs by U.S. EPA method 8270C.

A total of eight soil samples and three wooden sea wall samples were chemically analyzed for the presence of the following:

- CCR Title 22/CAM 17 metals by U.S. EPA method series 6000/7000; and
- PCBs by U.S. EPA method 8082.

In accordance with CCR Title 22 Section 66261 for characterizing hazardous waste, a total of three soil samples were also chemically analyzed for the soluble threshold limit concentrations (STLC) for chromium.

The laboratory analytical reports are provided as Appendix C - Laboratory Analytical Reports.

QUALITY ASSURANCE / QUALITY CONTROL PROCEDURES

The quality assurance / quality control (QA/QC) procedures were utilized in both sample collection and chemical analyses. The purpose of the QA/QC procedures is to ensure the reliability and compatibility of all data generated during the subject soil assessment program.

Field QA/QC Procedures

Field QA/QC procedures were performed during the sampling program and consisted of the following measures:

- COC forms were used for sample submittal to the laboratory; and

Daily information regarding sample collection were recorded on field data sheets. Sample types, sample identification numbers, and sample times were collected and recorded on field data sheets.

COC records were utilized to document sample collection and submittal to the laboratory for analysis. A COC record accompanied all samples submitted for chemical analyses.

Laboratory QA/QC Procedures

Laboratory QA/QC procedures include the following:

- Chemical analyses were performed within the required holding time for all samples.
- A California ELAP hazardous waste testing laboratory conducted the required analysis.
- The laboratory provided the following information for each sample:
  - Method blank data
  - Surrogate recovery, instrument tuning, and calibration data
  - Signed laboratory reports including the sample designation, date of sample collection, date of sample analysis, laboratory analytical method employed, sample volume, and the minimum Reporting Limit.

FINDINGS

PIPELINE ALIGNMENT

Padre utilized the services of SoCal to complete a subsurface utility investigation using electromagnetic and ground penetrating radar technologies to identify the alignment of the two known pipelines and other subsurface anomalies identified within the access road area at the Project Site. SoCal identified the alignments of the 2-inch diameter steel pipeline and the 6-inch diameter steel pipeline that traverse a portion of the access road at the Project Site. The 2-inch diameter pipeline and the 6-inch diameter steel pipeline are exposed within a shallow ravine located at the margin of the marine terrace and the beach, located northwest from the access road entrance gate. The subsurface utility investigation indicated that the subsurface pipelines are constructed within the access road and terminate at the northwest side of the 421-1 pier. Refer to Plate 2 - Site Plan. Additional subsurface anomalies were identified where the two piers abut the access road. Padre positioned the Geoprobe drill holes based on the results of the subsurface utility investigation to avoid the pipelines, but to be within approximately 5-feet laterally of the pipelines to determine the potential presence of contaminants of concern in the vicinity of the pipeline alignments.

EARTH MATERIALS

Earth materials encountered during the course of soil assessment activities completed along the access road at the Project Site included the following. The surface of the access road was observed to be composed of sandy clay with silt and coarse, angular gravel. Artificial fill materials identified beneath the road base materials were observed to be composed of dark grayish brown to dark reddish brown lean clay with varying amounts of silt, sand, and fine-grained

gravel. At an approximate depth of 8-feet bgs, beach deposits composed of wet, coarse-grained, yellowish brown to dark reddish brown, poorly graded sand and sandstone cobbles were observed at several drill hole locations to be approximately 1-foot to 3-feet thick. Weathered Monterey Formation composed of very dark grayish brown, thinly bedded, fissile, mudstone was observed beneath the artificial fill and the beach deposits at varying depths ranging from approximately 6-feet to 14-feet bgs. Practical refusal of the Geoprobe drilling and sampling tools was typically reported upon contact with beach cobbles or the Monterey Formation.

Petroleum hydrocarbon odor and/or stain were generally not observed during the course of the soil assessment activities. Field measurement for the presence of VOCs using a handheld PID meter indicated VOCs concentrations ranging from 0.1 to 118.8 parts per million by volume (ppmv). The highest VOCs concentration field measured with the PID was observed at the location of GP-10 at a depth of approximately 10-feet from a sample collected from within the Monterey Formation. Refer to Appendix B - Drill Hole Logs.

LABORATORY ANALYTICAL RESULTS FOR SOIL SAMPLES

The laboratory analytical results for 40 soil samples collected at depths of approximately 4-feet to 8-feet bgs are discussed below. The laboratory analytical results are summarized in Table 1 - Laboratory Analytical Results for Soil and Wooden Sea Wall Samples - Total Petroleum Hydrocarbons; Table 2 - Laboratory Analytical Results for Soil and Wooden Sea Wall Samples - Volatile Organic Compounds; Table 3 - Laboratory Analytical Results for Soil and Wooden Sea Wall Samples - Semi-Volatile Organic Compounds; Table 4 - Laboratory Analytical Results for Soil and Wooden Sea Wall Samples - Polychlorinated Biphenyls; and Table 5 - Laboratory Analytical Results for Soil and Wooden Sea Wall Samples - Metals.

The laboratory analytical results indicated that a total of 25 soil samples contained detectable concentrations of total petroleum hydrocarbons (TPH). None of the chemically analyzed soil samples were reported to contain TPH identified as gasoline (C_4-C_{12}) in excess of the analytical method reporting limit (0.50 milligrams per kilogram [mg/kg]). The laboratory analytical results indicated 23 soil samples contained detectable concentrations of TPH identified as diesel fuel (C_{13}-C_{22}), and ten of those soil samples were reported to contain TPH identified as diesel fuel (C_{13}-C_{22}) at concentrations in excess of the residential shallow soil ESL (255 mg/kg). The laboratory analytical results indicated that 21 soil samples contained detectable concentrations of TPH identified as motor oil (C_{23}-C_{40}), and three of those soil samples were reported to contain TPH identified as motor oil (C_{23}-C_{40}) in excess of the residential shallow soil ESL (12,033 mg/kg).

Two soil samples (GP-11-4 and GP-20-8) were reported to contain TPH identified as diesel fuel (C_{13}-C_{22}) at concentrations in excess of the leaching to groundwater non-drinking water ESL (7,284 mg/kg). Soil sample GP-11-4 was collected from the artificial fill material at an approximate depth of 4-feet bgs, and soil sample GP-20-8 was collected from the Monterey Formation at an approximate depth of 8-feet bgs.

The laboratory analytical results indicated that none of the 40 soil samples contained BTEX constituents at concentrations in excess of the analytical method reporting limits, and that none of the 11 soil samples contained VOCs constituent concentrations in excess of the analytical method reporting limits. The laboratory analytical results indicated that none of the 11 soil samples contained SVOCs (including polynuclear aromatic hydrocarbons [PAHs]) constituent concentrations in excess of the analytical method reporting limits. The laboratory analytical results indicated that none of the eight soil samples contained PCBs constituent concentrations in excess of the analytical method reporting limits.

The laboratory analytical results indicated that the eight soil samples contained metals concentrations that were generally less than the applicable ESLs or published background concentrations. The laboratory analytical results indicated three soil samples contained chromium concentrations in excess of 50 mg/kg. Additional analyses of the three soil samples indicated soluble chromium concentrations that were less than 5 milligrams per liter (mg/l), which is the lower limit for characterizing hazardous waste in accordance with CCR Title 22.

LABORATORY ANALYTICAL RESULTS FOR WOODEN SEA WALL SAMPLES

The laboratory analytical results for three wooden sea wall samples indicated the following. The laboratory analytical results indicated that none of the three wooden sea wall samples contained TPH identified as gasoline (C_4-C_{12}) concentrations in excess of the analytical method detection limits. The laboratory analytical results indicated that all three samples contained concentrations of TPH identified as diesel fuel (C_{13}-C_{22}) ranging from 8,900 mg/kg to 87,000 mg/kg, and concentrations of TPH identified as motor oil (C_{23}-C_{40}) ranging from 1,800 mg/kg to 13,000 mg/kg. The laboratory analytical results indicated that one wooden sea wall sample contained low concentrations of 1,2,4-Trimethylbenzene and total xylenes. The laboratory analytical results indicated all three wooden sea wall samples contained elevated concentrations of 14 SVOCs constituents including several PAHs, which is indicative of wood preservative. The laboratory analytical results indicated all three wooden sea wall samples contained low concentrations of barium, chromium, copper, lead, nickel, and zinc. The laboratory analytical results indicated that none of the three wooden sea wall samples contained PCBs in excess of the analytical method reporting limits.

Based on the laboratory analytical results and the identified presence of TPH identified as diesel fuel (C_{13}-C_{22}), TPH identified as motor oil (C_{23}-C_{40}), and SVOCs constituents including PAHs; the wooden sea wall at the Project Site appears to have been treated with wood preservative and should be managed in accordance with Assembly Bill 332 and the new Alternative Management Standards for treated wood waste that are codified in Health and Safety Code section 25230.

CONCLUSIONS

Padre completed site assessment activities at the Project Site on November 15, 18, and 19, 2021. The site assessment activities included a geophysical survey to identify the alignment of the 2-inch diameter and 6-inch diameter pipelines that are constructed within the access road

and terminate at the northwest side of the 421-1 pier, and the advancement of 20 Geoprobe® drill holes to facilitate the collection of discrete-depth soil samples at depths ranging from approximately 4-feet to 16-feet bgs.

Earth materials encountered within the access road at the Project Site included surface materials composed of sandy clay with silt and coarse, angular gravel underlain by artificial fill materials composed of lean clay with varying amounts of silt, sand, and fine-grained gravel. Beach deposits composed of coarse-grained sand and cobbles were observed at several drill hole locations. Thinly bedded mudstone characteristic of weathered Monterey Formation was observed in the drill holes at depths ranging from 6-feet to 14-feet below ground surface.

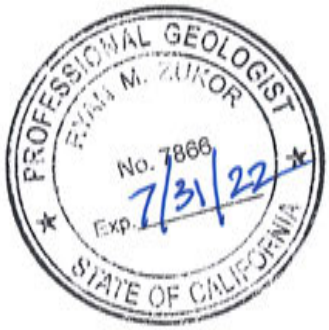
The laboratory analytical results for 40 soil samples indicated the presence of TPH identified as diesel fuel (C_{13}-C_{22}) and motor oil (C_{23}-C_{40}) in 25 soil samples at depths of approximately 4-feet and 8-feet bgs. Additionally, the laboratory analytical results indicated ten soil samples contained petroleum hydrocarbon concentrations that exceeded the residential shallow soil exposure ESL values for TPH identified as diesel fuel (C_{13}-C_{22}), 255 mg/kg; and TPH identified as motor oil (C_{23}-C_{40}), 12,033 mg/kg. Two soil samples collected from the artificial fill material and the Monterey Formation were reported to contain TPH identified as diesel fuel (C_{13}-C_{22}) at concentrations in excess of the leaching to groundwater non-drinking water ESL (7,284 mg/kg).

The laboratory analytical results indicated that the chemically analyzed soil samples did not contain VOCs, SVOCs, or PCBs constituent concentrations in excess of the analytical method reporting limits. The laboratory analytical results indicated that the eight soil samples contained metals concentrations that were less than the applicable ESLs or published background concentrations. Based on the laboratory analytical results for soil samples collected from within the access road, artificial fill materials, beach deposits, and weathered Monterey Formation materials contain detectable concentrations of weathered petroleum hydrocarbons at various depths and locations along the access road.

The laboratory analytical results for three samples collected from the wooden sea wall identified the presence of TPH identified as diesel fuel (C_{13}-C_{22}), TPH identified as motor oil (C_{23}-C_{40}), and SVOCs including PAHs. The wooden sea wall at the Project Site appears to have been treated with wood preservative and should be managed in accordance with Assembly Bill 332 and the new Alternative Management Standards for treated wood waste that are codified in Health and Safety Code section 25230.

CLOSING

Padre appreciates the opportunity to assist the California State Lands Commission with this project. If you have any questions, please contact me rzukor@padreinc.com, (805) 644-2220.



Sincerely,
PADRE ASSOCIATES, INC.

Ryan M. Zukor, P.G.
Principal

Jerome K. Summerlin, C.E.G., C.Hg.
President

JKS:RMZ:AV

Attachments: Tables 1 through 5
Plates 1 and 2
Appendix A - Project Documentation
Appendix B - Drill Hole Logs
Appendix C - Laboratory Analytical Reports

Note: Copies of Tables 1 through 5 and Appendices A through C are available upon request or to review within the Hardcopy DEIR in the following locations:

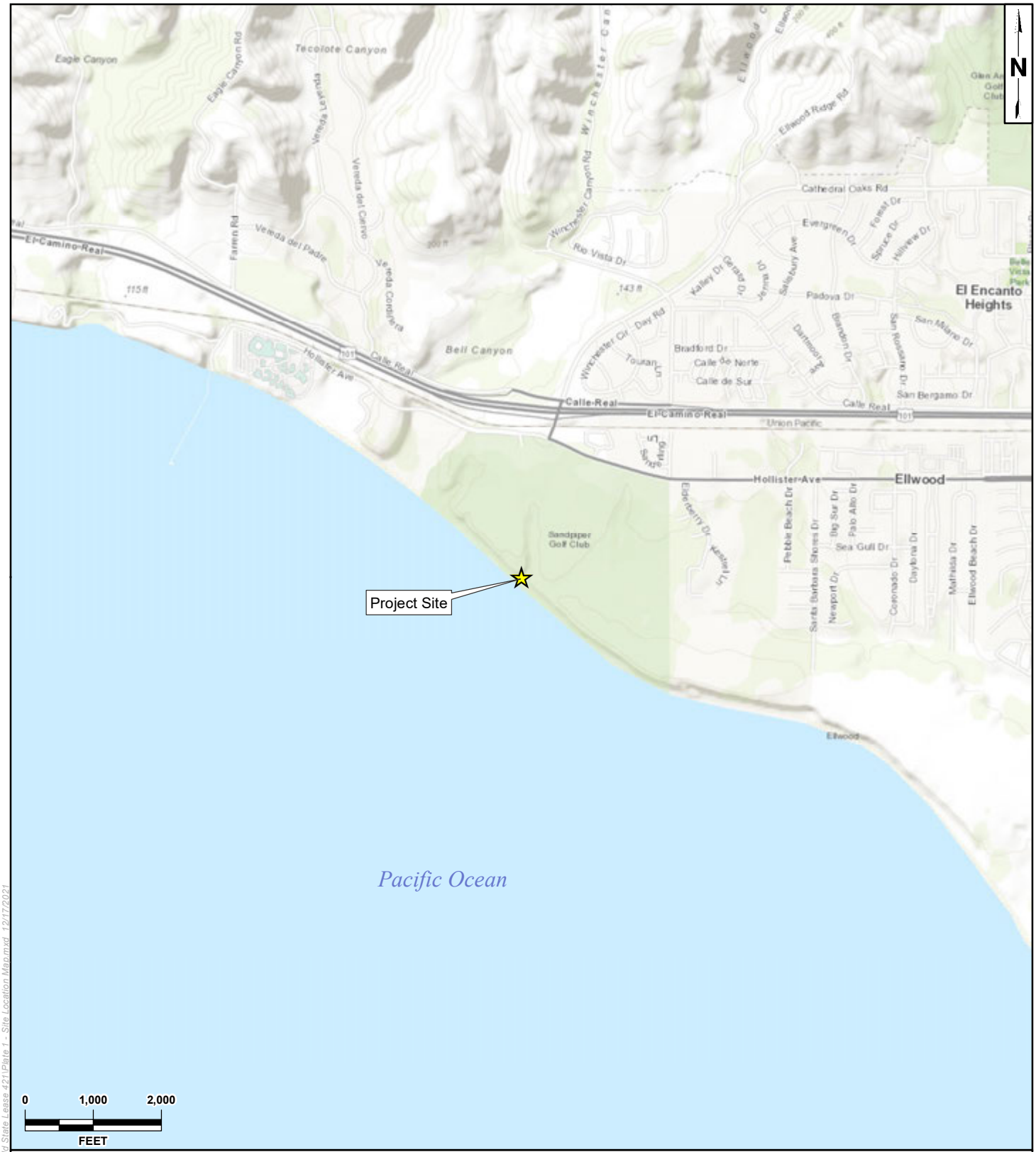
Libraries:
Goleta Public Library
500 N. Fairview Avenue
Goleta, CA 93117
(805) 964-7878

Santa Barbara Public Library
40 E. Anapamu Street
Santa Barbara, CA 93101
(805) 962-7653

City/County Offices:
City of Goleta, Planning and Env. Review
Attn: Anne Wells
130 Cremona Dr., Suite B
Goleta, CA 93117
(805) 961-7557

County of Santa Barbara
Attn: Errin Briggs
123 E. Anapamu Street
Santa Barbara, CA 93101

PLATES



LEGEND:

☆ Project Site

MAP EXTENT:

Source: Esri Online Topo Basemap
Coordinate System: N 1983 StatePlane California V FIPS 0405 Feet
Notes: This map was created for informational and display purposes only.

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PROJECT NAME:
ELLWOOD FIELD STATE LEASE PRC 421
SANTA BARBARA COUNTY, CA

PROJECT NUMBER: 2101-0252

DATE: December 2021

SITE LOCATION MAP

PLATE 1

Z:\GIS Projects\GIS Maps\Map Projects\Ellwood Field State Lease 421\Plate 1 - Site Location Map.mxd 12/17/2021

LEGEND:

- Geoprobe Drill Hole Location
- Wooden Sea Wall Sample Location
- 2-Inch Diameter Pipeline (Exposed)
- 6-Inch Diameter Pipeline (Exposed)
- Drill Hole Location Where Petroleum Hydrocarbon Result Exceeded the residential shallow soil ESL for Diesel Fuel (C13-C22) 255 mg/kg and/or Motor Oil (C23-C40) 12033 mg/kg
- Approximate Alignment of Buried Pipelines (Geophysical Survery 2021)
- Inferred Pipeline Alignment
- Approximate Alignment of Wooden Sea Wall

MAP EXTENT:

0 75 150
FEET

Source: Google Earth Pro Imagery Feburary 2021
Coordinate System: NAD 1983 StatePlane California V FIPS 0405 Feet
Notes: This map was created for informational and display purposes only.

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PROJECT NAME: CSLC 421 PIERS ACCESS ROAD SANTA BARBARA COUNTY, CA
PROJECT NUMBER: 2101-0252
DATE: December 2021

SITE PLAN

PLATE 2

Z:\GIS Projects\GIS Maps\Map Project\Ellwood Field State Lease 421\Site Plan.mxd 12/17/2021